

2024-01

# Lessons Learned: Facilitating a Health and Wellness Intervention for Frontline Child Welfare Workers during COVID-19

Haughtigan, K

<https://pearl.plymouth.ac.uk/handle/10026.1/21884>

---

Child welfare

Child Welfare League of America, Inc.

---

*All content in PEARL is protected by copyright law. Author manuscripts are made available in accordance with publisher policies. Please cite only the published version using the details provided on the item record or document. In the absence of an open licence (e.g. Creative Commons), permissions for further reuse of content should be sought from the publisher or author.*

# Lessons Learned: Facilitating a Health and Wellness Intervention for Frontline Child Welfare Workers during COVID-19

---

**Kara S. Haughtigan**

*Department of Nursing and Allied Health  
Western Kentucky University*

**Austin Griffiths**

*Department of Social Work  
LifeSkills Center for Child Welfare  
Education and Research  
Western Kentucky University*

**Kim Link**

*Department of Nursing and Allied Health  
LifeSkills Center for Child Welfare  
Education and Research  
Western Kentucky University*

**Oliver W.J. Beer**

*Center for Health Technology and  
Department of Social Work  
University of Plymouth*

**Lindsey Powell**

*Department of Social Work  
LifeSkills Center for Child Welfare  
Education and Research  
Western Kentucky University*

This article describes the lessons learned and process evaluation of the Kentucky Child Welfare Workforce Wellness Initiative (KCWWWI). The project aimed to better understand the effects of job-related stress on frontline child welfare workers (FCWWs) and improve health and wellness through improved stress management. FCWWs participated in a quasi-experimental pre-test/post-test study that included a mindfulness-based intervention and biometric data collection. Lessons learned from the KCWWWI can benefit future researchers

in implementing health promotion programs for FCWWs.

***Acknowledgements:** Research reported in this publication was supported, in part, by the Cabinet for Health and Family Services, Department for Medicaid Services, under agreement titled “Kentucky Child Welfare Workforce Wellness Initiative.” Additional support was provided by the Kentucky Social Welfare Foundation, LifeSkills, Inc., and Western Kentucky University. The content is solely the responsibility of the authors and does not necessarily represent the official views of the Cabinet for Health and Family Services, Department for Medicaid Services, the Kentucky*

*Social Welfare Foundation, LifeSkills, Inc., or Western Kentucky University. Funding was provided by the Kentucky Cabinet for Health and Family Services: Department for Medicaid Services, State University Partnership and the Kentucky Social Welfare Foundation.*

Child maltreatment is one of the nation's most significant public health concerns. The estimated annual economic burden of child maltreatment in the United States is more than \$292 billion (Peterson et al., 2018). In 2021, approximately four million referrals were made to child protective service agencies alleging the maltreatment of more than seven million children (U.S. Department of Health and Human Services [HHS], 2023). The primary mechanism for evaluating these referrals is the frontline child welfare workforce. Frontline child welfare workers (FCWWs) engage families and make decisions about the safety of children that directly impact children's futures (Edwards & Wildeman, 2018). High levels of worker turnover, agency understaffing, and an inexperienced workforce constitute a national problem with concerning implications. FCWWs often prematurely leave their positions, with the average tenure being less than two years (Edwards & Wildeman, 2018). Turnover among practitioners is expensive. The estimated fiscal cost to agencies for each practitioner leaving their position is \$54,000 (National Child Welfare Workforce Institute, 2016). Further, service delivery, continuity of care, and performance standards are negatively impacted when workers leave their positions (Scannapieco & Connell-Carrick, 2007).

Various factors have been identified as contributing to high rates of FCWW turnover, including job satisfaction, trauma, burnout, compassion fatigue, stress, and emotional exhaustion (Annie E. Casey Foundation, 2018; McFadden et al., 2015; Middleton & Potter, 2015). Yet little is known about how the work impacts the overall health and wellness of these practitioners and if there are implications regarding workforce retention. The impact of job stress and the inability to practice self-care has been identified by former FCWWs as a primary reason for leaving their positions (Griffiths et al., 2017). FCWWs have identified

job stress as negatively impacting their mental and physical health, well-being, work-life balance, and in the development of unhealthy habits (Griffiths et al., 2018). In addition, during the COVID-19 pandemic, increased remote work challenges, stress, personal hardships, and isolation may have served to increase distress and burnout in these professionals (Shadik et al., 2023; Renov et al., 2022). The child welfare workforce is the critical link between policy and practice; supporting these workers' health and wellness is vital for services provided to families and populations that are vulnerable (Bowman, 2022).

