

Teacher Stress and Health

Effects on Teachers, Students, and Schools



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This issue brief, created by the Pennsylvania State University with support from the Robert Wood Johnson Foundation, is one of a series of briefs addressing the need for research, practice, and policy on social and emotional learning (SEL). SEL is defined as the process through which children and adults acquire and effectively apply the knowledge, attitudes, and skills necessary to understand and manage emotions, set and achieve positive goals, feel and show empathy for others, establish and maintain positive relationships, and make responsible decisions.

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Executive Summary

Teachers play a critical role in shaping the lives of our nation's children. Teachers not only facilitate learning, but also influence a child's social and emotional development.

Today, teaching is one of the most stressful occupations in the U.S. High levels of stress are affecting teacher health and well-being, causing teacher burnout, lack of engagement, job dissatisfaction, poor performance, and some of the highest turnover rates ever.

Stress not only has negative consequences for teachers, it also results in lower achievement for students and higher costs for schools. A New York City study showed higher teacher turnover led to lower fourth and fifth grade student achievement in both math and language arts. The cost of teacher turnover is estimated to be over \$7 billion per year.

There are four main sources of teacher stress.

- **School Organizations** that lack strong principal leadership, a healthy school climate and a collegial, supportive environment;
- **Job Demands** that are escalating with high-stakes testing, student behavioral problems, and difficult parents;
- **Work Resources** that limit a teacher's sense of autonomy and decision-making power; and
- **Teacher Social and Emotional Competence** to manage stress and nurture a healthy classroom.

Interventions to help reduce teacher stress fall into three broad categories:

1. **Organizational Interventions** – An approach that focuses on changing the organization's culture to prevent stress from occurring;
2. **Organization-Individual Interface Interventions** – An approach that includes building workplace relationships and support;

46% of teachers report high daily stress during the school year.* That's tied with nurses for the highest rate among all occupational groups.

* Gallup (2014). State of American Schools. Retrieved from <http://www.gallup.com/services/178709/state-america-schools-report.aspx>.

3. **Individual Interventions** – An approach that teaches individuals practices to manage stress.

Several programs and policies are proven to help teachers reduce stress, improve well-being and student outcomes, and even save schools money. These include:

- **Mentoring and induction programs** for beginning teachers can improve teacher satisfaction and retention, as well as student academic achievement. (Organization-Individual Interface)
- **Workplace wellness programs** have resulted in reduced health risk, health care costs, and absenteeism among teachers. (Organization-Individual Interface)
- **Social emotional learning (SEL) programs** that improve behavior and promote SEL among students also help reduce teacher stress and create more positive engagement with students. (Organization-Individual Interface)
- **Mindfulness/stress management programs** can help teachers develop coping and awareness skills to reduce anxiety, depression, and improved health. (Individual)

Still, much more needs to be done to reduce the current teacher crisis, particularly on an organizational level. Basic research is needed on additional ways to reduce teacher stress and support teacher health and wellness, in order to prevent the negative consequences that impact teachers, students, parents, communities, and school systems.

Introduction

Teachers play an important role in the lives of children. In addition to facilitating learning, teachers are key agents of socialization, helping students reach their highest potential¹ and develop into responsible citizens. But, over the past years, teaching has become increasingly stressful.

Today, teaching is one of the most stressful occupations in the U.S. Teacher stress impacts teacher health and well-being, work attitudes (e.g. job satisfaction), and turnover. Teacher stress is linked to teaching performance and student academic outcomes. High stress levels are causing teachers to leave their profession, which causes instability among staff, students, and the community. In response, schools and districts are hiring newer teachers with less experience, resulting in lower student achievement and significant training costs for our nation's school systems.

This research brief examines the sources and effects of teacher stress, highlights programs and policies that can reduce teacher stress and improve teacher well-being and performance, and recommends next generation research, real-world policies, and systematic, sustainable practices that can build and sustain a culture of health for teachers in U.S. schools.



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Key Findings

There Are Four Main Sources of Teacher Stress

School Organization: Leadership, Climate and Culture

A supportive school culture, strong principal leadership and a collaborative, collegial environment are associated with higher job satisfaction among teachers and intentions of novice teachers to continue teaching.^{3,4} High teacher trust in both their colleagues and leadership is related to lower stress and burnout. Unsatisfactory relationships with administrators, colleagues, or students may increase teacher stress,⁵ lower job satisfaction,⁶ and lower commitment to students.⁷ There is also a relationship between teacher turnover and principal turnover. Frequent principal turnover results in lower teacher retention rates. Leadership changes are particularly harmful for high poverty schools, low-achieving schools, and schools with many inexperienced teachers.⁸

Job Demands

Continued high demands on the job are a key predictor of teacher stress. Increased use of high-stakes testing at the state and district levels may be exacerbating this problem by limiting teachers' control over the content and pace of their own work, and increasing threats of teacher termination and school

What Is Job Stress?

Job stress can be defined as the harmful physical and emotional responses that occur when the requirements of the job do not match the capabilities, resources, or needs of the worker. Job stress can lead to poor health including psychological and physiological symptoms (such as depression, anxiety, poor sleep patterns, etc.) and even injury.²

closure.⁹ Managing students with behavior problems and working with difficult parents are two other demanding interpersonal challenges that produce chronic stress and leave teachers more vulnerable to depression.

