

Promoting Mental Wellbeing Among The Saudi Healthcare Workers: Lessons From The Global Wellness Programs

Hussain Baggash¹; Abdullah Alabsi¹; Salem Fawaz²; Youssef Alsolami²; Ahmed Aloufi³; Youssef Harmali³; Mohsen Alzahrani³; Nouf Makki³; Nourah Alfaqeeh⁴; Hammad Alfarsi⁵; Abdullah Alsulami⁶

¹ Eradah Mental Health Complex, Ministry of Health, Saudi Arabia.

² King Abdullah Medical Complex-Jeddah, Ministry of Health, Saudi Arabia.

³ King Fahd Hospital in Jeddah, Ministry of Health, Saudi Arabia.

⁴ Jeddah Second Health Cluster, Ministry of Health, Saudi Arabia.

⁵ Health control center in King Abdullah Port, Saudi Arabia.

⁶ Prince Sultan Military Hospital, Saudi Arabia.

Abstract

Sound mental health among the health workers is a desire of every healthcare institution. While it can be difficult to evade occasional instances of mental health problems among healthcare workers, the healthcare management need subtle programs for addressing any spotted case of mental health problem among the professionals. The mental care programs would be beneficial to Saudi Arabia where prevalence of depression, stress and anxiety are on high level. Unfortunately, most of the established mental wellness programs, such as mindfulness initiatives have only been densely applied in the high-income countries. This narrative review explored how these programs can be applied to the Saudi healthcare context. Accordingly, three considerations should be made; sensitivity to working hours and religious practices, leveraging family and community support systems, and addressing stigma surrounding mental health.

Keywords: Mental health, Mindfulness, Health workers, Wellness programs, Saudi Arabia.

Introduction

Empirical evidence shows that healthcare professionals throughout the world have relatively higher rates burnout, and mental distress compared to other workers (Brand et al., 2017; Hariri et al., 2023; Lee et al., 2012). These health workers face diverse challenges that directly affect their physical and mental wellbeing. Various mental health conditions, such as anxiety, burnout, depression, and stress have been reported among the healthcare workers by many researchers (Bridgeman et al., 2018; Chen & Meier, 2021; Rodrigues et al., 2018; Pappa et al., 2020). Studies have linked the many cases of mental distress among healthcare workers to diverse factors, including increased care demands by the rapidly aging population, inadequate staffing, excessive workload, workplace violence, poor leadership, and lack of support and opportunity for skills development (Bressi et al. 2009; Graber et al. 2008; Pinikahana & Happell 2004; Willard-Grace et al. 2014; Renwick et al. 2016).

Saudi Arabia has high cases of mental distress among the healthcare workers, with some studies noting the prevalence of burnout syndrome and emotional exhaustion being as high as 9.34% and 59.89, respectively, before Covid-19 (Habadi et al., 2017). However, when Covid-19 dawned, the incidences of mental distress among health worker rose higher (AlAteeq et al., 2020; Hamdan et al., 2019). Cases of anxiety and depression rates prevailed at 72.5% and 24.4%, respectively (Shamsan et al., 2022). Studies about sociocultural aspects of mental health conditions pointed out a high frequency in belief in supernatural factors as critical in the cause of mental health conditions, with younger staff with less experience being more involved in this belief in Saudi Arabia (Tayeb et al., 2018).

Due the negative implications that mental distress can have on the patient care practices, researcher have developed and tested various mental wellness programs to help curb the distress. However, most interventions have primarily focused on supporting or improving individual coping skills rather than affecting the

workplace environment such that it promotes healthier behaviors (). As such, some scholars, including Bodenheimer and Sinsky (2014) have suggested the development of 'quadruple aim' programs to take over the 'triple aim' so as to include health workers wellbeing. Yet, only a few wellness programs have been applied on the Saudi health workers, with more programs roaming the high-income international realms. Therefore, this narrative review sought to explore the applicability of global wellness program models in promoting mental well-being among the healthcare workers in Saudi Arabia.

Mental health burden on Saudi Healthcare Workers

Mental health problems among the healthcare workers in Saudi Arabia are caused by many factors, including heavy workload, burnout and long working hours (Hamdan et al., 2019). Studies show that healthcare professionals have faced various work experiences leading to burnout, including frequent patient complaints of physical pain, ethical dilemmas in treatment decisions, the demanding and intricate nature of therapy, and the challenges of maintaining professional boundaries (Alenezi et al., 2018; Shahin et al., 2020; Thirunavukkarasu et al., 2021).

