Abstract Title Page
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Title: A daily dose of CALM: Supporting middle school educators' wellbeing and classroom functioning through a brief stress reduction intervention.

Authors and Affiliations:

Alexis R. Harris
Patricia A. Jennings
Rachel M. Abenavoli
Deirdre A. Katz
Mark T. Greenberg
Deborah Schussler

Pennsylvania State University

Abstract Body

Limit 4 pages single-spaced.

Background / Context:

Description of prior research and its intellectual context.

Contemplative practices take many forms, but much of the empirical research on contemplative interventions has centered on training in mindfulness, most commonly through Mindfulness Based Stress Reduction (MBSR; Kabat-Zinn, 1990). Mindfulness involves both sustained nonjudgmental attention to present moment experience and an orientation of openness, curiosity, and acceptance towards one's experience (Kabat-Zinn, 1994). The cultivation of mindfulness is not unique to MBSR, however, and is probably a core process of developmental change that ensues from training in a variety of contemplative practices, such as various forms of meditation and yoga. Few studies to date have reported evidence for the efficacy of improving teacher and classroom outcomes through contemplative practice with teachers, but this approach is gaining popularity and empirical support.

Flook and colleagues (2013) reported a small pilot study (n=18) with elementary school teachers testing a an 8-week modified version of MBSR that made some adaptations to better suit educators and incorporated specific school related practices. The intervention group showed improvements at posttest in several areas that were not observed in the control group, including self-reported psychological distress, mindfulness, self-compassion and burnout, as well as observed classroom performance and performance on attention and emotion processing tasks. Intervention teachers remained stable in their morning peak cortisol levels (measured 30 minutes after waking), while control teachers showed a significant decline in their morning peak cortisol levels, which can be an indicator of the negative effects of stress.

The CARE intervention (Cultivating Awareness and Resilience in Education) draws from the Prosocial Classroom model (Jennings and Greenberg, 2009), and incorporates emotion skills instruction with mindfulness and stress reduction practices (self-regulation of attention and non-judgmental awareness) and compassion practices (to promote empathy and compassion in the classroom) (Jennings et al., 2011). An initial pilot of CARE suggested the intervention's potential to reduce stress (in the form of time pressure) and improve mindfulness in teachers. A second trial of CARE found that the program was associated with reductions in time pressure and burnout. It was also associated with improvements in some aspects of mindfulness, emotion regulation, physical wellbeing, and efficacy in the classroom.

Another recent randomized trial tested the impacts of an 8 week, 11 session mindfulness training program for teachers designed to promote mindfulness and self-compassion and to improve teachers' ability to manage stress (Roeser et al., 2013). This program used experiential exercises, discussions, lectures, small group applications, and homework assignments to promote mindful awareness, attention, emotion regulation, and compassion and to promote the application of these skills during teachers' professional lives for the management of stress. Teachers randomized to this program reported less stress, burnout, anxiety, and depression, and improved in their mindfulness, self-compassion, and attention. This study measured physiological indicators of teachers' wellbeing, including blood pressure and salivary cortisol, but they did not significantly improve due to the intervention.

Purpose / Objective / Research Question / Focus of Study:

Description of the focus of the research.

The current study involved the development, implementation, and evaluation of a universal school-based intervention designed to promote health and wellbeing among educators. This study aims to further investigate the efficacy of contemplative practices as a support for teacher wellbeing. The study contributes a new perspective to the current literature by including both classroom teachers and other school personnel and by testing an innovative intervention model.

Setting:
Description of the research location.

This study was conducted in two middle schools in central Pennsylvania.

Population / Participants / Subjects:
Description of the participants in the study: who, how many, key features, or characteristics.

Participants were 64 educators (88% female) from two middle schools in Pennsylvania. Approximately 66% of participants were classroom teachers, and 34% were other school staff (e.g., paraprofessionals, learning support staff, counselors). On average, participants were about 43 years old and had 14 years of experience in education. The sample was predominantly (98%) Caucasian.

Intervention / Program / Practice:
Description of the intervention, program, or practice, including details of administration and duration.

