

# 15

## Reducing Work–Life Stress

### *The Place for Integrated Interventions*

Leslie B. Hammer and MacKenna L. Perry

Research has tied work–life stress to a variety of outcomes that are relevant to workers, their families, and their organizations, or what Kossek (2016) referred to as the “triple bottom line.” Because of its substantial impact on worker health and well-being, and its broad-reaching effects on organizations and families, work–life stress is an important target for *Total Worker Health*® interventions. Unfortunately, few work–life stress interventions have been systematically evaluated using experimental designs that allow for strong scientific conclusions about their effectiveness. Furthermore, few work–life stress interventions have been developed based on theoretically driven intervention targets. In line with the *Total Worker Health* (TWH) approach, some work–life interventions have focused on integrating a reduction in safety and health hazards with well-being promotion through the prevention of injury, illness, and stress. We believe that these TWH interventions have the most promise for reducing work–life stress. This chapter describes what we currently know about work–life interventions aimed at the reduction of stress and associated risks to the health, safety, and well-being of workers.

#### **WORK-LIFE STRESS**

Since the 1970s, it has been recognized that factors within and outside of the workplace can interact to create stress and reduce the health and well-being of workers (Kanfer, 1977). We argue that work–life stress needs to be viewed as

---

<http://dx.doi.org/10.1037/0000149-016>

*Total Worker Health*, H. L. Hudson, J. A. S. Nigam, S. L. Sauter, L. C. Chosewood, A. L. Schill, and J. Howard (Editors)

Copyright © 2019 by the American Psychological Association. All rights reserved.

an occupational hazard (Hammer & Sauter, 2013) and that it typically is due to a combination of work (e.g., high job demands, nonstandard work schedules) and nonwork (e.g., eldercare demands, financial insecurity) exposures. Contrary to popular belief, a recent meta-analysis demonstrated no gender differences in work–family conflict (Shockley, Shen, DeNunzio, Arvan, & Knudsen, 2017), suggesting that this is not just a woman’s issue but is important for all workers. Organizational scientists are poised to make recommendations about how to mitigate these workplace exposures that contribute to work–life stress.

*Work–life stress* can be defined as individual’s appraisal (Lazarus & Folkman, 1984) of the difficulties of integrating work and nonwork aspects of life, and it frequently is referred to as *work–life conflict* or *work–family conflict*. Work–life stress impacts numerous health and well-being outcomes, as well as work and family outcomes described later, and is consistently named as one of the most significant stressors affecting today’s workforce (American Psychological Association, 2016). Furthermore, Schieman, Glavin, and Millie (2009) found that approximately 70% of workers reported at least some interference between work and life, making work–life stress a key area of needed improvement for workers. Perceptions and severity of occupational exposures impact work–life stress; thus, TWH interventions that target such exposures have the capacity to improve the health, safety, and well-being of workers.

The influence between work and nonwork domains typically is considered bidirectional (i.e., work-to-life and life-to-work) such that one can influence the other at any given time, or both can be influenced by each other simultaneously. *Work–life conflict* occurs when a work role and a nonwork role are not fully compatible, and results in some type of physical or psychological strain (e.g., Greenhaus & Beutell, 1985). *Work–life enrichment* occurs when participation in one role benefits quality of life in the other role (e.g., Edwards & Rothbard, 2000). Research on the positive side of the work–life interface also has been referred to as *positive spillover* or *facilitation*. Another frequently used work–life term is *work–life balance*, which has been given many definitions over time (e.g., Greenhaus & Allen, 2011; Hammer & Demsky, 2014) but typically refers to harmony between work and nonwork.

## Health and Well-Being Outcomes

Due to the volume of work–life research available, we focus on summary-oriented findings that illustrate the benefits of reducing work–life stress or conflict and increasing work–life enrichment. In one of the earlier meta-analyses of outcomes of work–life stress, Allen, Herst, Bruck, and Sutton (2000) found that work–life conflict was associated with increased somatic and physical symptoms, general psychological strain, burnout, and depression. In addition, Amstad, Meier, Fasel, Elfering, and Semmer (2011) found similar relationships between work–life stress and worker health and well-being outcomes. Nohe,

Meier, Sonntag, and Michel (2015) showed significant relationships between work–life stress and strain outcomes, including a work-specific strain (e.g., burnout) category and an all-inclusive strain category, which incorporated work-related strain, family-related strain (e.g., parental stress), and strain that was not specific to work or family (e.g., depression). On the enrichment side of work–life research, McNall, Nicklin, and Masuda (2010) found work–life enrichment to be associated with physical and mental health. We also know that work–life stress is related to sleep outcomes, such that increased stress is related to lower quantity and quality of sleep (Crain et al., 2014; Olson et al., 2015). Taken together, this evidence emphasizes the importance of taking a TWH perspective in the design of work–life interventions by targeting organizational- as well as individual-level factors.

### **Work Outcomes**

Within the work domain specifically, Amstad et al. (2011) found that conflict is associated with a wide variety of work outcomes, including job and career satisfaction, organizational commitment, turnover intentions, absenteeism, performance, work stress, and organizational citizenship behaviors. Another early meta-analysis found similar evidence of associations of both directions of conflict (i.e., work-to-life and life-to-work) with job satisfaction (Kossek & Ozeki, 1998). McNall et al. (2010) determined that work–family enrichment is tied to increased job satisfaction and organizational commitment. Another study found that conflict was related to a variety of work-specific withdrawal behaviors, including interruptions and lateness (Hammer, Bauer, & Grandey, 2003). As Cullen and Hammer (2007) and others (i.e., Smith & DeJoy, 2012; Turner, Hershcovis, Reich, & Totterdell, 2014) have discovered, work–life stress also is related to workplace safety outcomes. In addition to benefitting workers, these findings provide support for organizations' investment in work–life interventions.

### **Family Outcomes**

In the family domain, Amstad et al. (2011) found work–life conflict to be tied to lower levels of marital and family satisfaction as well as lower family-related performance and higher levels of stress. Kossek and Ozeki's (1998) meta-analysis revealed that such conflict is linked to decreased life, marital, and family satisfaction. McNall et al. (2010) found that higher work–family enrichment is associated with higher family and life satisfaction.

