

The Relationship Between Psychological Distress and Health-Related Quality of Life Among Nurses Working at Rehabilitation Facilities in the Madina Region: Literature review

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Abstract:

Introduction: Nursing is at the forefront of healthcare, providing a critical resource for patients. Because the profession of nursing requires a lot of responsibility, commitment, and, most importantly, a big effort, nurses were shown to have a significant incidence of psychological stress, ranging from moderate to severe levels. This has an impact on their quality of life because they must maintain both physical and mental well-being in order to provide excellent care to their patients while also improving their own. While nursing is widely recognized as physically demanding, the impact of psychological distress on caring behaviors, particularly in rehabilitation settings, remains understudied. **Study aim:** This review aimed to explore and synthesize theoretical evidence on the relationship between psychological distress and health-related quality of life among rehabilitation nurses, while identifying existing research gaps in the literature. **Study methodology:** This review collected 17 primary full-text papers in English from several databases: MEDLINE, SAGE Knowledge, PubMed, and Google Scholar. The full text was obtained through the Saudi Digital Library. **Findings:** The literature review highlighted recurring themes indicating and analysing a correlation between psychological distress and health-related quality of life. **Conclusion:** This paper indicated that workplace psychological stressors among rehabilitation nurses are likely increasing and affecting their well-being and patient care. The key risk factors for psychological discomfort include age, marital status, work schedules, workplace physical activity, musculoskeletal problems, anxiety, and depression. Several individual and organizational solutions are needed to reduce psychological discomfort and improve quality of life. In addition, interventions and policies are needed to address the associated stressors.

Keywords: psychological distress, physical burden, quality of life, and rehabilitation nurses.

Introduction

This paper reviews the literature on psychological distress and health-related quality of life (HRQOL), specifically among rehabilitation nurses, and identifies the key factors contributing to distress in the healthcare setting. While research regarding rehabilitation nurses in Saudi Arabia is rare, the specific obstacles related to this nursing specialty elevate the risk of psychological discomfort due to the

physically and mentally demanding nature of rehabilitation tasks. Rehabilitation nurses frequently attend to patients with chronic conditions, impairments, or prolonged rehabilitation requirements, necessitating increased time, attention, and empathy, which can lead to emotional fatigue and stress. Given the critical role nurses play in patient care, understanding and addressing psychological distress is essential for improving both nurse retention and patient outcomes."

Background

Psychological distress refers to a collection of symptoms that encompass a wide range of issues, including anxiety and depressive symptoms, functional impairment, ambiguous or troubling personality features, and behavioral difficulties.” (American Psychiatric Association & American Psychiatric Association, 2020). Disturbances in sleep, changes in eating habits, headaches, constipation, diarrhea, chronic pain, frequent anger outbursts, extreme fatigue, memory lapses, difficulty concentrating, and a loss of interest in sexual activity are commonly associated with short-term (non-permanent) periods of psychological distress (Belay et al., 2021).

According to (Babapour et al., 2022), there is a large population of stressed-out healthcare leaders around the globe who are nurses. The American Institute of Stress attributes 80% of all job injuries and 40% of the economic burden in the workplace to stress. As a result, the world's nursing workforce is feeling the effects of this distress, which includes increased occupational risk, burnout, low morale, the intention to leave the profession (Alameddine et al., 2021), chronic absenteeism, an elevated risk of medical errors that could compromise patient safety, and low job satisfaction. (Cavanagh et al., 2020).

Psychological stress impairs nurses' cognition, patient care, and clinical decision-making. Psychological discomfort affects medical quality and patient satisfaction. As stated by Belay et al. 2021, psychological discomfort affects nurses' quality of life and patient care. Due to the sensitivity of their profession, nurses' quality of life directly affects patient care. (Layali et al., 2019).

It was discovered that frequent exposure to traumatic situations from patients can diminish the quality of nurses' careers and contribute to poor patient outcomes (Nejad et al. 2019). A research of the predictors of professional quality of life among 374 nurses in the Philippines discovered that remuneration, working hours, and working environment were significant predictors (Adolfo., 2021). In addition, a research of mental health nurses in

Saudi Arabia (Alqahtani et al., 2020) and psychiatrists in Egypt (Abu zied et al., 2020) found that married mental health nurses had higher levels of burnout than single ones.

Studies also have found that occupational stress has a detrimental impact on nurses' quality of life in terms of health (Layali et al., 2019; Babapour et al., 2022). Other studies found a significant inverse relationship between all dimensions of job stress and overall quality of life, as well as psychological and physical dimensions, which was consistent with the findings of previous studies in this domain (Babapour et al., 2022; Nasiry Zarrin Ghabaee et al., 2016; Kordi et al., 2014).