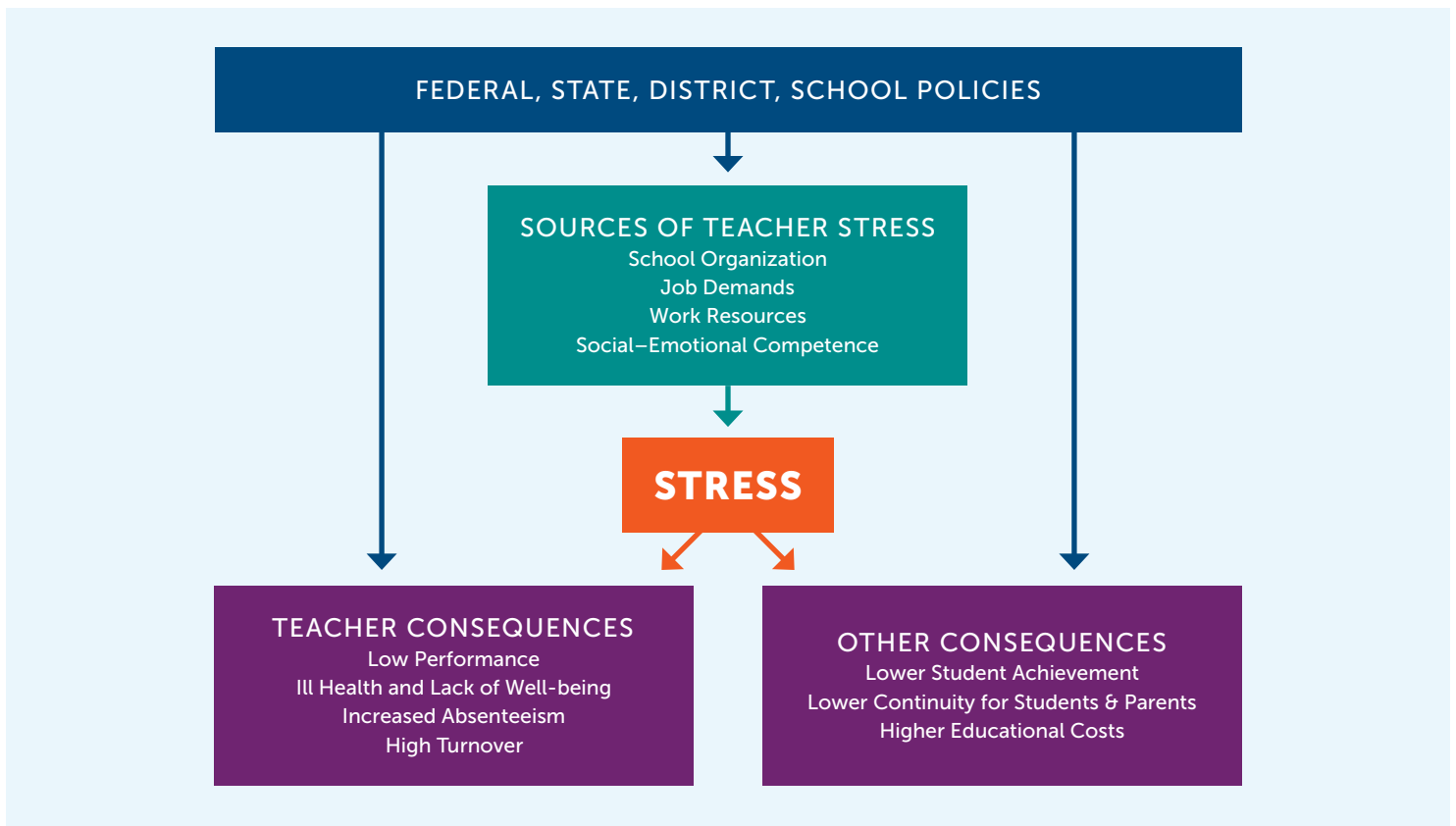
Work Resources: Support and Autonomy in Decision-Making

When school leaders create opportunities for decision-making and collaboration among teachers, teachers feel empowered and have higher satisfaction.¹⁰ Among professional occupations, teachers rate lowest in feeling that their opinions count at work.¹¹ The percentage of teachers who report low job autonomy has increased from 18 percent in 2004 to 26 percent in 2012.¹² Retaining high quality teachers means ensuring they have a voice in school-level decisions, and not subjecting them to unrealistic expectations. In addition, co-worker support and job control are key issues. Greater job control has been found to reduce the impact of stress on health in teachers.¹³

Teachers’ Personal Resources and Social-Emotional Competence

When high job demands and stress are combined with low social-emotional competence (SEC) and classroom management skills, poor teacher performance and attrition increase.¹⁴ A teacher’s own SEC and well-being are key factors influencing student and classroom outcomes.¹⁵ Yet, few teachers have had training opportunities to attend to and develop their own SEC. If a teacher is unable to manage their stress adequately, their instruction will suffer, which then impacts student well-being and achievement. In contrast, teachers with

Causes and Consequences of Teacher Stress



better emotion regulation are likely to reinforce positive student behavior, and support students in managing their own negative emotions.^{16,17} Teachers with high SEC also report more positive affect, greater principal support, higher job satisfaction, and a sense of personal accomplishment.¹⁸

Teacher Stress Has Many Negative Consequences

Teacher stress—now at an all-time high—affects teachers' physical health.