A study by Shahin et al. (2020) noted that burnout was more common among the younger health workers, those with lower education qualifications, and those operating in resource-constrained environment. Alenezi et al. (2018) further identified that heavy workload is the leading cause of mental distress among the health workers, while inadequate preparation is the least. Moreover, Thirunavukkarasu et al. (2021) established that work-related stress among the Saudi healthcare workers was associated with many factors, including department of work, smoking status, and length of sleeping per day.

Statistically, the prevalence of mental health conditions significantly varies from study to study. A study done by AlFahhad (2018) in Saudi Arabia, before the outbreak of Covid-19, showed that 4% of healthcare workers had initial diagnosis of depression, 6.7% had major depressive disorder and 11.4% exhibiting depressive symptoms. The picture changed when Covid-19 broke out, and Alenazi et al. (2020) reported anxiety levels as low (31.5%), medium (36.1%), and high (32.3%). Another study done

during Covid-19 also reported that about 30% of the participants experienced depression, which clustered as mild, moderate/major and severe/extreme (Al Mutair et al., 2021). According to AlAteeq et al. (2020), more than half of the participants experienced depressive disorder (55.2%), which ranged from mild (24.9%), moderate (14.5%), moderately severe (10%), to severe (5.8%). The same study observed generalized anxiety disorder in 51.4% of the participants.

The prevalence of mental health conditions among the healthcare workers in Saudi Arabia was also noted to vary with diverse factors. AlFahhad (2018) showed that depression was more common among the healthcare workers in their first year of work, and those who are single (unmarried). High anxiety was also reported among the single, nurses, radiology or respiratory therapist, living with elderly or chronically ill individuals, and working in settings with Covid-19 patients (Alenazi et al., 2020). Al Mutair et al. (2021) identified that the healthcare workers aged between 31–40 had higher depression levels than those over 50. The same study noted that the non-Saudi healthcare workers experienced more depression than Saudi workers. AlAteeq et al. (2020) noted that anxiety and depression was more common in females, those aged between 30–39, and nurses had higher anxiety than the other healthcare workers.

Poor mental condition among the healthcare worker does not only the life of patients at risk but also tarnishes the name of healthcare institution (Araújo et al., 2016). When healthcare workers experience poor mental wellbeing, including burnout and job dissatisfaction, it creates a vicious cycle. Burnout, characterized by emotional exhaustion, cynicism, and reduced sense of accomplishment, can lead to decreased job satisfaction and increased absenteeism (Chemali et al., 2019). The emotional strain can also impair focus and decision-making, potentially contributing to medical errors (Ziarukh & Sabir, 2024). Ultimately, a stressed and disengaged workforce can compromise patient safety and quality of care.

Therefore, there is a critical need for comprehensive wellness programs that prioritize the mental and emotional well-being of healthcare workers. Indeed, various wellness programs have been

created and tested among the healthcare workers in different places. Some of the widely applied programs among the healthcare staff such as the Jon Kabat-Zinn's Mindfulness-Based Stress Reduction (Santorelli et al., 2017) and Mental Contrasting with Implementation Intentions (MCII) of stress regulation (Oettingen & Gollwitzer, 2017), among others, as discussed in the subsequent section.

Global Models of Wellness Programs

Several wellness programs have been used to improve mental health outcomes among the healthcare workers in various places. Most of these programs are mindful oriented, including mindful-based stress reduction, mindfulness-based mentoring, mindful-based stress reduction (MBSR) and mindful-based cognitive therapy (MBCT) among others. While some of these programs did produce a significant positive impact among the healthcare workers, most of them made noticeable change, hence the rational in copying some of them.

From the literature evidence, one of the widely used program is MBCT, which had been applied by many researchers USA (Erogul et al., 2014; West et al., 2014), Australia (Hopkins & Proeve, 2013), Korea (Song & Lindquist, 2015) and United Kingdom (Rimes & Wingrove, 2011). Despite using the same programs, these researchers noted different outcomes regarding the status of mental wellbeing among the healthcare workers in the respective places. For instance, West et al. (2014) noted a positive improvement among the healthcare workers in terms of empowerment and work engagement after a duration of three months. A similar outcome, Song and Lindquist (2015) noted a significant reduction in the incidence and severity of mental distress, notably, depression, stress, and anxiety among the college students.