Health and wellness are holistic concepts, and the U.S. Department of Health and Human Services' Substance Abuse and Mental Health Services Administration (SAMHSA; 2016) has identified eight interconnected dimensions that encompass this construct (e.g., emotional, spiritual, intellectual, physical, environmental, financial, occupational, and social). During times of stress, obtaining balance is important and individuals may benefit from coping techniques to ameliorate emotional, social, or physical imbalances (Ghawadra et al., 2019). Maintaining optimal well-being in these dimensions is essential when seeking to improve and preserve health (SAMHSA, 2016). Attaining optimal health through balance is a vital component of wellness, and evaluation of how to attain this goal for FCWWs is paramount.

Health promotion interventions targeting improved worker health and wellness have been evaluated across various organizations and professions such as health care workers, educators, laborers, and law enforcement (Fox et al., 2022; von der Embse et al., 2019; Proper & Oostrom, 2019). Examples of interventions include organizational changes allowing for improved worker control and participation, physical activity, nutrition, resiliency, and mental health support. Recent research in the realm of child welfare workers primarily examines resiliency-based strategies for supervisory training and development, self-care, and work-life balance (Mack, 2022; Miller, 2020). However, interventions evaluating workplace health promotion programs designed to improve health outcomes specifically for FCWWs are lacking.

Mindfulness-based interventions (MBI) and mindfulness-based stress reduction (MBSR) programs have gained recent attention as evidence-based interventions that can provide a flexible, inexpensive option to decrease psychological distress across various occupations, including among health care workers, who have also been shown to have high rates of occupational stress (Kriakous et al., 2020; Ghawadra et al., 2019; Janssen et al., 2018). Mindfulness involves being present in the moment and purposefully paying attention in a nonjudgmental manner (Kabat-Zinn, 1994). Paying attention to the present with openness and increased awareness has been found to assist with responding to stress (Segal et al., 2011). Mindfulness-based interventions have been identified as having a positive impact on anxiety, depression, and burnout while also being associated with improved job satisfaction, sleep quality, and well-being across various professions (Janssen et al., 2018; Penque, 2019; Scheepers et al., 2020). Mindfulness has shown psychological and physical benefit for individuals with diseases such as cardiovascular disease, type 2 diabetes mellitus, and irritable bowel syndrome (Naliboff et al., 2020; Ngan et al., 2021; Scott-Sheldon et al., 2020). MBIs may also positively influence markers of immune function and adrenocortical activity, a marker of stress resiliency; however, it is unclear whether these biological changes translate into clinically important health benefits (Black & Slavich, 2016; Cahn et al., 2017). More research is needed to evaluate the impact of virtual MBIs on biopsychosocial health (Zhang et al., 2021).

In addition to subjective evaluation, researchers have begun utilizing objective biometric measures of heart rate and heart rate variability (HRV) to evaluate stress on physiological indicators (Järvelin-Pasanen et al., 2018; Kim et al., 2018). HRV provides a reliable reflection of the heart's response to physiological influences including functions of the autonomic nervous system (ANS; Rajendra et al., 2006). The ANS regulates functions such as heart rate, blood pressure and respirations and is activated by stress (Waxenbaum et al., 2020). HRV has been shown to be impacted by stress and its use is supported for the objective

assessment of mental health and stress (Kim et al., 2018; Ritvanen et al., 2006; Verkuil et al., 2016). Studies utilizing biometric measures to evaluate stress in FCWWs have not been identified in the literature and may provide an important link to better understanding the physiological health implications of job stress on these professionals. Future research in child welfare should consider clinical biometric data collection approaches identified as valuable to understanding implications of job stress on the health and well-being of other professionals (Andersen et al., 2022; Slamon et al., 2018).

A key component in the implementation and evaluation of a health and wellness program is a process evaluation. The purpose of this article is to evaluate the process of the Kentucky Child Welfare Workforce Wellness Initiative (KCWWWI) and provide valuable lessons learned for future researchers. Process evaluation assists with improvement in program design and quality while also providing identification of facilitators and barriers to program success (Saunders et al., 2005). Saunders and colleagues (2005) identified measures for a process evaluation plan for health promotion programs that include evaluation of fidelity, dose, reach, recruitment, and context. *Fidelity* is the extent to which the intervention is implemented as planned. *Dose* is how much of the intervention was delivered and received. *Reach* is the proportion of the intended population that participates in the intervention, including identification of barriers to participation. *Recruitment* includes the procedures used to attract and maintain participant engagement throughout the program. *Context* includes environmental elements that impact program implementation (Saunders et al., 2005).

