Response to NIOSH Request for Information on Interventions to Prevent Work-Related Stress and Support Health Worker Mental Health

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Abstract

The root causes of health care worker strain and depression include excessive job demands, extended work schedules, little decision-making opportunity, assault, bullying, and fear of injury. Potential links between working conditions and opioid overuse have also been discussed, beginning with psychological job strain or with physical pain leading to medication use. Promising solutions have been identified and many would be cost-effective, as enhanced working conditions could improve workers' mental health, job satisfaction, retention, and patient outcomes. Considering the number of health care workers leaving work during the global COVID-19 pandemic, it is urgent to address preventable root causes. In 2021, the US Congress called for educating health workers and first responders on the primary prevention of mental health conditions and substance use disorders. The CDC issued a Request for Information; this submission summarized research from CPH-NEW, a NIOSH Center of Excellence in *Total Worker Health*®, supplemented by a selective literature review.

Keywords

Introduction

The Centers for Disease Control and Prevention (CDC) was charged by the American Rescue Plan Act of 2021 (Pub. L. 117-2, sec. 2704) to educate health workers and first responders on the primary prevention of mental health conditions and substance use disorders and encourage these professionals to identify and seek support for their mental health or substance use concerns. CDC's National Institute for Occupational Safety and Health (NIOSH) requested information and comments on "evidence-based, workplace and occupational safety and health interventions, policies, or other activities … at the population, organizational, or individual levels" "to prevent work-associated stress, support

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stress reduction, and foster positive mental health and well-being among the nation's health workers."[1]

This document was submitted to that public docket to emphasize the need for primary prevention through improved working conditions, for example, adequate staffing, worker input into scheduling and other key decisions, safe patient handling programs, supportive supervision, and prevention of bullying, assault, and other injuries. Our hope was that NIOSH would incorporate this perspective into a planned educational campaign for health workers and first responders and would also support a parallel campaign to educate health care institutions about the value and feasibility of such improvements.

Public Docket Submission

The Center for the Promotion of Health in the New England Workplace (CPH-NEW) is a NIOSH Center of Excellence in *Total Worker Health*[®] (TWH). Our mission is to serve as a national leader in research, policy, practice, and workforce development to achieve health, safety, and well-being for all working people. The national TWH program addresses workforce health comprehensively, with marked attention to issues such as mental health, opioid overuse, and stress-related chronic illness.

Since 2006, CPH-NEW researchers have carried out a program of research in health care facilities. Our analyses examine both the organization level (workplace culture) and the individual worker, with findings from each level informing the other. We seek insights into the constraints that the work environment may impose on individuals' behaviors in ways that affect their health and well-being, with the goal of designing interventions to improve worker health through an integrated systems approach. This orientation is aligned with the NIOSH definition of TWH initiatives, which states that "environmental workplace factors can both mitigate and enhance overall worker health" (http://www.cdc.gov/niosh/twh/totalhealth.html).

Based on CPH-NEW and other research experiences and findings, we are pleased to offer comments in response to the above-cited request. Our comments address 3 core topics excerpted below from the set of questions in the public Request for Information (RFI). Implications and recommendations for program design are incorporated throughout this document.

1. Preventable risk factors for stress, burnout, and other mental health and well-being concerns among a broad range of health workers, and the implications of these findings for workplace programs.

2. Development of preventive workplace interventions to help health workers avoid work-related stress and maintain or improve their mental health and well-being.

3. Any other workplace policies and programs relevant to protecting workers from stress and related adverse mental health outcomes.

Preventable Risk Factors for Stress, Burnout, and Related Concerns

The above-cited RFI summarized both the challenging working conditions in the health care sector and a range of resulting mental health concerns. CPH-NEW researchers have studied numerous related and preventable risk factors for burnout and depression, as well as conducted intervention research to improve these outcomes and to reduce substance use disorders among health care workers. We have also examined employee retention (or turnover, its complement) which is a large and expensive problem in this sector that results from stressful aspects of the work environment and consequent job dissatisfaction and burnout.[2-4] All of these issues were of major concern long before the COVID-19 pandemic, while they have been greatly exacerbated since early 2020.

