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Promoting Mental Health and Happiness in Healthcare Workers Through Workplace Interventions: A Realist Review

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Abstract

Mental health issues among healthcare workers are a significant concern, with depression and anxiety disorders alone costing approximately US$1 trillion in lost productivity globally in 2017. This realist review aimed to examine how workplace-based organizational interventions can improve the mental health and wellbeing of healthcare workers, adopting a broader definition of outcomes, including diverse study designs, and focusing on a comprehensive range of healthcare workers. The review identified several themes and patterns of mechanisms for designing and implementing interventions, including stakeholder engagement and support, approaches to developing interventions, managing expectations, the complexity of evaluating organizational-level interventions, distinguishing between process and mechanism, sustainability and longevity of interventions, and a broad definition of mental health. The discussion emphasizes the contextual factors and processes underlying interventions that influenced how specific mechanisms contributed to achieving positive outcomes. Key considerations include aligning the rationale, strategy, and theoretical framework with the intervention's structure and content; the critical role of employee engagement; managing complexity; sustainability and long-term impact; and the need for a broader conceptualization of mental health that includes positive constructs such as happiness. The review highlights the importance of understanding mechanisms and processes for implementing effective workplace mental health interventions and the need for more research from low- and middle-income countries. It also underscores the necessity for robust definitions and approaches to workplace mental health, moving beyond the traditional focus on negative mental health to encompass constructs of mental wellbeing and happiness.

Keywords: healthcare workers, mental health, happiness, workplace

Introduction

Mental illness is estimated to account for 32.4% of years lived with a disability globally (Vigo et al., 2016), significantly impacting workplaces. Depression and anxiety disorders alone cost approximately US$1 trillion in lost productivity in 2017. Reflecting the increasing recognition of mental health issues in the workplace, in May 2019, the World Health Organization classified burnout as an “occupational phenomenon” for the first time in the eleventh revision of the International Classification of Diseases. Beyond absenteeism and the direct costs associated with mental ill health, there is growing awareness of its impact on workers who remain employed but experience decreased productivity, a phenomenon referred to as presenteeism (Schultz & Edington, 2007). Presenteeism has been shown to contribute more significantly to economic costs than absenteeism and healthcare expenses (Ammendolia et al., 2016). Given the high economic burden, the relative return on investment in mental health interventions is promising: every dollar invested in scaling up treatment for common mental disorders such as depression and anxiety yields a four-fold return through improved health and work capacity.

Numerous workplace factors are recognized as determinants of workers' mental health (Marchand et al., 2015), including high job demands, low job control, inadequate workplace social support, effort-reward imbalance, poor organizational procedural justice, poor organizational relational justice, organizational change, job insecurity, temporary employment status, irregular working hours, bullying, and role-related stress (Harvey et al., 2017). Non-work factors, such as family status and social support networks, also significantly influence workers’ mental health (Beauregard et al., 2011). Within the healthcare sector, employees face heightened risks of mental health issues, such as burnout, stress, post-traumatic stress disorder, anxiety, and depression (Hannan et al., 2018; Qiao et al., 2016; Shanafelt et al., 2012). This heightened risk is attributable to workplace conditions like excessive workloads (Anderson et al., 2017; Shanafelt et al., 2009), emotionally charged environments, stigma against seeking mental healthcare, and exposure to workplace violence(Yang et al., 2018). Mental ill health among healthcare workers has been linked to an increased likelihood of patient safety incidents, diminished care quality due to reduced professionalism, and decreased patient satisfaction. It is also associated with medical errors (Fahrenkopf et al., 2008), poorer quality care, increased patient falls, medication errors, higher infection rates, lower patient satisfaction, and poorer patient safety outcomes (Spence Laschinger & Leiter, 2006). Additionally, poor mental health among healthcare workers exacerbates workforce shortages by reducing work effort or leading to premature departures from the profession(Sinsky et al., 2017), contributing to significant economic costs (Han et al., 2019).

In addition to addressing the substantial burden of mental illness, there is increasing recognition of the value of positive mental health and wellness, often conceptualized through constructs such as happiness. This approach has garnered international attention, exemplified by the United Nations’ High-Level Meeting on Wellbeing and Happiness in 2012. Such a perspective aligns with the World Health Organization’s definition of health as “a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity”. For the purposes of this review, the term "mental health" encompasses both positive and negative aspects of mental wellbeing.

While mental health promotion and prevention programs are expanding globally, only 7% of these initiatives are workplace-based. The *Global Happiness Policy Report* (2018) emphasizes the need for more research to build a causal evidence base on work and wellbeing and to evaluate workplace interventions aimed at promoting worker wellbeing. A 2015 Cochrane systematic review assessed the effectiveness of interventions to prevent occupational stress in healthcare workers (Ruotsalainen et al., 2015), but it focused exclusively on work-related stress and burnout, measured using validated tools. This underscores the need for a more holistic approach to mental health, encompassing broader outcomes such as psychosocial work environments and job satisfaction, to better capture the benefits of improved work settings. Furthermore, the Cochrane review considered only quantitative studies meeting stringent methodological criteriasuch as randomized controlled trials for individual-level interventions, controlled before-and-after studies, and interrupted time series for organizational-level interventionsexcluding cross-sectional and qualitative studies that could provide valuable insights into the effectiveness of interventions in diverse contexts.