The CALM intervention logic model is presented in Figure 1. CALM is an intervention program based in gentle yoga and mindfulness practices designed specifically to promote health and wellbeing among teachers and school personnel by providing a daily stress reduction practice as well as empowering participants with skills and strategies to be used outside of the program. The 64 intervention sessions, each lasting approximately 20 minutes, were offered four days per week for 16 weeks before the beginning of the school/work day. These sessions were taught by a certified yoga instructor who assisted in the development of the program.

The intervention was manualized and each week involved a different thematic focus (e.g., present-centered awareness, balance, acceptance,) with variations on the theme in each of the four sessions for that week. Intervention sessions were scripted and a typical session included 2-3 minutes of centering and intention setting practices followed by 1-2 minutes of breathing exercises (e.g., breath awareness, diaphragmatic breathing), 7-10 minutes of movement practice, revisiting the breathing practice for 1-2 minutes, 3-4 minutes of a final relaxation or meditation practice (with a varied focus on relaxation, self-care, caring and compassion for others, lovingkindness, and gratitude) and ended with a 1 minute closing practice involving setting an intention for the workday.

Participants were encouraged to attend CALM sessions at least 2 days per week and to engage in these practices outside of the CALM sessions. Weekly "personal practice" cards were given to the participants to support extension of the strategies beyond the sessions. Participants were given examples of when and how they might practice specific brief strategies during the work day to aid in the management of stress, support positive relationships with students and colleagues, and to promote coping with the demands of the workday.

Research Design:
Description of the research design.

The current research tested the feasibility and efficacy of CALM, a 16-week brief daily yoga-based program integrated into the school setting. This study involved a quasi-experimental efficacy trial involving 64 educators from two schools: one intervention and one wait-list control. Data were collected through in-person physiological assessments and self-report surveys at pretest, 5 months later at posttest, and an additional 6 months later at follow-up.

Data Collection and Analysis:
Description of the methods for collecting and analyzing data.

Data were collected at three time points: (1) Fall 2012 (pre-intervention), (2) Spring 2013 (post-intervention), and (3) Fall 2013 (follow-up). Each assessment period included (1) an online self-report survey on educators' attitudes, feelings, and behaviors, (2) an in-person assessment during which measures of body-mass index and blood pressure were obtained, and (3) a saliva collection from which cortisol, salivary alpha amylase, C-reactive protein, and DHEA-S were assayed. The Fall 2013 follow-up assessment is currently underway.

Social-emotional competence measures. Teachers' efficacy in the classroom was measured with items from the Teachers' Sense of Efficacy Questionnaire (TSES; Tschannen-Moran & Woolfolk Hoy, 2001). Mindfulness was assessed with two measures: The Five Factor Mindfulness Questionnaire (FFMQ; Baer, Smith, Hopkins, Krietmeyer, & Toney, 2006). Participants' positive affect and negative affect was measured with the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988). Participants' emotion reappraisal and emotion suppression tendencies were measured with the Emotion Regulation Questionnaire (ERQ; Gross & John, 2003). The ability to handle negative emotions without acting to avoid or alleviate them or becoming absorbed in them was measured with the Distress Tolerance Scale (DTS; Simons & Gaher, 2005).

Stress and burnout measures. Dimensions of time pressure were measured with the Time Urgency Scale (Landy, Rastegary, Thayer, & Colvin, 1991). Stress was measured with four items from the Perceived Stress Scale (PSS; Cohen, Kamarck, & Mermelstein, 1983). Emotional exhaustion, depersonalization, and low personal accomplishment were measured with the Maslach Burnout Inventory—Educators Survey (MBI; Maslach, Jackson, & Leiter, 1997). Participants' experience of physical symptoms was measured with the Daily Physical Symptoms scale (Larsen & Kasimatis, 1991). Problems related to poor sleep were measured with the Sleep-related Impairment scale of the Patient-Reported Outcome Measure Information System (PROMIS) for sleep (Buysse et al., 2010).