As a result, because some stressors are unavoidable in the nursing profession, it is critical to mitigate their psychological and behavioural consequences in order to improve nurses' quality of life and care behaviours (Abedini et al., 2013). At the same time, job-related stress has been linked to a loss of compassion for patients and an increase in practice errors, and hence is negatively connected with quality of care (Rizkianti et al., 2020; Aiken et al., 2012).

Given the critical role nurses play in patient care, understanding and addressing psychological distress is essential for improving both nurse retention and patient outcomes. Thus, this review aimed to explore the relationship between psychological distress and HRQOL among nurses and identify the key factors contributing to distress in healthcare settings.

Methods of the Review:

A. Identifying the research question.

PICOT Question:

Population, Intervention, Comparison, Outcome, and Time (PICOT) Question

Do nurses working at rehabilitation facilities (P) in the Madinah region who experience psychological distress (I) have a lower HRQOL (O)?

PICOT	Meaning
P	Nurses working at rehabilitation facilities

I	Psychological distress
C	Not applicable
O	Quality of life
T	Studies published from 2016 through 2023

Methods of Search:

Search Strategy and Databases:

A search strategy facilitates the investigation of relevant literature. According to this strategy, a literature review was conducted involving studies published between 2016 to 2023. studies that recruit nurses from a variety of hospital settings and diverse work conditions were selected, These studies were identified in various databases, including PubMed, Web of Science (Thomson Reuters), MEDLINE, Sage Knowledge, and Google Scholar. The search terms for this review included single words and medical subject headings (MeSH terms). For each database, the search included psychological symptoms and quality of life combined with the Boolean operators 'or' and 'and' when searching for the terms 'psychological distress' and 'health-related quality of life'. This literature review considered studies that aligned with the main purpose of the present study.

Inclusion and exclusion criteria:

The following inclusion criteria were applied: 1) quantitative cross-sectional, correlational, interventional, qualitative, and systematic designs; 2) publication year of 2016 or later (except the definitions of study concepts), 3) publication in peer-reviewed journals; and 4) publication in international and national journals. Furthermore, the following exclusion criteria were applied: 1) publication in a language other than English and 2) inclusion of other population groups.

Search Results:

This search yielded 748 studies; 707 remained after duplicate articles were removed. The articles' titles and abstracts were reviewed to establish their relevance to the study. After screening according to the titles, 32 articles remained, and after these were evaluated on the basis of their abstracts, 17 papers remained; these were used for the literature review because they met the study's goals. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) are presented in Figure 1.