The majority of teachers report feeling under great stress at least several days a week, a significant increase from 1985.¹⁹ According to a national survey, 46 percent of teachers report high daily stress during the school year.²⁰ This is the highest rate of daily stress among all occupational groups, tied with nurses, also at 46 percent, and higher than physicians, at 45 percent. Less than one-third of K-12 teachers report currently feeling engaged in their job and engagement drops significantly during the first few years of teaching. Lack of engagement may be associated with low retention rates among new teachers.²¹

Teachers' psychological stress also affects their physical health. In a study of high school teachers, 46 percent of teachers were diagnosed with excessive daytime sleepiness and 51 percent with poor sleep quality, compromising health, quality of life, and teaching performance.²² Chronic work stress and exhaustion among teachers is associated with negative changes in biological indicators of stress²³ and chronically stressed teachers show atypical daily patterns of physiological stress reactivity (cortisol).^{24,25}

Teacher stress is linked to poor teacher performance and poor student outcomes.

According to a longitudinal study, elementary school teachers who have greater stress and show more symptoms of depression create classroom environments that are less conducive to learning, which leads to poor academic performance among students. Students who began the school year with weaker math skills and had a teacher with more depressive symptoms had the lowest rate of achievement.²⁶ Teachers who report greater burnout early in the school year have classrooms with more behavior problems. When teachers are highly stressed, children show lower levels of both social adjustment and academic performance.²⁷ Most strikingly, a survey of over 78,000 students in grades 5-12 in 160 schools showed that higher teacher engagement in their jobs predicted higher student engagement, which in turn predicted higher student achievement outcomes.^{28,29}

Teacher turnover leads to instability and lower effectiveness in U.S. schools.

Between 1988 and 2008, 41 percent of teachers left the profession. While this number includes teachers who retired, research estimates that between 23 percent and 42 percent of teachers stop teaching within their first five years.^{30,31,32} Reasons cited for leaving include job dissatisfaction related to poor working conditions, low salary, and student behavior problems, as well as lack

Elementary school teachers who have greater stress and show more symptoms of depression create classroom environments that are less conducive to learning.

of classroom resources, input to school-wide decision making, and supportive school leadership.³³ This high teacher turnover leads to even more negative consequences within our educational system:

- **Student achievement declines.** In a study of New York City fourth- and fifth-grade students, higher teacher turnover had a significant negative effect on both math and language arts achievement. Turnover was particularly harmful to lower-performing students.³⁴ In contrast, research shows that additional years of teaching experience at the same grade level has a direct positive impact on student achievement.³⁵
- **U.S. schools lose more than \$7 billion each year.** There is a substantial loss of investments made in training new teachers when nearly half leave within five years. The National Commission on Teaching and America’s Future estimates that public school teacher turnover costs more than \$7.3 billion per year.³⁶ The cost per teacher is estimated from over \$4,000 in rural areas to over \$17,000 in urban districts.
- **Inequity in education access is increased.** Because turnover is most likely to occur in poorly performing schools, it leads to long-term destabilization of low-income neighborhood schools which lose continuity in relationships between teachers, students, parents and community.³⁷

Policies and Programs Show Promise for Reducing Teacher Stress and Its Consequences

The findings above support the need to reduce stress and improve teacher well-being and performance. There are three broad types of intervention approaches: 1) Organizational Interventions; 2) Organization-Individual Interface Interventions; and 3) Individual Interventions. The following are programs or policies that have shown promise in reducing teacher stress and promoting their social-emotional competencies, well-being, health and performance.

Organizational Interventions

Organizational interventions are directed at changing the organization’s culture and work practices. They involve promoting a participatory environment, open communication, supervisor/peer support, job redesign (e.g. reducing workload), training, worker health policies, etc.³⁸ The goal of an organizational intervention is to prevent stress from occurring, which is considered to be more effective than individual interventions alone. There is some evidence to support organizational-level interventions in other service professions, with documented benefits in reducing stress, increasing job satisfaction and reducing turnover.³⁹

High Teacher Turnover:

Hurts student scores

Turnover hurts students’ math and language arts scores, particularly for lower-performing students.



Disrupts relationships between schools and communities

Turnover happens most in poorly performing schools, leading to destabilization of low-income neighborhood schools.

Costs schools \$7.3 billion each year

Rapid turnover costs over \$4,000 per year in rural areas and over \$17,000 per year in urban districts.



Although many initiatives, including teacher union collective bargaining agreements, legislation, and worksite labor-management health and safety committees, have been initiated, there is no research to demonstrate their effectiveness in improving teacher well-being and performance.

Organization-Individual Interface Interventions

This approach typically focuses on building co-worker social support and skills training for teachers and students. There are three proven programs that fall into this category.