Mindfulness-based positive behavioral support had also been applied by some researchers, notably, Singh et al. (2015) in the US. These researchers noted a significant decline in the cases of stress among the participants. Other support programs, such as the resilience training program, interpersonal mindfulness training and small group curriculum have also produced positive outcomes

among the healthcare workers in terms of mental wellbeing (Johnson et al., 2015; West et al., 2014).

Mindful-based stress reduction (MBSR) program has been widely used in many places including USA (Hallman, 2017; Westphal, 2015), Denmark (Knudsen et al., 2023), Netherlands (Janssen et al., 2020), Canada (Raab, 2015), and Singapore (Yang, 2017) and others. Many researchers have reported positive impacts of the MBSR among the healthcare service providers. For instance, Amutio et al. (2015) reported a significant reduction in the rates of burnout among selected healthcare workers upon rolling out the program for 8 weeks. Another study with the study positive impact was done by Crowder and Sears (2017) who noted a significant reduction in the incidences of stress among the healthcare workers in the experimental group upon administering the program (MBSR) for 8 weeks. Similarly, Norouzinia et al. (2017) also noted that job stress and burnout significantly reduced after the rollout of the stress reduction program. However, Duchemin et al. (2015) gave slightly different outcomes, noting that, even though there was a significant reduction in emotional exhaustion, the participants did not record a notable fall in the perceived stress level.

Still on the MBSR, Janssen et al. (2020) who conducted their study in Netherlands, reported that “in comparison with baseline at post-intervention participants showed significant improvements in general mindfulness, the burnout dimension personal accomplishment, quality of sleep, positive emotions, and self-efficacy” (p. 9420).

Other researchers also modified their MBSR and use applied it as a MBSR adaptation in different places, including USA (Bazarko et al., 2013; Brady et al., 2012; Fortney et al., 2013), and Australia (Dobie et al., 2016). These researchers tested its benefits on the mental wellbeing among healthcare workers, and reported positive outcomes. For instance, Fortney et al. (2013) noted positive improvements among the healthcare staff in specific features, including anxiety, burnout, emotional exhaustion, depression, stress, empathy, and compassion in care delivery upon applying the MBSR adaptation. Similarly, Dobie et al. (2015) reported positive improvements among the healthcare workers specific areas, including anxiety, stress, mindfulness awareness and depression,

which are attributed to the MBSR adaptation program. Overall, the MBSR adaptation recorded positive impacts among the healthcare workers in different places across the globe.

There is also reliable evidence, mostly from randomized control trials, linking the positive effects of mindfulness curriculum that are personalized to the researchers' taste in improving the mental wellbeing among the healthcare workers (Bonifas & Napoli, 2014; Dorian & Killebrew, 2014; Felton et al., 2015; Gauthier et al., 2015). Again, these studies were conducted in different places including USA and Netherlands, and the results demonstrate positive implications of health workers' training on various mental health outcomes. For instance, Felton et al. (2015) reported that the mindfulness programs led to heightened focus on the present moment and enhanced recognition and embrace of emotional and physical sensations associated with stress. The study further noted the participants improved their capacity to anticipate stress, boosted their belief in effectively managing stress, and fostered self-compassion.

Other than mindfulness programs, other researchers also concentrated on other forms of intervention, such as the daily resilience training to improve health workers ability to with stand work distress (Mealer et al., 2014). Calm abiding meditation program was also tested by Rocco et al. (2012) in USA, and was found to have a significant impact on reducing the symptoms of posttraumatic stress disorder (PTSD). However, the same program did not produce a notable impact on resilience, anxiety and depression among the participants.

Recent systematic reviews have also noted positive impacts of the mindfulness programs in other nations, especially in Europe and America (Robins-Browne et al., 2020). Moreover, the realist review by Gray et al. (2019) noted that while most studies have only been done in the high-income countries, there is a significant positive impact of the wellness programs on the mental and even physical wellbeing of the health workers. The mindfulness programs helped workers improve on various aspects of wellbeing features, including time and workload management, stress management, and communication.