PRISMA Flow Diagram

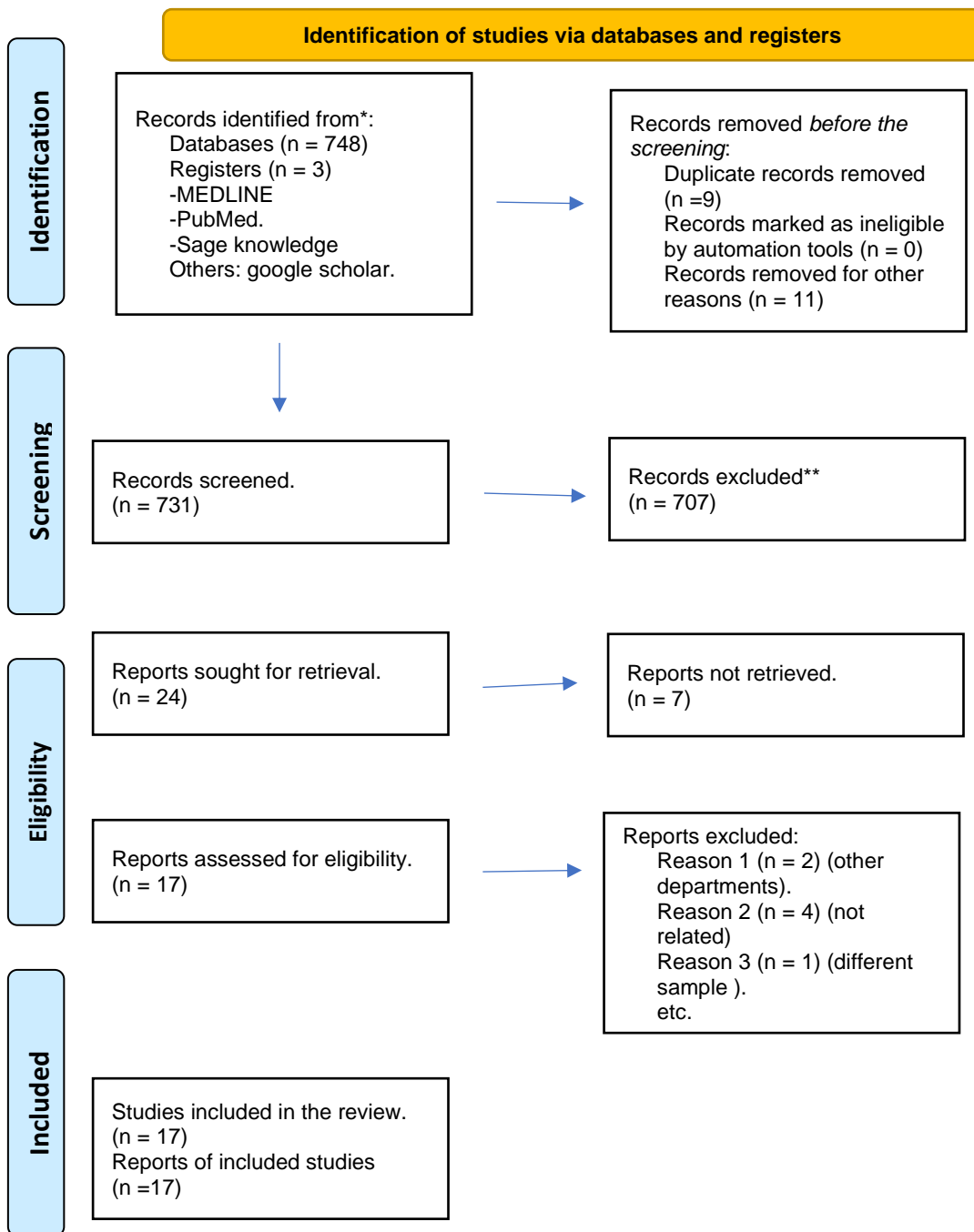


Figure 1: Workflow diagram (PRISMA)

Data Extraction:

The principal investigator developed a data extraction chart to gather and organize key information, such as the study title, authors, year,

location, aim and design of the study, size, type of participants, and study findings. These elements facilitated the recognition of specific and relevant data from each of the selected

articles in the reviews to clarify the extent of the study's issue and its consequences.

Both variables were measured using different instruments in the studies. The Copenhagen Psychosocial Work Environment Study (COPSOQ), Expanded Nursing Stress Scale (ENSS), and Nordic Musculoskeletal Questionnaire (NMQ) were used to measure psychological distress, while the Professional Quality of Life (ProQOL) scale, the Health-Related Quality of Life (HRQL) SF-36 scale, and the Quality of Nursing Working Life (QNWL) scale were used to measure quality of life.

Description of Selected Studies, Data Synthesis, and Reporting

This review first describes the characteristics of the included studies and then presents the extracted themes. A total of 17 studies were included, focusing on psychological distress and its direct and indirect relationship with HRQOL. Furthermore, we developed a data extraction chart (matrix) for the review, which determined themes and arranged the extracted articles by these themes. This step helped identify common themes that emerged from the selected studies as well as the main points supporting the review. Four themes emerged: psychological distress as a consequence of work-related factors (nine articles discussed this theme); the intention to leave; quality of life aspects (eight articles); and the correlation between PD and HRQOL (six articles).

Most of the selected studies were conducted in Europe ($n = 9$); several were conducted in the United States ($n = 3$) and the Middle East ($n = 3$), and a minority were performed in Asia ($n = 1$) and Australia ($n = 1$). Different study design types were included in this review. The included studies employed various study designs: quantitative cross-sectional design ($n = 10$), qualitative design ($n = 1$), descriptive correlational and descriptive survey design ($n = 4$), systematic review design ($n = 1$), and interventional design ($n = 1$). Nine articles had relatively large sample sizes (200 participants or more), and seven articles had samples of less than 200.

Assessment of Study Risk of Bias:

Two researchers separately assessed the methodological quality of many selected papers. Studies with a high risk of bias were excluded, and the risk of bias was assessed using predefined questions for each research type (Viswanathan et al., 2008).

Results:

Academic research has extensively highlighted the significance of the link between psychological distress and HRQOL in nursing professionals. This literature review critically analyzed 17 pertinent studies conducted from 2016 to 2023, focusing on the correlation between psychological distress and HRQOL in nurses. These studies were carried out in diverse locations, such as China, Australia, and Saudi Arabia. This review compiles the insights derived from these studies, providing a comprehensive understanding of the present perception of this correlation. From a methodological perspective, the studies varied in their approaches (e.g. cross-sectional, descriptive, and systematic review designs). The number of participants in each study varied, ranging from 200 to 3398 participants. However, various instruments were utilized to collect data on psychological distress, HRQOL, and related factors.

The Copenhagen Psychological Questionnaire (COPSOQ) and Professional Quality of Life (ProQOL) scale were used in many of the studies. These instruments are reliable and are widely accepted and validated for assessing psychological distress and quality of life. Other tools, such as the Nordic Musculoskeletal Questionnaire (NMQ); the Depression, Anxiety, and Stress Scale (DASS-2132); the Resilience Scale (RS-13); the Hospital Anxiety and Depression Scale (HADS); and the Expanded Nursing Stress Scale (ENSS), were also used.