- Teacher Induction and Mentoring Programs Can Help Teachers and Students Succeed.** Given the high rate of teacher attrition in the first years of teaching, programs that seek to provide technical and social support to beginning teachers through orientation, guidance, and mentoring programs have proliferated.^{40,41,42} Common activities include mentoring from teachers in the same subject area, regular opportunities for supportive communication with administrators, seminars and workshops, time management, and team building. A review of well-designed induction studies concluded that supports for beginning teachers led to: (i) higher satisfaction, commitment, or retention, (ii) better classroom instructional practices, and (iii) higher student scores on academic achievement tests.⁴³

Research to date shows that teachers who had a mentor in their subject area, had common planning time in their subject area and grade level, and had regular communications with their principal had better retention rates.^{44,45,46} More comprehensive, and longer, induction supports were even more advantageous,^{47,48} and may be particularly effective in retaining teachers in high-need districts.^{49,50} At present, only three states require schools to provide induction supports to new teachers for more than one year, require teachers to complete an induction program for professional licensure, and provide dedicated state induction funding.⁵¹

- School Workplace Wellness Promotion Programs and Policies Can Save Schools Money and Help Improve Teachers' Health.** One systems-wide approach to addressing teacher health and well-being is the implementation of workplace wellness programs. Such programs target lifestyle changes to reduce health risk behaviors and costs. Data shows that the percentage of schools with health promotion practices has increased between 2000 and 2014, including a twofold increase in offerings focused on health risk appraisals (21.2% in 2014), nutrition (31.4% in 2014), and weight management (30.4% in 2014), and a 10% increase in physical activity programs (50% in 2014). Notably, only 26 percent of schools offered stress management services, a decline of 10 percent since 2000.⁵²

There is early evidence of the benefits of workplace wellness programs in schools. In one school district a workplace wellness program, initiated in 2011-12, incorporated administrative planning, behavior change campaigns, and insurance incentives (e.g., lower co-pay and deductibles). Over half of

Programs that Help Relieve Teacher Stress



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Mindfulness programs can help teachers manage emotions and find joy in teaching.



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Mentoring programs can help new teachers reduce stress and raise retention which improves classroom instruction.



Image: © iStock/Steve Debenport

Workplace wellness programs can improve teacher health, lower medical costs, and reduce absenteeism.



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Social and emotional learning programs for students can reduce teacher burnout and increase their satisfaction

employees participated, and among those who did, 46.0 percent had lowered body mass index, 34.7 percent lowered systolic blood pressure, 65.6 percent lowered blood glucose, and 38.6 percent lowered total cholesterol.⁵³ A cost analysis over two additional years found average medical claims payments were lower for teachers in the wellness program. The cost savings from the program was \$3,612,402, or a savings of \$3.60 for every dollar spent.⁵⁴ Another study of a district-wide wellness program found no differences between participants and nonparticipants in health care costs, but program participation led to lower absenteeism, resulting in savings of \$15.60 for each dollar spent.⁵⁵

- Programs Focused on Student Behavior and Social and Emotional Learning (SEL) Benefit Teachers and Support Classroom Learning.** While programs to improve student behavior and student SEL have yielded positive outcomes for students,⁵⁶ evidence suggests they may also improve teacher functioning. In a randomized control trial (RCT) of 350 K-5 teachers across 27 urban schools, teachers trained to implement a classroom management program with an SEL curriculum reported greater efficacy for managing student behavior and higher levels of personal accomplishment compared to teachers in control schools.⁵⁷ These findings support other studies showing that teachers trained and supported in implementing SEL programs have lower job-related anxiety and depression,⁵⁸ higher quality classroom interactions with students,^{59,60} greater teacher engagement,⁶¹ and greater perceived job control.⁶²

Teachers in schools implementing multi-tiered approaches such as school-wide positive behavioral interventions and supports (PBIS) also reported lower levels of job-related burnout and higher efficacy.⁶³ Teachers receiving coaching focused on improving the quality of their interactions with students have led to a significant increase in student achievement,⁶⁴ suggesting that systematic and sustained coaching supports may be a critical component of SEL interventions for teachers.

Individual Interventions

Interventions at the individual level are the most common approaches to deal with stress. Such interventions may include psychological relaxation or meditation, cognitive behavioral approaches to improve active coping skills, and goal-setting.

- Teachers Who Participate in Stress Management Programs Report Mental and Physical Health Benefits.** Mindfulness and stress management-based professional development programs foster teachers' ability to focus their awareness in the present moment in a non-reactive manner, connecting to their own experience and to others with ease, patience, and kindness.^{68,69,70} Skills are taught using sequenced exercises such as body scans, breath awareness, meditative movement, greater emotional awareness, and the cultivation of positive emotions towards self and others. Well-designed studies have shown psychological and physiological benefits as well as improvements in quality of teaching.^{71,72}

The Benefits of Workplace Wellness Programs in Schools

\$3.60 is the cost savings from every dollar spent on wellness programs

Among wellness program participants:

46% reduced body mass index

34.7% lowered systolic blood pressure

65.6% lowered blood glucose

38.6% lowered total cholesterol

What Is Mindfulness?

