

Exploring Mental Wellbeing Among Healthcare Workers In Saudi Arabia: A Narrative Review

Mughram Alasiri¹; Mohammad Ghazi Albarqi²; Mudayni
Albariqi²; Sultan Albargy ²; Mashal Albarqi ²; Agil Ateef
Albargi³; Ali Abdullah Alshamrani³; Khadijah Mohmmmed Asiri³

¹ Mohayil Sector, Ministry of Health, Saudi Arabia.

²Bariq Primary Health Care Center, Ministry of Health, Saudi
Arabia.

³ Bariq Sector, Ministry of Health, Saudi Arabia.

Abstract

Healthcare workers encounter various stressful and demanding events during their daily routine. Constant interactions with patients suffering from different illnesses, increased working hours, workload, and other sociodemographic factors may cause mental distress among healthcare workers, especially those at the forefront of service delivery. The present narrative review explores the current state of knowledge on the factors affecting the mental wellbeing of healthcare workers in Saudi Arabia. Studies confirm the high prevalence of mental distress among healthcare workers, which manifests in different forms, including stress, trauma, burnout, turnover, and depression. The mental health of workers in the health industry is critical, and effective mechanisms should be adopted to ensure continuous quality service delivery. Strategies outlined in the literature include improved communication, a favorable work environment, proper allocation of roles, constructive working relationships, exercise activities, consultations, and increased social support group interventions.

Keywords: mental health, healthcare workers, Saudi Arabia, Narrative review.

Introduction

In recent years, the mental wellbeing of healthcare workers has continuously gained attention as a primary public health issue and a potential threat to quality care provision Elhessewi et al.

(2021). Healthcare workers globally are exposed to multiple stressors within their work, which adversely affects their physical, emotional, and mental wellbeing. A global health organization report estimates a projected shortfall of about 20 million healthcare professionals by 2030, particularly in developing countries (Altwaijri et al., 2022). Globally, numerous factors have contributed to the high prevalence of stress among healthcare workers. Additionally, the emergence of COVID-19 impacted facilities and promoted increased infection fear among the already struggling healthcare providers. Burnout, as exhibited by healthcare workers, is a syndrome conceptualized as resulting from chronic workplace stress that has not been successfully managed. According to Al Ammari et al. (2021), there is a pressing need to ensure that the mental wellbeing of caregivers is prioritized for continued quality service delivery and reduction of the existing high prevalence of mental health problems among caregivers.

Al Balawi et al. (2019) suggested that healthcare workers' mental wellbeing is associated with job satisfaction, encompassing the ability to find meaning in work fulfillment, having high-quality work experience, and feeling engaged. Additionally, Alamri et al. (2020) defined mental wellbeing as the ability to feel positive about work with increased satisfaction. Several factors impact healthcare providers' mental wellbeing, including social, environmental, and sociodemographic characteristics. Bahamdan (2021) listed long working hours, high workloads, communication breakdown, and exposure to trauma and death as critical stressors among healthcare providers. In unison, these factors, coupled with personal and social issues, influence healthcare providers' mental wellbeing (Bahamdan, 2021).

Several studies in Saudi Arabia confirm the high prevalence of mental health problems among healthcare workers. For example, Alodhayani et al. (2021) confirmed increased levels of depression and anxiety among frontline healthcare workers. The prevalence is higher among female workers than male workers. Analogously, Alwhaibi et al. (2022) reported a 56% stress prevalence characterized by emotional exhaustion and depersonalization. The primary focus of the present review is to explore the current state of knowledge on the factors affecting the mental wellbeing of healthcare workers in Saudi Arabia.

Prevalence of Mental Distress among healthcare providers in Saudi Arabia

Mental distress is a severe issue in the Saudi healthcare system. Almutairi et al. (2019) reported a distress prevalence of 24% severe distress and 75% mental distress among healthcare workers. Elsewhere, a 2021 study by AlAteeq et al. (2020) reported a high prevalence of psychological distress among healthcare professionals working in public hospitals in the Kingdom of Saudi Arabia. According to this report, the significant risk factors associated with psychological distress included insomnia, fear of disease transmission, separation from families, and loneliness. Alosaimi et al. (2015) examined the prevalence of stress and its determinants in 2015. They reported increased mental distress among healthcare workers, which was directly associated with higher workloads, harmful ideations, job dissatisfaction, and sleep depreciation. Similarly, a different study conducted in 2014 reported an overall prevalence of 45.5% 45.5%; 43.1% and 46.2% in primary and secondary levels, respectively among Saudi nurses (Koenig et al., 2014).