Beyond effects on workers' own satisfaction, performance, and stress at home, research also has examined potential benefits of decreased conflict and increased enrichment for workers' partners and families (e.g., Hammer, Allen, & Grigsby, 1997). Similar to impacts of conflict and enrichment on workers, effects may extend to other family members and also can include impact on

their health, work, and home outcomes (e.g., Hammer, Cullen, Neal, Sinclair, & Shafiro, 2005). For example, in a sample of dual-earner couples, Bakker, Demerouti, and Dollard (2008) found that a worker's perceptions of conflict are indirectly related to higher home demands for his or her partner in part due to the partner's increased experience of negative social interactions with the worker. More work–family conflict for one partner led to more negative interactions in the relationship, which led to the partner's feeling more home demands. In turn, the partner's home demands were found to be linked to his or her own perceived conflict and exhaustion. In addition, Hammer et al. (2005) determined that work–family positive spillover is negatively related to later depressive symptoms of not only the worker but also his or her spouse. More work remains to explore possible effects of conflict and enrichment on workers' family members, and we encourage researchers to consider these effects when developing and evaluating interventions. Thus, the potential benefits of work–life stress TWH interventions are wide reaching and numerous, including effects on worker health and well-being, work, and family outcomes.

## **THEORETICAL FOUNDATIONS FOR WORK-LIFE STRESS INTERVENTIONS**

Most work–life intervention research to date has focused on reduction of stress and conflict as the primary mechanism of improvement, sometimes also emphasizing an increase in enrichment or balance (e.g., Hammer & Demsky, 2014; Hammer, Kossek, Zimmerman, & Daniels, 2007). Arguably the most prominent theoretical explanation of how work–life interventions can improve outcomes for workers, families, and organizations is that of increasing resources. *Conservation of resources theory* suggests that individuals strive to obtain, maintain, and protect resources, and stress occurs when individuals experience loss of resources, threat of loss, or failure to gain expected resources (Hobfoll, 1989, 2002). According to conservation of resources theory, resources are objects, personal characteristics, conditions, or energies of value to the individual, or that serve to help the individual gain more resources. Halbesleben, Neveu, Paustian-Underdahl, and Westman (2014), though, have since redefined *resources* as anything an individual perceives to help attain his or her goals. In addition, the buffering model of social support (Cohen & Wills, 1985), job demands-control model (Karasek, 1979), and job demands-resources model (Bakker & Demerouti, 2007) address the importance of social support as a buffer of work–life stress as well as job demands and resources as critical environmental factors that impact health and well-being outcomes for workers. Thus, TWH work–life interventions often are motivated by a desire to increase employees' perceived existing and available resources, and decrease perceptions of loss and threat to resources, thereby decreasing stress and leading to further resource gains.

## **TOTAL WORKER HEALTH AND WORK-LIFE STRESS INTERVENTIONS**

The most recent National Occupational Research Agenda proposed for 2016–2026 identifies work–life issues as a crucial area of research (National Institute for Occupational Safety and Health [NIOSH], 2016b). The agenda specifically calls for “better management of the interface between work and life” (p. 5) and cites evaluation of work–life outcomes and opportunities for prevention as a key research output goal. However, despite growing evidence that interventions targeting job stress improve individual and organizational outcomes (e.g., LaMontagne, Keegel, Louie, Ostry, & Landsbergis, 2007), few studies have examined work–life-specific interventions, and those studies that do exist generally have lacked strong study designs (Hammer, Demsky, Kossek, & Bray, 2016). Even considering those interventions that have been empirically evaluated, Kossek, Lewis, and Hammer (2010) argued that work–life initiatives need to become more “mainstreamed” to be effective; that is, until work–life initiatives are considered essential for human resources and management teams to implement and work–life issues are central to decisions made by organizations, little systematic change to work–life stress can occur, despite its high prevalence rates.

When considering work–life stress within the context of the TWH approach, we focus on ways to prevent the negative effects of such stress on the health and well-being outcomes of workers. In particular, a body of research summarized by Hammer and Sauter (2013) has demonstrated that work–life stress has significant effects on health behaviors and resulting chronic health outcomes. The impact on health behaviors is through the negative effects of poor working conditions, which drain resources and, in turn, leave little energy left to focus on healthy behaviors. Negative health behaviors also may manifest themselves as the result of poor stress coping mechanisms, such as is found in the drinking-to-cope literature (e.g., Armeli, Todd, Conner, & Tennen, 2008). Ultimately, organizational strategies that focus on the TWH approach for work–life stress reduction are expected to be most effective, such as training supervisors how to increase support for workers’ work–life stress or increasing workers’ control over how, where, and when they work.

The TWH approach incorporates the reduction of work-related safety and health hazards into the development of injury- and illness-prevention strategies to help build worker health and well-being. A TWH approach prioritizes a hazard-free work environment for all workers. It also brings together aspects of work in integrated interventions that collectively address worker safety, health, and well-being. The NIOSH (2015) publication “Issues Relevant to Advancing Worker Well-Being Through Total Worker Health®” lists examples of TWH areas, most of which could be used as intervention topics, including control of physical, biological, and psychosocial hazards and exposures; organization of work; compensation and benefits; built environment supports; leadership; community supports; changing workforce demographics; policy issues; and new employment patterns. Along with this close tie between areas of TWH and

work–life stress, the TWH approach can be an ideal strategy for reducing work–life stress in several key ways.

First, the TWH approach considers the occupational exposures that increase risk of disease and often interact with risk factors workers encounter or engage in outside of work. A work–life perspective offers an important lens with which to view the interaction of *job risks* and *life risks*, terms coined by Walsh, Jennings, Mangione, and Merrigan (1991) to represent occupational and personal exposures, respectively. Job risks and life risks may individually impact workers, but their combination can be far more dangerous than exposure in a single domain. For example, several studies have assessed profiles of work–life experiences and found differential effects on health, depending on combinations of positive and negative experiences. Demerouti and Geurts (2004) determined that workers with above-average negative work–life experiences in both directions (i.e., work-to-life and life-to-work) had the least favorable scores on a variety of self-reported health and well-being outcomes. Rantanen, Kinnunen, Mauno, and Tillemann (2011) found that simultaneously experiencing high levels of work-to-family conflict and family-to-work conflict is the most detrimental to well-being, regardless of the presence of positive work–life experiences (e.g., work–family enrichment). These findings illustrate how exposure to risks in the work and nonwork domains can be substantially more detrimental to worker health and well-being than exposure in a single domain, emphasizing the importance of providing a hazard-free work environment while also advancing efforts to benefit workers' health and well-being outside of work.