Mindfulness is a state of active, open attention to the present moment. Being mindful means observing one's thoughts and feelings from a distance, without judging them as good or bad.^{65,66} It has been related to reducing teacher burnout, negative affect, sleep-related impairment, and daily physical symptoms.⁶⁷

In the largest study to date, 224 K-5 teachers from 36 urban public schools were randomly assigned to mindfulness training or control. Those who received mindfulness training showed improved levels of mindfulness and emotion regulation skills and lower levels of personal distress.⁷³ They also showed significant improvements in their observed instruction. Other studies with the same or similar intervention models have shown positive effects on occupational stress and burnout,^{74,75} and in a study of special needs teachers, mindfulness training led to lower stress and anxiety and greater personal growth, empathy, and forgiveness.⁷⁶ Although few studies have assessed teachers' physiological changes, findings suggest mindfulness practices can lead to reductions in physiological stress, including lower levels of cortisol and blood pressure,^{77,78,79} and positive effects on sleep quality.^{80,81,82}

Future Research Needs

There is a need for greater innovation in developing and assessing the effectiveness of policies and programs to reduce teacher stress and improve well-being. In particular, there is a need for further testing of the efficacy of organizational strategies to improve "work processes" such as reducing excessive work demands, increasing job control, creating more collaborative leadership, and building more effective school cultures.

While supporting teacher mindfulness and stress management is one avenue, teacher work demands are high and have been increasing, and policy and organizational level interventions need to address this issue.⁸³ The impacts of teacher stress are particularly high in disadvantaged schools, making it a fundamental issue for reducing inequity in education.

Basic research on teacher health and wellness is needed and should include the use of objective measures of teacher's stress and time use.⁸⁴ In addition, there is a need to examine the consequences of teacher stress for teacher health care costs.

Conclusion and Implications

There is an urgent need to address our nation's teacher crisis. Teachers have a critical role in children's lives and teaching has become one of the most stressful occupations, with alarmingly high rates of job dissatisfaction and turnover. This escalating crisis is affecting students' educational outcomes, impacting teachers' health, and costing U.S. schools billions of dollars each year.

There are several main factors that contribute to teacher stress.

- **School Organization.** Principal leadership, particularly in creating a collegial, supportive school environment, can support teacher engagement and effectiveness. The levels of teacher stress are in turn affected by school district, state, and federal policies that may support or detract from creating a healthy school environment and effective teacher functioning.
- **Job Demands.** Surprisingly, most teacher education and professional development programs currently do not prepare teachers for these kinds of job demands.⁸⁵
- **Work Resources.** Currently, many teachers have a limited sense of autonomy and decision-making power.
- **Social and Emotional Competence.** Finally, few teachers are offered professional development to nurture their own social and emotional competence.

Fortunately, some policies and programs have proven effective in supporting teachers' well-being, improving student outcomes, and even saving schools money. These include:

- **Mentoring and induction programs** for beginning teachers, can improve teacher satisfaction and retention, as well as student academic achievement.
- **Workplace wellness programs** have resulted in reduced health risk, health care costs, and absenteeism among teachers. Policymakers should consider the Total Worker Health approach advanced by the National Institute of Occupational Safety and Health (NIOSH, CDC). This holistic approach combines policies, programs, and practices that integrate protection from work-related safety and health hazards with promotion of injury prevention and lifestyle promotion efforts to advance teacher well-being.⁸⁶
- **SEL programs** improve behavior and promote SEL among students, which also helps to reduce teacher stress and create more positive engagement with students.
- **Mindfulness/stress management programs** that help teachers develop coping and awareness skills and lead to reduced anxiety, depression, and improved health.

Authors/Affiliations

Mark Greenberg, Ph.D., is the Bennett Endowed Chair in Prevention Research, founding director of the Edna Bennett Pierce Prevention Research Center for the Promotion of Human Development, and professor of Human Development and Psychology, College of Health and Human Development at the Pennsylvania State University; Joshua L. Brown, Ph.D. is an Associate Professor of Applied Developmental Psychology in the Department of Psychology at Fordham University; Rachel Abenavoli is a Kligman Fellow and graduate research assistant. The authors gratefully acknowledge Teresa McIntyre, Ph.D. and Scott McIntyre, Ph.D. of the University of Houston for their helpful comments on an earlier version of this brief.