Saudi-based studies have highlighted extreme stress state leading to burnout syndrome. For instance, Al-Turki et al. (2010) recorded a forty-five percent prevalence of emotional exhaustion, with 28% exhibiting moderate mental distress in 2010. Analogous to other studies, the contributing factors included work-related stressors such as long working hours and higher workloads. Numerous studies conducted in Saudi Arabia agree on the increasing mental distress among healthcare workers promoted by work-related stressors (Abdulghani et al., 2014; Al-Zahrani et al., 2015; Batran, 2019).

A survey conducted in Riyadh to determine the level and factors associated with burnout among physicians in a tertiary hospital in Saudi Arabia showed that in 2013, the burnout prevalence level was at 70% due to work-related stressors (Aldrees et al., 2013). In recent years, mental distress among the healthcare workers has dropped significantly. As of 2018, Al-Atram (2018) reported a 40% distress prevalence, from 33% mild distress to 7% severely affected psychologically in the study sample. However, the emergence of COVID-19 in late 2019 added extra stress to medical facilities and healthcare workers during the pandemic. Studies conducted between December 2019 and to date indicate an above-average prevalence of mental distress among frontline healthcare

providers. However increased prevalence was reported in early 2020 towards the end of 2021 as the severity of the virus decreased (Al-Hanawi et al., 2020; Alanazi et al., 2021; Alhurishi et al., 2021). Other studies conducted during the active periods of the pandemic reported anxiety levels above average, particularly among the healthcare workers operating in emergency departments and intensive care units (Alhurishi et al., 2021; Mulatu et al., 2021).

Types of Mental Distress and the High-risk Groups

Studies identify stress as one of the prominent factors affecting healthcare workers' mental health. Stress is a negative physical and emotional response to job requirements, surfaced by various factors that can harm the emotional and physical wellbeing of the employee (Al-Mansour, 2021). A cross-sectional study conducted by Abdoh et al. (2021) among healthcare providers reported psychological stress as a primary cause of mental distress among workers in Saudi Arabia. A similar Saudi study underlined stress as a critical contributor to mental unwellness, leading to increased psychological distress. According to the study, healthcare workers managing COVID-19 patients experienced worse psychological issues including stress than the public since they are more likely to get infected and transmit the infection to their relatives and friends (Alenezi et al., 2018). The outcome of increased stress levels among healthcare workers is turnover (Alenazi et al., 2020). A different cross-sectional survey conducted in five government hospitals and four sectors of primary health care centers in Saudi Arabia found a close relationship between workload and increased stress among the service providers in medical facilities.

Additionally Abdoh et al. (2021) reported high stress levels among the Saudi healthcare providers promoted by work environment and sociodemographic factors. Regular nurses interacting with patients regularly are at a higher risk of suffering stress (Almutairi et al., 2019). A study has identified frontline nurses in trauma centers, emergency, and intensive care units as vulnerable to occupational stress (Alamri et al., 2020; Arafa et al., 2021).

Studies have reported burnout syndrome among Saudi healthcare providers. According to Alsulimani et al. (2021), Job burnout is a type of stress linked to work, and burnout may include being worn out physically or emotionally. Nonetheless, job burnout involves feeling useless, empty, and powerless (Alsulimani et al., 2021). Previous studies have observed

fatigue, decreased cognitive function and job performance, crying, suicidal intention, and other problems (Al-Omari et al., 2019). AlJhani et al. (2021) found high burnout among healthcare workers in Saudi Arabia during the COVID-19 pandemic due to direct contact with infected cases and changes in working patterns during the pandemic. Elsewhere, Hamdan et al. (2019) established that burnout syndrome affected most female workers in Saudi Arabia, as evidenced by increased medical errors and poor physician-patient relationships. Chemali et al. (2019), through a cross-sectional study, found a high prevalence of the syndrome among Saudi healthcare workers, particularly female workers at a higher risk of burnout than male workers. Studies have associated burnout with age, educational level, and workplace stress sources (Al Owa et al., 2021). Nurses operating in primary health care centers possess signs of burnout, including depersonalization, low personal accomplishment, and increased intentions to leave work (Almalki et al., 2021; Batayneh et al., 2019). Many Saudi studies show that professionals in emergency departments and intensive care units are more susceptible to suffering burnout than those in maternity units and pediatrician departments (Batayneh et al., 2019). Similarly, professionals above forty have been reported to show burnout symptoms compared with workers below thirty-nine years (Al Owa et al., 2021; Shahin et al., 2020). Emergency physicals are among the high-risk workers, particularly in severe injuries; exposure to suffering patients in the emergency department promotes increased burnout among physicians (El-Tallawy et al., 2022).