Adapting Global Models to the Saudi Context

The healthcare landscape of Saudi Arabia is shaped by religious and multicultural influence that impact the productivity and daily operations of the expatriate healthcare workers. Nevertheless, instances of long working hours, high workload and burnout have also been noted (Batayneh et al., 2019; Al-Omari et al., 2019). Overall, cultural sensitivity is crucial, with considerations for prayer times and religious practices during wellness program design (Alosaimi & Ahmad, 2016; Alotaibi et al., 2023). Moreover, any program in the Saudi healthcare system should also consider the significance of family roles and stigma around mental in influencing healthcare decisions. These elements call for culturally appropriate and sensitive measures towards effective outcomes of the wellness programs.

Therefore, while mindfulness-based programs like MBSR and MBCT have been validated empirically to improve mental wellbeing among healthcare workers globally, there is a critical need to consider the healthcare architecture of Saudi Arabia, with focus on three key elements, including religious practices and working hours, family involvement, and stigma around mental health.

First, the programs should be sensitive to working hours and religious practices in Saudi Arabia. Many researchers, including Gashash (2016) already acknowledged the influence of Islamic religious practices in patient care service delivery, such as time of urgent service delivery versus time for prayers. Accordingly, the MBSR programs, which often involve weekly sessions, should be programmed to shorter durations especially during the holy month of Ramadan. Moreover, the policymakers need to organize more frequent sessions to accommodate shorter workdays and fasting schedules. Moreover, mindfulness practices should be modified in a way that they can be offered even during the prayer breaks or in bits throughout the day.

Second, there is a need to consider family and community support systems. The Saudi social setup critically values family involvement in many practices (Asmri et al., 2020). Therefore, the training programs should consider workshops or educational programs for families to equip them with tools to support the mental wellbeing of healthcare workers. This can foster a sense of shared

responsibility and understanding. In order to deliver effective programs, the organizers need to consider community resources, such as mosques, community centers, or cultural organizations to offer support groups or social events specifically for healthcare workers.

Third, there application of these wellness programs should take into consideration the popular beliefs around mental health and management, that is, stigma about mental conditions (Alattar et al., 2021; Mahmoud, 2018). Therefore, the education or training programs should be done with respect to existing sociocultural status. Accordingly, the program coordinators need to develop educational materials that address mental health challenges within an Islamic framework. Moreover, they also need to highlight the importance of mental well-being for overall health and religious practice, and create safe spaces for healthcare workers to discuss mental health concerns with colleagues who have undergone similar training.

Conclusion

This narrative review explored the global wellness programs applied to health workers towards improving their mental wellbeing. While globally successful mindfulness-based programs offer a promising solution, their effectiveness squarely depends on their level of cultural sensitivity and adaptability. Therefore, there is a need to modify the global wellness programs to reflect the Saudi healthcare working hours and religious practices. It has been noted that the programs need to engage families and partnering with community organizations to create a broader support network for healthcare workers. Finally, the adoption of the globally used mental wellness programs need to be culturally appropriate, using educational materials and peer support networks that can foster open communication about mental well-being.

Recommendations

While mindfulness-based programs like MBSR and MBCT have shown effectiveness globally, their application requires sensitivity to the Saudi context. The program organizers need to schedule programs with flexibility by considering shorter, more frequent

sessions during Ramadan to accommodate fasting schedules and shorter workdays. The healthcare management should also consider integrating culturally relevant practices and combat mental health stigma to improve compliance with the wellness programs. Nevertheless, future researchers need to consider more RCTs within Saudi healthcare system to validate the adaptability and effectiveness of these programs.

Conflict of interest

None

References

- Al Mutair, A., Al Mutairi, A., Ambani, Z., Shamsan, A., AlMahmoud, S., & Alhumaid, S. (2021). The impact of COVID-19 pandemic on the level of depression among health care workers: cross-sectional study. *PeerJ*, 9, e11469.
- AlAteeq, D. A., Aljhani, S., Althiyabi, I., & Majzoub, S. (2020). Mental health among healthcare providers during coronavirus disease (COVID-19) outbreak in Saudi Arabia. *Journal of infection and public health*, 13(10), 1432-1437.
<https://doi.org/10.1016/j.jiph.2020.08.013>
- Alattar, N., Felton, A., & Stickley, T. (2021). Mental health and stigma in Saudi Arabia: A scoping review. *Mental Health Review Journal*, 26(2), 180-196.
- Alenazi, T. H., BinDhim, N. F., Alenazi, M. H., Tamim, H., Almagrabi, R. S., Aljohani, S. M., ... & Alqahtani, S. A. (2020). Prevalence and predictors of anxiety among healthcare workers in Saudi Arabia during the COVID-19 pandemic. *Journal of infection and public health*, 13(11), 1645-1651.
- Alenezi, A. M., Aboshaiqah, A., & Baker, O. (2018). Work-related stress among nursing staff working in government hospitals and primary health care centres. *International journal of nursing practice*, 24(5), e12676.
- AlFahhad, N. M. (2018). Prevalence and factors associated with depression among health care workers in National Guard Hospital in Riyadh, KSA. *International Journal of Medicine in Developing Countries*, 2(3), 92-92.
<http://dx.doi.org/10.24911/IJMDC.51-1526306040>
- Al-Omari, A., Al Mutair, A., Shamsan, A., & Al Mutairi, A. (2019). Predicting burnout factors among healthcare providers at private hospitals in Saudi Arabia and United Arab Emirates: A cross-sectional study. *Applied Sciences*, 10(1), 157.