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- 1 Committee on the Science of Children Birth to Age 8: Deepening and Broadening the Foundation for Success, Board on Children, Youth and Families, L. Allen and B.B. Kelly (Eds.) (2015). *Transforming the workforce for children birth through age 8: A unifying foundation*. Institute of Medicine and National Research Council of the National Academies.
- 2 CDC/NIOSH DHHS (NIOSH) Publication Number 99-101.
- 3 Johnson, S. M., Kraft, M. A., & Papay, J. P. (2012). *How context matters in high-need schools: The effects of teachers' working conditions on their professional satisfaction and their students' achievement*. *Teachers College Record*, 114, 1–39.
- 4 Kapadia, K., Coca, V., & Easton, J.Q. (2007). *Keeping new teachers: A first look at the influences of induction in the Chicago Public Schools*. Chicago: Consortium on Chicago School Research, Univ. of Chicago.
- 5 Kyriacou, C. (2001). "Teacher stress: directions for future research", *Educational Review*, 53, 27-35.
- 6 Van Maele, D. and Van Houtte, M. (2012). *The role of teacher and faculty trust in forming teachers' job satisfaction: do years of experience make a difference?*, *Teaching and Teacher Education*, 28, 879-889.
- 7 Lee, J.C.-K., Zhang, Z. and Yin, H. (2011). *A multilevel analysis of the impact of a professional learning community, faculty trust in colleagues and collective efficacy on teacher commitment to students*. *Teaching and Teacher Education*, 27, 820-830.
- 8 Betelle, T.Kalogrides, D. & Loeb, S. (2011). *Stepping Stones: Principal Career Paths and School Outcomes*. NBER Working Paper No. w17243.
- 9 Center on Education Policy (2016). *Listen to us: Teachers views and voices*.
- 10 Ibid
- 11 Gallup (2014). *State of American Schools*.
- 12 Sparks, D., & Malkus, N. (2015). *Public School Teacher Autonomy in the Classroom Across School Years 2003-2004,2007-2008,2011-2012*. *Stats in Brief* (NCES 2015-089). US Dept of Ed. National Center for Education Statistics.
- 13 Verhoeven, C., Maes, S., Kraaij, V., & Joeke, K. (2003). *The job-demand-control-social support model and wellness/health outcomes: A European study*. *Psychology and Health*, 18(4), 421-440.
- 14 Montgomery, C., & Rupp, A. A. (2005). *A meta-analysis exploring the diverse causes and effects of stress in teachers*. *Canadian Journal of Education*, 28, 458–486.
- 15 Jennings, P. A., & Greenberg, M. T. (2009). *The prosocial classroom: Teacher social and emotional competence in relation to student and classroom outcomes*. *Review of Educational Research*, 79,491–525.
- 16 Li-Grining, C., Raver, C. C., Champion, K., Sardin, L., Metzger, M. W., & Jones, S. M. (2010). *Understanding and improving classroom emotional climate in the "real world": The role of teachers' psychosocial stressors*. *Early Education and Development*, 21,65–94.
- 17 Swartz, R. A., & McElwain, N. L. (2012). *Preservice teachers' emotion-related regulation and cognition: Associations with teachers' responses to children's emotions in early childhood classrooms*. *Early Education and Development*, 22, 202–226.
- 18 Brackett, M. A., Palomera, R., Moja-Kaja, J., Reyes, M. R., & Salovey, P. (2010). *Emotion-regulation ability, burnout, and job satisfaction among British secondary-school teachers*. *Psychology in the Schools*, 47(4), 406-417.
- 19 *The Metropolitan Life Survey of American the Teacher: Challenges for School Leadership*. (2013).
- 20 Gallup (2014). *State of American Schools*.
- 21 Ibid
- 22 de Souza, J. C. de Sousa, I. C., Belisio, A. S., de Azevedo, C. V. M. (2012). *Sleep habits, daytime sleepiness and sleep quality of high school teachers*. *Psychology & Neuroscience*, 2, 257-263.
- 23 Bellingrath, S., Weigl, T., & Kudielka, B. M. (2009). *Chronic work stress and exhaustion is associated with higher allostatic load in female teachers*. *Stress: The International Journal on the Biology of Stress*, 12(1), 37-48.
- 24 Wolfram, M., Bellingrath, S., Feuerhahn, N., & Kudielka, B. M (2013). *Emotional exhaustion and overcommitment to work are differentially associated with hypothalamus-pituitary-adrenal (HPA) axis responses to a low-dose ACTH1-24 (Synacthen) and dexamethasone-CRH test in healthy school teachers*. *Stress*, 16, 54–64
- 25 Katz, D.A., Greenberg, M.T., Klein, L.C. & Jennings, P.A., (2016). *Associations between salivary -amylase, cortisol and self-report indicators of health and wellbeing among educators*. *Teacher and Teacher Education*, 54, 98-106.
- 26 McLean, L., & Connor, C. M. (2015). *Depressive symptoms in third grade teachers: Relations to classroom quality and student achievement*. *Child Development*, 86,945-954
- 27 Hoglund, W. L. G., Klinge, K. E., & Hosan, N. E. (2015). *Classroom risks and resources: Teacher burnout, classroom quality and children's adjustment in high needs elementary schools*. *Journal of School Psychology*, 53(5), 337-357.