Second, the TWH approach is supported by the idea that those workers who are the most likely to be exposed to job risks are the ones who are also most likely to be exposed to life risks. For example, job risks associated with low-wage hourly retail work include long hours, standing and walking on concrete floors that may aggravate back injuries, and lifting and repetitive motion work that leads to musculoskeletal disorders. Frequently, these job risks also are experienced by workers who have difficulty coordinating care for children and are challenged by additional demands at home, such as single parenting and challenges in paying mortgages or rent. Work–life stress processes inherently cross work and nonwork domains, but evidence supports the idea that individuals who experience interference originating in one domain are more likely to also experience interference originating in the other domain (e.g., workers experiencing work-to-life conflict are more likely to also experience life-to-work conflict; Mesmer-Magnus & Viswesvaran, 2006). This dual exposure makes these workers particularly vulnerable to adverse health and well-being outcomes, and supports careful attention to those workers with particularly high demands in either domain. Furthermore, workers experiencing work–life stress may already be more likely to experience exposure to other risk factors, creating even further vulnerabilities. For example, meta-analytic evidence has shown that income is a significant predictor of both directions of work–life conflict (Byron, 2005), and income also is a known risk factor for a wide variety of other health and well-being problems. Overall, the interrelatedness of both

directions of conflict between domains emphasizes the need for TWH work–life stress interventions because reduction of stress in one domain may reduce stress in the other domain in addition to improving many other health and well-being outcomes.

Third, the TWH approach may help increase involvement in, and benefits of, interventions, especially for high-risk workers. Although debate over the ethicality of worksite health promotion efforts has long existed (Walsh et al., 1991; Warner, 1990), workplaces provide a great deal of potential as settings to target not only job risks but life risks too (Sorensen et al., 2010). Warner (1990) argued that worksites provide a “captive audience” that may not be easily accessible beyond the workplace. Workers already spend a great deal of time interacting with work systems and are impacted by a wide spectrum of social influences that benefit participation rates—both positive (e.g., social support) and negative (e.g., unwanted pressure to change behaviors that are not, strictly speaking, job-related). Workplace interventions may encourage a climate of trust and support, but workers also may maintain skepticism about whether organizations truly have their best interests in mind when conducting work–life interventions; therefore, it is imperative that organizations focus careful attention on communication surrounding intervention implementation and evaluation (Adkins, Kelley, Bickman, & Weiss, 2011).

Another benefit of TWH interventions is that consideration of safety and health protection within the context of well-being promotion may provide added benefit to broader systems beyond the individual alone. Based on the conclusions reached during the National Institutes of Health Pathways to Prevention workshop titled “Total Worker Health®—What’s Work Got to Do With It?” in 2015, Bradley, Grossman, Hubbard, Ortega, and Curry (2016) emphasized the importance of building integrated interventions that include more than individual-level behavioral risk factors alone. Experts on the panel called for attention to the work environment, specifically including work–life stress. Work–life issues provide an accessible and natural opportunity for organizations to practice integrating health protection and health promotion into a greater coordinated effort. Furthermore, if an organization successfully reduces work–life stress, many resulting outcomes will directly benefit the organization itself (Allen et al., 2000). Beyond benefit to the organization, interventions focused on the reduction of work–life stress have demonstrated potential benefits for workers’ loved ones, including spouses (Eby, Casper, Lockwood, Bordeaux, & Brinley, 2005) and children (Davis et al., 2015), as well as potential benefits for the community at large (Voydanoff, 2013).

When we consider the TWH approach, it can be argued that work–life stress interventions may have some of the strongest promise, given that a key premise of the TWH approach is that risk factors from the workplace and the non-work realm impact a worker’s health, safety, and well-being. This advancement of a holistic perspective that risk factors at work and outside of work can interact and impact both health and safety on and off the job has important implications for work–life interventions. Thus, we argue that the workplace is a critical

point of intervention where organizational scholars and safety and health professionals can reduce risk factors at work that can impact work–life stress, resulting in improved health and safety of workers.

## **CHALLENGES OF IMPLEMENTING WORK-LIFE STRESS INTERVENTIONS**

It has been argued by Kelly et al. (2008) and Hammer, Demsky, et al. (2016) that intervention targets in organizations that theoretically have a high likelihood of reducing work–life stress include increasing control over when, where, and how work is done as well as increasing supervisor support for work–life integration. More recent attention has been paid to creating a culture of health and safety (Loeppke et al., 2015) that focuses on global organizational culture changes rather than any one specific target. We argue that the best way to create such a culture of health is to target those known factors that have a high probability of improving safety and health of workers, and then to conduct global assessments of culture change. It also is important to ensure that such interventions impact the triple bottom line—that is, affect workers, their families, and their workplaces (Kossek, 2016).

Conducting organizational intervention research is particularly challenging for a number of reasons (Hammer, Demsky, et al., 2016). First, intervention research that involves strong research designs that use randomized controlled trials, psychometrically sound measures, evaluations of outcomes, and statistical power to detect significant effects is costly. Employers will gauge the benefits of testing such interventions with the costs of lost time and money. The implementation of interventions that involve training or facilitated processes may add further costs. Second, less attention has been focused on how to implement such organizational TWH interventions. Examining the organizational context, including preintervention levels of risk factors and hazards as well as conducting extensive process evaluations will help to better understand how to implement such interventions (Biron, Karanika-Murray, & Cooper, 2012). Factors within the specific organizational context may have direct impacts on the effectiveness of the intervention, irrespective of the efficacy of the intervention itself, and thus must be tracked during the implementation of any intervention. This assessment of implementation fidelity (Semmer, 2006) will help to explain how contextual information (e.g., participation rates and exposure, management support, participation reaction to the intervention) impacts the success of an organizational interventions aimed at reducing health and safety risks.

## **EXAMPLES OF WORK-LIFE INTERVENTIONS**

The remainder of the chapter reviews the few known work–life interventions that have been evaluated in the scientific literature. In the 1970s and 1980s, a line of research focused on the benefits of alternative work schedules, such as

compressed work weeks, flexible work hours, and part-time work (see Hammer & Barbera, 1997, for a review). These studies, although not rigorous, tended to have cross-sectional or quasi-experimental designs, and examined the relationship between such schedule implementation on worker job satisfaction, absenteeism, turnover, and work–family conflict, demonstrating positive impacts. In their review article, Kelly et al. (2008) asked, “Do work–family initiatives reduce employees’ work–family conflict and/or improve work–family enrichment?” (p. 306), and reviewed research on organizational adoption of work–life initiatives. Although adoption of initiatives involves making them available to organizational constituents, this is not the same as the deliberate implementation and evaluation of interventions.