Anxiety and depression negatively influence the mental wellbeing of healthcare workers. Studies have confirmed the diverse effects precipitated by depression and anxiety. Point in case, Al Ammari et al. (2021), through a cross-sectional measure of the level of depression and anxiety among healthcare workers in Saudi Arabia found that of the total participants 72.5% of the respondents had anxiety, ranging from mild (44.1%) to moderate (16.2%) and severe (12.2%) additionally, 24.4% of the respondents had depression ranging from mild (21.7%) to moderate (2.1%) and severe (0.6%). Elsewhere, Almarhapi et al. (2021) found depression to be a common health problem affecting healthcare workers in North West Armed Forces Hospital, Tabukt, Saudi Arabia. According to Jaber et al. (2022), anxiety and depression majorly affect caregivers below 30 years and working in specialized hospital

facilities and departments like theatrical units and emergency departments (AlHadi et al., 2022). A cross-sectional study by Abraham et al. (2021) categorized non-Saudi workers under high-risk groups compared to Saudi healthcare providers. Elsewhere, Alhurishi et al. (2021) found that workers with a history of mental illness and those working in a psychiatric department were at high risk of mental distress.

Nevertheless, anxiety and depression levels are high among laboratory assistants and surgeons below thirty years old (Arafa et al., 2021). Levels of anxiety depend on the gender of the healthcare workers. Female caregivers have reported higher levels than males (Alenazi et al., 2020; Arafa et al., 2021). Shamsan et al. (2022) cross-examined healthcare workers in Egyptian and Saudi hospitals. They reported that frontlines in both countries experienced anxiety and depression, with female frontline workers having a higher tendency to be depressed. Still, nurses are more strongly affected by burnout than physicians (Almalki et al., 2021). Healthcare workers who have lost a beloved person in the last six months were at higher risk for developing depression compared to those who didn't report such a history. Besides, caregivers with fewer years of work experience compared to those with more years of experience are at a higher risk of developing depression (Alamri et al., 2020; Alzaid et al., 2020; Surrati et al., 2020).

Coping Mechanisms

Different coping styles are directly related to burnout. Hasan et al. (2019) defined coping as a cognitive and behavioral effort to address the occurrence of internal or external demands regarded to exceed one's personal resources. Studies show that in the workplace, positive coping creates positive feelings that foster improved communication and occupational growth (AlAteeq et al., 2020). Additionally, positive coping can inhibit the emergence of harmful health conditions and manifest as problem-solving behavior and positive appraisals, while negative coping can manifest as a distorted mindset (Alqutub et al., 2021). healthcare workers struggling with mental distress due to routine work employ diverse coping strategies, having hobbies, and talking to senior staff, which decreases the risk of depression and burnout (Sharif et al., 2020). Muller et al. (2020) noted that venting emotions and substance abuse by the affected elevate risks.

Previous studies in Saudi found religion plays a critical role in addressing mental distress. Moreover, religion is closely

followed by acceptance, humor, and positive reframing (Alyami et al., 2022). According to a study by Zaki et al. (2020), harmful coping mechanisms include self-distraction and isolation. Similar conclusions were established by Alkathlan et al. (2023), where the adaptive stress-coping mechanisms included religion with the highest score, followed by self-acceptance, active coping, and planning. On the contrary, the maladaptive stress-coping strategy encompassed self-blame at the top range, followed by self-distraction venting and behavioral disagreement (Gray et al., 2019). Studies show that healthcare professionals with reduced anxiety and depression levels have adapted to positive coping mechanisms, including humor, religion, planning, and overall adaptive stress-coping strategies. High depression levels positively correlated to maladaptive coping methods such as isolation and substance abuse (Vizheh et al., 2020). Another study conducted among ICU nurses in tertiary hospitals by Søvold et al. (2021) showed that behavioral disengagement and blaming aggravate stress can serve as the basis for formulating work-related stress reduction strategies among nurses caring for critical patients.