In the "ProCare" study (2006-2016), we conducted a series of 7 surveys among nursing home employees, collecting self-administered questionnaires from more than 3000 employees in 28 for-profit skilled nursing facilities (SNFs) owned or managed by a single company in the eastern United States. In the "SHIFT" study, we administered a similar questionnaire to a mixed population of nonclinical and clinical health care staff in 5 public sector chronic care facilities in New England. We recruited 1060 workers in 2016, with 1 or 2 follow-up surveys in each facility in 2020 to 2022. The questionnaires covered a wide range of specific working conditions, permitting comprehensive characterization of the work environment and its effects on employee well-being.

In the long-term care sector, nursing assistants and other ancillary staff low in the organizational hierarchy provide the vast majority of direct care. We used ProCare survey data to examine the relationships among employees' working conditions and mental health. In one sample of 1129 direct care staff in 15 SNFs, multivariate linear regression modeling showed that mental health was associated (P .05) with specific working conditions within different nursing groups: high physical safety and low work–family conflict in nursing assistants (NAs); low work–family conflict in licensed practical nurses (LPNs); and physical demands in registered nurses (RNs).[5] In analyses of all nursing staff combined, high physical safety and low work–family conflict were strongly associated with mental health.

In the same sample, we constructed a score of the beneficial job features reported by each worker: decision authority, coworker support, supervisor support, and feeling respected at work. Those who reported all 4 positive features were 77% less likely to state a strong intention to leave the job than those with no positive job conditions.[6] The relationship between working conditions and intention to leave was slightly mediated by employee mental health.

It follows from these results that nursing homes should improve work organization features to improve employee mental health (and staff retention): involve employees in decision-making; show respect for employees' job demands and accomplishments; and provide conditions that support positive interpersonal relationships among coworkers and with supervisors (including training for supervisors).

Health care workers are well known to be at high risk for insufficient sleep and sleep disturbances.[7] Short and poor sleep may result from stressful working conditions and,

in turn, may contribute to depression.[8-10] Insufficient sleep also diminishes cognitive functioning and can lead to errors in work performance, so it should be of concern to employers in its own right.

Selected analyses focused specifically on the nursing assistants (n = 650) in the ProCare SNFs. Nearly one-half (46%) reported short sleep duration and 23% reported poor sleep quality.[11] Again, a score of the number of beneficial work features (up to 7) comprised decision authority, social support at work (combining coworkers and supervisor), schedule control, work–family conflict, psychological demands, physical demands, and safety hazards. With each unit increase in this score, nursing assistants were 7% less likely to report short sleep duration and 17% less likely to report poor sleep quality. In particular, higher work–family conflict was linked to worse mental health ($P < .01$),[12] a relationship that was mediated by poor sleep quality.

Similarly, in the SHIFT study population, symptoms of depression and anxiety were associated with a number of occupational exposures.[13,14] Risk factors for worse mental health were physical and psychological demands, emotional labor, work–family conflict, and bullying or other negative acts among coworkers. Protective factors were decision latitude, schedule control, social support, workplace safety, civility norms, and health climate. In turn, workers with better mental health had better sleep quality and longer sleep duration. These sleep indicators were higher with decision latitude, schedule control, social support, workplace safety, civility norms, and health climate; and lower with physical and psychological demands, emotional labor, work–family conflict, and bullying or other negative acts among coworkers.

Further unpublished analyses of these data similarly showed that workers' intention to leave employment was associated with many of the same risk factors as for depressive symptoms: safety hazards in the workplace, low social support, and little or no opportunity to contribute actively to safe patient handling program activities.

These findings demonstrate that health care workplaces need to address a variety of work stressors, including but not limited to work schedule arrangements, in order to improve nursing assistants' sleep health and mental health generally. Workplace interventions should increase staff members' control over their own work schedules and responsibilities, provide support to meet their work and family needs, and address healthy sleep practices. Expected benefits besides workforce health would include improved work performance and staff retention.

Emotional labor refers to the process of managing feelings and expressions to fulfill the emotional requirements of a job. "Surface-acting" emotional labor involves masking one's true emotions in order to maintain a professional appearance and acceptable job performance. Discordance between one's felt emotions and what one expresses leads to negative well-being and lower job performance due to the experience of inauthenticity, the effort of monitoring one's felt emotions to avoid showing their true state, and negative social relationships with patients.[13] This emotional suppression and depletion of mental resources is linked to negative outcomes such as low job satisfaction, burnout, and depression.[4,15,16]

In the ProCare study, 939 nursing home employees without symptoms of depression were followed prospectively to study the effect of surface-acting emotional labor. About two-thirds were direct care providers, including 38% nursing and medical assistants. Workers with intermediate and high emotional labor in the first survey had approximately twice the risk of depressive symptoms after 2 years.[17] New symptoms were also predicted by low decision latitude at work, low social support, and high work–family conflict, adjusted for age and other covariates. Similarly, in the SHIFT study, there was a statistically significant association between surface-acting emotional labor and depressive symptoms.[18] This negative effect was notable in its own right and also partially mediated through sleep disturbances.