There is a critical need for research regarding development of a cost-efficient, flexible interventional program that will provide FCWWs with strategies to manage chronic high stress. The purpose of this article is to describe the process evaluation used to assess the KCWWWI. Identification of facilitators and barriers to successful implementation and achievement of outcome goals were identified through data collection and focused discussions between researchers, MBI facilitators, and

partnering community agencies. Valuable lessons learned are shared to improve future interventional health promotion and wellness programs with FCWWs.

## **The KCWWWI Initiative**

The KCWWWI was designed to garner a better understanding of the effects of job-related stress on FCWWs and deliver an evidence-based intervention to assist workers in managing job stress. A specific aim of this project was the development, implementation, and evaluation of the KCWWWI program, which was designed to engage FCWWs along with community partners with strategies to improve overall health and wellness of these workers through improved stress management. The KCWWWI is a unique, collaborative effort between researchers at a local university, the state's child welfare agency, and a community mental health provider. Impact data was collected to assess for job stress, subjectively and objectively, and to evaluate if the initiative improved participant stress management following facilitation of an MBI. The goal of the program was to improve stress management strategies and therefore potentially to impact long-term health outcomes.

## **Methods**

### ***Program Design***

The research design for the study was a quasi-experimental pre-test/post-test design with a convenience sample. Prior to collecting data, the study was approved by the Institutional Review Boards of the participating university and the state's child welfare agency.

### ***Sample and Setting***

Frontline child welfare workers and direct supervisors in a southcentral state in the United States with client contact employed by the state's

child protection agency were recruited to participate in the pilot study. In the spring of 2021, a total of 81 FCWWs and supervisors, across nine counties, were invited to participate. All recruitment and informational sessions, questionnaires, MBI sessions, and biometric device distribution/collection were conducted during regular workday hours with support and approval of the state's child protection agency. Inclusion criteria were FCWW or direct supervisor with client contact, willingness to provide health information, activity journaling, and ability to read and understand English. Exclusion criteria included use of medications that could alter results obtained by the HRV biometric data collection instrument.

### *Procedures*

All procedures followed the state agency and university COVID-19 protocols. Researcher-led recruitment sessions were conducted via a secure, live, interactive, virtual platform. The sessions lasted approximately 45 minutes, during which all procedures were explained and all participant questions were answered. A link to view a recorded recruitment session conducted by the researchers was emailed to participants who were unable to attend the live event. All participants completed an informed consent and HRV biometric device user agreement. Documents and questionnaires were collected online via a secure site protected by high-end firewall systems and regular security scans. Participants received a hyperlink to the biometric data collection company's web portal to complete a password-protected and encrypted, web-based registration. The KCWWWI was comprised of a 24-week protocol with pre-test data collected during weeks one and two and posttest data collected following the eight-week MBI during weeks 17 and 18. Post-test data was collected again at the completion of the 24-week protocol. The HRV biometric devices were worn on workdays for 24 hours a day over 72 hours on five occasions every fourth week.

Virtual, interactive informational sessions including program protocols were provided to participants by the research team.



While wearing the HRV biometric device, participants completed activity journaling via the biometric device company's secure web-based portal. Journal entries included times of daily activities such as travel, work-related events, relaxation activities, medications, and sleep time. All participants were assigned specific HRV biometric devices which were delivered and collected by the researchers. Upon collection, researchers uploaded data to a secure, cloud-based server from a password-protected computer. Journal entries were used in conjunction with HRV biometric data to provide participants individualized, private assessment reports.

The MBI sessions were offered at three scheduled times each week for a total of eight consecutive weeks starting on week nine. The MBI sessions were live and interactive via a secure web-based platform. Participants were to attend one 90-minute session per week and attendance was tracked. All MBI sessions were facilitated by an experienced, certified meditation and mindfulness teacher.

The pre/post questionnaires included tools evaluating the elements of SAMHSA's (2016) eight dimensions. These eight dimensions provided solid foundational guidance for selecting valid and reliable tools for a holistic evaluation of health and wellness. Researchers developed the program satisfaction questionnaire to assess feedback. Data collected from this questionnaire will be utilized to improve and refine program design. The research team developed and utilized organizational tracking tools due to the complexity of program design.

### ***Process Evaluation***

The process evaluation for the KCWWWI program was both formative and summative. Formative evaluation occurred throughout the implementation phase to revise procedures and keep the program on track to meet outcome goals. The summative evaluation involved making a final determination regarding the program implementation according to the established plan and success in reaching targeted

participants. The KCWWWI process evaluation followed the six steps identified by Saunders and colleagues (2005). Collaborative discussions between researchers and community partners were an integral part of the evaluation process. Steps one and two included development and communication of a detailed program design that included purpose, theory, interventional and evaluation strategies; expected impacts and outcomes of the program; and delivery strategies, as described above in the Methods section.

