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Effectiveness of interventions on the stress management of schoolteachers - A systematic review and meta-analysis

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Key message

What is already known about this subject?

- Teaching profession is one of the most stressful jobs with a high level of psychological morbidity.
- Stress may occur together with mental health problems, such as common mental disorder, which is one of the leading causes of disability worldwide.
- Several interventions have been designed to help schoolteachers cope with the stress associated with their job.

What are the new findings?

- A positive effect of interventions was found among teachers to manage their stress level.
- Cognitive behavioural therapy had the strongest positive effect followed by meditation among the types of interventions studied to manage teachers' stress levels.
- We found evidence of a moderate quality for the interventions aiming to reduce the stress level of schoolteachers.

How might this impact on policy or clinical practice in the foreseeable future?

- Through effective intervention tools, workplace health can be enhanced, and the individual wellbeing of schoolteachers maintained.

Abstract

Background: This systematic review aimed to analyze the effectiveness of interventions on the stress management of schoolteachers.

Methods: We searched the Medline, Psyc-INFO, CINAHL and Education Research Complete until November 30, 2021, to identify relevant studies using relevant key words. Job or occupational stress was used as the outcome measure. Stress was defined as perceived stress (PSS), teacher stress inventory (TSI), Maslach Burnout Inventory (MBI), teacher's distress, brief symptoms inventory (BSI), or global severity index (GSI). Study selection, data extraction, risk of bias assessment was performed by two independent reviewers. The pooled estimate of the effect by the type of outcome measurement tool and by type of interventions used was calculated using random-effects meta-analysis. We used Grades of Recommendations, Assessment, Development, and Evaluation (GRADE) to assess the overall quality of the evidence.

Results: We reviewed 26 studies, of which 24 were randomized trials and 2 pre-test/post-test studies. Based on meta-analysis, a positive effect of intervention (pooled estimate -1.13, 95% CI -1.52 to -0.73) with high heterogeneity among studies (Chi^2=426.88, P<0.001, I^2=94%) was found by type of interventions used. Cognitive behavioural therapy had the strongest positive effect, followed by meditation among the types of interventions studied. We identified evidence of a moderate quality for interventions aiming to manage the stress level of schoolteachers.

Conclusions: The meta-analysis showed a positive effect of interventions, suggesting that interventions might reduce the stress level among teachers. The quality of the evidence was moderate.

Introduction

Stress is the feeling of being overwhelmed or unable to cope with mental or emotional pressure which can happen together with mental health problems, such as depression [1]. Depression is one of the leading causes of disability worldwide: approximately 264 million people of all ages suffer from depression globally [2]. In 2019, depressive disorders were the sixth leading contributor to disability-adjusted life years (DALYs) among 25-49-year-olds [3].

Occupational stress is the most common form of stress, and the degree of stress varies among different occupations. A study from the UK [4] found that teaching was one of the most stressful occupations, because of its direct human-oriented nature [4, 5]. The afore-mentioned study measured stress in terms of physical health, psychological wellbeing and job satisfaction. Likewise, a follow-up study in West England reported a higher level of psychological distress among a cohort of teachers than among comparable professionals from the general population [6].

Teaching is an occupation with high work demands and it requires a diverse range of tasks under complex working conditions, dealing with students, school authorities, colleagues, and parents [4]. Potential stressors for teachers are low job support, student apathy, overcrowded and noisy working environments, excessive paperwork, low wages, unsupportive parents and changing curricula [7]. Stress can be suppressive and hinder thought processes and somatic stimuli [8]. It is characterized by physical and psychological exhaustion, depersonalization and cynicism, a sense of helplessness and low self-efficacy [6, 9]. Lacking management of chronic workplace stress may result in Burnout syndrome. Prolonged stress becomes permanent, over time, because it is hard to recover and as a result, the individual faces chronic fatigue, musculoskeletal problems or CVD, and professional burnout syndrome [10].

Previous studies have recommended stress management and coping strategy interventions to reduce and prevent stress among teachers [11-13]. Such interventions include a variety of approaches like mindfulness training [14] cultivating awareness and resilience [13], standardized meditation [15], and gratitude interventions [11].

Although several interventions have been designed to help schoolteachers cope with the stress associated with their profession, the evidence-based on a systematic examination and synthesis is limited. Each intervention represents a distinctive strategy to cope with stress, providing plentiful prospects to compare the strategies used for stress management among schoolteachers. Such comparisons could be helpful in investigating key strengths of the interventions in terms of effectiveness, delivery method and design. Further, determining the most effective intervention strategies and content could be helpful in planning new strategies or improving existing delivery methods and strategies aimed at helping schoolteachers cope with and manage occupational stress. Therefore, the main aim of this systematic review is to examine the effectiveness of interventions targeted at schoolteachers' stress management.

Methods

The study protocol was registered in the international Prospective Register of Systematic Reviews (PROSPERO) with the registration number CRD42021225098 [16]. This study was performed in accordance with the criteria of the Preferred Reporting for Systematic Reviews and Meta-Analysis (PRISMA) statement [17].

Search strategy

We conducted a systematic literature search to identify the relevant studies on interventions for schoolteachers' stress management. The literature search was undertaken on the following electronic databases: Medline, Psyc-INFO, CINAHL and Education Research Complete. The search strategy includes a comprehensive list of key terms and combinations of Medical Subject Headings (MeSH) describing the outcome and the interventions. The search was limited to English-language publications. No limit in year of publication was used to capture all /eligible past and contemporary work environment interventions. We also searched the bibliographies of the included studies to find relevant studies potentially missed in the systematic search. The search strategy was modified for each electronic database (Supplementary file 1).

Selection of studies

We selected literature that have studied the effect of interventions on schoolteachers' stress management. The following inclusion criteria were applied: a) randomised control trials, controlled trials, quasi-experimental or pre-test/post-test studies, b) literature published until 30th November, 2021, c) studies conducted among school (primary or secondary) teachers, d) interventions provided for stress management or to reduce teachers' stress levels, e) interventions provided during/after school hour and f) studies including perceived stress, job stress, occupational stress or burn out as outcome. We excluded studies, if the intervention was delivered by teachers, not to teachers.

All citations were exported to RefWorks software and duplicates removed. Two reviewers (NRP and BAA) independently screened each study title and abstract for their eligibility. In case of disagreement between reviewers, a third reviewer (SN) was consulted. The same two reviewers assessed the full texts of all the selected studies for their eligibility. The third reviewer was consulted to resolve any disagreements during the study selection process.

Outcome measure

The included studies used various definitions of stress, summarized below in Box 1.

Box 1: Definition of the outcomes used.

Name of the tool	Definition/Items	Final score
Perceived stress scale (PSS)	4-14 items on perceived stress, each measured in a 5-point scale: 0 (never) to 4 (very often).	Total score, where higher scores indicate increased levels of stress.
Teacher stress inventory (TSI) [18]	10 factors comprising the construct of teacher's stress (5 factors represent the sources of stress and another 5 factors represent the manifestations of stress) and composed of 49 items, each item measured on a 5-point Likert scale.	The total score on a continuum determines the stress level of teacher.
Maslach burnout inventory (MBI) [19]	22-item from three subscales (Emotional Exhaustion (EE), Personal Accomplishment (PA) and Depersonalization (D)) were used to define stress/burnout. Each sub-scale measured on a scale of 0-6: 0 (never) to 6 (every day).	Higher scores on EE and D and low levels of PA subscale indicate a higher amount of the construct.
Subjective distress	"How much do you perceive stress at work?" on a scale of 1-10:1 (not at all) to 10 (very strongly).	1-10, higher score indicates more distress.
Brief symptoms inventory (BSI) [20]	Comprising 53 distress symptoms rated on a 5-point scale regarding frequency of experience in the past week. Three subscales, emotional exhaustion, personal accomplishment and depersonalization indicate stress, measured on a scale of 0-4.	Higher scores indicate distress (range 0-4).
Global severity index (GSI)	GSI quantifies the severity-of overall psychological distress level and provides a single composite score derived from the average of 90 items. The severity score was defined on a scale of 0 (never) to 4 (always).	Higher scores on the GSI indicate greater psychological distress.

Data extraction

Data was extracted from all the included studies using customized form. Two reviewers (NRP and BAA) independently extracted data from each individual study on research characteristics (authors, year of publication, country of origin), study population (sample size, age and gender distribution), intervention and comparison (type of intervention used, procedure, controls), follow-up time, outcome (definition, methods/tool used), study results (number of participants analyzed, mean value and standard deviation of the outcome at baseline and follow-ups for intervention and controls), and the effect measure (if the intervention effect was positive or negative). Discrepancies were resolved through discussion with the third reviewer (SN).

Quality assessment

We used the Cochrane Handbook [21] recommendation for systematic reviews of intervention of randomized control studies to assess the quality (risk of bias) of the included studies. Two reviewers (NRP and BAA) independently assessed the studies. The risk of bias was assessed for six major domains: selection bias, performance bias, detection bias, attrition bias, reporting bias and other bias. Each domain contains one or more items: a) random sequence generation, b) allocation concealment, c) group similarity at baseline, d) blinding of outcome, e) timing of outcome assessments, f) outcome data complete, g) free of selective reporting, h) co-interventions avoided, i) compliance acceptable, and j) intention to treat (ITT) performed. Each item was assessed as high, low or unclear risk. The risk of bias associated with ITT analysis was assessed as high if >20% loss to follow-up occurred with no ITT analysis present [22]. Studies were classified as overall low risk of bias if all items were rated as low risk of bias according to the Cochrane Handbook recommendation.

Two of the included studies were non-randomized which comprised only pre-test and post-test measurement; therefore, we used ROBINS-I [23] tool to assess the risk of bias in non-randomized intervention studies. ROBINS-I includes domains dealing with pre-intervention, at intervention and post-intervention in seven items (pre-intervention: bias due to confounding, bias in selection of participants into the study; at intervention: bias in classification of interventions; post-intervention: bias due to deviations from intended interventions, bias due to missing data, bias in measurement of outcomes and bias in selection of the reported results). Each of these seven items were rated as low, moderate, serious, critical risk of bias or no information. Overall risk of bias was classified as low, if all seven items were rated as low, and otherwise as high risk [23].

Data synthesis

A meta-analysis was conducted to pool the results from the included studies using Review Manager 5.3 developed by the Cochrane Community. Studies used different questions to measure the stress outcome, however, most studies reported stress as an outcome with mean values and standard deviation (SD) from the baseline (pre-test) and one or more follow-ups (post-test). Included in the meta-analysis are studies reporting mean, SD or standard error (SE) and sample size for both the intervention and control from the last round of follow-up, and studies reporting changes in mean and SD from baseline to follow-up. The pooled mean difference (intervention minus control) and their 95% confidence intervals (CIs) are reported as an overall synthesized measure of effect size using random effect models. Heterogeneity (0-100%) among studies was assessed via Chi^2 test indicating heterogeneity when $P<0.05$. We first synthesized the effect size from all studies included in the meta-analysis, grouped by type of tool used to measure teachers' stress, then by type of intervention used. As a sensitivity analysis, we analyzed studies among special education teachers separately. To see the long-term effectiveness of the intervention, we analyzed studies stratified by time of follow-up (1-4 months vs 5-12 months). We separately synthesized the effect size of two studies using only pre-test and post-test with no comparison group. The results are presented as a forest plot. Publication bias was determined using funnel plots.

Evidence synthesis

We used the Cochrane Handbook Grading of Recommendations Assessment, Development & Evaluation (GRADE) [24] to synthesize the quality of evidence. Evidence quality was assessed in relation to study design, risk of bias or study limitations, consistency of results, indirectness, precision, and publication bias [25]. Four authors (SN, NRP, BAA and PKC) undertook the GRADE process with consensus reached by discussion.