- Alosaimi, D. N., & Ahmad, M. M. (2016). The challenges of cultural competency among expatriate nurses working in Kingdom of Saudi Arabia. *Research and theory for Nursing Practice*, 30(4), 302-319.
- Alotaibi, K., Higgins, I., & Chan, S. (2023). Culture, religion, language and the assessment and management of children's pain by expatriate nurses in Saudi Arabia: A qualitative study. *Journal for Specialists in Pediatric Nursing*, 28(1), e12399.
- Amutio, A., Martinez-Taboada, C., Delgado, L.C., Hermosilla, D., & Mozaz, M.J. (2015). Acceptability and effectiveness of a long-term educational intervention to reduce physicians stress-related conditions. *Journal of Continuing Education in the Health Professions*, 35 (4), 255–260.
<https://doi.org/10.1097/ceh.0000000000000002>
- Araújo, T. M. D., Mattos, A. I. S., Almeida, M. M. G. D., & Santos, K. O. B. (2016). Psychosocial aspects of work and common mental disorders among health workers: contributions of combined models. *Revista Brasileira de epidemiologia*, 19, 645-657.
- Asmri, M. A., Almalki, M. J., Fitzgerald, G., & Clark, M. (2020). The public health care system and primary care services in Saudi Arabia: a system in transition. *Eastern Mediterranean Health Journal*, 26(4), 468-476.
- Batayneh, M. H., Ali, S., & Nashwan, A. J. (2019). The burnout among multinational nurses in Saudi Arabia. *Open Journal of Nursing*, 9(7), 603-619.
- Bazarko, D., Cate, R. A., Azocar, F., & Kreitzer, M. J. (2013). The impact of an innovative mindfulness-based stress reduction program on the health and well-being of nurses employed in a corporate setting. *Journal of Workplace Behavioral Health*, 28(2), 107–133
- Bodenheimer, T., & Sinsky, C. (2014). From triple to quadruple aim: care of the patient requires care of the provider. *Annals of family medicine*, 12(6), 573–576. <https://doi.org/10.1370/afm.1713>
- Bonifas, R. P., & Napoli, M. (2014). Mindfully increasing quality of life: A promising curriculum for MSW students. *Social Work Education*, 33(4), 469–484.
<https://doi.org/10.1080/02615479.2013.838215>
- Brady, S., O'Connor, N., Burgermeister, D., & hanson, p. (2012). The impact of mindfulness meditation in promoting a culture of safety on an acute psychiatric unit. *Perspectives in Psychiatric Care*, 48(3), 129–137. <https://doi.org/10.1111/j.1744-6163.2011.00315.x>
- Brand, S. L., Thompson Coon, J., Fleming, L. E., Carroll, L., Bethel, A., & Wyatt, K. (2017). Whole-system approaches to improving the health and wellbeing of healthcare workers: A systematic