The final process evaluation plan, step six, was developed and achieved from a combination of steps three through five. These steps identified questions addressing fidelity, dose, reach, recruitment, and context. Questions were addressed through identification of data sources, tools and/or procedures, timing of data collection, data analysis and/or synthesis, and reporting (see Table 1).

## **Discussion**

A process evaluation requires consideration of surrounding social and organizational systems and characteristics that can positively or negatively impact a health promotion program. The KCWWWI was conducted during the COVID-19 pandemic to help provide support for FCWWs during a time of change to their social and organizational systems. Several barriers and facilitators were identified during the process evaluation of this health and wellness initiative.

The KCWWWI originally began planning and program design before the onset of the COVID-19 pandemic, which unfolded a few weeks before planned program launch. The original program design included several face-to-face elements; however, as the COVID-19 pandemic escalated, researchers quickly pivoted, delaying program launch until spring of 2021. The program was redesigned to be virtual, secure, impactful, and feasible.

Recruitment and retention of participants was the greatest challenge and adjustments to program design were implemented to improve these elements. Participants were recruited for approximately 45 days,

**Table 1**  
*Final Process Evaluation of KCWWWI*

	<b>Process Evaluation Questions</b>	<b>Data Sources</b>	<b>Tools Procedures</b>	<b>Timing of Data Collection</b>	<b>Data Analysis Synthesis</b>	<b>Reporting</b>
Fidelity	1. Were each of the program components implemented as planned?	Program participants, MBI facilitators, and HRV devices	KCWWWI project questionnaires MBI sessions HRV devices and journaling	Weeks 1, 2, 17, 18, 25 Weeks 9-16 Every 4 <sup>th</sup> week during the 24-week protocol	Percentage of KCWWWI project questionnaires and MBI participation completed HRV data collection reports	Informal and formal feedback received from researchers, MBI facilitators, and HRV device data collection organization
Dose	3. Were all program components provided as planned to participants? 4. Were all KCWWWI components utilized? 5. Did participants complete all aspects of the program?	Program participants, MBI facilitators, and HRV devices	KCWWWI project questionnaires MBI sessions HRV devices and journaling	Weeks 1, 2, 17, 18, 25 Weeks 9-16 Every 4 <sup>th</sup> week during the 24-week protocol	Percentage of KCWWWI project questionnaires and MBI participation completed HRV data collection reports	Informal and formal feedback received from researchers, MBI facilitators, and HRV device data collection organization
Reach	6. What proportion of the targeted audience participated in each of the program elements?	Researchers, MBI facilitators, and HRV devices	Reported number of participants identified as meeting inclusion criteria and number of participants actively enrolled in the program	Recruiting occurred for approx. 45 days	Reported number of participants compared to anticipated number of participants necessary to perform impact and outcome evaluations	Informal and formal feedback received from researchers, MBI facilitators, and HRV device data collection organization

**Table 1 (Continued)**

	Process Evaluation Questions	Data Sources	Tools Procedures	Timing of Data Collection	Data Analysis Synthesis	Reporting
Recruitment	8. Were planned recruitment procedures utilized? 9. Were planned and actual recruitment procedures effective? 10. What were barriers to recruitment? 11. What were barriers to maintaining involvement in the program?	Program participants and researchers	Reported number of participants identified as meeting inclusion criteria and number of participants actively enrolled in the program	Recruiting occurred for approx. 45 days	Description of procedures and participant program evaluation data were examined	Informal and formal feedback received from researchers, partnering community agencies, and participants
Context	12. What factors within the agency or social setting impacted the intervention?	Program participants and MBI facilitators	KCWWWI program evaluation questionnaire and MBI sessions	Intervention occurred weeks 9-16 Program evaluation questionnaire occurred week 18	Themes identified through analysis of quantitative and qualitative participant feedback and MBI facilitator feedback	Informal and formal feedback received from researchers, partnering community agencies, participants and MBI facilitators

*Note.* Adapted from Saunders et al., 2005

with 39.5% ( $n = 32$ ) of the eligible FCWWs deciding to participate. Of these, 23 (71.8%) completed the program. Enrollment was limited due to a maximum of 40 HRV biometric devices available for the initiative. Time constraints of the participants was one of the biggest impacts on retention. Even though participants could attend the mindfulness sessions during their normal workday, they still needed to complete their required duties and often received phone calls and addressed emergencies during their planned MBI sessions. Several important design problems surfaced during the program and modifications to design and implementation were made to improve feasibility for participants. The collaborative relationship established between the researchers, participants, and community partners was the most important facilitator of this initiative.