Kelly et al. (2008) suggested that organizational scholars should start to view organizational work–life initiatives as interventions and develop them based on sound organizational theory. Furthermore, they argued that it is important to evaluate the initiatives using randomized controlled designs to enable conclusions to be drawn based on their effectiveness in improving worker, family, and organizational outcomes. They identified support for work and family and for control over work as being the two primary levers for impacting work–life outcomes for workers and, thus, argued that those levers should be the targets of any successful intervention. Furthermore, evidence clearly has demonstrated that workplace support in the form of supervisor support for work and family, such as family-supportive supervisor behaviors (FSSB; Hammer et al., 2007) and organizational support for work and family, are more effective at reducing work–family conflict than general nonspecific workplace supports (Kossek, Pichler, Bodner, & Hammer, 2011). Kelly and Moen (2007) showed the beneficial effects of control over work on work–family conflict and well-being outcomes of workers, and Hammer, Kossek, Anger, Bodner, and Zimmerman (2011) demonstrated in a randomized controlled trial the beneficial effects of FSSB training on worker job satisfaction, turnover intentions, and reports of physical health among those employees with high work–family conflict at baseline. Both are TWH organizational strategies aimed at prevention with expected effects on worker health.

The Work, Family & Health Network recently completed an extensive randomized controlled trial in two key industries: health care and information technology (<https://workfamilyhealthnetwork.org/data>). This effort, funded by the National Institutes for Health and the Centers for Disease Control and Prevention, is the most extensive evaluation of a work–family intervention to date. In total, more than 1,700 employees participated in this longitudinal, multiwave, multi-industry study that included spouses, children, and supervisors of the employees. This 5-year study examined how a TWH work–family intervention that included increasing control over work and increasing supervisor support for work and family within the context of work redesign led to improved health and well-being in workers, family members, and their organizations. Outcomes included improved subjective and objective measures of sleep (Crain et al., 2019; Olson et al., 2015); improved self-reported schedule control, FSSBs, and work–family conflict (Kelly et al., 2014); improved

psychological health (for those with higher eldercare demands and for those who had child and elder care responsibilities; Kossek et al., 2019); reduced cigarette smoking (Hurtado et al., 2016); increased parental time with children (Davis et al., 2015), and increased children's sleep time (McHale et al., 2015). In addition, results demonstrated that the intervention protected against declines in self-reported safety compliance (for those who reported higher FSSB and higher perceived work–family climate at baseline) and declines in organizational citizenship behaviors (for those with higher control over work time; Hammer, Johnson, et al., 2016).

Data are now available for public use and can be accessed at the website just provided; also available on that site are our evidence-based workplace change tools and toolkits, and citations of published research papers. To date, six studies have demonstrated the beneficial impact of the workplace intervention known as STAR (Support.Transform.Achieve.Results; i.e., Davis et al., 2015; Hammer, Johnson, et al., 2016; Hurtado et al., 2016; Kelly et al., 2014; McHale et al., 2015; Olson et al., 2015) on worker health, safety, and well-being as well as child well-being and organizational outcomes.

Hammer and colleagues, as part of the Oregon Healthy Workforce Center, developed and evaluated the implementation of the Safety and Health Improvement Program (SHIP). That program was based on the integration of FSSB training and supervisor support for safety in combination with a team-based approach called team effectiveness process developed by Work Family Directions (Hammer, Truxillo, et al., 2015). Although no effects of the work–life stress reduction intervention were found for safety outcomes, the intervention did reduce blood pressure at the 12-month follow-up (see the Oregon Healthy Workforce Center website for SHIP and other evidence-based TWH intervention materials [<https://www.ohsu.edu/ohwc>]).

## **RECOMMENDATIONS FOR FUTURE RESEARCH AND INTERVENTIONS**

Consistent with the NIOSH's *Fundamentals of Total Worker Health Approaches* (NIOSH, 2016a), we suggest that a focus on developing commitment through training leaders on the importance of support for work and family (e.g., FSSB) is a key first step in developing work–life TWH interventions. Furthermore, primary prevention interventions within the work–life field have focused on the workplace as the source of controlling and reducing such stress. Similar to the hierarchy of controls applied to the NIOSH TWH program (NIOSH, 2016a) and noted as the Defining Element 2, the primary prevention strategy suggests the first step is to eliminate the hazard in the workplace. By eliminating work–life stress through decreasing workplace demands and increasing control and support in the workplace, work–life stress interventions have the potential to improve the health, safety, and well-being of workers. Thus, taking an organizational systems-level approach to work–life stress interventions, similar to that proposed by Hammer and Zimmerman (2011), suggests that the work–family

system is a mesosystem within the broader socioeconomical, legal, political, social, community, organizational, and family context. The TWH approach addresses the prevention of illness and injury from the perspective of the organizational system as well as the broader societal or national context under which we live. This approach suggests the significance of evaluating policy implementation and its effects on worker and family health and well-being. For example, with growing numbers of states and cities implementing paid sick leave and paid family leave laws, research is needed on the evaluation of such policy implementation efforts. In addition, organizational policies around work hours and schedule notification are expected to lead to reductions in work–life stress and thus have the associated beneficial outcomes for workers.

As Hammer, Cullen, and Shafiro (2006) argued, in the United States, we must rely on workplace interventions for reducing work–life stress. Unlike Europe, where appropriate parental leave and child care are nationally subsidized, we currently have little support for such paid leave at the national level, leaving many workers' needing to return to work after minimal time off following the birth or adoption of a child, to work while sick, and unable to assist aging and frail parents. Recent efforts are being made across our country to increase support for paid family leave, and progress is being made in several cities and states. As identified in the NIOSH document "Issues Relevant to Advancing Worker Well-Being Through Total Worker Health®" (NIOSH, 2015), policy issues, including family and medical leave are part of a TWH approach. The proposed national Family and Medical Insurance Leave Act (National Partnership for Women & Families, 2018) is modeled after some of the successful city and state programs that have been developed over the past few years. That act would provide up to 12 weeks of partially paid leave for family and medical needs. We see these national policies as directly supporting the TWH approach by eliminating one primary stressor workers face—loss of income—in exchange for time put toward managing work–life stress.

Future research should consider the broader national context in light of workplace work–life stress reduction interventions that include TWH practices and strategies. The combination of these larger system-level contextual factors aimed at health protection through programs, policies, and practices with the promotion of injury and illness prevention efforts to advance worker well-being demonstrates our ideal work–life stress TWH interventions. Furthermore, evaluation of the effects of such national, state, and city-level policies on work–life outcomes is needed to garner additional support both within and outside of the workplace for interventions and approaches that reduce work–life stress and result in beneficial outcomes for workers, their families, and the organizations in which they work.

## REFERENCES

- Adkins, J. A., Kelley, S. D., Bickman, L., & Weiss, H. M. (2011). Program evaluation: The bottom line in organizational health. In J. C. Quick & L. E. Tetrick (Eds.), *Handbook of occupational health psychology* (2nd ed., pp. 395–416). Washington, DC: American Psychological Association.