Starting level of evidence was high for randomized studies. We then downgraded the quality of evidence for the above six criteria. An overall level of evidence was assessed for each study in four ratings: a) high quality - further research is very unlikely to change our confidence in the estimate of effect or accuracy; b) moderate quality - further research is likely to have an important impact on our confidence in the estimate of effect or accuracy and may change the estimate; c) low quality - further research is very likely to have an important impact on our confidence in the estimate of effect or accuracy and is likely to change the estimate; d) very low quality - any estimate of effect or accuracy is very uncertain. Accordingly, for two non-randomized studies a low grade was given as the starting level and was upgraded due to the quality of evidence for the above six criteria.

Results

Literature search

The initial search of literature through Medline, Psyc-INFO, CINAHL and Education Research Complete generated 4898 records (Figure 1). After removing duplicates, the titles and abstracts of 4896 records were screened for eligibility. Full text assessment of 123 records was performed. In total, 26 studies (27 articles) met the inclusion criteria and were included in this review. Two studies [13, 26] were regarded as one in the analysis because they involved the same study population, resulting in 26 studies. Out of these, 24 studies were randomized controlled trials and two studies [11, 27] were pre-test and post-test studies. Six of the studies were conducted among special education teachers (Supplementary Table 2). A detailed study selection process is summarized in Figure 1.

Study characteristics

Four studies were conducted in the UK [14, 27-29], seven studies were from the USA [12, 13, 15, 30-33], four from Hong Kong [11, 34-36], four studies from Nigeria [37-40]. Others were from Spain [41], Australia [42], Netherlands [43], Japan [44], India [45], Germany [46] and Poland [47]. These studies were published between 1999 and 2021. The details of the data extraction are provided in supplementary Table 2. Population size in these studies ranged from 18 [12] to 337 participants [46]. Six studies were conducted among special education teachers [33, 37-40], majority conducted in Nigeria. Overall, the study sample was primary-to-secondary-level teachers, or teachers of students with behavioral problems or disabilities (e.g., autism) recruited from public or private schools. One study also included other staff than teachers [33]. Participants were invited through emails, posters, local conferences, and courses offered as stress prevention for teachers, etc. Some studies used a convenience sample, as the target population was not clear in those studies. The randomization was done at school or at individual level. All studies involved both male and female teachers, except the one [45] conducted among female teachers only. The age range of the teachers in the included studies was between 22 to 64 years, except for one [14], where age was not reported.

Nine studies utilized meditation as an intervention. Meditation training may vary in its activity and amount of training recommended, depending upon its purpose. Basic meditation mantra, however, is meant to focus the mind through breathing observation [48]. The most frequently used meditation techniques in literature were Mindfulness-Based Stress Reduction (MBSR), Mindfulness in Schools Project (MiSP), Stress Management and Relaxation

Techniques (SMART), Cultivating Awareness and Resilience in Education (CARE), Mindfulness-Based Emotional Balance (MBEB). Other nine studies used cognitive behavioral therapy, which includes elements such as awareness of stress, relaxation training, identification of dysfunctional thoughts, cognitive restructuring, problem solving process training, anger and time management [49]. Other interventions were Written emotional disclosure (WED) interventions [29], Workplace Triple Positive parenting program and telephone consultation [42], Teacher Classroom Management workshops [30], Teacher-focused coaching intervention (Key2Teach intervention) [43], group session [43], and stress management workshop [47]. The two pre-test/post-test studies involved a Gratitude intervention [11] and teacher classroom management (TCM) training [28]. The last follow-up time reported in studies varies between 1 month [45, 47] and 12 months [11].

Eight of the included studies used Maslach Burnout Inventory tool to measure the teacher's stress, seven used perceived stress scale, three used global severity index and nine studies used other tools (teacher's stress inventory (TSI), Positive Symptoms of Distress Index (PSDI), Teacher Occupational Stress Factor Questionnaire (TOSFQ), Subjective psychological distress, and Depression, Anxiety and Stress Scale). Three studies [12, 15, 41] used two different tools to measure the teacher's stress. Twenty-five studies reported the positive effect of the intervention of reducing the teachers' stress levels, while one [30] reported negative effects.

Meta-analysis

The pooled estimates of intervention effect on teacher's stress were calculated and are presented by the type of stress measurement tool used (Supplementary Figure 1). A total of 2657 subjects were analysed. A positive effect of intervention (overall pooled mean difference -1.09, 95% CI -1.46 to -0.73) with high heterogeneity in the effect size (Chi^2=436.20, P=<0.001; I^2=94%) was found. The pooled standard mean difference between intervention and control for studies that used MBI, PSS or other tools was positive (favouring intervention), while also positive effect but not statistically significant for studies using GSI.

A pooled estimate from the two studies with no control group (Figure 2) showed small positive effects of the intervention from pre-test to post-test. However, the estimate was not statistically significant.

The standard mean differences of the intervention and control by the type of intervention used are presented in Figure 3. Among 2272 subjects studied, the overall pooled estimate shows positive effect of intervention (pooled estimate -1.13, 95% CI -1.52 to -0.73) with high heterogeneity among studies (Chi^2=426.88, P<0.001, I^2=94%). The pooled estimate from nine studies shows a strong positive effect of meditation interventions on stress management (pooled estimate -1.09, 95% CI -1.60 to -0.59) with very high heterogeneity between the studies (Chi^2=70.05, P<0.001, I^2=87%). A strong positive effect of cognitive behavioural therapy (CBT) was also found in the pooled estimate of nine studies (standard mean difference -2.34, 95% CI -3.32 to -1.35) with high heterogeneity between studies (Chi^2=294.74, P<0.001, I^2=97%). Six studies used other types of intervention with small positive effects, but the estimate was not statistically significant.

The meta-analysis of the studies among special education teachers (Supplementary Figure 2) shows strong positive effect of intervention (standard mean difference -4.55, 95% CI -6.59 to -2.50) with high heterogeneity between studies (Chi^2=153.69, P<0.001, I^2=97%). Further sensitivity analysis by the length of follow-up time shows pooled estimate of -1.58 (95% CI -2.18 to -0.99) among studies with short (1-4 months) follow-up (Supplementary Figure 3). Small positive effects but statistically no significant pooled estimate was found for the long follow-up studies.

Funnel plot (Supplementary Figure 4) shows the risk of publication bias of the included randomized studies by type of interventions used. Standard mean difference is presented in x-axis and standard error of the mean difference in y-axis. The results show that the mean difference was both positive and negative, meaning that the studies had a mixed effect, suggesting a low risk of publication bias.

Risk of Bias

Risk of bias was assessed as low, high or unclear. The summary of the risk of bias assessment is presented in Table 1a-b. Four studies [30, 37, 40, 42] had low risk of bias in ten items while three other studies [13, 39, 44] had low risk of bias in nine items. Other studies had up to three items rated as high risk. Overall, the risk of bias ratings was low in many studies. Whether the study had an 'intention to treat' analysis performed, was the most common item rated 'unclear' as many studies did not report it. Random sequence generation was rated as 'high' risk in eight and allocation concealment in seven studies, respectively. These studies were mostly lacking clear information on population selection or due to inadequate generation of randomised sequence and inadequate concealment of allocations prior to assignments in one of the study groups.

Quality of the evidence

We evaluated the quality of evidence of the studies by the type of intervention used (Table 2). We used integrative GRADE criteria to assess the quality of evidence considering six criteria: study design, risk of bias or study limitations, consistency of results, indirectness, precision, and publication bias. For nine studies (n=635) using meditation interventions, a moderate quality of evidence was assessed. We started with a high grade as a starting point and downgraded it by one step due to high risk of bias in five out of ten studies. No down- or upgrade was considered due to inconsistency, indirectness, imprecision, or publication bias, as there was no difference in outcome measures in studies, the pooled effect estimate was precise (although the effect estimates of each individual study varied but still all had positive effect), and no publication bias was detected. Similarly, the quality of evidence for other nine studies (n=946) using a CBT intervention was rated as moderate. A one-step downgrade was considered due to high risk of bias, but no further downgrade due to inconsistency, indirectness, imprecision, or publication bias. The effect size based on meta-analysis had a strong positive effect with huge variation between studies. For studies with other types of intervention, including two non-randomized studies, the quality of evidence was rated as low. A one-step downgrade was considered due to serious risk of bias in four studies and another step was downgraded due to inconsistencies and indirectness of the effect estimates, as the pooled effect was small and inconsistent.

Discussion

This systematic review evaluated the available evidence for interventions designed to reduce schoolteachers' stress levels. Twenty-six studies (27 articles) met our inclusion criteria, of which 24 were randomized controlled trials and two were pre-test/post-test studies, and six out of 26 were conducted among special education teachers. Overall, meta-analysis shows that the interventions are effective in reducing the stress level of schoolteachers with meditation (nine studies) and CBT (nine studies) being more effective than other types (eight studies) of interventions. We found moderate quality of evidence for meditation and CBT interventions, whereas low quality of evidence was found for other interventions to reduce teachers' stress. The follow-up from baseline to post-intervention in the included studies varied between one month to 12 months and studies with shorter follow-up were found more effective in reducing teachers' stress.

Earlier, a Cochrane review evaluating organizational intervention effectiveness in reducing work-related stress in teachers found low-quality evidence of the interventions leading to improvement in teacher wellbeing [50] based on four studies. We found no other systematic review evaluating the effectiveness of interventions for reducing teacher's stress. Two non-systematic reviews of interventions for teacher wellbeing suggested self-directed interventions [51]. All the included studies in our review used individual-focused interventions.

Various types of interventions have been in practice for the last few decades to reduce teachers' stress. Overall, ten different types of intervention were used in these studies. Meditation is one of the most effective interventions in producing wellbeing and reducing teachers' stress [12, 14, 15]. These studies show that even in a short duration (2-5 times /week) of meditation practice, teachers became more relaxed, organized, and gained a greater sense of emotional balance and confidence. However, the intervention seems to be less effective in a long follow-up. Teachers were less worried, had improved sleep, and realized their increased capacity for dealing with problems. Yet, the willingness of participants is a determining factor for the achievement of mediation [15]. This obviously indicates that meditation produces positivity in a person and, in turn, reduces stress. This argument is consistent with other earlier studies, which found that mindfulness meditation is effective in teachers' occupational stress management [52] and enhancing their wellbeing [14]. Moreover, mental health and wellbeing of teachers were reported to be positively affected in the studies that used multicomponent interventions [53]. Meditation reduces personal distress such as depression, anxiety, hostility, interpersonal sensibility, and promotes wellbeing [41]. Another study reported that mindfulness meditation reduces stress and enhances wellbeing and sleep quality but does not improve workability [54].

Interventions integrating individually directed behavioural and cognitive approaches have become popular [55]. These cognitive-behavioural approaches integrate stress appraisal with physiological stress reduction [56]. In schools, this approach may be particularly effective due to the multifaceted nature of teacher stress. A significant amount of teacher stress arises from teachers' cognitive perception of student behaviour and difficulty with classroom management [57]. Nine of the included studies employed CBT intervention in teachers' stress management. The authors of these studies claimed that the conducted training enhanced coping skills, and reduced stress and stressors that teachers were facing. A similar finding was reported in a previous study which stated that teachers experienced reducing dysfunctional thoughts and enhanced stress management behaviours [58]. However, paradoxically, three studies [34, 35, 44] also stated that CBT did not improve mental and physical wellbeing or teaching efficacy. Because teaching is one of the more stressful occupations, several technical measures at individual and organizational levels should be considered, in order to reduce teachers' stress and improve their job satisfaction and wellbeing [50, 47].