Emotional labor cannot be eliminated from health care work; it is often required during interactions with patients, and sometimes also with coworkers and supervisors. However, the negative effects can be reduced by providing opportunities for workers to decompress, compare experiences with their colleagues, and/or otherwise experience social support from coworkers and supervisors. Nursing staff who receive higher organizational support are less likely to manifest surface acting.[19] Further, social support[20] and promotion of a collaborative team environment[21] may moderate between emotional labor and burnout. Other organizational strategies to reduce the negative impact of emotional masking include more decision-making opportunities at work, improved workplace safety, reduced bullying or other negative behaviors, appropriate length of weekly work schedule, resources at the workplace to facilitate work–family balance, and conveying empathy for workers' difficulties when conflict arises between their work and family responsibilities.

Physical demands and physical safety at work were noted above as correlates of symptoms of depression and anxiety, as well as poor and insufficient sleep, among the health care workers whom we have studied. However, in general, there has been little research into the effect of safety hazards on health care workers' mental health. The extant literature on burnout focuses on the balance between workload and resources but ignores the potential impact of workplace safety—including organizational-level policies and practices as well as job-level hazardous work conditions.

We examined these understudied exposures in the SHIFT baseline survey as risk factors for emotional exhaustion, which is an early manifestation of burnout. Emotional exhaustion was lower among those reporting more organizational support for safety and higher among those reporting more job-level safety hazards. The effect of organizational support for safety in reducing emotional exhaustion was mediated through safety hazards. A model with simultaneous moderation showed that organizational support for safety had less benefit in reducing emotional exhaustion when job hazards were high, suggesting that failure to put policy into practice was itself a risk factor. These models demonstrated that 2 interdependent changes could reduce emotional exhaustion among health care workers, that is, reduction in job hazards and improvement of organizational safety support for safety.

Further, we have investigated the association of multiple work environment factors and their combined causal pathway to symptoms of depression. We found that the lack of organizational support for safety, emotional labor, decreased work role functioning, and

work–family conflict was each associated with depressive symptoms through the mediation of emotional exhaustion.[22] This mediated causal pathway is important, as it builds upon and ties into our previous results that lack of organizational support for employee safety leads to burnout.

These combined results indicate that feasible ways to improve workplace safety, reduce emotional exhaustion (burnout) and depression include providing adequate tools and time for performing tasks, ensuring adequate staffing, and supporting staff who call attention to and refuse to work in potentially harmful situations. While the existing literature tends to focus on personal care interventions like mindfulness and psychotherapy for reducing burnout, our findings suggest that improving organizational infrastructure for employee safety and practical reduction of job hazards would address the root causes of burnout, instead.

Preventive Workplace Interventions to Improve Worker Health

In light of the key role that work organization plays in job stress and related chronic disease, CPH-NEW researchers emphasize the essential nature of workforce participation as a means to enhance worker self-efficacy or empowerment.[23] An occupational health/ health promotion program, designed to facilitate employee participation, was initiated in 3 nursing homes through the ProCare project. Three years after the start of the program, we conducted interviews and focus groups with nursing home assistants and leaders to assess both facilitators and obstacles for success of the program.[24] Management support, financial resources, and employee release time for participation were identified as the 3 most important factors predicting success or failure. Supports from multiple levels—including both human and environment—are critical for the successful participation of both managers and employees in meaningful programs to address the root causes of workforce mental health concerns.

More recently, in the SHIFT study, we initiated a trial of the CPH-NEW Healthy Workplace Participatory Program, our signature TWH approach (www.uml.edu/Research/ CPH-NEW/Healthy-Work-Participatory-Program/). Following a standardized protocol,[25] program participants included a Design Team (DT) of frontline workers and middle managers, 2 DT co-facilitators (1 from labor and 1 from management), a Steering Committee (SC) (senior management), and an in-house champion. We implemented the program in 2 of the 5 participating health care facilities before the global pandemic of 2020 necessitated the suspension of program activities and prevented evaluation of effectiveness.