To address the practical challenges of understanding how workplace-based organizational interventions can effectively operate in the complex and diverse contexts of healthcare, the realist review method offers a more nuanced approach. This method seeks to understand what works, for whom, under what circumstances, in what respects, and how (Pawson et al., 2005). It is well-suited to examining the processes underlying organizational interventions, focusing on the reasons for their success or failure (Nielsen et al., 2010). Although a realist review is currently being conducted to explore mental health interventions for physicians (Carrieri et al., 2018), there remains a critical need to assess their impact on nurses, midwives, other healthcare professionals, and support staff. Accordingly, in examining how workplace-based organizational interventions can improve the mental health and wellbeing of healthcare workers, this realist review adopts: (a) a broader definition of outcomes of

interest; (b) the inclusion of diverse study designs suited to realist analysis; and (c) a focus on a comprehensive range of healthcare workers.

Organizational Interventions

Several themes and patterns of mechanisms for designing and implementing interventions relevant to a realist framework emerged from the analysis.

1. Stakeholder Engagement and Support

The critical role of stakeholder engagement has been repeatedly emphasized in various studies. For instance, Uchiyama et al., in their process evaluation, highlighted that ongoing engagement with key stakeholders, such as unit leaders, was essential for the effective implementation of the intervention(Uchiyama et al., 2013). Another study identified potential challenges arising from inconsistent support at different organizational levels. In this case, while the hospital administration supported the intervention by compensating nurses for their participation, some unit-level managers hindered involvement by scheduling staff in ways that effectively prevented participation (Günüşen & Üstün, 2010). Engagement and support across all organizational levels, from management to frontline workers, were deemed essential. For example, Romig et al., during the introduction of a telemedicine service, recognized that fostering positive staff perceptions of the new technology was crucial for its adoption. They demonstrated the benefits to staff at the outset to promote acceptance and use (Romig et al., 2012). Several studies identified the participatory nature of interventionsinvolving frontline staff in their development and implementationas a vital factor for success (Arnetz & Hasson, 2007; Bourbonnais et al., 2006, 2011; Ewers et al., 2002). Moreover, some studies highlighted that the participatory process itself positively influenced employees (Lavoie-Tremblay et al., 2005; Mikkelsen et al., 2000).

2. Approaches to Developing Interventions

Common strategies for identifying workplace factors to target in interventions included initial engagement with healthcare workers (e.g., baseline studies to identify context-specific mental health determinants), building on earlier research (e.g., pilot studies), or relying on established theories of workplace mental health. Some interventions explicitly incorporated theoretical foundations, either combined with local needs or as the primary basis for the intervention. For example, interventions described in(Bourbonnais et al., 2006, 2011) focused on four theoretically grounded psychosocial job factors: psychological demands, decision latitude, social support, and effort-reward imbalance. Similarly, Canadian research on fostering civility in the workplace was based on a theoretical model of interpersonal relationships at work (Leiter et al., 2011, 2012).

3. Managing Expectations

A few studies noted challenges associated with managing expectations regarding workplace mental health promotion activities. For instance, Uchiyama et al. observed that a lack of improvement in psychosocial work environment measures might stem from employees' elevated expectations based on existing workplace issues. For example, employees experiencing workload or compensation challenges may not have felt that interventions focused on team meetings or communication addressed their concerns (Arnetz & Hasson, 2007). Properly managing expectations can differentiate between successful and unsuccessful implementation. Aust et al. identified a mismatch between employees' expectations and program delivery as a key reason for an intervention's "failure"in this case, a measured decline in the psychosocial work environment after the intervention (Aust et al., 2010). Conversely, heightened expectations might inflate perceived benefits, as noted by Bryan et al., where nurses' "excitement for change" likely contributed to short-term improvements in job satisfaction, which later diminished (Bryan et al., 1998).

4. Complexity of Evaluating Organizational-Level Interventions

The complexity of evaluating organizational-level interventions emerged as a recurring theme, particularly due to external factors influencing outcomes. For example, Proctor et al. observed no change in psychological distress within the intervention group, although organizational and managerial changes coincided with the study period(Proctor et al., 1998). The control group experienced increased psychological distress during this time, suggesting that the intervention mitigated the effects of organizational changes. However, this mitigating effect might not have been evident from the study's direct results.

5. Process vs. Mechanism

Several studies highlighted the challenge of distinguishing between the process of developing, introducing, and implementing an intervention and the actual intervention's impact on mental wellbeing. For example, Bunce et al. measured process variables and concluded that the process itself influenced the outcome. Improvements in occupational stress following an interactive training program regressed to baseline levels one year later, indicating that the immediate benefits arose from engaging in the training process rather than the skills or knowledge gained (Bunce & West, 1996). Two key considerations for future intervention development arise from this distinction between process and mechanism. First, the process itself matters; it can influence outcomes and must be carefully designed. Second, the process's influence on outcomes may affect the longevity and subsequent success measures of an intervention.