Likewise, studies employing Gratitude Interventions (GI) as a stress reducing technique found it effective on occupational stress. Gratitude training gave effective results in promoting teacher wellbeing and life satisfaction and mitigating teacher burnout [11]. The authors highlighted that for those who favoured and valued a meaningful life and happiness, the intervention resulted in reducing stress, and vice versa. This finding corresponds to the findings of a previous study [59], which reported that a GI program was effective for improving psychological distress and job performance among workers.

All the included studies employed individual-directed interventions, which means that no studies using organization-directed interventions were found. Studies with a meditation or mindfulness intervention were conducted in the USA (7 studies), UK, Spain, Hong Kong and India with no studies identified from Africa and Latin America which may further limit the applicability of the evidence. Studies that employed CBT were from Nigeria (4 studies), Hong Kong (2 studies) and Japan only, which means that studies from other than Asian and African regions were not found. All four African studies were from Nigeria and all were conducted using a similar approach among special education teachers. These studies from Nigeria found huge, unusual reduction in the mean level of stress among those who received an intervention. Studies that utilized other types of interventions were mostly from Europe (UK, Netherlands, Germany, Poland) and one study from Australia. Two studies, Haslam et al. [42], and Hayes et al. [30], were well-conducted trials with low risk of bias in all domains and provided clear justification for the choice of study design and had adequate sample sizes. Haslam et al. [42] employed a 'workplace triple positive parenting program' as their main intervention technique which focused on parents who are better able to predict and manage work-family conflict. Moreover, a second set of mindfulness techniques for stress prevention and management, such as identifying and challenging unhelpful thoughts, progressive muscle relaxation, diaphragmatic breathing, diet guidance and exercise tips, were also provided. This study found positive effects of the intervention at four months of the follow-up period. Hayes et al. [30] found negative effects of an intervention in stress management at 9 months follow-up (2 months after the intervention ended). A teacher's classroom management workshop was provided to teachers in Hayes et al. [30] as the intervention.

We included randomized controlled studies and pre- and post-test studies published in English language only, which probably means that we missed studies published in other languages. Randomized controlled design is considered as a golden standard to study the effectiveness of interventions as well as highly regarded in systematic reviews over other designs [60]. Further limitations that may limit the generalizability of our findings is the use of different tools and interventions, as well as the high female domination among the study subjects. A short duration of follow-up in some of the studies may have affected the outcome which we have analysed stratified by follow-up time. The heterogeneity of the tools used to measure the stress of teachers was one of the challenges to undertake the meta-analysis. Various tools such as PSS, TSI, MBI, or teacher's distress, BSI, GSI etc. were used to measure the stress in different studies. Although these are well-established and validated tools, the number of items used, the measurement scale of each item, as well as total scores, differed between studies. Nevertheless, we undertook meta-analysis stratified by types of tools used to see the separate pooled effects of the studies using different tools. We compared all studies that used randomized controlled design to assess the risk of publication bias and ascertain direction of results. The direction of results was mixed, many with positive effect, and some with negative effect which suggests a low risk of publication bias. We utilized structural groupings in our main results by types of intervention versus no interventions by study group to study which interventions are more effective in reducing stress. Grouping studies in another way is also possible. The variation of tools used to measure stress across studies may influence the study findings. Furthermore, the effectiveness of interventions may differ between teachers with low stress-levels compared with teachers with high stress which we could not sperate out in this study which would probably require methodologically stricter criteria in recruiting studies. This may limit the generalizability of the results for a specifically defined group of teachers.

In conclusion, we found moderate quality of evidence for meditation (e.g., mindfulness, mind relaxation, etc.) interventions and CBT interventions, and low quality of evidence for other intervention types to reduce teachers' stress. Further studies focusing on a larger sample size and wider population of teachers, a longer follow up, a larger variety of demographic backgrounds, and the counterweight of confounding variables are recommended for stronger evidence.

Contributors:

Concept and design: SN, NRP. Acquisition, analysis or interpretation of data: NRP, BAA, SN, PKC. Drafting of the manuscript: NRP, BAA, PKC, SN. Critical revision of the manuscript: SN, SK, CHN, PKC. Statistical analysis: SN. Administrative, technical or material support: SN, CHN. Supervision: SN, CHN.

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Figure legends

Figure 1: Modified PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) flow chart of the included studies.

Figure 2: Forest plot of the standard mean difference (pre-test vs. post-test) and their 95% CIs for teacher's stress.

Figure 3: Forest plot of the standard mean difference (intervention minus control) and their 95% CIs for teacher's stress by type of intervention used.

Supplementary figures

Supplementary Figure 1: Forest plot of the standard mean difference (intervention vs control) and their 95% CIs for teacher's stress by type of questions used to measure the stress level.

Supplementary Figure 2: Forest plot of the standard mean difference (intervention vs control) and their 95% CIs for teacher's stress among special education teachers.

Supplementary Figure 3: Forest plot of the standard mean difference (intervention vs control) and their 95% CIs for teacher's stress by type of questions used to measure the stress level.

Supplementary figure 4: Funnel plot of effect estimates included in the meta-analysis by type of intervention used in each individual study.

Table 1a: Summary of risk of bias analysis of the randomized control trial studies.

	Random sequence generation	Allocation concealment	Group similarity at baseline	Blinding of outcome assessors	Timing of outcome assessments	Outcome data complete	Free of selective reporting	Co-interventions avoided	Compliance acceptable	Intention-to-treat (ITT) analysis performed
Akanaeme, 2021	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Anderson, 1999	High	High	Low	High	Low	Unclear	Low	Low	Low	Unclear
Ashley, 2013	High	High		Low	Low	High	Low	Low	Low	Unclear
Au, 2016	Low	High		Low	Low	High	Low	Low	Low	Unclear
Benn, 2012	Low	Low	Low	Unclear	Low	High	Low	Low	Low	Unclear
Beshai, 2016	High	High	Low	High	Low	Low	Low	Low	Low	Unclear
Flook, 2013	High	High	Low	Low	Low	Low	Low	Low	Low	Unclear
Franco, 2010	High	High	Low	Unclear	Low	Unclear	Low	Low	Low	Unclear
Haslam, 2013	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Hayes, 2020	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Hoogendijk, 2018	High	High	Low	Unclear	Low	Low	Low	Low	Low	Unclear
Jennings, 2019	Low	Low	Low	Low	Low	Low	Low	Low	Low	Unclear
Jennings, 2013	High	Low	Low	High	Low	Low	Low	Low	Low	Unclear
Ogba, 2020	Low	Low	Unclear	Unclear	Low	Low	Low	Low	Low	Unclear
Oishi, 2018	Unclear	Low	Low	Low	Low	Low	Low	Low	Low	Low
Onuigbo, 2018	High	Low	Low	Low	Low	Low	Low	Low	Low	Low
Rao, 2017	Low	Unclear	Unclear	High	Low	Unclear	Unclear	Low	Low	Unclear
Roeser 2021	Low	Low	Low	Unclear	Low	Unclear	Low	Low	Low	Unclear
Sharp Donahoo, 2018	Low	Unclear	Unclear	Unclear	Low	High	Low	Low	Low	Unclear
Tsang, 2021	Low	Unclear	Low	Unclear	Low	Low	Low	Low	Low	Unclear
Tsang, 2013	High	High	Low	Unclear	low	low	Unclear	low	low	Unclear
Ugwoke, 2018	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Unterbrink, 2011	Low	Low	Low	Unclear	Low	Low	Low	Low	High	low
Zolnierczyk-Zreda, 2005	High	Low	Low	Unclear	Low	Unclear	Low	Low	Unclear	Unclear

Table 1b: Summary of risk of bias analysis of non-randomized (pre-test/post-test) studies.

	Confounding	Selection of participants	Classification of intervention	Deviation from intended intervention	Missing data	Measurement of outcome	Free of selective reporting
Chan, 2011	Moderate	Low	Low	Low	Low	Low	Low
Marlow, 2015	Low	Low	Low	Low	Moderate	Low	Low

Table 2: Summary of findings GRADE

<table>
<tr><td colspan="4">What characteristics of the interventions are most effective in reducing stress level of schoolteachers?</td></tr>
<tr><td colspan="4">Patients or population: School teachers
Settings: Schools
Intervention: Mindfulness and other task-based stress management intervention versus no intervention</td></tr>
<tr><td>Outcomes</td><td>Impacts</td><td>Number of studies</td><td>Quality of the evidence (GRADE)</td></tr>
<tr><td>Meditation</td><td>Meditation intervention may reduce the stress level of schoolteachers.</td><td>9 studies, N=635</td><td>⊕⊕⊕⊖</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td>Cognitive behavioral therapy</td><td>CBT intervention may reduce the stress level of schoolteachers.</td><td>9 studies, N=946</td><td>⊕⊕⊕⊖</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td>Other interventions</td><td>Other interventions may reduce the stress level of schoolteachers.</td><td>8 studies, N=891</td><td>⊕⊕⊖⊖</td></tr>
<tr><td colspan="4">⊕⊕⊕⊕ (High): It is very much unlikely that further research will change our confidence in the estimate of effect or accuracy.
⊕⊕⊕⊖ (Moderate): Further research is likely to have an important impact on the confidence in the statement in the estimate of effect or accuracy and may change the estimate.
⊕⊕⊖⊖ (Low): Further research is very likely to have an important impact on the confidence in the statement in the estimate of effect or accuracy and is likely to change the estimate.
⊕⊖⊖⊖ (Very low): Any estimate of effect or accuracy is very uncertain.</td></tr>
</table>