- 28 G. Gordon. (2010). *The Other Outcome: Student Hope, Engagement, Wellbeing*
- 29 Gallup. (2009). *Student and teacher engagement predictive study*. Unpublished raw data. Omaha, NE.
- 30 Ingersoll, R., Merrill, L. & Stuckey, D. (2014) *Seven trends: the transformation of the teaching force*. CPRE Report (#RR 80). Consortium for Policy Research in Education, University of Pennsylvania.
- 31 Raue, K., & Gray, L. (2015, September). *Career Paths of Beginning Public School Teachers: Results From the First Through Fifth Waves of the 2007–08 Beginning Teacher Longitudinal Study*. *Stats in Brief*, NCES 2015-196. U.S. Department of Education.
- 32 Perda (2013) dissertation in Ingersoll (2014)
- 33 Ibid
- 34 Ronfeldt, M., Loeb, S., & Wyckoff (2013). *How Teacher Turnover Harms Student Achievement*. *American Educational Research Journal*, 50, 4–36.
- 35 Huang, F. L. & Moon, T. R. (2009). *Is experience the best teacher?* *Educational Assessment Evaluation and Accountability*, 21, 209-234.
- 36 National Commission on Teaching and America's Future (2007). *The High Cost of Teacher Turnover* (Policy Brief)
- 37 Betelle, T.Kalogrides, D. & Loeb, S. (2011). *Stepping Stones: Principal Career Paths and School Outcomes*. NBER Working Paper No. w17243.
- 38 van den Bossche, S. & Houtman, I. (2003). *Work stress interventions and their effectiveness: a literature review*.
- 39 Cox, A., Rickard, C., & Tamkin, P. (2012). *Work organisation and innovation*. Dublin: European Foundation for the Improvement of Living and Working Conditions.
- 40 Alliance for Excellent Education (2014, July). *On the path to equity: Improving the effectiveness of beginning teachers*
- 41 Ingersoll, R. (2012) *Beginning Teacher Induction: What the Data Tell Us*. *Phi Delta Kappan*, 93, 47-51.
- 42 Wei, R.C., Darling-Hammond, L. & Adamson, F. (2010). *Professional Development in the United States: Trends and Challenges: Phase II of a Three-Phase Study*, Technical Report. National Staff Development Council: Dallas, Texas.
- 43 Ingersoll, R. & Strong, M. (2011). *The impact of induction and mentoring programs for beginning teachers: A critical review of the research*. *Review of Educational Research*, 81, 201-233.
- 44 Ingersoll, R. (2012) *Beginning Teacher Induction: What the Data Tell Us*. *Phi Delta Kappan*, 93, 47-51.
- 45 Ingersoll, R., & Smith, T. (2004). *Do teacher induction and mentoring matter?* *NASSP Bulletin*, 88, 28–40.
- 46 Smith, T. & Ingersoll, R. (2004). *What are the effects of induction and mentoring on beginning teacher turnover?* *American Educational Research Journal*, 41, 681-714.
- 47 Alliance for Excellent Education (2014, July). *On the path to equity: Improving the effectiveness of beginning teachers*.
- 48 Ingersoll, R. (2012) *Beginning Teacher Induction: What the Data Tell Us*. *Phi Delta Kappan*, 93, 47-51.
- 49 Silva, T., McKie, A., Knechtel, V., Gleason, P., & Makowsky, L. (2014). *Teaching Residency Programs: A Multisite Look at a New Model to Prepare Teachers for High-Need Schools* (NCEE 2015-4002). Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences.
- 50 Silva, T., McKie, A., & Gleason, P. (2015, August). *New findings on the retention of novice teachers from teaching residency programs*. (NCEE 2015-4015). Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences.
- 51 Goldrick, L., Osta, D., Barlin, D., & Burn, J. (2012). *Review of state policies on teacher induction*. Santa Cruz, CA: New Teacher Center.
- 52 Centers for Disease Control and Prevention (2015). *School Health Policies and Practices Study, Trends Over Time: 2000-2014*. U.S. Department of Health and Human Services.
- 53 Merrill, R. M. & Sloan, A. (2014). *Effectiveness of a Health Promotion Program Among Employees in a Western United States School District*. *Journal of Occupational and Environmental Medicine*, 56, 639-644.
- 54 Merrill, R. M. & LeCheminant, J. D. (2016). *Medical Cost Analysis of a School District Worksite Wellness Program*. *Preventive Medicine Reports*, doi: 10.1016/j.pmedr.2016.01.002
- 55 Aldana, S.G., Merrill, R.M., Price, K., Hardy, A., & Hager, R. (2005). *Financial impact of a comprehensive multisite workplace health promotion program*. *Preventive Medicine*, 40, 131–137.
- 56 Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). *The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions*. *Child Development*, 82, 405–432.
- 57 Domitrovich, C. E., Bradshaw, C. P., Berg, J. P., Pas, E. T., Becker, K. D., Musci, R. lalongo, N. (2016). *How do school-based prevention programs impact teachers? Findings from a randomized trial of an integrated classroom management and social-emotional program*. *Prevention Science*, 17, 325-337.
- 58 Tyson, O., Roberts, C.M., & Kane, R. (2009). *Can implementation of a resilience program for primary school children enhance the mental health of teachers?* *Australian Journal of Guidance & Counselling*, 19, 116–130.