Physiological measures. For cortisol, duplicate samples from each participant from each of the four times of day were assayed using commercially available immunoassay kits, and retesting was conducted for any duplicate assays that varied by more than 5% error. Duplicate cortisol values were averaged and then converted nmol/L to produce values for analysis. Salivary alpha-amylase (sAA) was assayed from single samples for each participant at each time of day using kinetic reaction kits and values for analyses are reported in units of activity per milliliter (U/mL). For salivary assays, inter-assay covariances were less than 10%, and intra-assay covariances were less than 5%.

The evaluation of intervention impacts on all measured outcomes was conducted through a series of ANCOVA models estimated using PROC GLM in SAS that included the following covariates: pre-test level of each outcome variable, gender, and years teaching.

Findings / Results:
Description of the main findings with specific details.

Table 1 present results from all ANCOVA models examining intervention impacts.

Social-emotional impacts. Participants in the intervention condition scored significantly higher in one aspect of mindfulness: their degree of mindful observation. The intervention was associated with impacts on several aspects of emotional experience, including significant increases in the experience of positive affect, improvements in tolerance for negative emotions and general distress tolerance, and trend-level impacts on effortful regulation of negative emotion. Analyses also indicated an intervention impact on efficacy for classroom management.

Stress and burnout impacts. Participants in CALM improved in work-related stress compared to control participants: there were trend level impacts on the time pressure dimensions of task-related hurry and experiences of the depersonalization aspect of burnout. Analyses also revealed that participants in the intervention group significantly improved compared to control participants in the experience of daily physical symptoms.

Physiological impacts. There was a significant intervention effect on the cortisol awakening response, suggesting that the intervention was associated with a steeper awakening response than that observed in the control group. Follow-up analyses revealed that at posttest, control participants demonstrated a significantly higher level of cortisol at awakening than did intervention participants. Cortisol levels 30 minutes past waking did not significantly differ by group. There were no significant differences between the groups in cortisol area under the curve, sAA awakening response or sAA area under the curve.

Conclusions:
Description of conclusions, recommendations, and limitations based on findings.

This study demonstrates that a brief daily program of mindfulness and yoga practice is a feasible strategy to impact educators' social-emotional competence and wellbeing. This type of professional development opportunity for educators may be a promising method of preventing educator burnout and supporting the social-emotional climate of the learning environments in which they operate.

Appendices

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Appendix A. References

References are to be in APA version 6 format.

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Appendix B. Tables and Figures

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Table 1.

Estimates of intervention impacts on educator stress and wellbeing: Adjusted group means, ANCOVA results, and effect sizes

	Adjusted post-test means				
Outcome	CALM group	Control group	*F*	*df*	*d*
Five-Facet Mindfulness					
Observe	3.63	3.38	4.91*	1, 58	0.41
Describe	3.71	3.66	.32	1,58	0.11
Awareness	3.51	3.40	1.02	1,58	0.24
Non-Judgment	3.96	3.74	2.69	1, 58	0.13
Non-reactivity	3.23	3.26	.07	1, 58	0.22
Time Urgency					
Competitiveness	3.84	3.74	1.03	1, 58	0.47
Task-related hurry	3.47	3.75	3.68+	1, 58	-0.20
General Hurry	3.23	3.33	.61	1,58	-0.01
Total Time Urgency	3.26	3.32	.68	1,58	-0.02
Perceived Stress	1.05	1.28	2.55	1,57	-0.21
Burnout					
Emotional Exhaustion	22. 70	24.52	1	1, 58	-0.28
Lack of Personal Accomplishment	38.74	38.00	.82	1, 56	0.38
Depersonalization	4.30	5.79	3.49+	1, 56	-0.38
Self-Efficacy					
Student Engagement	6.83	6.69	.17	1, 53	-0.10
Classroom Management	7.93	7.54	4.18*	1, 53	0.39
Instructional Practice	7.67	7.55	.44	1, 50	0.21
Emotion Regulation					
Reappraisal	5.24	5.34	.23	1, 58	0.09
Suppression	3.12	3.34	1	1, 58	-0.25
Affect					
Positive Affect	3.85	3.44	8.53**	1, 58	0.97
Negative Affect	1.89	1.88	.00	1, 58	0.06
Distress Tolerance					
Tolerance	4.26	3.71	9.62**	1, 57	0.43
Absorption	4.14	3.87	2.07	1, 56	0.29
Appraisal	4.16	3.97	2.07	1, 57	0.37
Regulation	3.86	3.53	3.8+	1, 56	0.31
General Distress Tolerance	4.10	3.77	9.76**	1, 56	0.43
Physical Symptoms	0.08	0.11	4.39*	1, 57	-.33
Sleep-related impairment	17.12	18.65	1.85	1,58	-.39
Salivary Biomarkers					
Cortisol AR	8.12	3.86	5.88*	1, 54	0.62
Cortisol AUC [a]	4.58	4.64	.47	1, 53	-0.27
sAA AR [a]	4.42	4.49	.15	1, 53	-0.28
sAA AUC [a]	7.67	7.76	.73	1, 49	-0.64