The total number of included articles in the present review were screened and extracted, and their findings were systematized and organized into the following four themes: impact of work-related factors on psychological distress, intention to leave, HRQOL, and the correlation

between quality of life and psychological distress.

Impact of Work-Related Factors on Psychological Distress:

The cross-sectional study conducted in Jordan (Ta'an et al., 2022) examined the link between occupational stress and social support as well as the impact of social support on psychological distress symptoms among 211 healthcare practitioners, including nurses. The results showed that depression was significantly correlated with overall occupational stress and four of the six subscales tested ($r = 0.324$; $P < 0.001$), whereas anxiety was not correlated with overall occupational stress or its subscales (Ta'an et al., 2022).

Consistent with prior research, Du et al., (2021) conducted a comprehensive analysis of 18 studies to explore the correlation between occupational psychosocial variables, physical workload, and upper-body musculoskeletal disorders in hospital nurses. The majority of participants (51.4%) were women between the ages of 20 and 60. Intense physical activity significantly raises the likelihood of experiencing pain in the lower back, upper back, shoulder, and neck. Specifically, the risk is increased by 1.76 times for lower back pain, 1.66 times for upper back pain, 1.59 times for shoulder pain, and 1.17 times for neck pain. These findings suggest that the lower back is particularly prone to musculoskeletal disorders when subjected to excessive physical strain (Du et al., 2021).

Furthermore, Misiak et al. (2020) assessed psychosocial work conditions and their relationship to quality of life in a group of 523 randomly selected registered nurses. The results demonstrated that respondents with higher education levels perceived increased job demands ($p < 0.0001$) but were happier ($p = 0.020$). In virtually all categories, shift work was related to poorer psychosocial work conditions (Misiak et al., 2020).

Similarly, Alharbi et al. (2019) carried out a quantitative cross-sectional study in Saudi Arabia involving 400 nurses. They measured the levels of quality of nursing work life (QNWL) and determined the relationship between QNWL

and nurses' personal, family, and work shift factors. The overall quality of nurses' working lives was moderate (mean = 165, standard deviation = 26.8); non-Saudi nationality, older age, more work experience, marital status, full-time employment, rotating shifts, and specialty units significantly increased QNWL ratings ($p = 0.05$) (Alharbi et al., 2019).

Another study assessed the occurrence rate of psychological distress and the variables linked to it among nurses in public hospitals. (Belay et al., 2021). Staff nurses with less experience, those who had trouble communicating with patients and co-workers, those who did not sleep enough, those who strived for perfection, and those who could not overcome their insomnia had the highest rates of psychological distress (Belay et al., 2021).

Sarafis et al. (2016) conducted a correctional study among 246 nurses in Greece; the Caring Behaviors Inventory (CBI) was used to investigate and explore the correlation between occupational stress, caring behaviors, and HRQOL. The study found that total stress was negatively correlated with the four CBI dimensions, and significant and independent stressors predicted each CBI component (Sarafis et al., 2016).

Hammig (2020) conducted a cross-sectional study based on self-reported survey data from 1232 healthcare professionals (of whom the majority were nurses). The study explored the relationship between physical load and psychological stress as well as musculoskeletal problems and resulting sleep problems. The findings revealed that musculoskeletal disorders were caused by a combination of physical burden and psychological stress but were most strongly linked to poor posture at work and general stress. Work stress, physical activity at work, and pain were identified as distinct and strong risk factors for musculoskeletal diseases, While only general and work-related stress showed a substantial correlation with sleep disturbances. (Hammig, 2020).

Additionally, a study conducted by Jimenez et al. (2019) described nurses' experiences with the care relationship and its impact on their practice. The results showed that

in a work setting without assistance, experience, or training, excessive dedication to the organization and patients exacerbated emotional distress (Jimenez et al., 2019).

In Respect To The Intention To Leave:

Peter et al. (2018) conducted a study involving 3398 healthcare professionals in acute care and rehabilitation hospitals in Switzerland. The study identified work stressors that were significantly associated with stress symptoms, job satisfaction, desire to leave, and health-related outcomes among health professionals. The results demonstrated that work-private life conflicts were linked to stress symptoms, work satisfaction, the desire to leave the organization and the profession, general health, burnout symptoms, and sleep quality (Peter et al., 2018).

Regarding Health-Related Quality of Life Among Nurses:

Many studies have assessed HRQOL among nurses. For example, Misiak et al. (2020) assessed psychosocial work conditions and their relationship with quality of life in a group of 523 nurses. The strongest associations were between well-being and physical and psychological quality of life (Misiak et al., 2020). Similarly, a study conducted in Saudi Arabia found that nurses had a moderate quality of working life; significant factors included non-Saudi nationality, older age, more work experience, being married, full-time employment, rotating shifts, and working in specialty units (Alharbi et al., 2019).