Figures

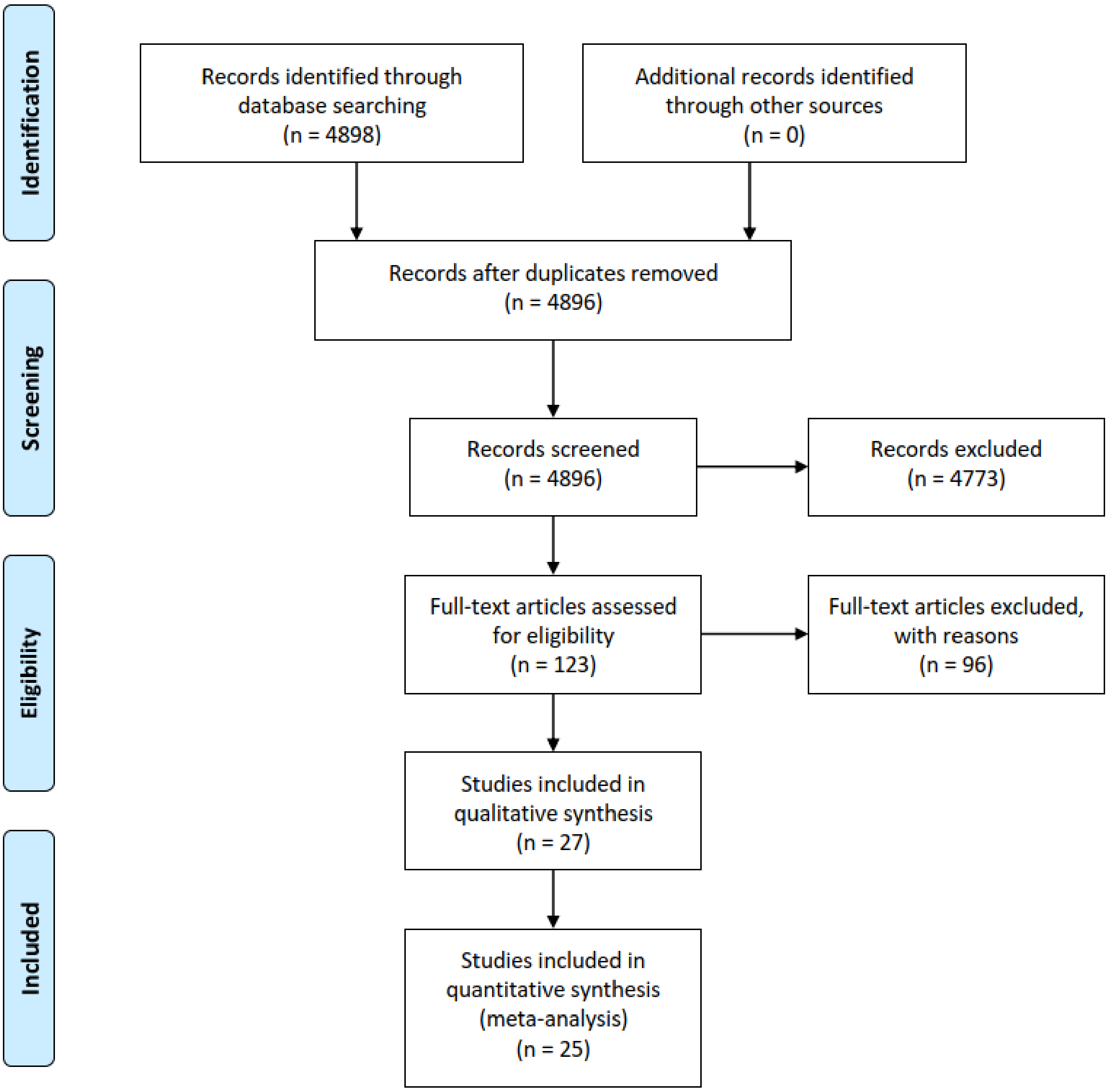


Figure 1: Modified PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) flow chart of the included studies.

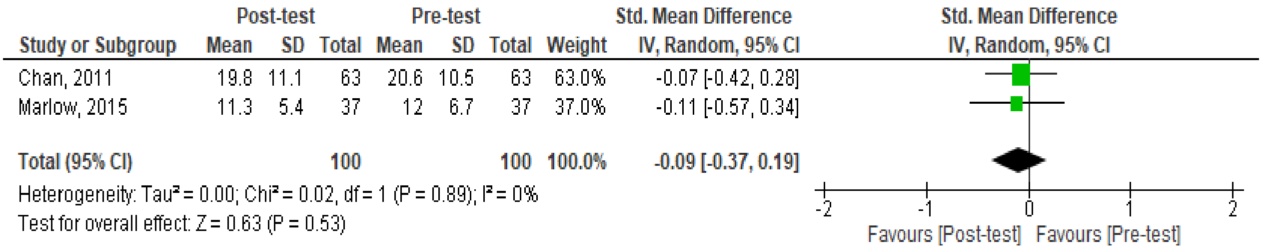


Figure 2: Forest plot of the standard mean difference (pre-test vs. post-test) and their 95% CIs for teacher's stress.

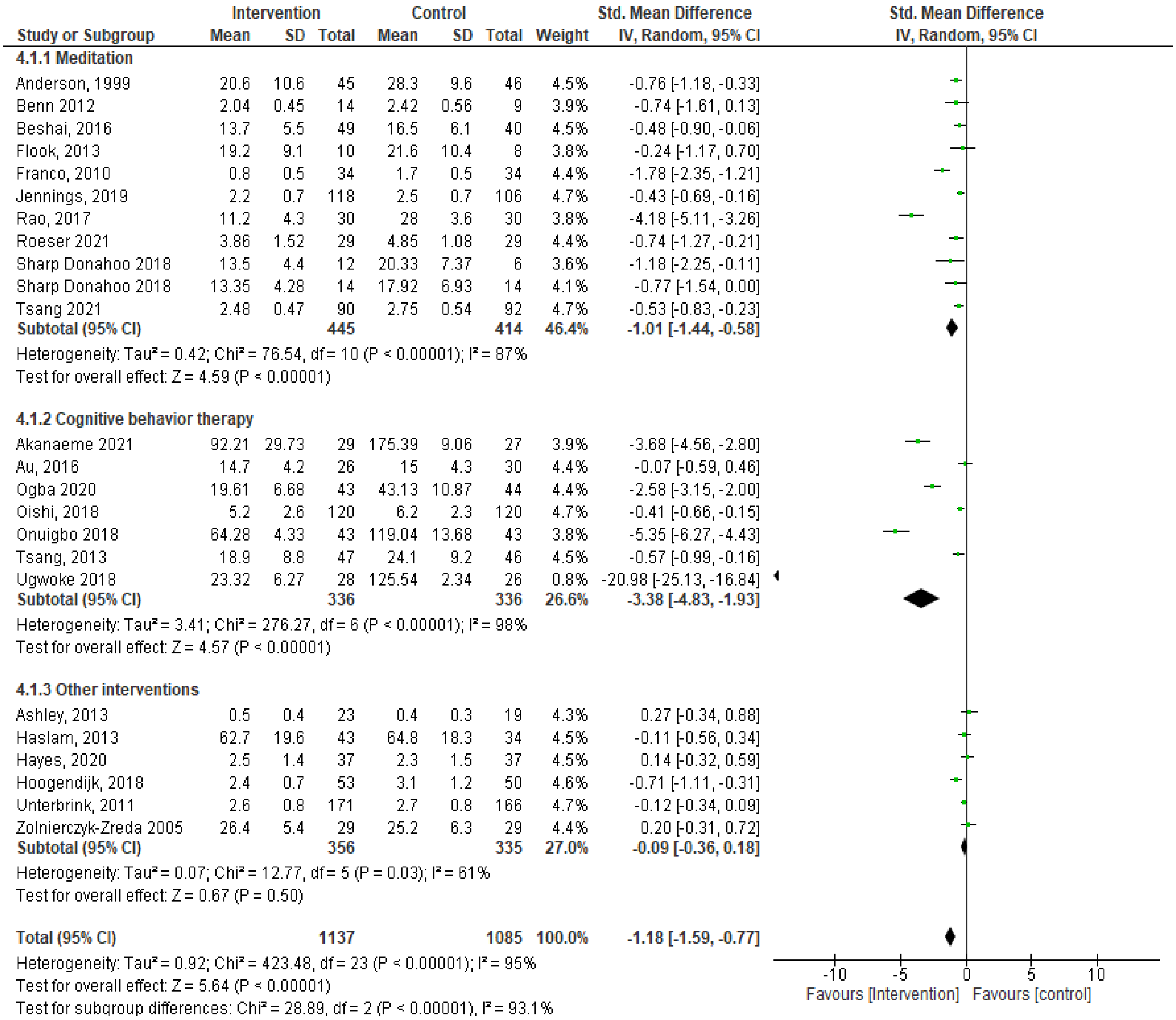
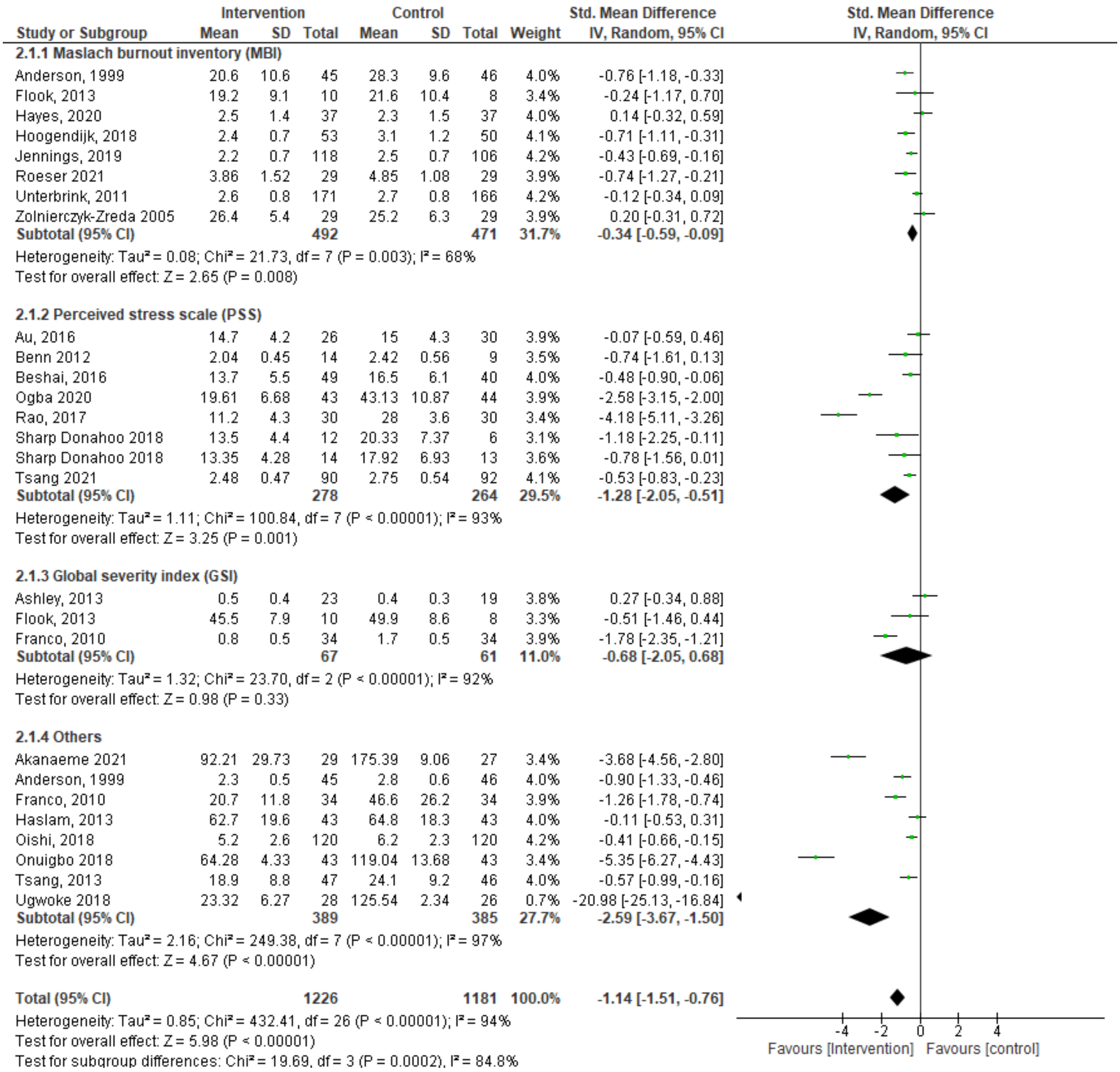
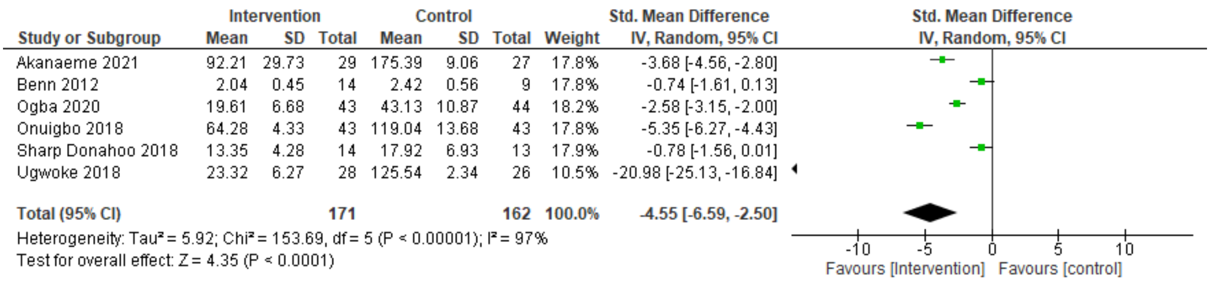


Figure 3: Forest plot of the standard mean difference (intervention minus control) and their 95% CIs for teacher's stress by type of interventions used.