- Allen, T. D., Herst, D. E. L., Bruck, C. S., & Sutton, M. (2000). Consequences associated with work-to-family conflict: A review and agenda for future research. *Journal of Occupational Health Psychology, 5*, 278–308. <http://dx.doi.org/10.1037/1076-8998.5.2.278>
- American Psychological Association. (2016, March 10). *Stress in America: The impact of discrimination. Stress in America™ survey* [Report]. Washington, DC: Author. Retrieved from <https://www.apa.org/news/press/releases/stress/2015/impact-of-discrimination.pdf>
- Amstad, F. T., Meier, L. L., Fasel, U., Elfering, A., & Semmer, N. K. (2011). A meta-analysis of work–family conflict and various outcomes with a special emphasis on cross-domain versus matching-domain relations. *Journal of Occupational Health Psychology, 16*, 151–169. <http://dx.doi.org/10.1037/a0022170>
- Armeli, S., Todd, M., Conner, T. S., & Tennen, H. (2008). Drinking to cope with negative moods and the immediacy of drinking within the weekly cycle among college students. *Journal of Studies on Alcohol and Drugs, 69*, 313–322. <http://dx.doi.org/10.15288/jsad.2008.69.313>
- Bakker, A. B., & Demerouti, E. (2007). The job demands–resources model: State of the art. *Journal of Managerial Psychology, 22*, 309–328. <http://dx.doi.org/10.1108/02683940710733115>
- Bakker, A. B., Demerouti, E., & Dollard, M. F. (2008). How job demands affect partners' experience of exhaustion: Integrating work–family conflict and crossover theory. *Journal of Applied Psychology, 93*, 901–911. <http://dx.doi.org/10.1037/0021-9010.93.4.901>
- Biron, C., Karanika-Murray, M., & Cooper, C. L. (2012). *Improving organizational interventions for stress and well-being: Addressing process and context* (pp. 21–38). New York, NY: Routledge.
- Bradley, C. J., Grossman, D. C., Hubbard, R. A., Ortega, A. N., & Curry, S. J. (2016). Integrated interventions for improving total worker health: A panel report from the National Institutes of Health Pathways to Prevention workshop: *Total Worker Health—What's work got to do with it?* *Annals of Internal Medicine, 165*, 279–283. <http://dx.doi.org/10.7326/M16-0740>
- Byron, K. (2005). A meta-analytic review of work–family conflict and its antecedents. *Journal of Vocational Behavior, 67*, 169–198. <http://dx.doi.org/10.1016/j.jvb.2004.08.009>
- Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological Bulletin, 98*, 310–357. <http://dx.doi.org/10.1037/0033-2909.98.2.310>
- Crain, T. L., Hammer, L. B., Bodner, T., Kossek, E. E., Moen, P., Lilienthal, R., & Buxton, O. M. (2014). Work–family conflict, family-supportive supervisor behaviors (FSSB), and sleep outcomes. *Journal of Occupational Health Psychology, 19*, 155–167. <http://dx.doi.org/10.1037/a0036010>
- Crain, T. L., Hammer, L. B., Bodner, T., Olson, R., Kossek, E. E., Moen, P., & Buxton, O. M. (2019). Sustaining sleep: Results from the randomized controlled work, family, and health study. *Journal of Occupational Health Psychology, 24*, 180–197. <http://dx.doi.org/10.1037/ocp0000122>
- Cullen, J. C., & Hammer, L. B. (2007). Developing and testing a theoretical model linking work–family conflict to employee safety. *Journal of Occupational Health Psychology, 12*, 266–278. <http://dx.doi.org/10.1037/1076-8998.12.3.266>
- Davis, K. D., Lawson, K. M., Almeida, D. M., Kelly, E. L., King, R. B., Hammer, L., . . . McHale, S. M. (2015). Parents' daily time with their children: A workplace intervention. *Pediatrics, 135*, 875–882. <http://dx.doi.org/10.1542/peds.2014-2057>
- Demerouti, E., & Geurts, S. (2004). Towards a typology of work-home interaction. *Community, Work & Family, 7*, 285–309. <http://dx.doi.org/10.1080/1366880042000295727>
- Eby, L. T., Casper, W. J., Lockwood, A., Bordeaux, C., & Brinley, A. (2005). Work and family research in IO/OB: Content analysis and review of the literature

- (1980–2002). *Journal of Vocational Behavior*, 66, 124–197. <http://dx.doi.org/10.1016/j.jvb.2003.11.003>
- Edwards, J. R., & Rothbard, N. P. (2000). Mechanisms linking work and family: Clarifying the relationship between work and family constructs. *Academy of Management Review*, 25, 178–199. <http://dx.doi.org/10.5465/amr.2000.2791609>
- Greenhaus, J. H., & Allen, T. D. (2011). Work–family balance: A review and extension of the literature. In J. C. Quick & L. E. Tetrick (Eds.), *Handbook of occupational health psychology* (2nd ed., pp. 165–183). Washington, DC: American Psychological Association.
- Greenhaus, J. H., & Beutell, N. J. (1985). Sources of conflict between work and family roles. *Academy of Management Review*, 10, 76–88. <http://dx.doi.org/10.5465/amr.1985.4277352>
- Halbesleben, J. R., Neveu, J. P., Paustian-Underdahl, S. C., & Westman, M. (2014). Getting to the “COR”: Understanding the role of resources in conservation of resources theory. *Journal of Management*, 40, 1334–1364. <http://dx.doi.org/10.1177/0149206314527130>
- Hammer, L., Allen, E., & Grigsby, T. (1997). Work–family conflict in dual-earner couples: Within-individual and crossover effects of work and family. *Journal of Vocational Behavior*, 50, 185–203. <http://dx.doi.org/10.1006/jvbe.1996.1557>
- Hammer, L. B., & Barbera, K. M. (1997). Towards an integration of alternative work schedules and human resource systems: Recommendations for research and practice. *Human Resource Planning*, 20, 28–36.
- Hammer, L. B., Bauer, T. N., & Grandey, A. A. (2003). Work–family conflict and work-related withdrawal behaviors. *Journal of Business and Psychology*, 17, 419–436. <http://dx.doi.org/10.1023/A:1022820609967>
- Hammer, L. B., Cullen, J. C., Neal, M. B., Sinclair, R. R., & Shafiro, M. V. (2005). The longitudinal effects of work–family conflict and positive spillover on depressive symptoms among dual-earner couples. *Journal of Occupational Health Psychology*, 10, 138–154. <http://dx.doi.org/10.1037/1076-8998.10.2.138>
- Hammer, L. B., Cullen, J. C., & Shafiro, M. (2006). Work–family best practices. In F. Jones, R. Burke, & M. Westman (Eds.), *Work–life balance: A psychological perspective* (pp. 261–275). East Sussex, England: Psychology Press.
- Hammer, L. B., & Demsky, C. A. (2014). Introduction to work–life balance. In A. Day, E. K. Kelloway, & J. J. Hurrell (Eds.), *Workplace well-being: How to build psychologically healthy workplaces* (pp. 95–116). Hoboken, NJ: Wiley-Blackwell.
- Hammer, L. B., Demsky, C., Kossek, E. E., & Bray, J. (2016). Work–family intervention research. In T. D. Allen & L. T. Eby (Eds.), *The Oxford handbook of work and family* (pp. 349–361). New York, NY: Oxford University Press. <http://dx.doi.org/10.1093/oxfordhb/9780199337538.013.27>
- Hammer, L. B., Johnson, R. C., Crain, T. L., Bodner, T., Kossek, E. E., Davis, K. D., . . . Berkman, L. (2016). Intervention effects on safety compliance and citizenship behaviors: Evidence from the work, family, and health study. *Journal of Applied Psychology*, 101, 190–208. <http://dx.doi.org/10.1037/apl0000047>
- Hammer, L. B., Kossek, E. E., Anger, W. K., Bodner, T., & Zimmerman, K. L. (2011). Clarifying work–family intervention processes: The roles of work–family conflict and family-supportive supervisor behaviors. *Journal of Applied Psychology*, 96, 134–150. <http://dx.doi.org/10.1037/a0020927>
- Hammer, L. B., Kossek, E. E., Zimmerman, K., & Daniels, R. (2007). Clarifying the construct of family-supportive supervisory behaviors (FSSB): A multilevel perspective. In P. L. Perrewé & D. C. Ganster (Eds.), *Exploring the work and non-work interface: Vol. 6. Research in occupational stress and well-being* (pp. 165–204). Amsterdam, The Netherlands: Elsevier.
- Hammer, L. B., & Sauter, S. (2013). Total worker health and work–life stress. *Journal of Occupational and Environmental Medicine*, 55, S25–S29. <http://dx.doi.org/10.1097/JOM.0000000000000043>