6. Sustainability and Longevity of Interventions

Few studies assessed the long-term effects of policy changes. One study in California found that legislation mandating minimum nurse staffing levels improved job satisfaction (Spetz, 2008), while another in Germany reported no improvement in physicians' mental health after ten years of a policy limiting weekly working hours (Richter et al., 2014). Most studies focused on the effects of discrete initiatives, raising questions about the sustainability and longevity of intervention impacts once the study concluded. An exception was noted in (Jeon et al., 2015), where an organization employed a facilitator to continue the program beyond the study period. Notably, three studies found short-term improvements following interventions, which were not sustained in the long term (Bryan et al., 1998; Bunce & West, 1996; Günüşen & Üstün, 2010).

7. Broad Definition of Mental Health

Although burnout was the most measured mental health outcome, various constructs were utilized, including stress, job satisfaction, distress, depression, psychosocial work environment, psychological wellbeing, anxiety, psychosomatic symptoms, affect, and resilience. Even among studies focusing on burnout, differences in its three dimensionsemotional exhaustion, depersonalization, and personal accomplishmentwere frequently discussed (Lee & Ashforth, 1990). This diversity of constructs underscores the multifaceted nature of workplace mental health and promotes a broader conceptualization of mental health that extends beyond the presence or absence of mental disorders to include holistic measures of wellbeing and happiness.

Discussion

The first theme identified is the significance of aligning the rationale, strategy, and/or theoretical framework with both the structure and content of the intervention and the mental health constructs defining success. This requires careful consideration of the unique needs of each target population, as well as the specific contextual factors and nuances involved in designing interventions. LaMontagne et al. proposed a framework for an integrated approach to workplace mental health interventions, encompassing three dimensions: “harm prevention” through organizational-level primary prevention measures, “positive mental health promotion” to bolster individual resilience, and illness management, including diagnosis, treatment, and reintegration (LaMontagne et al., 2014). These dimensions align with the domains of public/occupational health, organizational development/psychology, and psychiatry, respectively. While this integrated approach seems intuitive, attention must be given to how targeted upstream organizational factors influence individual mental health and wellbeing and how these factors shape the strategies chosen for implementation (LaMontagne et al., 2014). Furthermore, the positionality of those making these strategic decisions must be carefully considered to ensure that the range of potential interventions is not unduly constrained by the preferences or biases of a particular stakeholder group.

The second theme centers on the critical role of employee engagement throughout the organization. A lack of engagement from certain groups of employees or the broader workforce was often cited as a primary reason for interventions not achieving their intended outcomes. This has been widely acknowledged as a fundamental factor in the success of workplace health promotion initiatives (Harden et al., 1999; LaMontagne et al., 2012). Moreover, the concept of psychosocial safety climate (PSC), defined as the organizational policies, practices, and procedures aimed at safeguarding workers’ psychological health and safety (Dollard & Bakker, 2010), has been shown to positively correlate with employee engagement and job satisfaction while negatively correlating with mental ill-health outcomes (Hall et al., 2010). These findings underscore the value of fostering participation and engagement at all organizational levels. Similarly, workplace culture significantly influences the outcomes and success of workplace health promotion activities, especially during implementation. Beyond specific interventions, an organization’s "culture of health," which integrates health considerations into its core practices and values, is pivotal. Factors contributing to this culture include a supportive physical and social environment, leadership commitment, middle management support, peer encouragement, team building, and active employee participation (Kent et al., 2016). Many studies employed participatory approaches during the development and/or implementation phases of interventions. The engagement theme also underscores the necessity of providing employees with sufficient time and resources to participate, including managerial support to enable involvement. Meaningful and ongoing engagement can also help manage expectations, thereby avoiding the potential adverse effects of unmet or mismatched expectations.

The third theme pertains to managing complexity. Mental health in the workplace is influenced by numerous factors at individual, organizational, and societal levels, creating challenges in selecting specific intervention targets and evaluating the impacts of changes. Many studies reported unrelated organizational changes, such as restructuring or layoffs, that coincided with interventions and diminished or negated their effects. Complexity also arises from the diversity within employee groups, as different workers face varying needs and challenges impacting their mental health at any given time. This diversity makes it difficult to design and implement interventions that effectively address the needs of an entire workforce. Furthermore, the heterogeneity of employee populations complicates evaluation efforts. For example, a meta-analysis of workplace health promotion programs found larger effect sizes in younger populations (Rongen et al., 2013). These findings

highlight the interconnectedness of process considerations and mechanisms of change. The complexity of occupational health interventions in healthcare is evident in the unique challenges associated with their evaluation, including the importance of contextual factors and the appropriateness of research methodologies (Campbell et al., 2007; Schelvis et al., 2015).