Supplementary Figure 1: Forest plot of the standard mean difference (intervention vs control) and their 95% CIs for teacher's stress by type of questions used to measure the stress level.

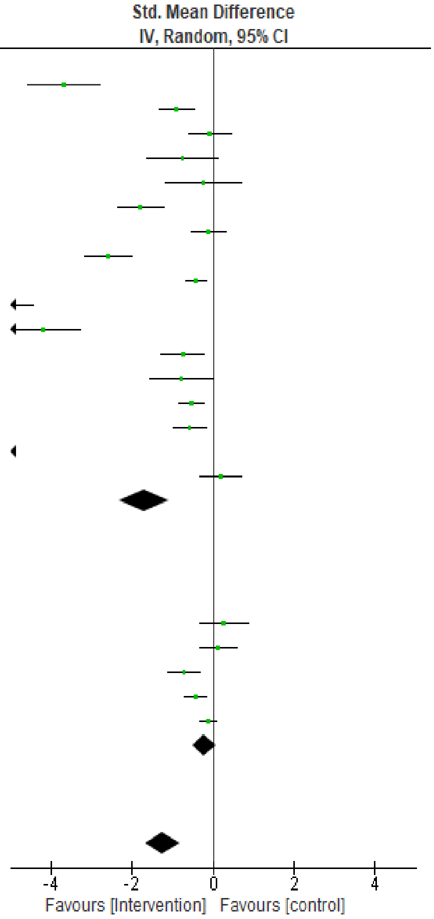


Supplementary Figure 2: Forest plot of the standard mean difference (intervention vs control) and their 95% CIs for teacher's stress among special education teachers.

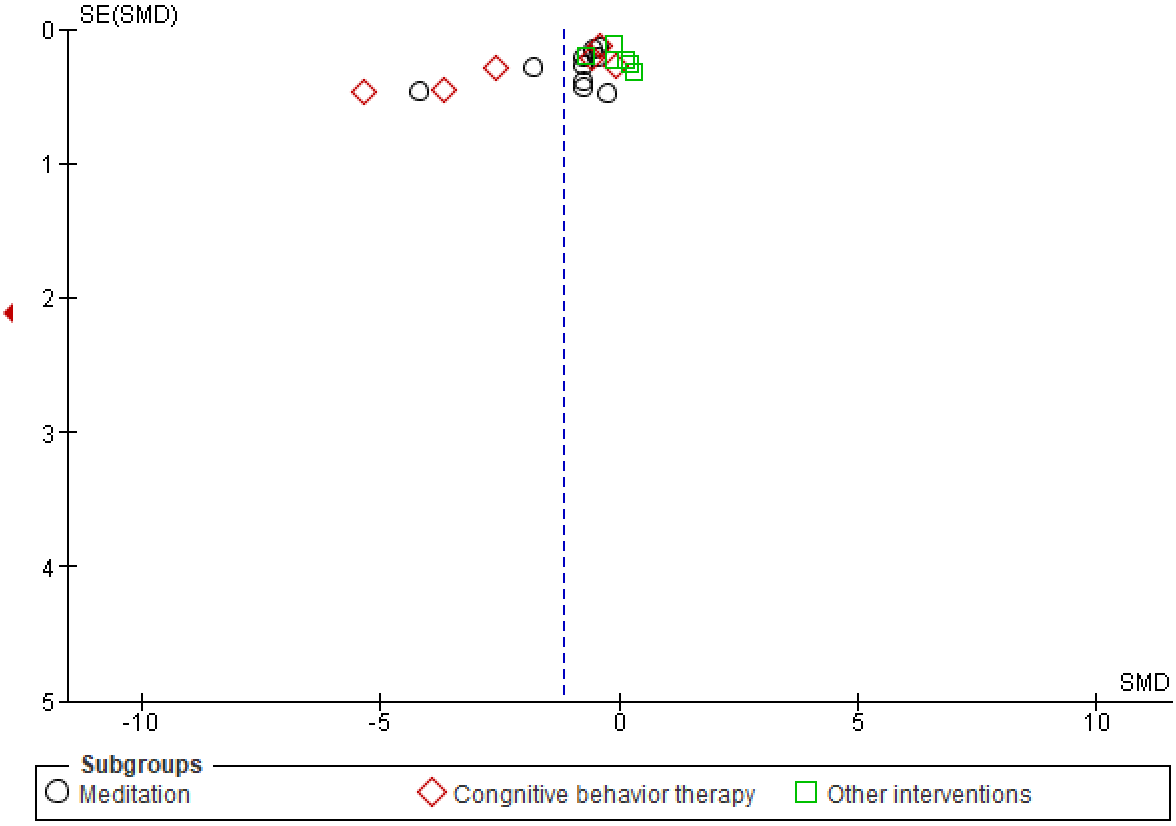


Supplementary Figure 3: Forest plot of the standard mean difference (intervention vs control) and their 95% CIs for teacher's stress by length of the follow-up time.

Study or Subgroup	Intervention Mean	Intervention SD	Intervention Total	Control Mean	Control SD	Control Total	Weight	Std. Mean Difference IV, Random, 95% CI
4.3.1 Short (1-4 months)								
Akanaeme 2021	92.21	29.73	29	175.39	9.06	27	4.3%	-3.68 [-4.56, -2.80]
Anderson, 1999	2.3	0.5	45	2.8	0.6	46	4.9%	-0.90 [-1.33, -0.46]
Au, 2016	14.7	4.2	26	15	4.3	30	4.8%	-0.07 [-0.59, 0.46]
Benn 2012	2.04	0.45	14	2.42	0.56	9	4.3%	-0.74 [-1.61, 0.13]
Flook, 2013	19.2	9.1	10	21.6	10.4	8	4.2%	-0.24 [-1.17, 0.70]
Franco, 2010	0.8	0.5	34	1.7	0.5	34	4.8%	-1.78 [-2.35, -1.21]
Haslam, 2013	62.7	19.6	43	64.8	18.3	43	4.9%	-0.11 [-0.53, 0.31]
Ogba 2020	19.61	6.68	43	43.13	10.87	44	4.7%	-2.58 [-3.15, -2.00]
Oishi, 2018	5.2	2.6	120	6.2	2.3	120	5.1%	-0.41 [-0.66, -0.15]
Onuigbo 2018	64.28	4.33	43	119.04	13.68	43	4.2%	-5.35 [-6.27, -4.43]
Rao, 2017	11.2	4.3	30	28	3.6	30	4.2%	-4.18 [-5.11, -3.26]
Roser 2021	3.86	1.52	29	4.85	1.08	29	4.8%	-0.74 [-1.27, -0.21]
Sharp Donahoo 2018	13.35	4.28	14	17.92	6.93	13	4.4%	-0.78 [-1.56, 0.01]
Tsang 2021	2.48	0.47	90	2.75	0.54	92	5.0%	-0.53 [-0.83, -0.23]
Tsang, 2013	18.9	8.8	47	24.1	9.2	46	4.9%	-0.57 [-0.99, -0.16]
Ugwoke 2018	23.32	6.27	28	125.54	2.34	26	0.9%	-20.98 [-25.13, -16.84]
Zolnierczyk-Zreda 2005	26.4	5.4	29	25.2	6.3	29	4.8%	0.20 [-0.31, 0.72]
Subtotal (95% CI)			**674**			**669**	**75.3%**	**-1.69 [-2.31, -1.07]**
Heterogeneity: Tau² = 1.53; Chi² = 372.58, df = 16 (P < 0.00001); I² = 96%								
Test for overall effect: Z = 5.32 (P < 0.00001)								
4.3.2 Long (5-12 months)								
Ashley, 2013	0.5	0.4	23	0.4	0.3	19	4.7%	0.27 [-0.34, 0.88]
Hayes, 2020	2.5	1.4	37	2.3	1.5	37	4.9%	0.14 [-0.32, 0.59]
Hoogendijk, 2018	2.4	0.7	53	3.1	1.2	50	4.9%	-0.71 [-1.11, -0.31]
Jennings, 2019	2.2	0.7	118	2.5	0.7	106	5.1%	-0.43 [-0.69, -0.16]
Unterbrink, 2011	2.6	0.8	171	2.7	0.8	166	5.1%	-0.12 [-0.34, 0.09]
Subtotal (95% CI)			**402**			**378**	**24.7%**	**-0.21 [-0.51, 0.08]**
Heterogeneity: Tau² = 0.07; Chi² = 13.75, df = 4 (P = 0.008); I² = 71%								
Test for overall effect: Z = 1.44 (P = 0.15)								
Total (95% CI)			**1076**			**1047**	**100.0%**	**-1.23 [-1.67, -0.79]**
Heterogeneity: Tau² = 0.98; Chi² = 424.05, df = 21 (P < 0.00001); I² = 95%								
Test for overall effect: Z = 5.49 (P < 0.00001)								
Test for subgroup differences: Chi² = 17.68, df = 1 (P < 0.0001), I² = 94.3%								



Supplementary figure 4: Funnel plot of effect estimates included in the meta-analysis by type of intervention used in each individual studies.



Supplementary file 1: Literature search history

Database: Journals@Ovid Full Text <November 09, 2020>

Search Strategy:

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2 (intervention* or health program* or meditation or yoga or stress management program*).mp. [mp=title, abstract, full text, caption text] (1524342)

3 (school teacher* or teacher* or secondary school teacher*).mp. [mp=title, abstract, full text, caption text] (137296)

4 (RCT or Randomized controlled trial* or controlled trial* quasi experimental or randomised or pre test post test).mp. [mp=title, abstract, full text, caption text] (420676)

5 1 and 2 and 3 and 4 (3614)

Database: Ovid MEDLINE(R) ALL <1946 to November 09, 2020>

Search Strategy:

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1 (stress or work stress or job stress or strain or distress or anxiety or nervousness).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] (1634790)

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3 (school teacher* or teacher* or secondary school teacher*).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] (45613)

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5 1 and 2 and 3 and 4 (197)

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Database: APA PsycInfo <1806 to November Week 1 2020>

Search Strategy:

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2 (intervention* or health program* or meditation or yoga or stress management program*).mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh] (426670)

3 (school teacher* or teacher* or secondary school teacher*).mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh] (210961)

4 (RCT or Randomized controlled trial* or controlled trial* quasi experimental or randomised or pre test post test).mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures, mesh] (46903)

5 1 and 2 and 3 and 4 (168)