- review. PloS one, 12(12), e0188418.
<https://doi.org/10.1371/journal.pone.0188418>
- Bridgeman, P. J., Bridgeman, M. B., & Barone, J. (2018). Burnout syndrome among healthcare professionals. *American journal of health-system pharmacy : AJHP : official journal of the American Society of Health-System Pharmacists*, 75(3), 147–152.
<https://doi.org/10.2146/ajhp170460>
- Chemali, Z., Ezzeddine, F. L., Gelaye, B., Dossett, M. L., Salameh, J., Bizri, M., Dubale, B., & Fricchione, G. (2019). Burnout among healthcare providers in the complex environment of the Middle East: a systematic review. *BMC public health*, 19(1), 1337.
<https://doi.org/10.1186/s12889-019-7713-1>
- Chen, C., & Meier, S. T. (2021). Burnout and depression in nurses: A systematic review and meta-analysis. *International journal of nursing studies*, 124, 104099.
<https://doi.org/10.1016/j.ijnurstu.2021.104099>
- Crowder, R. & Sears, A. (2017). Building resilience in social workers: An exploratory study on the impacts of a mindfulness-based intervention. *Australian Social Work*, 70(1), 17–29.
<https://doi.org/10.1080/0312407x.2016.1203965>
- Dobie, A., Tucker, A., Ferrari, M., & Rogers, J. M. (2016). Preliminary evaluation of a brief mindfulness-based stress reduction intervention for mental health professionals. *Australasian Psychiatry*. <https://doi.org/10.1177/1039856215618524>
- Dorian, M., & Killebrew, J. E. (2014). A study of mindfulness and self-care: A path to self-compassion for female therapists in training. *Women and Therapy*, 37(1-2), 155–163.
<https://doi.org/10.1080/02703149.2014.850345>
- Duchemin, A. M., Steinberg, B. A., Marks, D. R., Vanover, K., & Klatt, M. (2015). A small randomized pilot study of a workplace mindfulness-based intervention for surgical intensive care unit personnel: Effects on salivary amylase levels. *Journal of Occupational and Environmental Medicine*, 57(4); 393–399.
<https://doi.org/10.1097/jom.0000000000000371>
- Erogul, M., Singer, G., McIntyre, T., & Stefanov, D. G. (2014). Abridged mindfulness intervention to support wellness in first-year medical students. *Teaching and Learning in Medicine*, 26(4), 350–356. <https://doi.org/10.1080/10401334.2014.945025>
- Felton, T.M., Coates, L., & Christopher, J. C. (2015). Impact of mindfulness training on counseling students' perceptions of stress. *Mindfulness*, 6(2), 159–169. <https://doi.org/10.1007/s12671-013-0240-8>
- Fortney, L., Luchterhand, C., Zakletskaia, L., Zgierska, A., & Rakel, D. (2013). Abbreviated mindfulness intervention for job

- satisfaction, quality of life, and compassion in primary care clinicians: A pilot study. *Annals of Family Medicine*, 11(5), 412–420. <https://doi.org/10.1370/afm.1511>
- Gashash, B. A. (2016). Islamic values, cultural customs and influences upon delivery of Acute and Critical Care nursing services to patients admitted to Saudi Arabian hospitals (Doctoral dissertation, RMIT University).
- Gauthier, T., Meyer, R. M. L., Greife, D., & Gold, J. I. (2015). An on-the-job mindfulness-based intervention for pediatric ICU nurses: A pilot. *Journal of Pediatric Nursing*, 30(2), 402–409. <https://doi.org/10.1016/j.pedn.2014.10.005>
- Gray, P., Senabe, S., Naicker, N., Kgalamono, S., Yassi, A., & Spiegel, J. M. (2019). Workplace-Based Organizational Interventions Promoting Mental Health and Happiness among Healthcare Workers: A Realist Review. *International journal of environmental research and public health*, 16(22), 4396. <https://doi.org/10.3390/ijerph16224396>
- Habadi, A. I., Alfaer, S. S., Shilli, R. H., Habadi, M. I., Suliman, S. M., Al-Aslany, S. J., & Habadi, M. I. (2018). The prevalence of burnout syndrome among nursing staff working at king Abdulaziz University hospital, Jeddah, Saudi Arabia, 2017. *Divers Equality Health Care*, 15(3), 122.
- Hallman, I. S., O'Connor, N., Hasenau, S., & Brady, S. (2017). Improving the culture of safety on a high-acuity inpatient child/adolescent psychiatric unit by mindfulness-based stress reduction training of staff. *Journal of Child and Adolescent Psychiatric Nursing*, 30(4), 175-180.
- Hamdan, A. B., Alshammary, S., Javison, S., Tamani, J., & AlHarbi, M. (2019). Burnout among healthcare providers in a comprehensive cancer center in Saudi Arabia. *Cureus*, 11(1).
- Hariri, N., Bawahab, N., Banoon, E., Abo Alshamat, R., Almadani, N., & AlQashqri, H. (2023). Prevalence of Depression and Anxiety Disorders Among Surgical Doctors in Public Hospitals in Makkah City, Saudi Arabia: An Analytical Cross-Sectional Study. *Cureus*, 15(1), e33225. <https://doi.org/10.7759/cureus.33225>
- Hopkins, A., & Proeve, M. (2013). Teaching mindfulness-based cognitive therapy to trainee psychologists: Qualitative and quantitative effects. *Counselling Psychology Quarterly*, 26(2), 115–130. <https://doi.org/10.1080/09515070.2013.792998>
- Janssen, M., Van der Heijden, B., Engels, J., Korzilius, H., Peters, P., & Heerkens, Y. (2020). Effects of Mindfulness-Based Stress Reduction Training on Healthcare Professionals' Mental Health: Results from a Pilot Study Testing Its Predictive Validity in a