The fourth theme emphasizes the sustainability and long-term impact of interventions on employees' mental health. For instance, three studies identified short-term improvements in workers' mental health without corresponding long-term benefits, suggesting that temporary initiatives may enhance mental health initially through an "excitement of change" effect, where attention and resources are concentrated on the intervention (Bryan et al., 1998). This phenomenon may be akin to the Hawthorne effect, where observed changes arise from the focus on workers rather than the efficacy of the intervention itself (Wickström & Bendix, 2000). Conversely, interventions implemented over a limited timeframe might underestimate potential effects if employees lack sufficient exposure. Furthermore, it is crucial to consider the sustainability of improvements post-intervention. Within healthcare's complex environment, incremental changes within a broader transformational strategy are recommended to facilitate cultural change, emphasizing continuous improvement over isolated initiatives (Willis et al., 2016). Another significant consideration is the responsibility for maintaining the intervention—whether it falls on employees to sustain changes introduced through group training and support programs provided by the organization.

The conceptualization of occupational mental health is predominantly pathological, focusing on the presence or absence of mental illnesses rather than the promotion of positive mental health and wellbeing. For example, a qualitative study exploring job-related wellbeing, stress, and burnout among healthcare workers in rural Ethiopia found that most participants equated wellbeing with the absence of stress rather than a positive state (Selamu et al., 2017). While other disciplines, such as economics, increasingly emphasize positive mental health constructs like happiness (J. F. Helliwell & Barrington-Leigh, 2010; Lyubomirsky et al., 2005), workplace interventions still have opportunities to integrate broader, more positive conceptualizations of mental health. "Happiness" as a marker of positive mental health encompasses both short-term emotions and longer-term constructs like life satisfaction. The Organization for Economic Co-operation and Development defines subjective wellbeing as comprising three elements: life evaluation (reflective assessments of life or specific aspects of it), affect (momentary feelings or emotions), and eudaimonia (a sense of meaning and purpose, or "psychological flourishing") (Organisation for Economic Co-operation and Development (OECD), 2013). Life satisfaction is regarded as a more reliable measure of overall wellbeing because it depends on stable life circumstances (J. F. Helliwell & Barrington-Leigh, 2010). Accordingly, measures based on life satisfaction are better suited for capturing long-term differences in policies and institutions, as illustrated by the World Happiness Report, which uses life satisfaction to rank countries annually by their happiness levels (J. Helliwell et al., 2020, p. 201).

Another critical aspect is the burden of stigma and discrimination, which exacerbates mental health challenges. Stigma negatively affects individuals through victimization, mistreatment, loss of support networks, and difficulties in accessing housing (Kakuma et al., 2010). It also deters or delays help-seeking behaviors, disproportionately affecting ethnic minorities, youth, men, military personnel, and healthcare professionals (Clement et al., 2015). Stigma-related discrimination can amplify the social and economic costs of mental illness. For instance, individuals experiencing stigma in healthcare settings incur nearly double the healthcare costs of those not facing such discrimination (Evans-Lacko et al., 2014). Furthermore, stigma against infectious diseases such as HIV/AIDS and tuberculosis can adversely impact mental health (Van Brakel et al., 2019). In Low- and Middle-Income Countries (LMICs), where the burden of infectious and chronic diseases intersects with mental illness, this convergence of stigmas can create a syndemic, compounding health disparities (Kane et al., 2019).

These themes highlight the critical importance of understanding mechanisms and processes for implementing interventions aimed at improving mental health and wellbeing. However, limited attention has been given to "health and safety management" processes designed to promote collaboration among worker representatives, management, and health professionals (Yassi et al., 2013). This mechanism deserves further consideration and rigorous evaluation.

Lastly, applying a realist-informed framework to investigate effective workplace mental health and wellbeing strategies is valuable. For example, the 2015 Cochrane review on preventing occupational stress among healthcare workers found low-quality evidence supporting changes in work schedules to reduce stress and minimal effects from organizational-level interventions (Ruotsalainen et al., 2015). Similarly, this review identified mixed evidence regarding the impact of workload and time management interventions on mental health. A notable strength of this review was its broad inclusion criteria, encompassing various healthcare workers, including nurses, midwives, physicians, social workers, aged care staff, and support personnel. As interdisciplinary and team-based healthcare models become more prevalent, evaluating interventions' impact across diverse healthcare disciplines is increasingly important.

This review also underscores the need for more research from LMICs, particularly in African nations. As the demand for healthcare professionals grows in LMICs, it is essential to generate evidence on effectively supporting healthcare workers' mental health in these contexts.

Moreover, this review highlights the necessity for robust definitions and approaches to workplace mental health, moving beyond the traditional focus on negative mental health to encompass constructs of mental wellbeing and happiness, including long-term subjective wellbeing and life satisfaction.