Other studies reported building relationships with colleagues and outside the work environment as a positive move in coping with stress (Shaukat et al., 2020). However, a qualitative study among Saudi medical students and interns found that avoiding discussions on medical matters, building relationships with the other sex, and smoking were avoidant stress-coping strategies (Chen et al., 2020; Spoorthy et al., 2020). Saudi's Islamic culture prohibits such strategies as substance abuse and building relationships, especially with non-Saudi Christian workers. Religion is critical in reducing mental distress among workers, but it only works for Muslim workers, as interaction with other religions is almost prohibited (Fageera et al., 2021). Therefore, expatriates and non-Muslims fail to fit in the norms and religious requirements of the Islamic states. Similarly Abdoh et al. (2021) noted that language barrier hinders building interactive relationships, especially for non-Arabic speaking workers (Alkathlan et al., 2023). Language fluency, particularly in English, poses a challenge to discussions with staff heads who do not communicate well using the second language (Mohsin et al., 2021).

Recommendations for better mental health among healthcare workers

In most of the publications in Saudi Arabia, researchers emphasize the need to promote self-care for healthcare workers, which involves meeting daily physical needs, including supplementation of healthy nutrition and hydration, sleep, and rest. This approach ensures positive mental health (Halms et al., 2022). Similarly, healthcare workers must ensure practicing self-care activities at the individual level, which encompass diaphragm breathing, maintaining a positive mindset, meditation, relaxation, mindfulness, maintaining personal interest, connecting with loved ones, and problem-solving training (Halms et al., 2022; Zaçe et al., 2021).

Studies across the Saudi healthcare system recommend that healthcare providers should avoid maladaptive coping mechanisms such as excessive alcohol consumption, overreacting, and prescription drugs (Hao et al., 2021). Healthcare organizations need to play a role in ensuring acceptable mental health among healthcare workers (Gray et al., 2019). Studies recommend increased wellbeing courses such as gym classes (Galli et al., 2020; Ghahramani et al., 2023). Healthcare organizations need to provide opportunities for staff to talk about their experiences to enhance support and team cohesion; this can significantly positively impact healthcare workers' physical, psychological, and social wellbeing (Kohrt et al., 2018).

As directed studies across all healthcare facilities, healthcare workers should be allowed to access mental health services by promptly identifying individuals at high risk so that plans can be put in place to support them (Sharifi et al., 2021). Furthermore, healthcare organizations should actively monitor anyone who has been exposed to a potentially traumatic event and promote access for staff members to psychological or psychiatric support through helplines, trauma-focused treatment, and online self-help programs (Kohrt et al., 2018).

Studies have strongly recommended Interventions to improve mental well-being through social and structural (Stuijfzand et al., 2020). Additionally, the Authors stressed the pivotal role of appropriate appreciation, acknowledgment, and professional validation within the team, particularly as an integral part of the leadership style. Analogously, organizational leaders should listen, learn, and act to provide personal and professional support, involving staff in decision-making and action plans, establishing a human connection by validating an individual's feelings and thoughts (Lai et al., 2020; Stuijfzand et al., 2020).

In harsh conditions, it is recommended that healthcare leaders provide high-quality and transparent communication and accurate information updates to all staff (Thatrimontrichai et al., 2021). Studies have shown that Existing research shows that uncertainty leads to stress and anxiety. Stress increases with high work demands but co-occurs with low work control. Hence, leaders should provide staff with transparent and current updates so they are best prepared for what they will face and reflect on the risks and challenges connected to the profession (Lai et al., 2020). Additionally, there is a pressing need for ministries and governments to provide adequate organizational support by implementing a safe and employee-oriented work environment. The work environments should be designed to promote professional development and provide specialized job training (Alhurishi et al., 2021; Wylie et al., 2018).

Conclusion

The current review has emphasized the mental wellbeing of healthcare workers. Studies identify that challenges present at the workplace promote elevated stress, depression, and burnout among workers. Levels of these symptoms vary from mild to severe and cause reduced performance and psychiatric disorders. It is noted that high-risk groups exist and should be identified and subjected to correct rehabilitation programs and interventions. Workers in healthcare institutions employ both positive and negative coping mechanisms, which necessitates the establishment of mechanisms to address maladaptive ways as they contribute to severe mental distress. Stressors range from organizational to individual factors identified in the literature. For continued delivery of quality healthcare services, addressing issues causing mental disorientations among the workers is paramount. The literature points out potential mechanisms for improving workers' mental health, including allowing physical activities, a motivating work environment, appreciation, formation of social groups, and promoting effective communication coupled with sharing and counseling sessions within the health facilities.

References

- Abdoh, D. S., Shahin, M. A., Ali, A. K., Alhejaili, S. M., Kiram, O. M., & Al-Dubai, S. A. R. (2021). Prevalence and associated factors of stress among primary health care nurses in Saudi Arabia, a multi-center study. *Journal of Family Medicine and Primary Care*, 10(7), 2692-2696.