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EBSCOhost

Tuesday, November 10, 2020 7:18:48 AM

#	Query	Limiters/Expanders	Last Run Via	Results
S1	(stress or work stress or job stress or strain or distress or anxiety or nervousness) AND (intervention* or health program* or meditation or yoga or stress management program*) AND (school teacher* or teacher* or secondary school teacher*) AND (RCT or Randomized controlled trial* or controlled trial* quasi experimental or randomised or pre test post test)	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - Education Research Complete	92

y File 2: Data extraction from the included studies

Population	Age and gender distribution	Intervention and comparison	Follow-up	Outcome	Results
Elementary, middle and high school level teachers from seven suburban school districts in Pennsylvania, Illinois and Missouri were randomly assigned to one of two groups (n=91, experimental = 45, and control=46). Total 91 fulltime teachers From regular education=68 Special education=23	Age between 22 and 60 years. Male = 14 (experimental = 6 and control = 8) Female = 77 (experimental = 38 and control = 39)	5- week program in meditation based on programs taught by American Meditation Society. The meditation followed specific procedure with the individual lying down and involved in a progressive muscle relaxation. Basic mantra practice was meant to focus of mind and observation of the breath. Participants used meditation twice daily for 20 minutes periods, both at school and at home. Additional follow-up session was held 1 month after the end of the 5-week class. Group leaders met experimental group for 1 hour to check meditation procedures, discuss experiences, and to support teachers in their regular practice of meditation. Participants who were assigned to the waitlist control group learned to meditate after completion of the study.	5-week and 9 weeks.	-Teacher stress inventory (TSI) 10 factors and 49 items, 5- point Likert scale -Maslach burnout inventory (MBI) 22-item, 3-subscales (Emotional Exhaustion (EE), Personal Accomplishment (PA) and Depersonalization (D), 0-6 points: 0 (never) to 6 (every day).	**TSI: Mean (SD)** **Baseline** Experimental: 2.8 (SD) Control: 2.8 (0.6) **5-week follow-up** Experimental: 2.5 (0.6) Control: 2.7 (0.6) **9-week follow-up** Experimental: 2.3 (0.5). Control: 2.8 (0.6) **MBI: Mean (SD)** **Baseline** Experimental EE: 27.2 (11.5) PA: 36.6 (6.9) D: 8.0 (6.4) Control EE: 26.7 (10.2) PA: 35.3 (6.5) D: 7.6 (5.0) **5-week follow-up** Experimental EE: 22.0 (10.4) PA: 37.2 (7.1) D: 7.9 (5.2) Control EE: 27.8 (10.4) PA: 35.5 (7.0) D: 8.6 (6.4) **9-week follow-up** Experimental EE: 20.6 (10.6) PA: 36.8 (1.0) D: 6.9 (5.1) Control EE: 28.3 (9.6) PA: 35.5 (5.8) D: 8.7 (5.5)
Primary and secondary school teachers N=77, recruited through advertisements	Age = 23 to 63 years	Written emotional disclosure (WED) interventions Participants write privately about	2 weeks, 2 months and 6 months	BSI= Brief Symptom Inventory	At baseline *intervention group*: mean (SD) Multiple SoT= 0.42 (0.25)

in schools and teacher-related media. intervention=58 (50 female +8 male) Control = 19 (16 female +3 male)	mean age = 43.62 ± 11.19 years	their innermost thoughts and feelings surrounding personally stressful or traumatic (SoT) experiences, usually for 20 min on 3 consecutive days at home. Control conditions kept on topic		Global Severity Index = Range (0-4)	*Single SoT WED* = 0.40 (0.2 *Work-related SoT WED* = 0. (0.52) *Control group* =0.56(0.39) At 2 weeks *intervention group*: mean (SD) Multiple SoT= 0.51(0.40) *Single SoT WED* = 0.46(0.34 *Work-related SoT WED* = 0.71(0.34) *Control group* =0.49(0.33) At 2 months *intervention group*: mean (SD) Multiple SoT = 0.41(0.39) *Single SoT WED* = 0.39(0.42 *Work-related SoT WED* = 0.66(0.49) *Control group*: =0.41(0.40) At 6 months *intervention group*: Multiple SoT = 0.47(0.44) *Single SoT WED* = 0.32(0.35 *Work-related SoT WED* = 0.55(0.40) *Control group*: =0.42(0.30)
Primary and secondary school teachers N=56, recruited from the public lectures, and were randomly assigned to either Intervention group (CAM-CB group) = 30 or Active control group (CB group) = 26	Male=10 Female=46 CB male=4 CAM-CB male=6 CB female=22 CAM-CB female=24 Age = 25 to 64 years	8 weeks stress management program Behavioral intervention (CB) with complementary and alternative medicine (CAM) approach - CB techniques -Acupressure -Qigong exercise 1.5 hours once a week for eight consecutive weeks	Baseline (T1) Immediate after the program/post-intervention (T2) 4 weeks after the program/ follow-up assessment (T3)	Perceived stress scale (PSS) (10- item perceived stress scale, 10 symptoms)	PSS at T1: Mean (SD) CB = 19.08 (3.14) CAM-CB = 18.2 (3.63) PSS at T2: Mean (SD) CB = 15.5 (3.81) CAM-CB = 16.73 (4.1) PSS at T3: Mean (SD) CB = 14.73 (4.2) CAM-CB = 14.97 (4.25)
Secondary school teachers and staff (N=89) were recruited by teachers delivering the interventions in their respective host school. Participant teacher self-selected to be either in	Male = 27 Female = 62 Age not reported.	School-based mindfulness training programmes developed by the Mindfulness in Schools Project (MiSP). Nine sessions-one presentation and 8 further initial course orientation sessions for 75 min. Participants expected to do 10-40 min home practice session six days a week. The	Baseline and post intervention	-Perceived Stress Scale (PSS) 10 items, 5 points scale (never to very often/0-4), higher scores on the PSS reflect increased levels of stress, total score (range 0-40).	**PSS at baseline:** Mean (SD Intervention = 20.22(6.14) Control = 15.20(7.70) **PSS at Post-test:** Mean (SD Intervention = 13.65(5.49) Control = 16.47(6.13)

Intervention= 49 or in Control= 40		sessions consisted of modules focusing on attention to body (e.g. body scan), attention to thoughts (e.g. session four, 'Stepping Back from Thoughts & Worries'), and cultivation of self-compassion (e.g. session six, 'From Giving Yourself a Hard Time to Giving Yourself a Beak').			
N = 63 Chinese school teachers participated voluntarily in the graduate education program at the Chines University of Hong Kong.	Male = 10 Female = 53 Age = 22 to 54 years Mean age 33.52 and SD = 6.91	Gratitude intervention: Participants were asked to keep a weekly log of three good things or events that happened to them during the week and record them using a count-your-blessings form. No controls.	Post-intervention at 8 weeks	**Maslach burnout inventory (MBI),** 22 item, 7 points range 0 (never) to 6 (every day), 3 components'- emotional exhaustion (0-54), depersonalization (0-30), personal accomplishment (0-48). High scores on the emotional exhaustion and depersonalization and low scores on the personal accomplishment are indicative of burnout.	**Emotional exhaustion** pre-intervention: Mean (SD) 20.57 (10.48) post-intervention: Mean (SD = 19.78 (11.14) **Depersonalization** pre-intervention: Mean (SD) 4.84 (4.40) post-intervention: Mean (SD = 4.68 (4.32) **Personal accomplishment** pre-intervention: Mean (SD) 35.19 (7.53) post-intervention: Mean (SD = 35.97 (7.10)
Public elementary school teachers from four elementary schools (N= 18) were recruited from medium-sized Midwestern city. Participants were randomly assigned to either Intervention = 10 or Wait list control = 8	Female = 16 Male = 2 Age range = 25 to 56 years Mean age = 43.06 (SD = 9.87)	Modified Mindfulness-Based Stress Reduction (mMBSR) training was used for 15-45 minutes per day (for 6 days/week) outside class for lasted for 8 weeks and 2.5 hr/week. Two MBSR trained instructors with over 15 years of experience led the training. Total 26 hours group practice. Participants in the mindfulness training group completed practice logs on a weekly basis. Participants recorded the number of minutes per day spent engaging in formal (e.g., sitting meditation) and informal (e.g., brief moments of mindfulness) mindfulness practice. Control followed usual routine.	Post-test at 8 weeks	**Global severity index (GSI)** 90 items, high score high distress **Maslach Burnout Inventory (MBI)** 22 item scale, 3 factors: emotional exhaustion, depersonalization, and personal accomplishment	Intervention group **Pre-test: mean (SD)** SCL GSI 53.30 (7.47) Emotional exhaustion = 25.90 (9.01) Depersonalization = 5.40(4.25) Personal accomplishment= 39.60(5.54) **Post-test** SCL GSI-45.50 (7.89) MBI ENOT SUPP = 19.20 (9.08) MBI DEPRESN = 4.60(4.90 MBI PERS ACC = 42.20(4.64) Control group **Pre-test** SCL GSI = 53.88 (4.16)

					MBI ENOT SUPP = 20.38(8.68) MBI DEPRESN = 5.38 (4.98) MBI PERS ACC = 39.50(6.50) **Post-test** SCL GSI = 49.88(6.61) MBI ENOT SUPP = 21.63(10.35) MBI DEPRESN = 4.75(6.18 MBI PERS ACC = 36.88(6.20)
Secondary school teachers worked for several public schools in Guadix County were recruited through a course offered for secondary school teachers called "stress prevention and treatment" N= 68 and randomly assigned to Experimental = 34 or Control = 34, controlling for the variable sex.	Male = 29 Female =39 Age between 24 and 58 years	Meditation, 10 sessions (each 1.5 hours long) over 10 weeks, learning and practicing of flow meditation (conscious breathing) and use Acceptance and Commitment Therapy (ACT) performing a 10 minutes body-scan exercise Homework: body-scan exercise for 10 minutes every day, abdominal breathing mindfulness exercise for 30 minutes a day For control group 10 sessions (each one and half hours long) over 10 weeks, Psychomotor therapy program that was playing games and doing exercises with large balls, rings, 20 minutes relaxing music played with closing eyes. Homework: closing their eyes and listening to relaxing music for 40 minutes every day.	Follow up at 4 months	Global severity Index (GSI) Positive Symptoms of Distress Index (PSDI) Total of Positive Symptoms (TPS) Each item was measured in a Likert scale (0/never to 4/always)	**Experimental group: mean (SD)** **Pre-test** GSI = 1.74 (0.597) PSDI = 1.19 (0.322) Total Posit. Symp. = 42.5 (22.1) **Post-test** GSI = 0.766 (0.531) PSDI = 0.642 (0.232) Total Posit. Symp. = 20.7 (11.8) **Control group: mean (SD)** **Pre-test** GSI = 1.56 (0.550) PSDI = 0.910 (0.451) Total Posit. Symp. = 44.2 (28.9) **Post-test** GSI = 1.67 (0.505) PSDI = 0.933 (0.524) Total Posit. Symp. = 46.6 (26.2)
Teachers / N = 107, were recruited via briefings conducted during staff meetings in schools across Brisbane. Computer generated randomizer program allocated participants either to Intervention (workplace triple P) condition = 55 or	Participants 'Age mean (SD) = 40.6 (6.1) Male = 23.4 % Female =76.6 %	Two full day (9-16:30) Workplace Triple Positive parenting program (WPTP). Three telephone consultations At the first phase of intervention, participants were taught a range of parenting strategies to encourage desirable behavior and to help promote self-regulation in children and decrease problem behavior.	Follow up At 4 months	**Teacher Occupational Stress Factor Questionnaire (TOSFQ)** 2 subscales -Student-related stress -Task overload stress factor Original 30 items scale, 5 domain, 5 points scale ranging from not stressful at	**WPTP intervention condition -mean (SD)** **Pre-test / post-test** Student-related stress = 2.56 (0.91) / 2.17 (0.78) Task overload stress factor =2.83 (0.96) / 2.50 (0.85) Overall stress = 71.91 (23.32 / 62.71 (19.59) **WL control condition - mean (SD)** **Pre-test / post-test**