Conclusion

This realist review underscores the critical importance of workplace-based interventions in improving the mental health and happiness of healthcare workers. The findings highlight the complexity of designing, implementing, and evaluating such interventions, emphasizing themes like stakeholder engagement, the alignment of strategies with theoretical frameworks, and the role of employee participation. Sustainable and long-term mental health outcomes require a nuanced understanding of workplace dynamics, targeted strategies, and cultural transformation within organizations.

The review also advocates for a broader conceptualization of mental health that includes positive constructs such as happiness and life satisfaction, moving beyond the traditional focus on the absence of illness. Furthermore, it calls attention to the unique challenges faced by healthcare workers in low- and middle-income countries, emphasizing the need for targeted research and tailored interventions in these contexts.

Ultimately, this review provides actionable insights for policymakers, healthcare organizations, and researchers, paving the way for more holistic and inclusive strategies to support healthcare workers' mental wellbeing and enhance workplace resilience.

References

Ammendolia, C., Côté, P., Cancelliere, C., Cassidy, J. D., Hartvigsen, J., Boyle, E., Soklaridis, S., Stern, P., & Amick, B. (2016). Healthy and productive workers: Using intervention mapping to design a workplace health promotion and wellness program to improve presenteeism. *BMC Public Health*, *16*(1), 1190. https://doi.org/10.1186/s12889-016-3843-x

Anderson, J. C., Pfeil, S., & Surawicz, C. (2017). Strategies to Combat Physician Burnout in Gastroenterology. *Official Journal of the American College of Gastroenterology | ACG*, *112*(9), 1356. https://doi.org/10.1038/ajg.2017.251

Arnetz, J. E., & Hasson, H. (2007). Evaluation of an educational "toolbox" for improving nursing staff competence and psychosocial work environment in elderly care: Results of a prospective, non-randomized controlled intervention. *International Journal of Nursing Studies*, *44*(5), 723–735. https://doi.org/10.1016/j.ijnurstu.2006.01.012

Aust, B., Rugulies, R., Finken, A., & Jensen, C. (2010). When workplace interventions lead to negative effects: Learning from failures. *Scandinavian Journal of Public Health*, *38*(3_suppl), 106–119. https://doi.org/10.1177/1403494809354362

Beauregard, N., Marchand, A., & Blanc, M.-E. (2011). What do we know about the non-work determinants of workers' mental health? A systematic review of longitudinal studies. *BMC Public Health*, *11*, 439. https://doi.org/10.1186/1471-2458-11-439

Bourbonnais, R., Brisson, C., & Vézina, M. (2011). Long-term effects of an intervention on psychosocial work factors among healthcare professionals in a hospital setting. *Occupational and Environmental Medicine*, *68*(7), 479–486. https://doi.org/10.1136/oem.2010.055202

Bourbonnais, R., Brisson, C., Vinet, A., Vézina, M., Abdous, B., & Gaudet, M. (2006). Effectiveness of a participative intervention on psychosocial work factors to prevent mental health problems in a hospital setting. *Occupational and Environmental Medicine*, *63*(5), 335–342. https://doi.org/10.1136/oem.2004.018077

Bryan, Y. E., Hitchings, K. S., Fox, M. A., Kinneman, M. T., & Young, M. J. (1998). The Evaluation of Hospital Restructuring Efforts: Satisfaction, Quality, and Costs. *Quality Management in Health Care*, *6*(3), 22–34. https://doi.org/10.1097/00019514-199806030-00003

Bunce, D., & West, M. A. (1996). Stress Management and Innovation Interventions at Work. *Human Relations*, *49*(2), 209–232. https://doi.org/10.1177/001872679604900205

Campbell, N. C., Murray, E., Darbyshire, J., Emery, J., Farmer, A., Griffiths, F., Guthrie, B., Lester, H., Wilson, P., & Kinmonth, A. L. (2007). Designing and evaluating complex interventions to improve health care. *BMJ*, *334*(7591), 455–459. https://doi.org/10.1136/bmj.39108.379965.BE

Carrieri, D., Briscoe, S., Jackson, M., Mattick, K., Papoutsi, C., Pearson, M., & Wong, G. (2018). "Care Under Pressure": A realist review of interventions to tackle doctors' mental ill-health and its impacts on the clinical workforce and patient care. *BMJ Open*, *8*(2), e021273. https://doi.org/10.1136/bmjopen-2017-021273

Clement, S., Schauman, O., Graham, T., Maggioni, F., Evans-Lacko, S., Bezborodovs, N., Morgan, C., Rüsch, N., Brown, J. S. L., & Thornicroft, G. (2015). What is the impact of mental health-related stigma on help-seeking? A systematic review of quantitative and qualitative studies. *Psychological Medicine*, *45*(1), 11–27. https://doi.org/10.1017/S0033291714000129

Dollard, M. F., & Bakker, A. B. (2010). Psychosocial safety climate as a precursor to conducive work environments, psychological health problems, and employee engagement. *Journal of Occupational and Organizational Psychology*, *83*(3), 579–599. https://doi.org/10.1348/096317909X470690