- Abdulghani, H. M., Irshad, M., Al Zunitan, M. A., Al Sulihem, A. A., Al Dehaim, M. A., Al Esefir, W. A., . . . Sebiany, A. (2014). Prevalence of stress in junior doctors during their internship training: a cross-sectional study of three Saudi medical colleges' hospitals. *Neuropsychiatric disease and treatment*, 1879-1886.
- Abraham, A., Chaabna, K., Doraiswamy, S., Bhagat, S., Sheikh, J., Mamtani, R., & Cheema, S. (2021). Depression among healthcare workers in the Eastern Mediterranean Region: a systematic review and meta-analysis. *Human Resources for Health*, 19, 1-18.
- Al-Atram, A. A. (2018). Physicians' knowledge and attitude towards mental health in Saudi Arabia. *Ethiopian journal of health sciences*, 28(6).
- Al-Hanawi, M. K., Mwale, M. L., Alshareef, N., Qattan, A. M., Angawi, K., Almubark, R., & Alsharqi, O. (2020). Psychological distress amongst health workers and the general public during the COVID-19 pandemic in Saudi Arabia. *Risk management and healthcare policy*, 733-742.
- Al-Mansour, K. (2021). Stress and turnover intention among healthcare workers in Saudi Arabia during the time of COVID-19: Can social support play a role? *PloS one*, 16(10), e0258101.
- 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.
- Al-Turki, H. A., Al-Turki, R. A., Al-Dardas, H. A., Al-Gazal, M. R., Al-Maghrabi, G. H., Al-Enizi, N. H., & Ghareeb, B. A. (2010). Burnout syndrome among multinational nurses working in Saudi Arabia. *Annals of African medicine*, 9(4), 226-229.
- Al-Zahrani, R., Bashihab, R., Ahmed, A. E., Alkhodair, R., & Al-Khateeb, S. (2015). The prevalence of psychological impact on caregivers of hospitalized patients: The forgotten part of the equation. *Qatar medical journal*, 2015(1), 3.
- Al Ammari, M., Sultana, K., Thomas, A., Al Swaidan, L., & Al Harthi, N. (2021). Mental health outcomes amongst health care workers during COVID 19 pandemic in Saudi Arabia. *Frontiers in psychiatry*, 11, 619540.
- Al Balawi, M. M., Faraj, F., Al Anazi, B. D., & Al Balawi, D. M. (2019). Prevalence of depression and its associated risk factors among young adult patients attending the primary health centers in Tabuk, Saudi Arabia. *Open Access Macedonian Journal of Medical Sciences*, 7(17), 2908.
- Al Owa, K. R., Valentine, A., Bakare, A., Akanmu, I. Y., & Adeboye, A. (2021). Prevalence and Factors of Burnout among Healthcare Workers in Eastern Province, Saudi Arabia. *Open Journal of Social Sciences*, 9(10), 36-45.

- Alamri, H. S., Algarni, A., Shehata, S. F., Al Bshabshe, A., Alshehri, N. N., ALAsiri, A. M., . . . Alqarni, Y. (2020). Prevalence of depression, anxiety, and stress among the general population in Saudi Arabia during Covid-19 pandemic. *International journal of environmental research and public health*, 17(24), 9183.
- Alanazi, K. H., bin Saleh, G. M., AlEidi, S. M., AlHarbi, M. A., & Hathout, H. M. (2021). Prevalence and risk factors of burnout among healthcare professionals during COVID-19 Pandemic-Saudi Arabia. *Am. J. Public Health*, 9(1), 18-27.
- 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.
- Aldrees, T. M., Aleissa, S., Zamakhshary, M., Badri, M., & Sadat-Ali, M. (2013). Physician wellbeing: prevalence of burnout and associated risk factors in a tertiary hospital, Riyadh, Saudi Arabia. *Annals of Saudi medicine*, 33(5), 451-456.
- 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.
- AlHadi, A. N., Almutlaq, M. I., Almohawes, M. K., Shadid, A. M., & Alangari, A. A. (2022). Prevalence and treatment preference of burnout, depression, and anxiety among mental health professionals in Saudi Arabia. *Journal of Nature and Science of Medicine*, 5(1), 57-64.
- Alhurishi, S. A., Almutairi, K. M., Vinluan, J. M., Aboshaiqah, A. E., & Marie, M. A. (2021). Mental health outcomes of healthcare providers during COVID-19 pandemic in Saudi Arabia: a cross-sectional study. *Frontiers in Public Health*, 9, 625523.
- AlJhany, S., AlHarbi, H., AlJameli, S., Hameed, L., AlAql, K., & Alsulaimi, M. (2021). Burnout and coping among healthcare providers working in Saudi Arabia during the COVID-19 pandemic. *Middle East Current Psychiatry*, 28(1), 29.
- Alkathlan, M. S., Alsuyufi, Y. A., Alresheedi, A. F., Khalil, R., Sheiq, P. A., Alotaieq, S. S., . . . Alharbi, R. M. (2023). Healthcare adjustments and concerns: a qualitative study exploring the perspectives of healthcare providers and administrative staff during the COVID-19 pandemic in Saudi Arabia. *Frontiers in Public Health*, 11, 961060.
- Almalki, A. H., Alzahrani, M. S., Alshehri, F. S., Alharbi, A., Alkhudaydi, S. F., Alshahrani, R. S., . . . Alatawi, Y. (2021). The psychological impact of COVID-19 on healthcare workers in