- Specialized Hospital Setting. *International journal of environmental research and public health*, 17(24), 9420.
<https://doi.org/10.3390/ijerph17249420>
- Johnson, J. R., Emmons, H. C., Rivard, R. L., Griffin, K. H., & Dusek, J. A. (2015). Resilience training: A pilot study of a mindfulnessbased program with depressed healthcare professionals. *EXPLORE: The Journal of Science and Healing*, 11(6), 433–444.
<https://doi.org/10.1016/j.explore.2015.08.002>
- Knudsen, R. K., Ammentorp, J., Storkholm, M. H., Skovbjerg, S., Tousig, C. G., & Timmermann, C. (2023). The influence of mindfulness-based stress reduction on the work life of healthcare professionals - A qualitative study. *Complementary therapies in clinical practice*, 53, 101805.
<https://doi.org/10.1016/j.ctcp.2023.101805>
- Lee, D. J., Fleming, L. E., LeBlanc, W. G., Arheart, K. L., Ferraro, K. F., Pitt-Catsoupes, M., Muntaner, C., Fernandez, C. A., Caban-Martinez, A. J., Davila, E. P., Bandiera, F. C., Lewis, J. E., & Kachan, D. (2012). Health status and risk indicator trends of the aging US health care workforce. *Journal of occupational and environmental medicine*, 54(4), 497–503.
<https://doi.org/10.1097/JOM.0b013e318247a379>
- Mahmoud, M. A. (2018). Knowledge and awareness regarding mental health and barriers to seeking psychiatric consultation in Saudi Arabia. *Asian Journal of Pharmaceutical Research and Health Care*, 109-116.
- Mealer, M., Conrad, D., Evans, J., Jooste, K., Solyntjes, J., Rothbaum, B., & Moss, M. (2014). Feasibility and acceptability of a resilience training program for intensive care unit nurses. *American Journal of Critical Care*, 23(6), e97-e105.
<https://doi.org/10.4037/ajcc2014747>
- Norouzinia, R., Ramezani, Z., Khalili, A., Dehghani, M., & Sharifi, A. (2017). The effect of mindfulness-based stress reduction training on stress and burnout of nurses. *Indo American Journal of Pharmaceutical Sciences*, 4(5), 1296-1302.
<http://www.iajps.com/pdf/may2017/34.IAJPS34052017.pdf>
- Oettingen, G., & Gollwitzer, P. M. (2017). Health behavior change by self-regulation of goal pursuit: Mental contrasting with implementation intentions. In *Routledge International Handbook of Self-Control in Health and Well-Being* (pp. 418-430). Routledge.
- Pappa, S., Ntella, V., Giannakas, T., Giannakoulis, V. G., Papoutsis, E., & Katsaounou, P. (2020). Prevalence of depression, anxiety, and insomnia among healthcare workers during the COVID-19 pandemic: A systematic review and meta-analysis. *Brain*,