Evans-Lacko, S., Clement, S., Corker, E., Brohan, E., Dockery, L., Farrelly, S., Hamilton, S., Pinfold, V., Rose, D., Henderson, C., Thornicroft, G., & McCrone, P. (2014). How much does mental health discrimination cost: Valuing experienced discrimination in relation to healthcare care costs and community participation. *Epidemiology and Psychiatric Sciences*, *24*(5), 423. https://doi.org/10.1017/S2045796014000377

Ewers, P., Bradshaw, T., McGovern, J., & Ewers, B. (2002). Does training in psychosocial interventions reduce burnout rates in forensic nurses? *Journal of Advanced Nursing*, *37*(5), 470–476. https://doi.org/10.1046/j.1365-2648.2002.02115.x

Fahrenkopf, A. M., Sectish, T. C., Barger, L. K., Sharek, P. J., Lewin, D., Chiang, V. W., Edwards, S., Wiedermann, B. L., & Landrigan, C. P. (2008). Rates of medication errors among depressed and burnt out residents: Prospective cohort study. *BMJ : British Medical Journal*, *336*(7642), 488. https://doi.org/10.1136/bmj.39469.763218.BE

Günüşen, N. P., & Üstün, B. (2010). An RCT of coping and support groups to reduce burnout among nurses. *International Nursing Review*, *57*(4), 485–492. https://doi.org/10.1111/j.1466-7657.2010.00808.x

Hall, G. B., Dollard, M. F., & Coward, J. (2010). Psychosocial safety climate: Development of the PSC-12. *International Journal of Stress Management*, *17*(4), 353–383. https://doi.org/10.1037/a0021320

Han, S., Shanafelt, T. D., Sinsky, C. A., Awad, K. M., Dyrbye, L. N., Fiscus, L. C., Trockel, M., & Goh, J. (2019). Estimating the Attributable Cost of Physician Burnout in the United States. *Annals of Internal Medicine*, *170*(11), 784–790. https://doi.org/10.7326/M18-1422

Hannan, E., Breslin, N., Doherty, E., McGreal, M., Moneley, D., & Offiah, G. (2018). Burnout and stress amongst interns in Irish hospitals: Contributing factors and potential solutions. *Irish Journal of Medical Science*, *187*(2), 301–307. https://doi.org/10.1007/s11845-017-1688-7

Harden, A., Peersman, G., Oliver, S., Mauthner, M., & Oakley, A. (1999). A systematic review of the effectiveness of health promotion interventions in the workplace. *Occupational Medicine (Oxford, England)*, *49*(8), 540–548. https://doi.org/10.1093/occmed/49.8.540

Harvey, S. B., Modini, M., Joyce, S., Milligan-Saville, J. S., Tan, L., Mykletun, A., Bryant, R. A., Christensen, H., & Mitchell, P. B. (2017). Can work make you mentally ill? A systematic meta-review of work-related risk factors for common mental health problems. *Occupational and Environmental Medicine*, *74*(4), 301–310. https://doi.org/10.1136/oemed-2016-104015

Helliwell, J. F., & Barrington-Leigh, C. P. (2010). Viewpoint: Measuring and understanding subjective well-being. *Canadian Journal of Economics/Revue Canadienne d'économique*, *43*(3), 729–753. https://doi.org/10.1111/j.1540-5982.2010.01592.x

Helliwell, J., Layard, R., Sachs, J., & Neve, J. D. (2020). World Happiness Report 2020. *Happiness and Subjective Well-Being*. https://www.wellbeingintlstudiesrepository.org/hw_happiness/1

Jeon, Y.-H., Simpson, J. M., Li, Z., Cunich, M. M., Thomas, T. H., Chenoweth, L., & Kendig, H. L. (2015). Cluster Randomized Controlled Trial of An Aged Care Specific Leadership and Management Program to Improve Work Environment, Staff Turnover, and Care Quality. *Journal of the American Medical Directors Association*, *16*(7), 629.e19-629.e28. https://doi.org/10.1016/j.jamda.2015.04.005

Kakuma, R., Kleintjes, S., Lund, C., Drew, N., Green, A., & Flisher, A. (2010). Mental Health Stigma: What is being done to raise awareness and reduce stigma in South Africa? *African Journal of Psychiatry*, *13*(2). https://doi.org/10.4314/ajpsy.v13i2.54357

Kane, J. C., Elafros, M. A., Murray, S. M., Mitchell, E. M. H., Augustinavicius, J. L., Causevic, S., & Baral, S. D. (2019). A scoping review of health-related stigma outcomes for high-burden diseases in low- and middle-income countries. *BMC Medicine*, *17*(1), 17. https://doi.org/10.1186/s12916-019-1250-8

Kent, K., Goetzel, R. Z., Roemer, E. C., Prasad, A., & Freundlich, N. (2016). Promoting Healthy Workplaces by Building Cultures of Health and Applying Strategic Communications. *Journal of Occupational & Environmental Medicine*, *58*(2), 114–122. https://doi.org/10.1097/JOM.0000000000000629

LaMontagne, A. D., Martin, A., Page, K. M., Reavley, N. J., Noblet, A. J., Milner, A. J., Keegel, T., & Smith, P. M. (2014). Workplace mental health: Developing an integrated intervention approach. *BMC Psychiatry*, *14*(1), 131. https://doi.org/10.1186/1471-244X-14-131

LaMontagne, A. D., Noblet, A. J., & Landsbergis, P. A. (2012). Intervention development and implementation: Understanding and addressing barriers to organizational-level interventions. In *Improving organizational interventions for stress and well-being: Addressing process and context* (pp. 21–38). Routledge/Taylor & Francis Group.