- Saudi Arabia: a year later into the pandemic. *Frontiers in psychiatry*, 12, 797545.
- Almarhapi, S. A., & Khalil, T. A. (2021). Depression among healthcare workers in north West armed forces hospital-Tabuk, Saudi Arabia: Prevalence and associated factors. *Annals of Medicine and Surgery*, 68, 102681.
- Almutairi, A. F., Salam, M., Adlan, A. A., & Alturki, A. S. (2019). Prevalence of severe moral distress among healthcare providers in Saudi Arabia. *Psychology Research and Behavior Management*, 107-115.
- Alodhayani, A. A., Almutairi, K. M., Alshobaili, F. A., Alotaibi, A. F., Alkhaldi, G., Vinluan, J. M., . . . Al-Sayyari, L. (2021). Predictors of mental health status among quarantined COVID-19 patients in Saudi Arabia. Paper presented at the Healthcare.
- Alosaimi, F. D., Kazim, S. N., Almufleh, A. S., Aladwani, B. S., & Alsubaie, A. S. (2015). Prevalence of stress and its determinants among residents in Saudi Arabia. *Saudi Medical Journal*, 36(5), 605.
- Alqutub, S., Mahmoud, M., Baksh, T., & Bakhsh, T. (2021). Psychological impact of COVID-19 on frontline healthcare workers in Saudi Arabia. *Cureus*, 13(5).
- Alsulimani, L. K., Farhat, A. M., Borah, R. A., AlKhalifah, J. A., Alyaseen, S. M., Alghamdi, S. M., & Bajnaid, M. J. (2021). Health care worker burnout during the COVID-19 pandemic: a cross-sectional survey study in Saudi Arabia. *Saudi Medical Journal*, 42(3), 306.
- Altwaijri, Y., Bilal, L., Almeharish, A., BinMuammar, A., DeVol, E., Hyder, S., . . . Almatrafi, R. (2022). Psychological distress reported by healthcare workers in Saudi Arabia during the COVID-19 pandemic: A cross-sectional study. *PloS one*, 17(6), e0268976.
- Alwhaibi, M., Alhawassi, T. M., Balkhi, B., Al Aoola, N., Almomen, A. A., Alhossan, A., . . . Kamal, K. M. (2022). Burnout and depressive symptoms in healthcare professionals: a cross-sectional study in Saudi Arabia. Paper presented at the Healthcare.
- Alyami, H., Krägeloh, C. U., Medvedev, O. N., Alghamdi, S., Alyami, M., Althagafi, J., . . . Hill, A. G. (2022). Investigating predictors of psychological distress for healthcare workers in a major Saudi COVID-19 center. *International journal of environmental research and public health*, 19(8), 4459.
- Alzaid, E. H., Alsaad, S. S., Alshakhis, N., Albagshi, D., Albeshar, R., & Aloqaili, M. (2020). Prevalence of COVID-19-related anxiety among healthcare workers: a cross-sectional study. *Journal of Family Medicine and Primary Care*, 9(9), 4904-4910.
- Arafa, A., Mohammed, Z., Mahmoud, O., Elshazley, M., & Ewis, A. (2021). Depressed, anxious, and stressed: What have healthcare workers on the frontlines in Egypt and Saudi