Despite the program suspension, we were able to collect numerous process evaluation measures, both at baseline and prospectively. Start-up interviews and brief surveys aimed to assess organizational strengths and weaknesses in the views of facility leadership, union leaders, and other key contacts. These data were reported back to the SC, champion, and DT co-facilitators in order to plan for any remedial activities that would support upcoming program activities. For example, where communication between SC and the workforce (vertical) or among units (horizontal) was identified as weak, the discussions focused on measures that could be taken immediately to improve communication.[26] This report-back

and brainstorming process also served to establish an initial understanding of the researchers as practical resources for all involved in addressing the gaps that they themselves had identified, defining their desired outcomes, and planning for success. At the same time, some obstacles identified at start-up, such as hierarchical decision-making within public agencies and legislative budgetary limits, cannot be rectified by local efforts such as the HWPP.

We prospectively assessed 3 time-varying metrics of program fidelity: dose to individual participants, program content implemented, and reach of this participatory TWH program.[27] Four of the 5 DTs implemented a high proportion of program content, received a higher than the minimum dose expected, and retained at least half of their initial membership. As facilities advanced through the program, dose and program content implemented increased. Participant engagement—a key requirement for any participatory program—was measured in terms of magnitude and diversity of effort in each role.[28] Over time, in each facility, DT members were the group with the highest magnitude and diversity of effort, followed by the co-facilitators. These efforts were consistently high over time, with one exception for the manager co-facilitators.

Real-time, prospective monitoring of program fidelity and participant engagement allows researchers to respond proactively and, if necessary, take steps to strengthen program implementation such as adding more training or coaching. With participatory designs, there is a need to balance the desired fidelity and participant autonomy. Future longitudinal research should examine program outcomes in relation to fidelity and engagement.

Other Workplace Policies and Programs Relevant to Worker Stress and Mental Health

Two analyses of ProCare data examined the broad impact of overall organizational practices, such as staff training and quality of supervision, on the work environment, staff well-being and job satisfaction, and the quality of care for residents. In one study, employee and resident satisfaction were measured by questionnaire in 175 SNFs (2005-2009), and facility-level data on adverse medical outcomes to residents were obtained from the Centers for Medicare and Medicaid Services (CMS).[29] Specific organizational features rated by staff included the quality of training programs (orientation, in-service, etc); fairness of evaluations; adequacy of compensation; workplace safety; provision of adequate equipment and supplies; and quality of teamwork and of supervision. Multilevel linear regression modeling of employee satisfaction and resident satisfaction (both scales 0-100) showed that a 1-point increase in overall employee satisfaction generated an increase of 17.4 points in the satisfaction of residents and family members ($P < .0001$). A 1-point increase in overall employee satisfaction was also associated with a 19% decrease in the combined incidence of resident falls, medically unexplained weight loss, and pressure ulcers ($P < .0001$), after adjusting for staffing ratio and percentage of resident-days paid by Medicaid.

A separate study used statistical cluster analysis to examine the extent to which multiple features of these same nursing homes mapped onto each other. The same data on resident satisfaction and quality of care were utilized, in combination with the effectiveness of a

Safe Resident Handling Program (SRHP) and other indicators of occupational safety.[30] Among 203 SNFs, those in the better-performing cluster were found to have better SRHP performance; lower overall rates of workers' compensation claims; higher worker job satisfaction and engagement; higher employee retention for all categories of direct nursing care; and better resident medical care outcomes and satisfaction.

From these 2 studies, we can conclude that improving fundamental organizational elements such as workforce training and supervision, as well as protecting workers against resident handling injury, can markedly enhance job satisfaction and retention of nursing home employees. Not only is this indicative of better workforce mental health but it is also cost-effective for employers. Lower rates of resident injuries, higher resident satisfaction with care, more effective SRH programs, and higher staff retention each represent avoided costs. Further, the observed clustered relationships support the utility of integrated performance assessment in long-term care facilities.