[a] log transformed values

Note: Covariate adjusted means estimated by the LSMEANS option in the GLM procedure in SAS. Effect sizes (Cohen's *d*) computed with the following formula: difference in adjusted post-test means /pooled within group post-test standard deviation.

+ p<.10, *p<.05, **p<.01

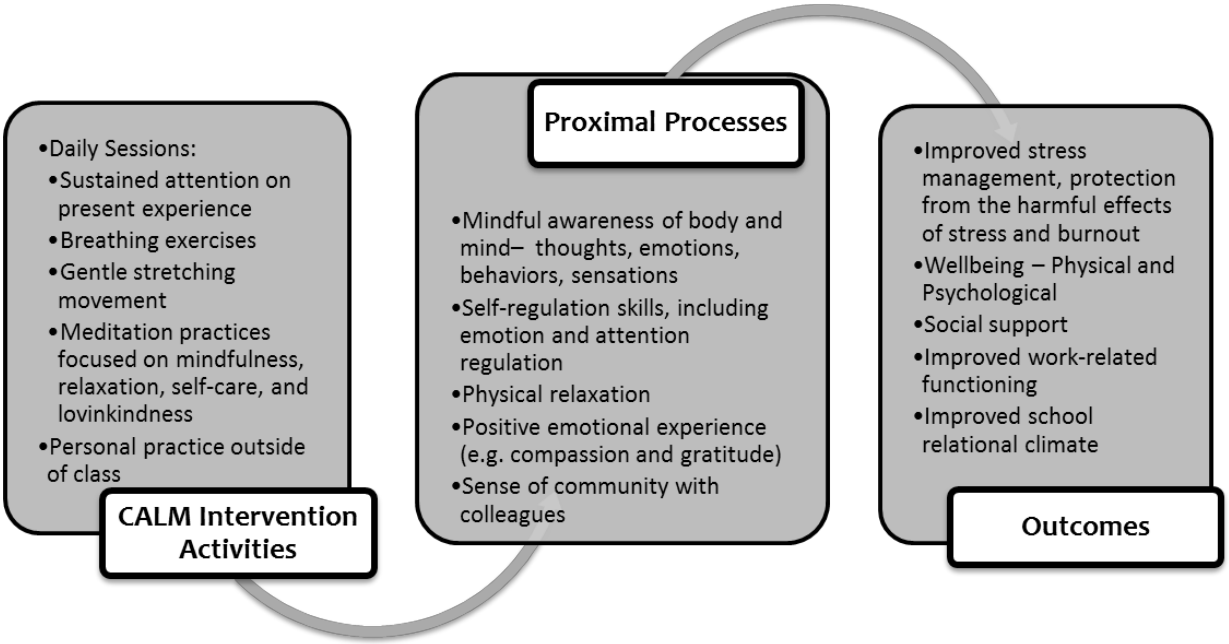

Figure 1. The CALM (Comprehensive Approach to Learning Mindfulness) Intervention Logic Model.