Moreover, a study conducted by Babapour et al. (2022) in Iran among 115 nurses investigated the correlation between job stress and the quality of life and care behaviours of nurses. The results emphasised that job stress reduced nurses' HRQOL and can impact the outcomes of patients. (Babapour et al., 2022). Furthermore, a quantitative study carried out by Malfa et al. (2021) evaluated the HRQOL and psychological distress of public sector professionals in Greece. The nurses reported a much lower quality of life for all measures compared with workers in all other occupations (Malfa et al., 2021).

Correlation between Quality of Life and Psychological Distress:

The findings of a cross-sectional analysis demonstrated a connection between subjective ratings of physical and psychological aspects of quality of life and overall health and happiness (Misiak et al., 2020). Similarly, Sarafis et al. (2016) demonstrated that stress due to disagreements with supervisors was independently correlated with mental health, whereas stress due to discrimination was a predictor of quality of life related to physical health (Sarafis et al., 2016).

According to Peter et al. (2020), nurses' stress and its symptoms were connected to burnout symptoms and sleep quality (Peter et al., 2020). Another study discussed by Elliott and Fry (2020) observed a positive correlation between job engagement and psychological capital, whereas they found a negative correlation between the DASS-21 depression level and patient safety views (Elliott & Fry, 2020).

Furthermore, compassion fatigue was linked to a lower quality of life and a wide range of demographic characteristics, including years of experience (Cavanagh et al., 2022). Additionally, Du et al. (2021) reviewed multiple studies and demonstrated that a high incidence of chronic musculoskeletal diseases was associated with decreased productivity because of both quality and efficiency, along with increased healthcare costs and possibly even job changes (Du et al., 2021).

Discussion:

The World Health Organization (WHO) defines quality of life as an individual's perception of their position in life in the context of the culture and value systems in which they live and about their goals, expectations, standards, and concerns (WHO, 2020). Multiple studies have reported a significant link between psychological distress and work-related factors that contribute to and exacerbate stress.

This review found that workplace psychological stressors for rehabilitation nurses are projected to rise, jeopardising their well-being and patient care. Significant risk factors for

psychological discomfort include age, marital status, work schedules, physical activity at work, musculoskeletal problems, anxiety, and depression.

A recent study discovered that the most common stressors were excessive workload and inadequate compensation, with inadequate salary being the single most important factor contributing to high levels of stress among the study subjects (Davey et al., 2019).

Previous research has identified work-life pressures as key risk factors for psychological distress among nurses (Amarneh, 2017; Jennings, 2008). Evidence reveals that occupational demands have a major impact on well-being, causing fatigue, psychosomatic symptoms, and emotional exhaustion. A previous study indicated that workload was a significant (71%) influence to stress (Beh and Loo., 2012). According to Najimi, the most important factors contributing to job stress among female nurses are the range of roles, role duality, and physical surroundings.

A cross-sectional descriptive study conducted in Brazil (Schultz et al., 2022) investigated the connection between musculoskeletal pain and work-related variables among 83 nurses in hospital settings. The findings demonstrated that nurses in general hospitals had musculoskeletal discomfort in a variety of anatomical sites, with intensity varying by work shift, daily working hours, weekly burden, training time, and nursing role (Schultz et al., 2022).

The intention of nurses to quit is a big issue, resulting in the loss of competent and qualified nurses. This has resulted in a nurse shortage, causing a healthcare crisis in underdeveloped countries by reducing nursing care quality (Emiru and Yinager, 2020). Multiple studies have investigated the intention to leave within an HRQOL context; for example, a cross-sectional study conducted in Germany (Dihel et al., 2021) among general palliative care nurses and specialised palliative care nurses (n = 1753) found that general palliative care nurses had a higher turnover rate than specialised palliative care nurses (Dihel et al., 2021).

Similarly, Kohn (2021) conducted a study to determine how intervention programs could reduce compassion fatigue and thus reduce turnover among 30 rehabilitation nurses in New York; the findings indicated that in the rehabilitative context, low-cost, straightforward approaches may help reduce chronic fatigue; after the interventions, nurses may have a lower degree of burnout (Kohn, 2021).

Nurses, unlike doctors, technicians, and paramedical staff, have a variety of tasks, including public dealing. According to research findings, uncertain conditions cause stress among nurses (Rahmani et al., 2010).

Nurses' poor health status and HRQoL mostly demonstrated the problems they confront at work. They work in a very stressful and demanding profession that is poorly compensated, according to various studies (Rodarte-Cuevas et al., 2016; Shen et al., 2015; Blanch-Ribas et al., 2017; Ashton et al., 2017).