Waitlist control condition = 52		At the second phase of intervention, subjects were taught to give tips on leaving work at work and home at home to help decrease the chance of functioning in one domain affecting the other. Stress prevention and management techniques were presented such as identifying and challenging unhelpful thoughts, progressive muscle relaxation, diaphragmatic breathing, diet guidance and exercise tips.		all (1) to extremely stressful (5)	Student-related stress = 2.46 (0.88) / 2.67 (0.89) Task overload stress factor = 2.72 (2.83) / 2.91 (0.88) Overall stress = 64.82 (18.25 / 69.50 (17.99)
Primary school teachers from schools across the South West of England were approached through unsolicited contact with headteachers and publicity at local conferences. N = 80. randomization was done at school level using computer-generated random numbers either to Intervention = 40 or control = 40	**Teacher's age** Intervention arm mean (SD) = 34.5 (9.0) Control arm mean (SD) 31.4 (8.7) Female = 65 Male =15	Teacher Classroom Management (TCM) workshops, six whole day, 12 teachers in a group 3-day basic TCM delivery training. Focus group immediately after their training had finished every day. All TCM workshops were video recorded for supervision. Workshop focus on building positive relationships with students and the proactive teacher, teacher attention, coaching, encouragement, and praise, motivating students through incentives, decreasing inappropriate behavior- ignoring and redirecting, decreasing inappropriate behavior- follow through with consequences, emotional regulation, social skills and problem-solving training.	Post-test (at the half-term of the same academic year) Follow up at 9 months (2 months after training ended)	Maslach Burnout Inventory-General Survey (MBI-GS) measures burnout, 16-items, 3 factors: exhaustion, cynicism, and professional efficacy, 7 points score ranging from 0 (never) to 6 (daily)	**Intervention arm** (Baseline/ follow up) <ins>MBI-GS</ins> Exhaustion, mean (SD) = 2.9 (1.4) / 2.5 (1.4) Cynicism, mean (SD) = 1.2 (1.0) / 1.2 (1.1) Professional Efficacy, mean (SD) = 4.2 (1.0) / 4.2 (1.0) **Control arm** <ins>MBI-GS</ins> Exhaustion, mean (SD) = 2.5 (1.4) / 2.3 (1.5) Cynicism, mean (SD) = 1.1 (1.0) / 1.2 (1.0) Professional Efficacy, mean (SD) = 4.6 (0.8) / 4.5 (0.8)
Primary school Teachers N = 103 within one hour of the main research location were invited through digital invitation and randomly assigned to either Intervention = 53 or Control = 50	Age = 23.5 to 62.67 years Female = 77 % Male = 33 %	Teacher-focused coaching intervention (Key2Teach intervention) Total 12 sessions Phase one consists of 4 sessions Phase two consists of 8 sessions 4 building blocks and 2 session The first building block provides on the Relationship-Focused Reflection Program, The second building block concerns functional behavior analyses, the third building block	T_2 at the end of the school year T_3 at 5 months	Dutch version of the Maslach Burnout Inventory (MBI) the Utrechtse Burnout Schaal for teachers (UBOS-L) 9 items, 7-point Likert scale, ranging from 0 (never) to 6 (every day)	**Baseline: mean (SD)** Intervention: 2.53 (0.75) Control: 2.97 (0.90) **At T_2** Intervention: 2.38 (0.73) Control: 2.83 (1.16) **At T_3** Intervention: 2.37 (0.70) Control: 3.06 (1.23)

		uses video interaction guidance (VIG) focusing on goal-oriented behavior, the fourth building block uses synchronous coaching sessions			
Elementary school teachers (N=224) from New York City public K-5 elementary schools located in high poverty areas of the Bronx and Upper Manhattan. In average 6 teachers per school. Cohort 1 = 53(23.7 %) Cohort 2 = 171(76.3%). Schools were randomized either in Intervention (n = 118) or Control (n = 106).	Females (93%) median age of 40 and range (22–73) years.	Cultivating Awareness and Resilience in Education (CARE) program for Cohort 1 (C1) and Cohort 2 (C2). CARE program was designed to promote social and emotional competence of teachers. Five six-hour session days (30 h total) by a team of three facilitators, having minimum of a master's degree qualification, two years' experience with the program and a personal mindfulness practice. Programs promote emotional awareness and emotion regulation in the context of the classroom, mindful awareness of breath, body, and emotion, mindful walking and stretching, and listening and caring practices. Teachers in the wait-list control received standard professional development activities for the first school year and were offered CARE after all data collection was complete.	Baseline in fall and twice post-intervention, during the spring of the same school year and in fall of the following school year	Emotional Exhaustion subscale of the Maslach Burnout Inventory (9-item), each item measured on a 7-point Likert scale (1 = never to 7 = every day). and Perceived Stress Scale (PSS) (4-item). Each item measured on a 5-point Likert-type scale (1 = never to 5 = very often).	**Baseline** **Emotional exhaustion** Intervention: 3.30 (1.09) Control: 3.36 (1.33) **Depersonalization** Intervention: 1.69 (1.06) Control: 2.07 (1.38) **Personal accomplishment** Intervention: 4.54 (0.76) Control: 4.63 (0.83) **Post-test** **Emotional exhaustion** Intervention: 3.43 (1.10) Control: 3.49 (1.32) **Depersonalization** Intervention: 2.02 (1.30) Control: 2.24 (1.34) **Personal accomplishment** Intervention: 4.76 (0.62) Control: 4.53 (0.76)
Between 2 and 4 teachers from 16 schools were recruited through the course which was advertised through conferences and other media. N=40 Feasibility year 1 Group A =10 Group B =10 Feasibility year 2 Group E =10 Group P =10	**Age:** mean (SD) feasibility year 1 Group A: 37.5 (9.5) Group B: 44.4 (9.95) Feasibility year 2 Group E 40.2 (11.2) Group P 38.5 (10.9) Male Group A=2 Group B=0 Group E=3 Group P=1 Female	Teachers were invited to attend teacher classroom management (TCM) training (cognitive approach) 1 day per month for 6 months. The course was delivered by six TCM group leaders who worked in teams of three. No controls	Not clear, but, teachers were invited to attend a focus group approximately 1 month after the end of the course.	**The Maslach Burnout Inventory (**16-item questionnaire from MBI and three subscales were used to measure the teacher's burnout. Psychological distress was measured by everyday feeling questionnaire (EFQ) using 10 items. Higher score indicates more distress.	**Baseline:** Mean (SD) Emotional exhaustion: 12 (6.7) Cynicism: 5.9 (4.5) Professional efficacy: 25.0 (5.7) **Follow-up:** Mean (SD) Emotional exhaustion: 11.3 (5.4) Cynicism: 5.9 (4.0) Professional efficacy: 27.3 (4.8) **EFQ:** mean (SD) baseline: 14.2 (5.8) Follow-up: 12.1 (4.8)

	Group A=8 Group B=10 Group E=6 Group P=9				
Public Elementary school teachers in Sagamihara City in Kanagawa were recruited N=240 and randomly assigned either Intervention, n=120 or Control, n=120	Male, n (%) Intervention = 39 (32.5%) Control 56 (46.7%) Female n (%) intervention n=81(67.5%) control 64 (53.3%) Age in years, mean (SD) Intervention 29.9 (4.3) Control 30.5(6.0)	The intervention consisted of two part: Part 1: Lecture One session of group education about cognitive behavioral therapy (CBT), lecture on CBT Part 2: Group work and discussion for learning cognitive restructuring Homework using the Web-based CBT program for the subsequent 3 months.	3 months	Subjective psychological distress was examined in a scale of 1-10 (1: not at all to 10: very strongly).	Subjective distress: mean (SD) **Baseline** Intervention 6.03 (1.88) control 6.28 (2.14) **Follow-up** intervention mean change (SE) -0.79 (0.24) control mean change (SE) -0.13 (0.21)
Female primary school teachers were recruited from two schools of Bangalore city through posters announcement N=60. A serial number based on alphabetical order of the participants name was used to divide them randomly in either intervention group (n=30) or a control group (n=30).	Age between 30 and 55 years Intervention group mean (SD) 43.0 (9.77) Control group 40.0 (7.32) All female.	Participants in the intervention participated in the mind sound resonance technique (MSRT) for 30 mins/day, 5 days/week, for the duration of 1 month. The participants in the control group followed their normal daily routines.	1 month	**Cohen's Perceived Stress Scale (PSS**) consists of 10 items (each measured in a scale of 0-4) and summed up the reversed scale. A higher score suggests a greater degree of perceived stress.	**Perceived stress (PSS**) Intervention: mean (SD) Baseline 21.06 (6.53) post intervention 11.16 (4.30) Control Baseline 18.00 (4.80) Post intervention 28.00 (3.62)
Elementary school teachers were recruited from five public lectures on stress and its impact on mental health N=93. Teachers were allocated to either intervention group n=47 or participants wait-list control group n=46 according to the preference and administrative	**Male** Intervention= 8 (17%) Control =7 (15%) **Female** Intervention=39 (83%) control=39 (85%) **Age** Intervention Mean age 39.12 SD (7.79)	A 12-hr program each session consisting of a 1-h lecture and a 1-h practice. The intervention program consisted of cognitive behavioral therapy (CBT), self-management skills, aromatherapy, diaphragmatic breathing, progressive muscle relaxation, eight-section brocades qigong, basic yoga movements and acupressure.	Post-assessment immediate after 6 weeks of intervention and follow-up at 3 to 4 weeks after intervention.	The 21-item Depression, Anxiety and Stress Scales during previous week using a four-point Likert scale (0-3) with higher score indicating higher levels of emotional disturbance. The subscale scores for stress was calculated by summing up the	Stress (0–42) **Baseline,** mean (SD) Intervention: 22.72 (6.44) Control: 26.00 (7.38) **Post** Intervention: 18.13 (8.64) Control: 24.48 (8.35) **Follow up** Intervention: 18.90 (8.82) Control: 24.09 (9.23)

arrangement of respective schools.	control mean age 37.74 SD (9.20)			scores for the relevant items and then multiplied by two.	
Teachers from two school types grammar and secondary modern schools in three neighboring school districts in southwestern Germany were invited to participate to the intervention program (N = 337). They were randomly assigned to either Intervention (N = 171) or Control group (N = 166).	Age experimental =46.9 SD=9.38 Control group mean age=47.0 SD=9.49	The intervention comprised of 10 x 90 min long group sessions (one session/month) over a 10-month period. Certified psychotherapists moderated each group which consisted of 12 to 15 participants assigning the group work based on a published manual. The group worked on each module over two sessions. First session, a general discussion to motivate teachers and the second session to reflect on one or two professional situations.	10 months	The German version of the Maslach Burnout Inventory (MBI) which comprises of four subscales: Emotional Exhaustion, Personal accomplishment, depersonalization, and Involvement	**Emotional exhaustion** **Pre-test:** Mean (SD) Intervention 2.72 (0.797) Control 2.60 (0.805) **Post test** Intervention 2.58 (0.769) Control 2.67 (0.839) **Personal accomplishment** **Pre-test:** Mean (SD) Intervention 3.40 (0.454) Control 3.38 (0.473) **Post-test:** Mean (SD) Intervention 3.57 (0.473) Control 3.45 (0.523) **Depersonalization** **Pre-test:** Mean (SD) Intervention 1.71 (0.796) Control 1.58 (0.812) **Post-test:** Mean (SD) Intervention 1.75 (0.746) Control 1.71 (0.784)
Teachers N=58, were randomly assigned to either Intervention =29 or Control=29	Females= 69.8% Males=30.2%. The mean age = 41.8 (SD = 7.1)	A 2-day, 6-hrs-a-day stress management workshop was organized for the participants from the experimental group. Exercises in time management, setting priorities and specific goals in their work were introduced in the workshop; some exercises in relaxation and detraction, also some in negotiating and presenting a respectful attitude were introduced. Control received no intervention.	1 month	Maslach Burnout Inventory (MBI) 22 items, 3 subscales (emotional exhaustion, 9 items; personal accomplishment, 8 items and depersonalization, 5 items). Each item measured on a 6-point scale from 0- never to 6- everyday.	MBI **Emotional exhaustion** Intervention Pre-test: 26.37 (5.44) Post-test: 25.06 (6.47) Control Pre-test: 25.20 (6.29) Post-test: 25.34 (6.26) **Personal accomplishment** Intervention Pre-test: 12.76 (1.74) Post-test: 10.96 (1.45) Control