## **Barriers**

### ***Recruitment and Retention***

Participants were recruited and took part in the initiative during the COVID-19 pandemic. Potential increased workloads for FCWWs during this time could have been a barrier to participants having time to devote to the KCWWWI, leading many to decline to participate. There were also difficulties related to recruiting participants in the only urban county within the region of implementation, which may reflect differences in the cohesiveness of the team, number of staff members, turnover, and new workers. Researchers originally planned on recruiting and facilitating this protocol in the more urban county; however, after several weeks of recruiting, only 11 of 40 (27.5%) had enrolled in the initiative. After expanding recruitment to include eight neighboring rural counties where teams are smaller in number, the response interest in participation was improved (23 out of 41, or 51.2%).

### *Time*

As the program progressed, it became apparent to the researchers that the participants were under increasing stress. Potential stressors included the continued COVID-19 pandemic, primarily working from home and missing the informal social supports at the workplace, and increased caseloads. Even though the KCWWWI program was supported by the sponsoring employing state agency, with participants being granted time during normal work hours to complete questionnaires and MBI sessions, employees still needed to complete their usual work duties. Researchers recognized that the 24-week program design, including multiple data collection points, was placing additional demands on participants, resulting in participants leaving the study or not participating in the MBI sessions. The 90-minute MBI session offered on specific dates and times was not conducive to utilization by the participants. Informal feedback from the MBI facilitators indicated that participants were interrupted during the sessions for emergencies. Researchers also recognized that wearing the HRV biometric data collection devices every fourth week for five data collection points could be excessive. The fifth HRV biometric data collection period was changed to optional participation. Only six participants completed the final HRV biometric data collection, indicating possible study fatigue and supporting the change to optional participation by the researchers.

### *Additional Challenges*

A total program redesign moving from face-to-face to virtual occurred during initial planning and program design due to the onset of the COVID-19 pandemic. Due to the length of the program and data collection points, frequent e-mail communications were provided to keep participants engaged and on track to complete the program. Initially, informational sessions were provided via live virtual events; however, this format did not provide the flexibility needed by participants and created a time burden for researchers to be available for multiple live virtual sessions.

Creating a collaborative relationship with community partners was a positive achievement; however, this process required time. Frequent communication and program planning meetings with MBI facilitators were necessary to ensure the MBI sessions were designed to meet program outcome goals. Sponsoring state agency oversight also required multiple layers of review and approval for program revisions which required a great deal of time. Designated agency contacts involved with scheduling live virtual recruitment/informational sessions were engaged in KCWWWI activities in addition to their regular job demands. In addition, to reach the target number of participants, recruitment included several counties over a large geographical area. A great deal of coordination and travel was required by the researchers to schedule drop-off and pickup of the HRV biometric devices.

## **Facilitators**

### ***Community Partners***

Developing a collaborative working partnership with the participants and community partners facilitated this project. This partnership provided opportunities for engagement between the research team and community partners that fostered a solid foundation and collective vision for the program. Formal and informal interactive communication with participants and shared ideas assisted with the identification of elements within the program that worked well and those that did not. Participants also provided feedback regarding MBI session scheduling to improve participation. Several program revisions, as discussed in the Barriers section, were implemented, which strengthened the overall design and potential success of the KCWWWI program.

### ***Mindfulness-based Intervention***

The development of the MBI sessions was a facilitator of this project and was an essential component to program success. Focused,

collaborative meetings between the MBI facilitators and researchers provided opportunities to develop sessions aligned with program outcome goals. In addition, continued formal and informal observational feedback from the MBI facilitators provided attendance records and insight into distractions faced by the workers. MBI facilitators provided updates regarding waning session attendance, which assisted with identification of time constraints and burden on the participants as a barrier to participation.

### ***Financial Resources***

This project was funded by a grant from the state's Cabinet for Health and Family Services, Department for Medicaid Services, and the participating university.

Receiving grant money from participating community partners made it possible to develop and initiate the KCWWWI. These monetary awards allowed for the evaluation and development of innovative ideas and discoveries in stress, stress management, and the multifaceted health impacts of ongoing elevated levels of stress on FCWWs.