- Hammer, L. B., Truxillo, D. M., Bodner, T., Rineer, J., Pytlovany, A. C., & Richman, A. (2015). Effects of a workplace intervention targeting psychosocial risk factors on safety and health outcomes. *BioMed Research International*, 2015, 836967. <http://dx.doi.org/10.1155/2015/836967>
- Hammer, L. B., & Zimmerman, K. L. (2011). Quality of work life. In S. Zedeck (Ed.), *APA handbook of industrial and organizational psychology: Vol. 3. Maintaining, expanding, and contracting the organization* (pp. 399–431). Washington, DC: American Psychological Association. <http://dx.doi.org/10.1037/12171-011>
- Hobfoll, S. E. (1989). Conservation of resources. A new attempt at conceptualizing stress. *American Psychologist*, 44, 513–524. <http://dx.doi.org/10.1037/0003-066X.44.3.513>
- Hobfoll, S. E. (2002). Social and psychological resources and adaptation. *Review of General Psychology*, 6, 307–324. <http://dx.doi.org/10.1037/1089-2680.6.4.307>
- Hurtado, D. A., Okechukwu, C. A., Buxton, O. M., Hammer, L., Hanson, G. C., Moen, P., . . . Berkman, L. F. (2016). Effects on cigarette consumption of a work–family supportive organisational intervention: 6-month results from the Work, Family and Health network study. *Journal of Epidemiology and Community Health*, 70, 1155–1161. <http://dx.doi.org/10.1136/jech-2015-206953>
- Kanfer, F. H. (1977). The many faces of self-control, or behavior modification changes its focus. In R. B. Stuart (Ed.), *Behavioral self-management: Strategies, techniques, and outcome* (pp. 1–48). New York, NY: Brunner/Mazel.
- Karasek, R. A. (1979). Job demands, job decision latitude, and mental strain: Implications for job design. *Administrative Science Quarterly*, 24, 285–308. <http://dx.doi.org/10.2307/2392498>
- Kelly, E. L., Kossek, E. E., Hammer, L. B., Durham, M., Bray, J., Chermack, K., . . . Kaskubar, D. (2008). Getting there from here: Research on the effects of work–family initiatives on work–family conflict and business outcomes. *Academy of Management Annals*, 2, 305–349. <http://dx.doi.org/10.5465/19416520802211610>
- Kelly, E. L., & Moen, P. (2007). Rethinking the clockwork of work: Why schedule control may pay off at work and at home. *Advances in Developing Human Resources*, 9, 487–506. <http://dx.doi.org/10.1177/1523422307305489>
- Kelly, E. L., Moen, P., Oakes, J. M., Fan, W., Okechukwu, C., Davis, K. D., . . . Casper, L. M. (2014). Changing work and work–family conflict: Evidence from the Work, Family, and Health Network. *American Sociological Review*, 79, 485–516. <http://dx.doi.org/10.1177/0003122414531435>
- Kossek, E. E. (2016). Implementing organizational work–life interventions: Toward a triple bottom line. *Community, Work & Family*, 19, 242–256. <http://dx.doi.org/10.1080/13668803.2016.1135540>
- Kossek, E. E., Lewis, S., & Hammer, L. B. (2010). Work–life initiatives and organizational change: Overcoming mixed messages to move from the margin to the mainstream. *Human Relations*, 63, 3–19. <http://dx.doi.org/10.1177/0018726709352385>
- Kossek, E. E., & Ozeki, C. (1998). Work–family conflict, policies, and the job–life satisfaction relationship: A review and directions for organizational behavior–human resources research. *Journal of Applied Psychology*, 83, 139–149. <http://dx.doi.org/10.1037/0021-9010.83.2.139>
- Kossek, E. E., Pichler, S., Bodner, T., & Hammer, L. B. (2011). Workplace social support and work–family conflict: A meta-analysis clarifying the influence of general and work–family-specific supervisor and organizational support. *Personnel Psychology*, 64, 289–313. <http://dx.doi.org/10.1111/j.1744-6570.2011.01211.x>
- Kossek, E. E., Thompson, R. J., Lawson, K. M., Bodner, T., Perrigino, M. B., Hammer, L. B., . . . Bray, J. W. (2019). Caring for the elderly at work and home: Can a randomized organizational intervention improve psychological health? *Journal of Occupational Health Psychology*, 24, 36–54. <http://dx.doi.org/10.1037/ocp0000104>
- LaMontagne, A. D., Keegel, T., Louie, A. M., Ostry, A., & Landsbergis, P. A. (2007). A systematic review of the job-stress intervention evaluation literature, 1990–2005.