According to Partlak et al. (2022), cognitive behavioural approach-based interventions can help minimise the psychological distress experienced by nurses in the workplace, which can severely impact their professional quality of life (Partlak et al., 2022).

Conclusion:

According to the available evidence, nurses experience significant psychological distress, which negatively impacts their quality of life in all areas. Because they are in direct contact with patients, nurses are more vulnerable to the stresses caused by variables including their workplace's location, the range of patients they see at the hospital, staff shortages, mandatory overtime, and negative ward managers.

Limitations:

The main limitation of this review was the scarcity of prior research in the field; only 17 articles featured nurses and healthcare professionals. In addition, the review was restricted to English language databases. Finally, various scales were utilised to assess nurses' psychological distress and HRQOL, and the small sample sizes of some studies, such as those

by Schultz et al. (2022), Kohn (2021), and Otto et al. (2020), restricted the comparisons that could be performed to draw reliable conclusions.

Gab of knowledge:

This review found many gaps in the current evidence, including a lack of studies conducted in Saudi Arabia examining the relationship between psychological distress and HRQOL among rehabilitation nurses. In addition, little research has explored recovery and improving nurses' quality of life through educational programs about how to manage their psychological distress.

Implications for Nursing Research:

Research might evaluate and demonstrate the efficacy of rehabilitation programs, including therapeutic exercises, mobility training, pain management, and modified equipment. This would facilitate the establishment of standardized care regimens that could be adjusted to the specific requirements of patients. Cognitive behavioral intervention programs designed to identify sources of psychological distress in the workplace, provide soft skill programs (such as teamwork, behavioral, and communication skills), and teach effective coping strategies to reduce stressors could help nurse managers enhance the quality of life and caring behaviors of their staff nurses. Future research is needed to evaluate the effectiveness of intervention programs in lowering stress and increasing nurses' health-related quality of life, especially in under-represented regions or situations.

References:

- Abedini R, Choobineh A, Hasanzadeh J. Musculoskeletal load assessment in hospital nurses with patient transfer activity. *Int J Occup Hygiene*. 2013;5(2):39–45.
- Abu zied M, Fekry M, Mohsen N, Morsy M, El Serafy D, Salah M. Burnout syndrome among psychiatrists in Egyptian mental health hospital. *Middle East Curr Psychiatry*. 2020;27:1–10. doi: 10.1186/s43045-020-00028-x.
- Adolfo CS. Predictors of professional quality of life among nurses—a cross sectional study. *Int J Adv Appl Sci*. 2021;8(2):44–53.
- Aiken LH, Cimiotti JP, Sloane DM, Smith HL, Flynn L, Neff DF. Effects of nurse staffing and nurse education on patient deaths in hospitals with different nurse work environments. *J Nurs Admin*. 2012;42(10 Suppl):S10. doi: 10.1097/01.NNA.0000420390.87789.67
- Alharbi MF, Alahmadi BA, Alali M, Alsaedi S. Quality of nursing work life among hospital nurses in Saudi Arabia: A cross-sectional study. *J Nurs Manag*. 2019;27(8):1722–1730. doi: 10.1111/jonm.12863.
- Alqahtani R, Al-Otaibi S, Zafar M. Burnout syndrome among nurses in a psychiatric hospital in Dammam, Saudi Arabia. *Nurs Midwifery Stud*. 2020;9:110–115. doi: 10.4103/nms.nms_126_19.
- Amarneh BH. Social Support Behaviors and Work Stressors among Nurses: A Comparative Study between Teaching and Non-Teaching Hospitals. *Behav Sci (Basel)*. 2017 Jan 29;7(1):5. doi: 10.3390/bs7010005.
- Ashton C, Duffie D, Millar J. Conserving Quality of Life through Community Paramedics. *Health Q*. 2017;20:48–53. doi: 10.12927/hcq.2017.25228
- Babapour AR, Gahassab-Mozaffari N, Fathnezhad-Kazemi A. Nurses' job stress and its impact on quality of life and caring behaviors: a cross-sectional study. *BMC Nurs*. 2022 31;21(1):75. doi: 10.1186/s12912-022-00852-y.
- Beh LS, Loo LH. Job stress and coping mechanisms among nursing staff in public health services. *Int J Acad Res Bus Soc Sci*. 2012;2:131–76.
- Belay AS, Guangul MM, Asmare WN, Mesafint G. Prevalence and Associated Factors of Psychological Distress among Nurses in Public Hospitals, Southwest, Ethiopia: A cross-sectional Study. *Ethiop J Health Sci*. 2021;31(6):1247–1256. doi: 10.4314/ejhs.v31i6.21.
- Blanch-Ribas JM., Roldán-Merino JF, Torralbas-Ortega J, Escayola-Maranges AM. Crisis in the health sector: Impact on nurses' working conditions. *Enferm. Clin*. 2017;27:163–171. doi: 10.1016/j.enfcli.2017.03.005.
- Cavanagh N, Cockett G, Heinrich C, Doig L, Fiest K, Guichon JR, Page S, Mitchell I, Doig CJ. Compassion fatigue in healthcare providers: A