Last, the link between working conditions and opioid overuse has been under-studied to date. There are at least 2 plausible pathways, one involving work-related pain that leads to medical treatment or self-medication with pain relievers, and another involving psychological stress from unmanageable job demands (eg, time pressure) or economic insecurity and job instability, leading to depression and anxiety.[31] For example, opioid overuse disorder is twice as frequent among US workers with frequent heavy lifting and also among those with high psychosocial job strain.[32]

CPH-NEW personnel have been engaged in efforts to promote opioid hazard awareness among people in jobs with a high risk for injury and opioid overdose and to empower them through a peer training model. One demonstration program engaged a state nurses association (along with 2 other groups) to codevelop and tailor curriculum, training materials, and assessment surveys; train 2 members trainers; and deliver training to their own members.[33] The initial needs and resources assessment uncovered specific and dynamic risk factors faced by each group. For example, the nurses association focused especially on communicating issues around licensing and substance use and developed a continuing education credit-approved course offered through their Labor School, which was taken by 137 nurses from diverse care settings. One-half of nurse trainees reported heavy or very heavy physical demands at work, and nearly one-half had experienced work-related pain. Of those reporting such pain, 56% had received an opioid prescription. After training, participants reported more knowledge about the impact of the opioid epidemic on the nursing profession, and more ability to assist a coworker struggling with opioids. As a result of the training, members volunteered to provide peer assistance, union staff adopted the training to train other members, and the association is now sponsoring professional development for staff to achieve an addictions counseling certification.

Peers with recovery experience provided a unique contribution to training. We recommend that others considering similar training programs recruit peers to deliver the training and that these peers include both experienced trainers and members with recovery experience. Tailored job-specific, peer-delivered educational interventions may be able to reduce the potential impact of opioids on health care workers and other people in high-risk jobs.

Summary

A common set of themes is manifested throughout these research findings. Root causes of health care worker strain, burnout, and depression comprise multiple dimensions:

   A.   Few or no decision-making opportunities at work

   B.   Excessive job demands: time pressure, conflicting demands, and frequent interruptions

   C.   Work schedule: long-hours, evening/night shift work, unavailability of rest breaks, lack of control over schedules, and work–family conflict (with insufficient staffing often an underlying component)

   D.   Psychosocial work climate: instrumental and affective support from coworkers and supervisors, feeling respected at work, occurrence of bullying and other negative interactions

   E.   Physical workload, including but not limited to patient/resident handling; safety hazards on the job and fear of injury, as well as perceptions that the organization does not prioritize their prevention and that there is a discrepancy between policy and practice.

Some corresponding key principles for job improvement, many already stated above, include:

   1.   Give workers control over how they carry out work tasks; engage them in problem-solving and peer training

   2.   Ensure adequate staffing at all job levels

   3.   Provide active support for work–family balance, with as much flexibility in work scheduling as possible

   4.   Commit to primary prevention of work injury, including safe patient handling programs and provision of adequate tools and time for performing tasks

   5.   Support staff who call attention to and refuse to work in potentially harmful situations

   6.   Support positive interpersonal relationships and a collaborative team environment; intervene promptly on bullying or other negative behaviors; provide quality supervision; and reward supervisors' positive behaviors

   7.   Show respect for employees' work and accomplishments; compensate adequately.

Perhaps the most novel finding here is the importance of organizational commitment to employee safety, which manifests through the prevention of day-to-day job hazards. Policies and practices must be well-aligned and efficiently applied to ensure the reduction of injury risk. Most safety hazards in health care work have been widely documented, along with feasible prevention measures. Less well-appreciated is the potential not only to protect

against physical injury but also to reduce burnout and improve mental health. Future longitudinal studies are desirable to confirm this potential.

Otherwise, to a great extent, these problems have been known for decades to researchers and practitioners. Approaches to their resolution have been evaluated and in many cases found to be both feasible and effective. However, obstacles to their resolution clearly persist and appear to be less well investigated to date. Workers' compensation systems clearly do not provide the necessary incentives for primary prevention. Solutions would in many cases likely be cost-effective, as enhanced working conditions would likely improve not only personnel mental health but also job satisfaction, employee retention, and patient/resident outcomes.

Acknowledgments

Biography

Laura Punnett co-founded the Department of Work Environment at University of Massachusetts Lowell, where she is now Professor of Biomedical Engineering and Co-Director of CPH-NEW. An occupational epidemiologist, her interests include work-related musculoskeletal and mental health problems as well as the feasibility and effectiveness of workplace re-design initiatives.

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