### ***KCWWWI Documents and Tools***

Another facilitator and positive outcome of the program was the creation of the KCWWWI program documents. The development of a pre/post questionnaire based on SAMSHA's eight dimensions of wellness was a significant accomplishment for the program. Evaluating and assembling valid and reliable tools to assess these dimensions took time for researchers. The KCWWWI program satisfaction questionnaire provided valuable participant feedback that will be utilized to improve program design. The KCWWWI tracking and organizational tools were also important documents developed to assist researchers with the program's procedures.



## **Implications for Practice**

The information provided through this process evaluation can be used to develop and implement a flexible, low-cost stress management program, such as MBI, for FCWWs and may lead to improved practitioner health, well-being, and work-life balance. Improved FCWW health and work-life balance may decrease practitioner turnover rates, lower personnel recruitment, and help curtail fiscal costs for agencies. In addition, improved FCWW health and well-being may improve productivity, performance standards, service delivery, and continuity of care for the children and families served, potentially resulting in decreased utilization of preventative services, referrals, and crisis-driven services.

## **Implications for Future Research**

The information provided through this process evaluation can be utilized to develop future health promotion programs for FCWWs. Recommendations for potential program redesign would include:

- a reduction in the overall program length;
- a reduction in the HRV biometric data collection events;
- a reduction in the length of time of the MBI sessions; and,
- a change of MBI sessions from a live, interactive virtual format to a pre-recorded, on-demand format.

Reducing the overall length of the program would decrease the commitment for participants and could increase recruitment and retention. Participants with a shorter obligation window may see the program as more manageable. Reducing HRV data collection events minimizes the workload for both participants and researchers and improves the feasibility of incorporating objective biometric data collection. Additionally, shorter, pre-recorded, on-demand formatting for the MBI sessions may improve flexibility, utilization, and feasibility while improving convenience for participants.

## Conclusion

The lessons learned from the KCWWWI can benefit future researchers in designing and implementing interventional health and wellness programs for FCWWs. Future program design should focus on expanded recruitment, increased flexibility, on-demand options for the MBI, and fewer HRV biometric data collection events. Due to the job demands and time constraints of these workers, health promotion and self-care programs should keep convenience and flexibility at the forefront of program design. Workers may need to individualize timing within their daily routines in order for the MBI sessions to significantly impact stress management. Even though many challenges were encountered during the implementation of the KCWWWI, programs designed to improve health and wellness should continue to be pursued and can become catalysts for improving the health and wellness of this vital frontline workforce. The KCWWWI may serve as a viable springboard for future efforts as agencies and community partners work together to support families and children.

## References

- Andersen J.P., Di Nota P.M., Beston B., Boychuk, E.C., Gustafsberg, H., Poplawski, S., & Arpaia, J. (2018). Reducing lethal force errors by modulating police physiology. *Journal of Occupational and Environmental Medicine*, 60(10), 867-874. doi:10.1097/JOM.0000000000001401
- Annie E. Casey Foundation. (2018). *Five steps to a stronger child welfare workforce: Hiring and retaining the right people on the frontline*. Author. <https://www.aecf.org/resources/five-steps-to-a-stronger-child-welfare-workforce>
- Black, D.S. & Slavich, G.M. (2016). Mindfulness meditation and the immune system: A systematic review of randomized controlled trials. *Annals of the New York Academy of Sciences*, 1373(1), 13-24. <https://doi.org/10.1111/nyas.12998>
- Bowman, M. E. (2022). Child welfare worker wellness: An ethical imperative in the service of children. *Child Abuse Review*, 1-12. <https://doi.org/10.1002/car.2758>