- systematic review and meta-analysis. *Nurs Ethics*. 2020;27(3):639-665. doi: 10.1177/0969733019889400.
- Schultz CC, Colect CF, Treviso P, Stumm EMF. Factors related to musculoskeletal pain of nurses in the hospital setting: cross-sectional study. *Rev Gaucha Enferm*. 2022;43:e20210108. English, Portuguese. doi: 10.1590/1983-1447.2022.20210108.en
- Davey A, Sharma P, Davey S, Shukla A. Is work-associated stress converted into psychological distress among the staff nurses: A hospital-based study. *J Family Med Prim Care*. 2019;8(2):511-516. doi: 10.4103/jfmpc.jfmpc_419_16.
- Diehl E, Rieger S, Letzel S, Schablon A, Nienhaus A, Escobar Pinzon LC, Dietz P. Burdens, resources, health and wellbeing of nurses working in general and specialised palliative care in Germany - results of a nationwide cross-sectional survey study. *BMC Nurs*. 2021;20(1):162. doi: 10.1186/s12912-021-00687-z.
- Du J, Zhang L, Xu C, Qiao J. Relationship Between the Exposure to Occupation-related Psychosocial and Physical Exertion and Upper Body Musculoskeletal Diseases in Hospital Nurses: A Systematic Review and Meta-analysis. *Asian Nurs Res (Korean Soc Nurs Sci)*. 2021;15(3):163-173. doi: 10.1016/j.anr.2021.03.003
- Elliott R, Fry M. Psychological capital, well-being, and patient safety attitudes of nurses and midwives: A cross-sectional survey. *Nursing & Health Sciences*. 2021; 23(1): 237-244. Portico. <https://doi.org/10.1111/nhs.12808>
- Font-Jimenez I, Ortega-Sanz L, Acebedo-Uridales MS, Aguaron-Garcia MJ, deMolina-Fernández I, Jiménez-Herrera MF. Nurses' emotions on care relationship: A qualitative study. *J Nurs Manag*. 2020;28(8):2247-2256. doi: 10.1111/jonm.12934
- Hämmig O. Work- and stress-related musculoskeletal and sleep disorders among health professionals: a cross-sectional study in a hospital setting in Switzerland. *BMC Musculoskelet Disord*. 2020;21(1):319. doi: 10.1186/s12891-020-03327-w.
- Jennings BM. Work Stress and Burnout Among Nurses: Role of the Work Environment and Working Conditions. In: Hughes RG, editor. *Patient Safety and Quality: An Evidence-Based Handbook for Nurses*. Rockville (MD): Agency for Healthcare Research and Quality (US); 2008 Apr. Chapter 26. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK2668/>
- Kordi M, Mohamadirizi S, Shakeri MT, Modares Gharavi M, Salehi Fardadi J. The relationship between occupational stress and work ability among midwives in Mashhad, Iran. *J Midwife Reprod Health*. 2014;2(3):188-194. DOI:10.22038/JMRH.2014.2792
- Layali I, Ghajar M, Abedini E, Emadian SO, Joulaei M. Role of Job Stressors on Quality of Life in Nurses. *J Mazandaran Univ Med Sci*. 2019;29(180):129-133. file:///C:/Users/wan/Downloads/Role_of_Job_Stressors_on_Quality_of_Life_in_Nurses.pdf
- Malfa CS, Karaivazoglou K, Assimakopoulos K, Gourzis P, Vantarakis A. Psychological Distress and Health-Related Quality of Life in Public Sector Personnel. *Int J Environ Res Public Health*. 2021 Feb 14;18(4):1865. doi: 10.3390/ijerph18041865.
- Misiak B, Sierżantowicz R, Krajewska-Kułak E, Lewko K, Chilińska J, Lewko J. Psychosocial Work-Related Hazards and Their Relationship to the Quality of Life of Nurses-a Cross-Sectional Study. *Int J Environ Res Public Health*. 2020 Jan 24;17(3):755. doi: 10.3390/ijerph17030755.
- Najimi A, Goudarzi AM, Sharifirad G. Causes of job stress in nurses: A cross-sectional study. *Iran J Nurs Midwifery Res*. 2012;17:301-305. <https://pmc.ncbi.nlm.nih.gov/articles/PMC3702151/pdf/IJNMR-17-301.pdf>
- Nasiry Zarrin Ghabaee N, Talebpour Amir F, Hosseini Velshkolaei M, Rajabzadeh R. Quality of life and its relationship to the Job stress in among nursing staff in Hospitals of Sari, in 2015. *J Nursing Educ*. 2016;5(2):40-48. <https://www.semanticscholar.org/paper/Quality-of-life-and-its-relationship-to-the-Job-in-Ghabaee-Amir/5da68953d6c3ac916ab506bb38d2cb82325c6ea3>