- behavior, and immunity, 88, 901–907.
<https://doi.org/10.1016/j.bbi.2020.05.026>
- Raab, K. (2014). Mindfulness, self-compassion, and empathy among health care professionals: a review of the literature. *Journal of health care chaplaincy*, 20(3), 95-108.
- Rimes, K. A., & Wingrove, J. (2011). Pilot study of mindfulness-based cognitive therapy for trainee clinical psychologists. *Behavioural and Cognitive Psychotherapy*, 39(2), 235–241.
<https://doi.org/10.1017/S1352465810000731>
- Robins-Browne, K., Lewis, M., Burchill, L. J., Gilbert, C., Johnson, C., O'Donnell, M., Kotevski, A., Poonian, J., & Palmer, V. J. (2022). Interventions to support the mental health and well-being of front-line healthcare workers in hospitals during pandemics: an evidence review and synthesis. *BMJ open*, 12(11), e061317.
<https://doi.org/10.1136/bmjopen-2022-061317>
- Rocco, S., Dempsey, S., & Hartman, D. (2012). Teaching calm abiding meditation to mental health workers: A descriptive account of valuing subjectivity. *Contemporary Buddhism*, 13(2), 193–211.
<https://doi.org/10.1080/14639947.2012.716707>
- Rodrigues, H., Cobucci, R., Oliveira, A., Cabral, J. V., Medeiros, L., Gurgel, K., Souza, T., & Gonçalves, A. K. (2018). Burnout syndrome among medical residents: A systematic review and meta-analysis. *PloS one*, 13(11), e0206840.
<https://doi.org/10.1371/journal.pone.0206840>
- Santorelli, S. F., Kabat-Zinn, J., Blacker, M., Meleo-Meyer, F., & Koerbel, L. (2017). Mindfulness-based stress reduction (MBSR) authorized curriculum guide. Center for mindfulness in medicine, health care, and society (CFM). University of Massachusetts Medical School.
- Shahin, M. A., Al-Dubai, S. A. R., Abdoh, D. S., Alahmadi, A. S., Ali, A. K., & Hifnawy, T. (2020). Burnout among nurses working in the primary health care centers in Saudi Arabia, a multicenter study. *AIMS public health*, 7(4), 844–853.
<https://doi.org/10.3934/publichealth.2020065>
- Shamsan, A., Alhajji, M., Alabbasi, Y., Rabaan, A., Alhumaid, S., Awad, M., & Al Mutair, A. (2022). Level of anxiety and depression among healthcare workers in Saudi Arabia during the COVID-19 pandemic. *PeerJ*, 10, e14246.
<https://doi.org/10.7717/peerj.14246>
- Singh, N. N., Lancioni, G. E., Karazsia, B. T., Myers, R. E., Winton, A. S. W., Latham, L. L., & Nugent, K. (2015). Effects of training staff in MBPBS on the use of physical restraints, staff stress and turnover, staff and peer injuries, and cost effectiveness in

- developmental disabilities. *Mindfulness*, 6(4), 926–937.
<https://doi.org/10.1007/s12671-014-0369-0>
- Song, Y., & Lindquist, R. (2015). Effects of mindfulness-based stress reduction on depression, anxiety, stress and mindfulness in Korean nursing students. *Nurse Education Today*, 35(1), 86–90.
<https://doi.org/10.1016/j.nedt.2014.06.010>
- Tayeb, H., Khayat, A., Milyani, H., Alsawwaf, Y., Alzaben, F., & Koenig, H. G. (2018). Supernatural explanations of neurological and psychiatric disorders among health care professionals at an academic tertiary care hospital in Saudi Arabia. *The Journal of Nervous and Mental Disease*, 206(8), 589-592.
- Thirunavukkarasu, A., Alrawaili, K. A. H., Al-Hazmi, A. H., Dar, U. F., ALruwaili, B., Mallick, A., ... & Alsirhani, A. I. E. (2021). Prevalence and risk factors of occupational health hazards among health care workers of northern Saudi Arabia: A Multicenter Study. *International Journal of Environmental Research and Public Health*, 18(21), 11489.
<https://doi.org/10.3390/ijerph182111489>
- West, C. P., Dyrbye, L. N., Rabatin, J. T., Call, T. G., Davidson, J. H., Multari, A., ... Shanafelt, T. D. (2014). Intervention to promote physician well-being, job satisfaction, and professionalism a randomized clinical trial. *JAMA Internal Medicine*, 174(4), 527– 533.
<https://doi.org/10.1001/jamainternmed.2013.14387>
- Westphal, M., Bingisser, M. B., Feng, T., Wall, M., Blakley, E., Bingisser, R., & Kleim, B. (2015). Protective benefits of mindfulness in emergency room personnel. *Journal of affective disorders*, 175, 79-85.
- Ziarukh, S., & Sabir, A. (2024). Burnout and patient safety culture assessment in a secondary care hospital. *Pakistan journal of medical sciences*, 40(2ICON Suppl), S58–S63.
[https://doi.org/10.12669/pjms.40.2\(ICON\).8970](https://doi.org/10.12669/pjms.40.2(ICON).8970)