- Cahn, B.R., Goodman, M. S., Peterson, C. T., Maturi, R., & Mills, P.J. (2017). Yoga, meditation and mind-body health: Increased BDNF, cortisol awakening response, and altered inflammatory marker expression after a 3-month yoga and meditation retreat. *Frontiers in Human Neuroscience, 11*, 315–315. <https://doi.org/10.3389/fnhum.2017.00315>
- Edwards, F., & Wildeman, C. (2018). Characteristics of the front-line child welfare workforce. *Children and Youth Services Review, 89*, 13–26. <https://doi.org/10.1016/j.childyouth.2018.04.013>
- Fox, K.E., Johnson, S. T., Berkman, L. F., Sianoja, M., Soh, Y., Kubzansky, L. D., & Kelly, E. L. (2022). Organisational- and group-level workplace interventions and their effect on multiple domains of worker well-being: A systematic review. *Work and Stress, 36*(1), 30–59. <https://doi.org/10.1080/02678373.2021.1969476>
- Ghawadra, Abdullah, K. L., Choo, W. Y., & Phang, C. K. (2019). Mindfulness-based stress reduction for psychological distress among nurses: A systematic review. *Journal of Clinical Nursing, 28*(21-22), 3747–3758. <https://doi.org/10.1111/jocn.14987>
- Griffiths, A., & Royse, D. (2017). Unheard voices: Why former child welfare workers left their positions. *Journal of Public Child Welfare, 11*(1), 73-90. <https://doi.org/10.1080/15548732.2016.1232210>
- Griffiths, A., Royse, D., & Walker, R. (2018). Stress among child protective service workers: Self-reported health consequences. *Children and Youth Services Review, 90*, 46-53. <https://doi.org/10.1016/j.childyouth.2018.05.011>
- Janssen, M., Heerkens, Y., Kuijer, W., van der Heijden, B., & Engels, J. (2018). Effects of Mindfulness-Based Stress Reduction on employees' mental health: A systematic review. *PloS One, 13*(1), e0191332–e0191332. <https://doi.org/10.1371/journal.pone.0191332>
- Järvelin-Pasanen, S., Sinikallio, S., & Tarvainen, M.P. (2018). Heart rate variability and occupational stress-systematic review. *Industrial Health, 56*(6), 500-511. <https://doi.org/10.2486/indhealth.2017-0190>
- Kabat-Zinn, J. (1994). *Wherever you go, there you are: Mindfulness meditation in everyday life*. Hyperion; New York.
- Kim H.G., Cheon E.J., Bai D.S., Lee Y.H., & Koo B.H. (2018). Stress and heart rate variability: A meta-analysis and review of the literature. *Psychiatry Investigation, 15*(3), 235-245. doi:10.30773/pi.2017.08.17
- Kriakous, S.A., Elliott, K.A., Lamers, C., & Owen, R. (2020). The effectiveness of mindfulness-based stress reduction on the psychological functioning of healthcare

- professionals: A systematic review. *Mindfulness* 12, 1–28. <https://doi.org/10.1007/s12671-020-01500-9>
- Mack, B.M. (2022). Addressing social workers' stress, burnout, and resiliency: A qualitative study with supervisors. *Social Work Research*, 46(1), 17–28. <https://doi.org/10.1093/swr/svab032>
- McFadden, P., Campbell, A., & Taylor, B. (2015). Resilience and burnout in child protection social work: Individual and organizational themes from a systematic literature review. *British Journal of Social Work*, 45(5), 1546–1563. <https://doi.org/10.1093/bjsw/bct210>
- Middleton, J. S., & Potter, C. C. (2015). Relationship between vicarious traumatization and turnover among child welfare professionals. *Journal of Public Child Welfare*, 9(2), 195–216. <https://doi.org/10.1080/15548732.2015.1021987>
- Miller, J.J. (2020). Developing self-care competency among child welfare workers: A first step. *Children and Youth Services Review*, 108, 104529. <https://doi.org/10.1016/j.childyouth.2019.104529>
- Naliboff, B.D., Smith, S.R., Serpa, J.G., Laird, K.T., Stains, J., Connolly, L.S., Labus, J.S., & Tillisch, K. (2020). Mindfulness-based stress reduction improves irritable bowel syndrome (IBS) symptoms via specific aspects of mindfulness. *Neurogastroenterology & Motility*, 32(9), e13828. <https://doi.org/10.1111/nmo.13828>
- National Child Welfare Workforce Institute. (2016). Why the workforce matters. Author. [https://ncwwi.org/files/Why\\_the\\_Workforce\\_Matters.pdf](https://ncwwi.org/files/Why_the_Workforce_Matters.pdf)
- Ngan, H.Y., Chong, Y.Y. and Chien, W.T. (2021), Effects of mindfulness- and acceptance-based interventions on diabetes distress and glycemic level in people with type 2 diabetes: Systematic review and meta-analysis. *Diabetic Medicine*, 38(4), e14525. <https://doi.org/10.1111/dme.14525>
- Penque, S. (2019). Mindfulness to promote nurses' well-being. *Nursing Management*, 50(5), 38–44. <https://doi.org/10.1097/01.NUMA.0000557621.42684.c4>
- Peterson, C., Florence, C., & Klevens, J. (2018). The economic burden of child maltreatment in the United States, 2015. *Child Abuse & Neglect*, 86, 178–183. <https://doi.org/10.1016/j.chiabu.2018.09.018>
- Proper, K.I., & Ostrom, S.H. (2019). The effectiveness of workplace health promotion interventions on physical and mental health outcomes: A systematic review of reviews. *Scandinavian Journal of Work, Environment & Health*, 45(6), 546–559. <https://doi.org/10.5271/sjweh.3833>