- International Journal of Occupational and Environmental Health*, 13, 268–280. <http://dx.doi.org/10.1179/oeht.2007.13.3.268>
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York, NY: Springer.
- Loeppke, R. R., Hohn, T., Baase, C., Bunn, W. B., Burton, W. N., Eisenberg, B. S., . . . Siuba, J. (2015). Integrating health and safety in the workplace: How closely aligning health and safety strategies can yield measurable benefits. *Journal of Occupational and Environmental Medicine*, 57, 585–597. <http://dx.doi.org/10.1097/JOM.0000000000000467>
- McHale, S. M., Lawson, K. M., Davis, K. D., Casper, L., Kelly, E. L., & Buxton, O. (2015). Effects of a workplace intervention on sleep in employees' children. *Journal of Adolescent Health*, 56, 672–677. <http://dx.doi.org/10.1016/j.jadohealth.2015.02.014>
- McNall, L. A., Nicklin, J. M., & Masuda, A. D. (2010). A meta-analytic review of the consequences associated with work–family enrichment. *Journal of Business and Psychology*, 25, 381–396. <http://dx.doi.org/10.1007/s10869-009-9141-1>
- Mesmer-Magnus, J. R., & Viswesvaran, C. (2006). How family-friendly work environments affect work/family conflict: A meta-analytic examination. *Journal of Labor Research*, 27, 555–574. <http://dx.doi.org/10.1007/s12122-006-1020-1>
- National Institute for Occupational Safety and Health. (2015). *Issues relevant to advancing worker well-being through Total Worker Health®*. Retrieved from [https://www.cdc.gov/niosh/twh/pdfs/twh-issues-4x3\\_10282015\\_final.pdf](https://www.cdc.gov/niosh/twh/pdfs/twh-issues-4x3_10282015_final.pdf)
- National Institute for Occupational Safety and Health. (2016a). *Fundamentals of Total Worker Health® approaches: Essential elements for advancing worker safety, health, and well-being* (DHHS [NIOSH] Publication No. 2017-112). Cincinnati, OH: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health. Retrieved from <https://stacks.cdc.gov/view/cdc/43275>
- National Institute for Occupational Safety and Health. (2016b). *National occupational research agenda (NORA)/national Total Worker Health® agenda (2016–2026): A national agenda to advance Total Worker Health® research, practice, policy, and capacity, April 2016* (DHHS [NIOSH] Publication No. 2016-114). Cincinnati, OH: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health. Retrieved from <https://www.cdc.gov/niosh/docs/2016-114/pdfs/nationaltwhagenda2016-1144-14-16.pdf>
- National Partnership for Women & Families. (2018). The Family and Medical Insurance Leave (FAMILY) Act [Fact sheet]. *National Partnership for Women & Families*. Retrieved from <http://www.nationalpartnership.org/our-work/resources/workplace/paid-leave/family-act-fact-sheet.pdf>
- Nohe, C., Meier, L. L., Sonntag, K., & Michel, A. (2015). The chicken or the egg? A meta-analysis of panel studies of the relationship between work–family conflict and strain. *Journal of Applied Psychology*, 100, 522–536. <http://dx.doi.org/10.1037/a0038012>
- Olson, R., Crain, T. L., Bodner, T., King, R., Hammer, L., Klein, L. C., . . . Buxton, O. M. (2015). A workplace intervention improves sleep: Results from the randomized, controlled work, family, and health study. *Sleep Health*, 1, 55–65. <http://dx.doi.org/10.1016/j.sleh.2014.11.003>
- Rantanen, J., Kinnunen, U., Mauno, S., & Tillemann, K. (2011). Introducing theoretical approaches to work–life balance and testing a new typology among professionals. In S. Kaiser, M. Ringlstetter, D. R. Eikhof, & M. Pina e Cunha (Eds.), *Creating balance? International perspectives on the work-life integration of professionals* (pp. 27–46). Berlin, Germany: Springer. [http://dx.doi.org/10.1007/978-3-642-16199-5\\_2](http://dx.doi.org/10.1007/978-3-642-16199-5_2)
- Schieman, S., Glavin, P., & Milkie, M. A. (2009). When work interferes with life: Work–nonwork interference and the influence of work-related demands and resources. *American Sociological Review*, 74, 966–988. <http://dx.doi.org/10.1177/000312240907400606>

- Semmer, N. K. (2006). Job stress interventions and the organization of work. *Scandinavian Journal of Work, Environment & Health*, 32, 515–527. <http://dx.doi.org/10.5271/sjweh.1056>
- Shockley, K. M., Shen, W., DeNunzio, M. M., Arvan, M. L., & Knudsen, E. A. (2017). Disentangling the relationship between gender and work–family conflict: An integration of theoretical perspectives using meta-analytic methods. *Journal of Applied Psychology*, 102, 1601–1635. Advance online publication. <http://dx.doi.org/10.1037/apl0000246>
- Smith, T. D., & DeJoy, D. M. (2012). Occupational injury in America: An analysis of risk factors using data from the General Social Survey (GSS). *Journal of Safety Research*, 43, 67–74. <http://dx.doi.org/10.1016/j.jsr.2011.12.002>
- Sorensen, G., Stoddard, A., Quintiliani, L., Ebbeling, C., Nagler, E., Yang, M., . . . Wallace, L. (2010). Tobacco use cessation and weight management among motor freight workers: Results of the gear up for health study. *Cancer Causes & Control*, 21, 2113–2122. <http://dx.doi.org/10.1007/s10552-010-9630-6>
- Turner, N., Hershcovis, M. S., Reich, T. C., & Totterdell, P. (2014). Work–family interference, psychological distress, and workplace injuries. *Journal of Occupational and Organizational Psychology*, 87, 715–732. <http://dx.doi.org/10.1111/joop.12071>
- Voydanoff, P. (2013). *Work, family, and community: Exploring interconnections*. New York, NY: Psychology Press.
- Walsh, D. C., Jennings, S. E., Mangione, T., & Merrigan, D. M. (1991). Health promotion versus health protection? Employees' perceptions and concerns. *Journal of Public Health Policy*, 12, 148–164. <http://dx.doi.org/10.2307/3342500>
- Warner, K. E. (1990). Wellness at the worksite. *Health Affairs*, 9, 63–79. <http://dx.doi.org/10.1377/hlthaff.9.2.63>

Copyright © 2019 by the American Psychological Association. All rights reserved. Except as permitted under the United States Copyright Act of 1976, no part of this publication may be reproduced or distributed in any form or by any means, including, but not limited to, the process of scanning and digitization, or stored in a database or retrieval system, without the prior written permission of the publisher.

The Foreword, the Introduction, and Chapters 2, 3, 13, 14, and 17 were coauthored by employees of the United States government as part of official duty and are considered to be in the public domain.