- Arabia experienced during the COVID-19 pandemic? *Journal of affective disorders*, 278, 365-371.
- Bahamdan, A. S. (2021). Review of the psychological impact of COVID-19 pandemic on healthcare workers in Saudi Arabia. *Risk management and healthcare policy*, 4105-4111.
- 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.
- Batran, A. (2019). Work related stress among Saudi Nurses working in intensive care units. *Open Journal of Nursing*, 9(11), 1143-1152.
- Chemali, Z., Ezzeddine, F., Gelaye, B., Dossett, M., Salameh, J., Bizri, M., . . . Fricchione, G. (2019). Burnout among healthcare providers in the complex environment of the Middle East: a systematic review. *BMC public health*, 19, 1-21.
- Chen, Q., Liang, M., Li, Y., Guo, J., Fei, D., Wang, L., . . . Li, X. (2020). Mental health care for medical staff in China during the COVID-19 outbreak. *The Lancet Psychiatry*, 7(4), e15-e16.
- El-Tallawy, S. N., Titi, M. A., Ejaz, A. A., Abdulmomen, A., Elmorshedy, H., Aldammas, F., . . . Alqatari, A. (2022). Prevalence and risk factors associated with mental health symptoms among anesthetists in Saudi Arabia during the COVID-19 pandemic. *International Journal of Mental Health*, 51(4), 448-469.
- Elhessewi, G. M. S., Almoayad, F., Mahboub, S., Alhashem, A. M., & Fiala, L. (2021). Psychological distress and its risk factors during COVID-19 pandemic in Saudi Arabia: a cross-sectional study. *Middle East Current Psychiatry*, 28, 1-7.
- Fageera, W., Babbain, F., Alzahrani, A. S., & Khrad, H. M. (2021). Lock-down effect on the mental health status of healthcare workers during covid-19 pandemic. *Frontiers in psychiatry*, 12, 683603.
- Galli, F., Pozzi, G., Ruggiero, F., Mameli, F., Cavicchioli, M., Barbieri, S., . . . Sani, G. (2020). A systematic review and provisional metanalysis on psychopathologic burden on health care workers of coronavirus outbreaks. *Frontiers in psychiatry*, 11, 568664.
- Ghahramani, S., Kasraei, H., Hayati, R., Tabrizi, R., & Marzaleh, M. A. (2023). Health care workers' mental health in the face of COVID-19: a systematic review and meta-analysis. *International Journal of Psychiatry in Clinical Practice*, 27(2), 208-217.
- 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.
- Halms, T., Strasser, M., Kunz, M., & Hasan, A. (2022). How to reduce mental health burden in health care workers during COVID-

- 19?—a scoping review of guideline recommendations. *Frontiers in psychiatry*, 12, 770193.
- 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).
- Hao, Q., Wang, D., Xie, M., Tang, Y., Dou, Y., Zhu, L., . . . Wang, Q. (2021). Prevalence and risk factors of mental health problems among healthcare workers during the COVID-19 pandemic: a systematic review and meta-analysis. *Frontiers in psychiatry*, 12, 567381.
- Hasan, A. A., & Tumah, H. (2019). The correlation between occupational stress, coping strategies, and the levels of psychological distress among nurses working in mental health hospital in Jordan. *Perspectives in psychiatric care*, 55(2), 153-160.
- Jaber, M. J., AlBashaireh, A. M., AlShatarat, M. H., Alqudah, O. M., Du Preez, S. E., AlGhamdi, K. S., . . . Abo Dawass, M. A. (2022). Stress, depression, anxiety, and burnout among healthcare workers during the COVID-19 pandemic: a cross-sectional study in a tertiary centre. *The Open Nursing Journal*, 16(1).
- Koenig, H. G., Al Zaben, F., Sehlo, M. G., Khalifa, D. A., Al Ahwal, M. S., Qureshi, N. A., & Al-Habeeb, A. A. (2014). Mental health care in Saudi Arabia: Past, present and future. *Open Journal of Psychiatry*, 4(02), 113.
- Kohrt, B. A., Jordans, M. J., Turner, E. L., Sikkema, K. J., Luitel, N. P., Rai, S., . . . Patel, V. (2018). Reducing stigma among healthcare providers to improve mental health services (RESHAPE): protocol for a pilot cluster randomized controlled trial of a stigma reduction intervention for training primary healthcare workers in Nepal. *Pilot and Feasibility Studies*, 4, 1-18.
- Lai, J., Ma, S., Wang, Y., Cai, Z., Hu, J., Wei, N., . . . Li, R. (2020). Factors associated with mental health outcomes among health care workers exposed to coronavirus disease 2019. *JAMA network open*, 3(3), e203976-e203976.
- Mohsin, S. F., Agwan, M. A., Shaikh, S., Alsuwaydani, Z. A., & AlSuwaydani, S. A. (2021). COVID-19: Fear and anxiety among healthcare workers in Saudi Arabia. A cross-sectional study. *INQUIRY: The Journal of Health Care Organization, Provision, and Financing*, 58, 00469580211025225.
- Mulatu, H. A., Tesfaye, M., Woldeyes, E., Bayisa, T., Fisseha, H., & Kassu, R. A. (2021). The prevalence of common mental disorders among healthcare professionals during the COVID-19 pandemic at a tertiary Hospital in Addis Ababa, Ethiopia. *Journal of Affective Disorders Reports*, 6, 100246.
- Muller, A. E., Hafstad, E. V., Himmels, J. P. W., Smedslund, G., Flottorp, S., Stensland, S. Ø., . . . Vist, G. E. (2020). The mental health impact of the covid-19 pandemic on healthcare workers, and