Lavoie-Tremblay, M., Bourbonnais, R., Viens, C., Vézina, M., Durand, P. J., & Rochette, L. (2005). Improving the psychosocial work environment. *Journal of Advanced Nursing*, *49*(6), 655–664. https://doi.org/10.1111/j.1365-2648.2004.03339.x

Lee, R. T., & Ashforth, B. E. (1990). On the meaning of Maslach's three dimensions of burnout. *Journal of Applied Psychology*, *75*(6), 743–747. https://doi.org/10.1037/0021-9010.75.6.743

Leiter, M. P., Day, A., Oore, D. G., & Spence Laschinger, H. K. (2012). Getting better and staying better: Assessing civility, incivility, distress, and job attitudes one year after a civility intervention. *Journal of Occupational Health Psychology*, *17*(4), 425–434. https://doi.org/10.1037/a0029540

Leiter, M. P., Laschinger, H. K. S., Day, A., & Oore, D. G. (2011). The impact of civility interventions on employee social behavior, distress, and attitudes. *Journal of Applied Psychology*, *96*(6), 1258–1274. https://doi.org/10.1037/a0024442

Lyubomirsky, S., King, L., & Diener, E. (2005). The Benefits of Frequent Positive Affect: Does Happiness Lead to Success? *Psychological Bulletin*, *131*(6), 803–855. https://doi.org/10.1037/0033-2909.131.6.803

Marchand, A., Durand, P., Haines, V., & Harvey, S. (2015). The multilevel determinants of workers' mental health: Results from the SALVEO study. *Social Psychiatry and Psychiatric Epidemiology*, *50*(3), 445–459. https://doi.org/10.1007/s00127-014-0932-y

Mikkelsen, A., Saksvik, P. Ø., & Landsbergis, P. (2000). The impact of a participatory organizational intervention on job stress in community health care institutions. *Work & Stress*, *14*(2), 156–170. https://doi.org/10.1080/026783700750051667

Nielsen, K., Taris, T. W., & Cox, T. (2010). The future of organizational interventions: Addressing the challenges of today's organizations. *Work & Stress*, *24*(3), 219–233. https://doi.org/10.1080/02678373.2010.519176

Organisation for Economic Co-operation and Development (OECD). (2013). *OECD Guidelines on Measuring Subjective Well-being*. OECD Publishing. http://www.ncbi.nlm.nih.gov/books/NBK189560/

Pawson, R., Greenhalgh, T., Harvey, G., & Walshe, K. (2005). Realist review—A new method of systematic review designed for complex policy interventions. *Journal of Health Services Research & Policy*, *10 Suppl 1*, 21–34. https://doi.org/10.1258/1355819054308530

Proctor, R., Stratton-Powell, H., Tarrier, N., & Burns, A. (1998). The impact of training and support on stress among care staff in nursing and residential homes for the elderly. *Journal of Mental Health*, *7*(1), 59–70. https://doi.org/10.1080/09638239818346

Qiao, Z., Chen, L., Chen, M., Guan, X., Wang, L., Jiao, Y., Yang, J., Tang, Q., Yang, X., Qiu, X., Han, D., Ma, J., Yang, Y., & Zhai, X. (2016). Prevalence and factors associated with occupational burnout among HIV/AIDS healthcare workers in China: A cross-sectional study. *BMC Public Health*, *16*, 335. https://doi.org/10.1186/s12889-016-2890-7

Richter, A., Kostova, P., Baur, X., & Wegner, R. (2014). Less work: More burnout? A comparison of working conditions and the risk of burnout by German physicians before and after the implementation of the EU Working Time Directive. *International Archives of Occupational and Environmental Health*, *87*(2), 205–215. https://doi.org/10.1007/s00420-013-0849-x

Romig, M. C., Latif, A., Gill, R. S., Pronovost, P. J., & Sapirstein, A. (2012). Perceived benefit of a telemedicine consultative service in a highly staffed intensive care unit. *Journal of Critical Care*, *27*(4), 426.e9-426.e16. https://doi.org/10.1016/j.jcrc.2011.12.007

Rongen, A., Robroek, S. J. W., Van Lenthe, F. J., & Burdorf, A. (2013). Workplace Health Promotion. *American Journal of Preventive Medicine*, *44*(4), 406–415. https://doi.org/10.1016/j.amepre.2012.12.007