TOTAL WORKER HEALTH® is a registered trademark of the US Department of Health and Human Services. Participation by other organizations named herein does not imply endorsement by HHS, the Centers for Disease Control and Prevention, or the National Institute for Occupational Safety and Health.

The opinions and statements published are the responsibility of the authors, and such opinions and statements do not necessarily represent the policies of the American Psychological Association.

Published by  
American Psychological Association  
750 First Street, NE  
Washington, DC 20002  
<https://www.apa.org>

Order Department  
<https://www.apa.org/pubs/books>  
[order@apa.org](mailto:order@apa.org)

In the U.K., Europe, Africa, and the Middle East, copies may be ordered from Eurospan  
<https://www.eurospanbookstore.com/apa>  
[info@eurospangroup.com](mailto:info@eurospangroup.com)

Typeset in Meridien and Ortodoxa by Circle Graphics, Inc., Reisterstown, MD

Printer: Sheridan Books, Chelsea, MI  
Cover Designer: Beth Schlenoff Design, Bethesda, MD

#### **Library of Congress Cataloging-in-Publication Data**

Names: Hudson, Heidi, editor. | Nigam, Jeannie A. S., editor. | Sauter, Steven L., 1946- editor.

Title: Total worker health / edited by Heidi L. Hudson, Jeannie A. S. Nigam, Steven L. Sauter, L. Casey Chosewood, Anita L. Schill, and John Howard.

Description: Washington, DC : American Psychological Association, [2019] | Includes bibliographical references and index.

Identifiers: LCCN 2018061043 (print) | LCCN 2019017619 (ebook) | ISBN 9781433831164 (eBook) | ISBN 1433831163 (eBook) | ISBN 9781433830259 (hardcover) | ISBN 1433830256 (hardcover)

Subjects: LCSH: Industrial hygiene. | Industrial safety.

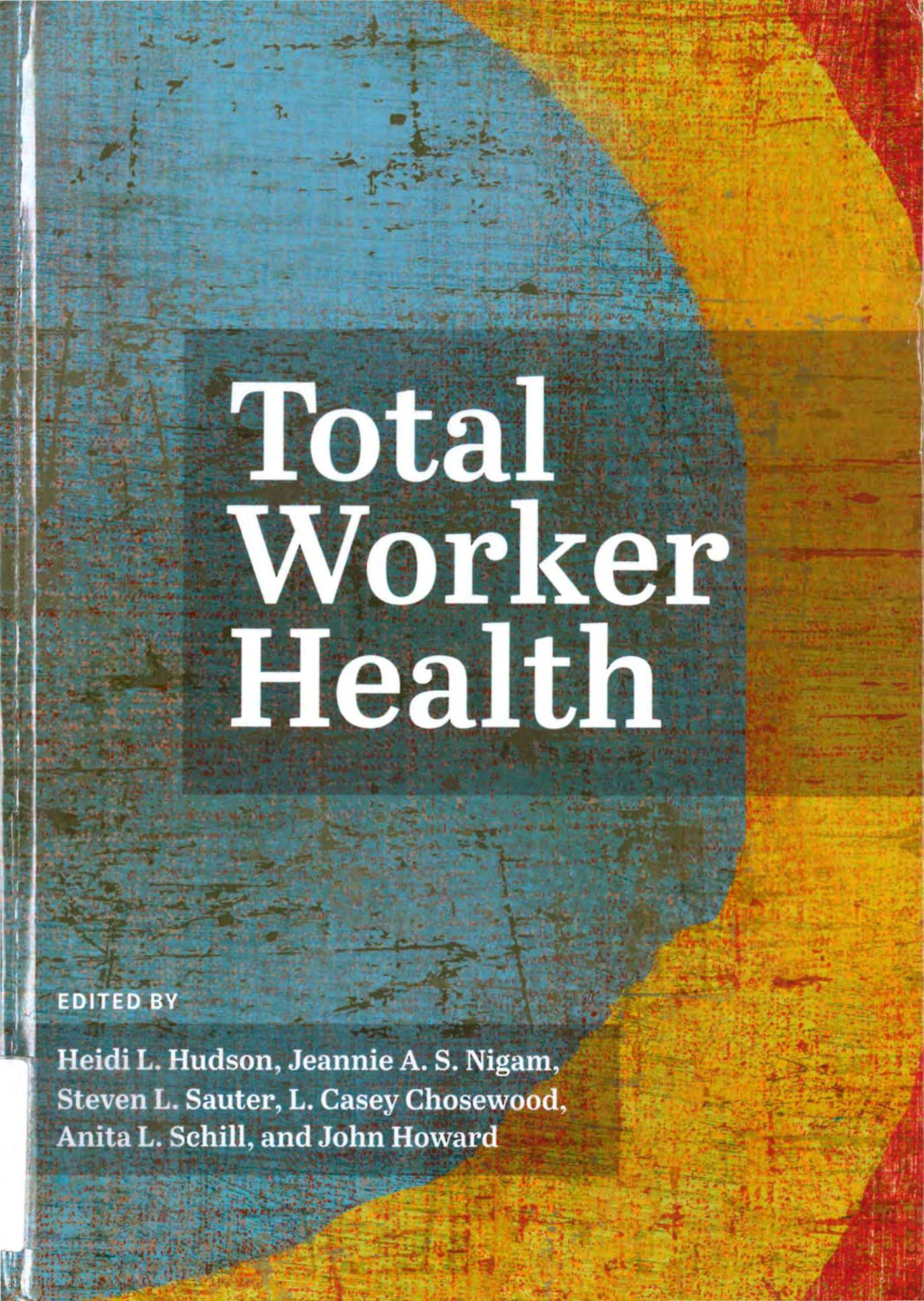
Classification: LCC HD7261 (ebook) | LCC HD7261 .I558 2019 (print) | DDC 658.3/82—dc23

LC record available at <https://lccn.loc.gov/2018061043>

<http://dx.doi.org/10.1037/0000149-000>

*Printed in the United States of America*

10 9 8 7 6 5 4 3 2 1



# Total Worker Health

EDITED BY

Heidi L. Hudson, Jeannie A. S. Nigam,  
Steven L. Sauter, L. Casey Chosewood,  
Anita L. Schill, and John Howard

# Total Worker Health

EDITED BY

Heidi L. Hudson, Jeannie A. S. Nigam,  
Steven L. Sauter, L. Casey Chosewood,  
Anita L. Schill, and John Howard



**PALM BEACH STATE**  
COLLEGE

Palm Beach State College  
Library Learning Resource Center  
4200 Congress Avenue  
Lake Worth, FL 33461



AMERICAN PSYCHOLOGICAL ASSOCIATION

Washington, DC