- interventions to help them: A rapid systematic review. *Psychiatry research*, 293, 113441.
- 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.
- 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.
- Sharif, L., Basri, S., Alsahafi, F., Altaylouni, M., Albugumi, S., Banakhar, M., . . . Wright, R. J. (2020). An exploration of family caregiver experiences of burden and coping while caring for people with mental disorders in Saudi Arabia—A qualitative study. *International journal of environmental research and public health*, 17(17), 6405.
- Sharifi, M., Asadi-Pooya, A. A., & Mousavi-Roknabadi, R. S. (2021). Burnout among healthcare providers of COVID-19; a systematic review of epidemiology and recommendations. *Archives of academic emergency medicine*, 9(1).
- Shaukat, N., Ali, D. M., & Razzak, J. (2020). Physical and mental health impacts of COVID-19 on healthcare workers: a scoping review. *International journal of emergency medicine*, 13, 1-8.
- Sørvold, L. E., Naslund, J. A., Kousoulis, A. A., Saxena, S., Qoronfleh, M. W., Grobler, C., & Münter, L. (2021). Prioritizing the mental health and wellbeing of healthcare workers: an urgent global public health priority. *Frontiers in Public Health*, 9, 679397.
- Spoorthy, M. S., Pratapa, S. K., & Mahant, S. (2020). Mental health problems faced by healthcare workers due to the COVID-19 pandemic—A review. *Asian journal of psychiatry*, 51, 102119.
- Stuijzand, S., Deforges, C., Sandoz, V., Sajin, C.-T., Jaques, C., Elmers, J., & Horsch, A. (2020). Psychological impact of an epidemic/pandemic on the mental health of healthcare professionals: a rapid review. *BMC public health*, 20, 1-18.
- Surrati, A. M. Q., Mansuri, F. M. A., & Alihabib, A. A. A. (2020). Psychological impact of the COVID-19 pandemic on health care workers. *Journal of Taibah University Medical Sciences*, 15(6), 536-543.
- Thatrimontrichai, A., Weber, D. J., & Apisarnthanarak, A. (2021). Mental health among healthcare personnel during COVID-19 in Asia: A systematic review. *Journal of the Formosan Medical Association*, 120(6), 1296-1304.
- Vizheh, M., Qorbani, M., Arzaghi, S. M., Muhidin, S., Javanmard, Z., & Esmaeili, M. (2020). The mental health of healthcare workers in the COVID-19 pandemic: A systematic review. *Journal of Diabetes & Metabolic Disorders*, 19, 1967-1978.
- Wylie, L., Van Meyel, R., Harder, H., Sukhera, J., Luc, C., Ganjavi, H., . . . Wardrop, N. (2018). Assessing trauma in a transcultural

context: challenges in mental health care with immigrants and refugees. *Public health reviews*, 39, 1-19.

- Zaçe, D., Hoxhaj, I., Orfino, A., Viteritti, A. M., Janiri, L., & Di Pietro, M. L. (2021). Interventions to address mental health issues in healthcare workers during infectious disease outbreaks: a systematic review. *Journal of psychiatric research*, 136, 319-333.
- Zaki, N. F., Sidiq, M., Qasim, M., Aranas, B., Hakamy, A., Ruwais, N. A., . . . Al-Thomali, A. B. A. (2020). Stress and psychological consequences of COVID-19 on healthcare workers. *Journal of Nature and Science of Medicine*, 3(4), 299-307.