Ruotsalainen, J. H., Verbeek, J. H., Mariné, A., & Serra, C. (2015). Preventing occupational stress in healthcare workers. *The Cochrane Database of Systematic Reviews*, *2015*(4), CD002892. https://doi.org/10.1002/14651858.CD002892.pub5

Schelvis, R. M. C., Oude Hengel, K. M., Burdorf, A., Blatter, B. M., Strijk, J. E., & van der Beek, A. J. (2015). Evaluation of occupational health interventions using a randomized controlled trial: Challenges and alternative research designs. *Scandinavian Journal of Work, Environment & Health*, *41*(5), 491–503. https://doi.org/10.5271/sjweh.3505

Schultz, A. B., & Edington, D. W. (2007). Employee health and presenteeism: A systematic review. *Journal of Occupational Rehabilitation*, *17*(3), 547–579. https://doi.org/10.1007/s10926-007-9096-x

Selamu, M., Thornicroft, G., Fekadu, A., & Hanlon, C. (2017). Conceptualisation of job-related wellbeing, stress and burnout among healthcare workers in rural Ethiopia: A qualitative study. *BMC Health Services Research*, *17*, 412. https://doi.org/10.1186/s12913-017-2370-5

Shanafelt, T. D., Boone, S., Tan, L., Dyrbye, L. N., Sotile, W., Satele, D., West, C. P., Sloan, J., & Oreskovich, M. R. (2012). Burnout and satisfaction with work-life balance among US physicians relative to the general US population. *Archives of Internal Medicine*, *172*(18), 1377–1385. https://doi.org/10.1001/archinternmed.2012.3199

Shanafelt, T. D., West, C. P., Sloan, J. A., Novotny, P. J., Poland, G. A., Menaker, R., Rummans, T. A., & Dyrbye, L. N. (2009). Career fit and burnout among academic faculty. *Archives of Internal Medicine*, *169*(10), 990–995. https://doi.org/10.1001/archinternmed.2009.70

Sinsky, C. A., Dyrbye, L. N., West, C. P., Satele, D., Tutty, M., & Shanafelt, T. D. (2017). Professional Satisfaction and the Career Plans of US Physicians. *Mayo Clinic Proceedings*, *92*(11), 1625–1635. https://doi.org/10.1016/j.mayocp.2017.08.017

Spence Laschinger, H. K., & Leiter, M. P. (2006). The impact of nursing work environments on patient safety outcomes: The mediating role of burnout/engagement. *The Journal of Nursing Administration*, *36*(5), 259–267. https://doi.org/10.1097/00005110-200605000-00019

Spetz, J. (2008). Nurse Satisfaction and the Implementation of Minimum Nurse Staffing Regulations. *Policy, Politics, & Nursing Practice*, *9*(1), 15–21. https://doi.org/10.1177/1527154408316950

Uchiyama, A., Odagiri, Y., Ohya, Y., Takamiya, T., Inoue, S., & Shimomitsu, T. (2013). Effect on Mental Health of a Participatory Intervention to Improve Psychosocial Work Environment: A Cluster Randomized Controlled Trial among Nurses. *Journal of Occupational Health*, *55*(3), 173–183. https://doi.org/10.1539/joh.12-0228-OA

Van Brakel, W. H., Cataldo, J., Grover, S., Kohrt, B. A., Nyblade, L., Stockton, M., Wouters, E., & Yang, L. H. (2019). Out of the silos: Identifying cross-cutting features of health-related stigma to advance measurement and intervention. *BMC Medicine*, *17*(1), 13. https://doi.org/10.1186/s12916-018-1245-x

Vigo, D., Thornicroft, G., & Atun, R. (2016). Estimating the true global burden of mental illness. *The Lancet. Psychiatry*, *3*(2), 171–178. https://doi.org/10.1016/S2215-0366(15)00505-2

Wickström, G., & Bendix, T. (2000). The "Hawthorne effect"—What did the original Hawthorne studies actually show? *Scandinavian Journal of Work, Environment & Health*, *26*(4), 363–367.

Willis, C. D., Saul, J., Bevan, H., Scheirer, M. A., Best, A., Greenhalgh, T., Mannion, R., Cornelissen, E., Howland, D., Jenkins, E., & Bitz, J. (2016). Sustaining organizational culture change in health systems. *Journal of Health Organization and Management*, *30*(1), 2–30. https://doi.org/10.1108/JHOM-07-2014-0117

Yang, B. X., Stone, T. E., Petrini, M. A., & Morris, D. L. (2018). Incidence, Type, Related Factors, and Effect of Workplace Violence on Mental Health Nurses: A Cross-sectional Survey. *Archives of Psychiatric Nursing*, *32*(1), 31–38. https://doi.org/10.1016/j.apnu.2017.09.013

Yassi, A., Lockhart, K., Sykes, M., Buck, B., Stime, B., & Spiegel, J. M. (2013). Effectiveness of joint health and safety committees: A realist review. *American Journal of Industrial Medicine*, *56*(4), 424–438. https://doi.org/10.1002/ajim.22143