- 59 Abry, T., Rimm-Kaufman, S.E., Larsen, R.A., & Brewer, A.J. (2013). The influence of fidelity of implementation on teacher–student interaction quality in the context of a randomized controlled trial of the Responsive Classroom approach. *Journal of School Psychology, 51*, 437–453.
- 60 Castillo, R., Fernández-Berocal, P., & Brackett, M.A. (2013). Enhancing teacher effectiveness in Spain: A pilot study of The RULER approach to social and emotional learning. *Journal of Education and Training Studies, 1* (2).
- 61 Ibid
- 62 Zhai, F., Raver, C.C., & Li-Grining, C. (2011). Classroom-based interventions and teachers' perceived job stressors and confidence: Evidence from a randomized trial in Head Start settings. *Early Childhood Research Quarterly, 26*, 442–452.
- 63 Ross, S.W., Romer, N., & Horner, R.H. (2012). Teacher well-being and the implementation of school-wide positive behavior interventions and supports. *Journal of Positive Behavior Interventions, 14*, 118–128
- 64 Allen, J., Pianta, R.C., Gregory, A., Mikami, A.Y., & Lun, J. (2011). An interaction-based approach to enhancing secondary school instruction and student achievement. *Science, 333*, 1034–1037.
- 65 Kabat-Zinn, J. (1994). *Wherever you go, there you are: Mindfulness meditation in everyday life.* New York: Hyperion.
- 66 Roeser, R.W., Skinner, E., Beers, J., & Jennings, P.A. (2012). Mindfulness training and teachers' professional development: An emerging area of research and practice. *Child Development Perspectives, 6*, 167–173.
- 67 Abenavoli, R.M., Jennings, P.A., Greenberg, M.T., Harris, A.R., & Katz, D.A. (2013). The protective effects of mindfulness against burnout among educators. *Psychology of Education Review, 37*(2), 57–69.
- 68 Bishop, S. R., Lau, M., Shapiro, S., Carlson, L., Anderson, N. D., Carmody, J., Devins, G. (2004). Mindfulness: A proposed operational definition. *Clinical Psychology: Science and Practice, 11*, 230–241.
- 69 Kabat-Zinn, J. (2003). Mindfulness-based interventions in context: Past, present, and future. *Clinical Psychology: Science and Practice, 10*, 144–156.
- 70 Roeser, R.W. (2014). The emergence of mindfulness-based interventions in educational settings. *Motivational Interventions: Advances in Motivation and Achievement, 18*, 379–419.
- 71 Ibid
- 72 Weare, K. (2014). Evidence for Mindfulness: Impacts on the Wellbeing and Performance of School Staff.
- 73 Jennings, P.A., Brown, J.L., Frank, J.L., Doyle, S., Oh, Y., Tanler, R., Rasheed, D., DeWeese, A., DeMauro, A.A., & Greenberg, M.T. (under review). Promoting teachers' social and emotional competence, well-being and classroom quality: A randomized controlled trial of the CARE for Teachers professional development program. *Journal of Educational Psychology.*
- 74 Jennings, P. A., Frank, J. L., Snowberg, K. E., Coccia, M. A., & Greenberg, M. T. (2013). Improving classroom learning environments by cultivating awareness and resilience in education (CARE): Results of a randomized controlled trial. *School Psychology Quarterly, 28*, 374–390. doi:10.1037/spq0000035
- 75 Roeser, R. W., Schonert-Reichl, K., Jha, A., Cullen, M., Wallace, L., Wilensky, R., Harrison, J. (2013). Mindfulness training and reductions in teacher stress and burnout: Results from two randomized, waitlist-control field trials. *Journal of Educational Psychology, 105*, 787–804. doi:10.1037/a0032093
- 76 Elder, C., Nidich, S., Moriarty, F., & Nidich, R., (2014). Effect of transcendental meditation on employee stress, depression, and burnout: A randomized controlled study. *The Permanente Journal, 18*(1), 19–23.
- 77 Flook, L., Goldberg, S.B., Pinger, L., Bonus, K., & Davidson, R.J. (2013). Mindfulness for teachers: A pilot study to assess effects on stress, burnout, and teaching efficacy. *Mind, Brain, & Education, 7*, 182–195.
- 78 Harris, A. R., Jennings, P.A., Katz, D.A., Abenavoli, R.M., & Greenberg, M.T. (2015, November 4). Promoting stress management and wellbeing in educators: Feasibility and efficacy of a school-based yoga and mindfulness intervention. *Mindfulness*, DOI 10.1007/s12671-015-0451-2
- 79 Kemeny, M. E., Foltz, C., Cavanagh, J. F., Cullen, M., Giese-Davis, J., Jennings, Ekman, P. (2012). Contemplative/emotion training reduces negative emotional behavior and promotes prosocial responses. *Emotion, 12*, 338–350.
- 80 Dicke, T., Elling, J., Schmeck, A., & Leutner, D. (2015). Reducing reality shock: The effects of classroom management skills training on beginning teachers. *Teaching and Teacher Education, 48*, 1–12.
- 81 Frank, J. L., Reibel, D., Broderick, P., Cantrell, T., & Metz, S. (2013). The Effectiveness of Mindfulness-Based Stress Reduction on Educator Stress and Well-Being: Results from a Pilot Study. *Mindfulness, 6*, 208–216.
- 82 Jennings, P.A., Brown, J.L., Frank, J.L., Doyle, S., Oh, Y., Tanler, R., DeMauro, A.A., & Greenberg, M.T. (under review). Promoting teachers' social and emotional competence, well-being and classroom quality: A randomized controlled trial of the CARE for Teachers professional development program. *Journal of Educational Psychology.*
- 83 Berryhill, J., Linney, J. A., & Fromewick, J. (2009). The Effects of Education Accountability on Teachers: Are Policies Too-Stress Provoking for Their Own Good? *International Journal of Education Policy and Leadership 4*, 1–14.
- 84 McIntyre, T. M., McIntyre, S. E., Barr, C. D., Woodward, P. S., Francis, D. J., Durand, A. C. Kamarck, T. W. (2015, December 14). Longitudinal Study of the Feasibility of Using Ecological Momentary Assessment to Study Teacher Stress: Objective and Self-Reported Measures. *Journal of Occupational Health Psychology.* Advance online publication. [http:// dx.doi.org/10.1037/a0039966](http://dx.doi.org/10.1037/a0039966)
- 85 Hargreaves, A. (2000). Mixed emotions: Teachers' perceptions of their interactions with students. *Teaching and Teacher Education, 16*, 811–826.
- 86 Pronk, N. (2013). Integrated worker health protection and promotion programs: overview and perspectives on health and economic outcomes. *Journal of Occupational and Environmental Medicine, 55* Suppl (12), S30–S37.