					Pre-test: 12.31 (1.83) Post-test: 11.88 (1.80) **Depersonalization** Intervention Pre-test: 12.38 (1.14) Post-test: 12.73 (0.77) Control Pre-test: 12.03 (1.40) Post-test: 11.96 (1.26)
N=58 full time middle school teachers who taught 6-8th grade classes in a school district in the Pacific Northwest. Sample was drawn from 23 of the 36 schools. The recruitment through advertisement about mindfulness program and research study to all middle school teachers in the school district. Teachers were randomly divided into Intervention =29 or Control=29	The mean age = 41.23 (SD = 8.66) Females= 69% Males=	Mindfulness-Based Emotional Balance (MBEB; MT) Program 10 sessions (28 total contact hours) over an 8-week period were implemented for the intervention group. Each program session of MBEB consists of a combination of guided meditation, group discussion, and small-group activities. Teachers in the controls received access to the MBEB program after the assessments of follow-up outcomes.	-post intervention, immediate after 8 weeks of intervention. -Follow-up at 4 months.	Teachers reported their **job stress** at work by rating on a 5-point scale (1 = strongly disagree,5= strongly agree) their level of agreement with seven statements about how stressed they are at work. Emotional exhaustion subscale of the Maslach Burnout Inventory was also assessed on 7-point scale (1=never to 7= every day)	**Job stress** **-Baseline: (mean, SD)** Intervention: 3.45 (0.53) Control: 3.41 (0.56) **-Post-intervention** Intervention: 3.05 (0.61) Control: 3.37 (0.50) **- 4 months follow up** Intervention: 3.17 (0.74) Control: 3.47 (0.52) **Emotional exhaustion (MBI)** **-Baseline: (mean, SD)** Intervention: 4.68 (1.28) Control: 4.59 (1.27) **-Post-intervention** Intervention: 4.05 (1.35) Control: 4.40 (1.13) **- 4 months follow up** Intervention: 3.86 (1.52) Control: 4.85 (1.08)
School teachers were recruited via emails sent to all local elementary and secondary schools in Hong Kong (N= 186). Teachers were randomized to either the mindfulness training condition (n = 94) or waitlist control (n=92), stratified by the gender.	Mean age 39.74 (SD 9.41) Males = 27 Females = 67	Six-groups of the 8-week, foundation course was implemented on weekday evenings in six different venue across Hong Kong. Each group had an average of 15-17 participants. 8-week mindfulness training, consists of taster session, followed by eight sessions 90 min in duration per week (12 contact hours in total). Each session involves a specific theme (e.g., waking up to the autopilot), and a structured set of formal and informal mindfulness practices	-Post intervention -2 month follow up	-10-item Perceived Stress Scale (PSS) each measured in a 5-point Likert scale from 1 ("Never") to 5 ("Always"). - a higher score indicates a greater level of stress.	**Baseline T1:** (Mean, SD) Intervention: 2.70 (0.52) Control: 2.71 (0.52) **post-intervention T2:** Intervention: 2.55 (0.44) Control: 2.79 (0.51) **2-month follow-up T3:** Intervention: 2.48 (0.0.47) Control: 2.75 (0.54)

		(e.g., mindful eating, body scan, and habit releaser), and cognitive exercises. Ten mindfulness teachers were responsible for teaching all these courses. In the waitlist control condition, in six groups received interventions in the same six venues 3 months after the participants in the experimental condition completed the course.			
Teacher who teaches children with autism n=58 responded to the invitation to participate in the study from 15 public and private special education schools. The inclusion criteria were: the participant must score up to 3 to 5 in the single item measure of stress symptoms. Random sequence allocation software was used to randomize teachers to either Intervention=29 (M=4 & F=25) or Wait list control=29 (M=12 & F=17)	Female n=42 (72%) Male n=16 (28%) Mean age of the participants was 32.12 and 31.77, respectively for Intervention and controls	Yoga-cognitive behavioral therapy program (Y-CBT) accompanied by traditional yoga exercise was provided 2-hour once a week for 12 weeks. CBT & Yoga Expert provided the intervention. Controls received intervention after the follow-up measurement was done at 3 months.	3 months follow up assessment	Teachers' stress Inventory (TSI) 49-item questionnaire rated on a 5-point Liker scale. The TSI assesses stress in 10 subscales, covering 2 major components of stress (stress sources [SS] and stress manifestations [SM]). Five subscales, including time management, work-related stressors, professional distress, discipline and motivation, and professional investment measures SS.	**Baseline:** M (SD) Intervention: 176.10 (39.92) Control: 175.48 (21.73) **Post-test** Intervention: 89.23 (25.65) Control: 169.39 (21.67) **Follow-up** Intervention: 92.21 (29.73) Control: 175.39 (9.06)
Special education teachers and parents were recruited through special education services office of a school district in a small Midwestern city (n=38 teachers, and n=32 parents). Recruited teachers were randomly assigned by a computerized random number generator to either in intervention	Mean age at entry at entry was 45.6 (range 26-60 years), Female= 32 Male =3	Stress Management and Relaxation Techniques (SMART) program, a fully manualized instructional curriculum, which represent 70% of the same components and practices as the mindfulness-based stress reduction (MBSR) program. SMART sessions were provided twice a week over a 5-week period. -average, 10 min of formal mindfulness home practice per day.	2 months follow up	Perceived Stress Scale (PSS) which includes 14 items inquire about the degree to which situations in one's life are appraised as stressful. Teachers indicate how often they felt or thought a certain way 0 = never, 4 = very often.	For both teachers and parents, combined. **Baseline T1. Mean, SD** Intervention: 2.37 (0.55) Control: 2.46 (0.59) **Post intervention at T2** Intervention: 1.97 (0.58) Control: 2.25 (0.55) **Follow up at T3** Intervention: 2.04 (0.45) Control: 2.42 (0.56)

(n=19) or in wait list control (n=19).		Controls received the SMART program training later after the follow-up survey completed.			
Public and private inclusive and special education schools' Teacher of autism children n=87 in South-East, Nigeria participated in the study. The participants were recruited through researcher's visit to the potential schools. Teachers were randomly assigned to either intervention =43, or waitlist control= 44	Male n=26 Female n=61 Mean age of teachers in intervention = 31.02 and controls = 33.31 years.	The rational emotive occupational health coaching (REOHC) program technique which involves cognitive, affective, and emotive techniques, relaxation training, and cognitive skills training which were helpful to reduce stress in teachers were provided. A 2- hour REOHC program was implemented weekly for a period of 12 weeks. Teachers in waitlist control received intervention after the follow-up survey completed.	2 weeks after last intervention and follow-up at 3 months after the REOHC.	Perceived Occupational Stress Scale (POSS) and Stress Symptom Scale were used to measure dimensions of job stress. POSS is 14-item measure of life stress perceptions and associated subjective feelings, measured on a 5-point rating scale from 0=never to 4= very often.	**Baseline T1: mean, SD** Intervention: 43.68 (9.05) Control: 43.66 (8.65) **T2** Intervention : 21.11 (5.29) Control: 42.97 (9.95) **Follow-up at T3** Intervention: 19.61 (6.87) Control: 43.13 (10.87)
Special education teachers were recruited (n=86) from the list of 138 teachers who reported high levels of stress and irrational beliefs in the teacher stress questionnaire and teacher irrational belief scale. Teachers were randomly assigned to either to intervention = 43 or the control=43.	Mean age of teachers in intervention group = 39.37 (7.99) and the controls = 39.39 (8.02). Male n= 27 Female n =59	Rational emotive behavior therapy (REBT) teacher stress management manual was implemented. Intervention lasted for 12 weeks, 24-session encounter, with 2 sessions per week was given. Each therapeutic session lasted for 90minutes. Control received no intervention.	Time 1, baseline Time 2, post-intervention Time 3, follow-up at 4 months after the intervention.	Teachers' stress questionnaire (TSQ), 30 items which includes 5 subscales (classroom management problems, work-related emotional problems, time management at the workplace, school administration problems, and professional distress), Each rated on a 5- point scale: (1=Not Stressful; 5=Extremely Stressful)	**Time 1, mean, SD** Intervention: 123.31 (3.68) Control: 124.92 (8.99) **Time 2** Intervention: 91.23 (3.61) Control: 124.35 (10.39) **Time 3** Intervention: 64.28 (4.33) Control: 119.04 (13.68)
Special education teachers, and professional staff in special education employed by a rural Western Kentucky school district were recruited by email through the school central office (n=27, 23 were teachers). Matched pre- and post-tests were used for analyses. Participants were randomly assigned into one of the	Age ranged from 25 to 65 years.	A 3-hr educational presentation which include information about stress and compassion fatigue and the benefits of prayer, mindfulness, and social support to reduce these phenomena was provided. All participants were encouraged to participate in weekly support groups. Text message reminders were sent weekly to selected participants, encouraging use of prayer and mindfulness. The participants selected prayer, mindfulness, social support groups, or a combination of	Post-test: 5 weeks	Perceived Stress Scale (PSS), 10-item measuring the level of perceived stress based on self-reported ratings of feelings and thoughts during the last month.	**For overall participants** Pretest: 17.81 (6.63) Posttest: 15.55 (6.07) **Low vs high uses of intervention groups** (Group A was low uses of prayer and mindfulness, and Group B was high uses of prayer and mindfulness) Group A: 20.33 (7.37) Group B: 13.5 (4.40)

two groups. Participants were randomly assigned into one of the two groups. One group received electronic reminders weekly (n =15), another did not (n =11).		interventions to reduce stress and compassion fatigue.			
Special education teachers (n=54) were recruited through the information provided for possible participation in stress management program sent to special education teachers in schools in the Southeast zone. In total 146 were accessed for eligibility. Participants were randomly assigned to either Intervention n= 28 (59.1%) or waitlist Control n= 26 (48.1).	Male n= 24 (44.44) Female n =30 (55.56%) Mean age was 36.67 (5.3) years,	Rational emotive behavior therapy (REBT) program was implemented. Techniques such as direct teaching, goal setting, relaxation, role-play, disputing, use of rational self-talk, motivational interviewing techniques, Socratic questioning, cognitive rehearsal, desensitization techniques, homework assignments, and imagery techniques were used to assist the study participants. Stress management program was conducted for 12-week and the program was 2 hours in length, took place in a public-school hall. Controls received intervention after the follow-up measurement was completed.	Post treatment after 12 weeks of intervention: Follow up: time not clear	Teacher Burnout Scale (TBS), a 25-item scale, 3 subscales: physical fatigue [9 items], emotional exhaustion [8 items], and cognitive weariness [8 items]. Each measured in a seven-point Likert-type scale ranging from 0 (never) to 6 (always) and high scores in the TBS reflect high burnout.	**Time 1, mean, SD** Intervention: 28.32 (1.79) Control: 28.19 (1.13) **Time 2** Intervention: 8.96 (2.57) Control: 28.39 (1.24) **Time 3** Intervention: 7.00 (1.02) Control: 28.62 (1.17)