- Rajendra Acharya, U., Paul Joseph, K., Kannathal, N., Lim, C. M., & Suri, J. S. (2006). Heart rate variability: A review. *Medical & Biological Engineering & Computing*, *44*(12), 1031–1051. <https://doi.org/10.1007/s11517-006-0119-0>
- Renov, V., Risser, L., Berger, R., Hurley, T., Villaveces, A., DeGue, S., Katz, A., Henderson, C., Premo, K., Talis, J., Chang, J. C., & Ragavan, M. (2022). The impact of the COVID-19 pandemic on child protective services caseworkers and administrators. *Child Abuse & Neglect*, *130*(Pt 1), 105431–105431. <https://doi.org/10.1016/j.chiabu.2021.105431>
- Ritvanen, T., Louhevaara, V., Helin, P., Väisänen, S., & Osmo Hänninen, O. (2006). Responses of the autonomic nervous system during periods of perceived high and low work stress in younger and older female teachers. *Applied Ergonomics*, *37*(3), 311–318. <https://doi.org/10.1016/j.apergo.2005.06.013>
- Saunders, R.P., Evans, M.H., Joshi, P. (2005). Developing a process-evaluation plan for assessing health promotion program implementation: A how to guide. *Health Promotion Practice*, *6*(2), 134–147. <https://doi.org/10.1177/1524839904273387>
- Scott-Sheldon, L.A., Gathright, E.C., Donahue, M.L., Balletto, B., Feulner, M.M., DeCosta, J., Cruess, D.G., Wing, R.R., Carey, M.P., & Salmoirago-Blotcher, E. (2020). Mindfulness-based interventions for adults with cardiovascular disease: A systematic review and meta-analysis, *Annals of Behavioral Medicine*, *54*(1), 67–73. <https://doi.org/10.1093/abm/kaz020>
- Shadik, J. A., Perkins, N. H., & Heller, N. (2023). Child welfare workers satisfaction and wellbeing during the COVID-19 pandemic: Perspectives of agency staff in Ohio. *Child Abuse & Neglect*, *136*, 1–12. <https://doi.org/10.1016/j.chiabu.2022.106000>
- Slamon, N.B., Penfil, S.H., Nadkarni, V.M., & Parker, R.M. (2018). A prospective pilot study of the biometrics of critical care practitioners during live patient care using a wearable “smart shirt.” *Journal of Intensive and Critical Care*, *4*(2), 10. doi:10.21767/2471-8505.100112
- Substance Abuse and Mental Health Services Administration (SAMSA). (2016). *Creating a healthier life: A step-by-step guide to wellness*. Author. <https://store.samhsa.gov/sites/default/files/d7/priv/sma16-4958.pdf>
- Scannapieco, M., & Connell-Carrick, K. (2007). Child welfare workplace: The state of the workforce and strategies to improve retention. *Child Welfare*, *86*(6), 31–52. <https://pubmed.ncbi.nlm.nih.gov/18456981/>
- Scheepers, R.A., Emke, H., Epstein, R.M., & Lombarts, K.M.J.M.H. (2020). The impact of mindfulness-based interventions on doctors’ well-being and performance:

- A systematic review. *Medical Education*, 54(2), 138-145. <https://doi.org/libsrv.wku.edu/10.1111/medu.14020>
- Segal, Z, Williams, MJ, & Teasdale, J. (2011). *Mindfulness-based cognitive therapy for depression*. Guilford Press.
- U.S. Department of Health and Human Services, Administration for Children and Families, Administration on Children, Youth and Families, Children's Bureau. (2023). *Child maltreatment 2021*. Author. <https://www.acf.hhs.gov/cb/report/child-maltreatment-2021>
- von der Embse, N., Ryan, S. V., Gibbs, T., & Mankin, A. (2019). Teacher stress interventions: A systematic review. *Psychology in the Schools*, 56(8), 1328-1343. <https://doi.org/10.1002/pits.22279>
- Waxenbaum J.A., Reddy V., & Varacallo M. (2020, August 10). *Anatomy, autonomic nervous system*. StatPearls. <https://www.ncbi.nlm.nih.gov/books/NBK539845/>
- Zhang, D., Lee, E. K. P., Mak, E. C. W., Ho, C. Y., & Wong, S. Y. S. (2021). Mindfulness-based interventions: an overall review. *British Medical Bulletin*, 138(1), 41-57. <https://doi.org/10.1093/bmb/ldab005>