- Nejad NG, Hosseini M, Mohammad S, Mirzaei M, Moghaddam ZG, Gerami Nejad N, et al. Association between resilience and professional quality of life among nurses working in intensive care units. *Iran J Nurs*. 2019;31:49–60. doi: 10.29252/ijn.31.116.49.
- Otto AK, Pietschmann J, Appelles LM, Bebenek M, Bischoff LL, Hildebrand C, Johnen B, Jöllenbeck T, Kemmler W, Klotzbier T, Korbus H, Rudisch J, Schott N, Schoene D, Voelcker-Rehage C, Vogel O, Vogt L, Weigelt M, Wilke J, Zwingmann K, Wollesen B. Physical activity and health promotion for nursing staff in elderly care: a study protocol for a randomised controlled trial. *BMJ Open*. 2020 Oct 6;10(10):e038202. doi: 10.1136/bmjopen-2020-038202.
- Partlak Günüşen N, Şengün İnan F, Üstün B, Serttaş M, Sayin S, Yaşaroğlu Toksoy S. The effect of a nurse-led intervention program on compassion fatigue, burnout, compassion satisfaction, and psychological distress in nurses: A randomized controlled trial. *Perspect Psychiatr Care*. 2022 Oct;58(4):1576-1586. doi: 10.1111/ppc.12965.
- Peter KA, Hahn S, Schols JMGA, Halfens RJG. Work-related stress among health professionals in Swiss acute care and rehabilitation hospitals- A cross-sectional study. *J Clin Nurs*. 2020 Aug;29(15-16):3064-3081. doi: 10.1111/jocn.15340.
- Rahmani F, Behshid M, Zamanzadeh V, Rahmani F. Relationship between general health, occupational stress and burnout in critical care nurses of Tabriz teaching hospitals. *IJN*. 2010;23:54–63.
[file:///C:/Users/wan/Downloads/Relationship between general health occupational s.pdf](file:///C:/Users/wan/Downloads/Relationship%20between%20general%20health%20occupational%20s.pdf)
- Rizkianti I, Haryani A. The Relationship Between Workload and Work Stress With Caring Behavior Of Nurses in Inpatient Rooms. *Jurnal Aisyah: Jurnal Ilmu Kesehatan*. 2020;5(2):159–166. doi:10.30604/jika.v5i2.338
- Rodarte-Cuevas L, Araujo-Espino R, Trejo-Ortiz PM, González-Tovar J. Calidad de vida profesional y trastornos musculoesqueléticos en profesionales de Enfermería [Quality of professional life and musculoskeletal disorders in nurses]. *Enferm Clin*. 2016;26(6):336-343. Spanish. doi: 10.1016/j.enfcli.2016.08.002.
- Sarafis P, Rousaki E, Tsounis A, Malliarou M, Lahana L, Bamidis P, Niakas D, Papastavrou E. The impact of occupational stress on nurses' caring behaviors and their health related quality of life. *BMC Nurs*. 2016 Sep 27;15:56. doi: 10.1186/s12912-016-0178-y.
- Shahrbabaki PM, Abolghaseminejad P, Lari LA, Zeidabadinejad S, Dehghan M. The relationship between nurses' psychological resilience and job satisfaction during the COVID-19 pandemic: a descriptive-analytical cross-sectional study in Iran. *BMC Nurs*. 2023 Apr 25;22(1):137. doi: 10.1186/s12912-023-01310-z.
- Shen J, Yu H, Zhang Y, Jiang A. Professional quality of life: A cross-sectional survey among Chinese clinical nurses. *Nurs Health Sci*. 2015 Dec;17(4):507-15. doi: 10.1111/nhs.12228.
- Ta'an WF, Al-Dwaikat TN, Dardas K, Rayan AH. The relationship between occupational stress, psychological distress symptoms, and social support among Jordanian healthcare professionals. *Nurs Forum*. 2020 Nov;55(4):763-771. doi: 10.1111/nuf.12494.
- Viswanathan M, Patnode CD, Berkman ND, Bass EB, Chang S, Hartling L, Murad MH, Treadwell JR, Kane RL. Assessing the Risk of Bias in Systematic Reviews of Health Care Interventions. 2017 Dec 13. In: *Methods Guide for Effectiveness and Comparative Effectiveness Reviews* [Internet]. Rockville (MD): Agency for Healthcare Research and Quality (US); 2008. <https://www.ncbi.nlm.nih.gov/books/NBK519366/>