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# NURSING IN THE CRUCIBLE OF STRESS AND UNMASKING STRATEGIES FOR RESILIENCE & WELL-BEING: A BIBLIOMETRIC AND SYSTEMATIC LITERATURE REVIEW

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**Abstract:**
This study aims to examine the stress levels of nurses in Asian nations, comprehend the coping strategies they use, and evaluate the efficacy of stress management programs. By combining bibliometric analysis with a systematic literature review and a mixed-methods approach, the study reveals a significant prevalence of stress among nurses in Asian nations, which is attributed to a complex interplay of intrinsic and extrinsic causes. Nurses use various coping strategies, including self-care routines, mindfulness exercises, and social support. According to the systematic literature review, stress management techniques such as technology-based solutions, mindfulness training, and cognitive-behavioral techniques have the potential to lower stress levels among Asian nurses. These findings highlight the significance of individualized stress management approaches that take into account environmental and cultural characteristics, with digital technology that incorporates cognitive-behavioral components emerging as a feasible intervention route. This study underscores the pressing need to address nursing stress in Asian nations and advances our understanding of nursing stress across national, cultural, and geographic barriers.

**Keywords**: nursing stress, coping mechanisms, stress management interventions, Asian countries, mindfulness, healthcare workforce, cultural factors.

**Introduction:**

"Stress is a significant psychological concept that can hurt one's health, well-being, and job performance (Schneiderman, Ironson, and Siegel, 2005). Globally, stress is recognized as one of the major threats to human resources, with visible negative effects on individual and social life(Mohammad *et al.*, 2020). Stress and anxiety are considered to be influenced by long work hours, an excessive caseload, shift work, a lack of staff, physical workspace danger, administrative burdens, and emotional obligations (Joseph and Joseph, 2016; Reith, 2018; Panari *et al.*, 2019).Increased patient loads, lengthy and irregular work hours, and a startling decline in employment early in the epidemic have all been linked to elevated anxiety,

melancholy, insomnia, poor self-efficacy(Hoedl *et al.*, no date), and patient mistrust (Spoorthy, 2020; Dyrbye *et al.*, 2022). The amount of stress associated with various occupations varies since certain occupations are known to cause higher amounts of stress than others. Even if there are wide variations in the specializations and work environments of nurses, nursing is one of the occupations with high levels of stress. In addition to being expected to conceal their negative feelings, which is a type of stress in and of itself, nurses are expected to provide patients and their families with both medical and emotional support(Devebakan, 2019). Stress negatively impacts the physical and emotional well-being of nurses, particularly the cardiovascular and digestive systems. It also causes irritation, melancholy, anxiety, and muscular tension(Zeller *et al.*, 2013). Previous research (Orly *et al.*, 2012; Muriithi and Kariuki, 2020) has demonstrated that experiencing stress at work has negative consequences on employees' health and safety as well as the health and effectiveness of their organizations.

When a job's demands become too much for a person to bear, stress levels grow. As a result, many workers have major mental, bodily, and emotional ailments, sicknesses, family issues, and alcohol and drug abuse. Additionally, it results in reduced productivity, workplace accidents, and absenteeism. For employer groups, the annual cost of stress is projected to be in the millions of dollars(Szabo, Tache, and Somogyi, 2012; Muriithi and Kariuki, 2020). As a profession, nursing has several factors that might cause stress, such as a difficult job with inadequate support, quickly changing circumstances, a lack of resources and staff, and dealing with death and the dying. These elements are intrinsic to nursing and are exacerbated by external variables such as challenging patients and their families, interactions with doctors, a lack of institutional support for nursing, and the provision of subpar treatment. In addition, obligations like the requirement for ongoing education and professional growth as well as the emotional nature of the work all add to the daily and interpersonal stress experienced by nurses at work(Todd and Decry-Schmitt, 1996; Pino and Rossini, 2012). Nurses face a variety of professional responsibilities that lead to work-related stress. This stress is frequently accompanied by typical physical and mental symptoms such as exhaustion, headaches, anxiety, and decreased coping skills. Stress has a detrimental effect on nurses' well-being, health, and ability to provide patient care(Babapour, Gahassab-Mozaffari, and Fathnezhad-Kazemi, 2022).In addition to negatively influencing both the amount and quality of employment, occupational stress has been linked to numerous near-fatalities or accidents in healthcare settings, including service delivery(Lu *et al.*, 2012). According to(Wang, Kong, and Chair, 2011), stress has been associated with poor job satisfaction, decreased productivity, and an increase in occupational accidents and health complaints. It's a common misconception that if a staff member is fatigued, they would always misuse the equipment, endangering themselves, the product, or both. Stress has a substantial negative impact on one's health and well-being because of its strong mental impact. According to (Lu *et al.*, 2012)stress is associated with major causes of death such as heart disease, suicide, accidents, and cancer. Nurses have delicate occupations dealing with society's and people's health, and how well they perform affects both their health and the health of other members of society.

Work-related stress cannot entirely be eliminated from daily life, but it can be reduced with the right stress management strategies. Good stress-reduction strategies not only improve worker

satisfaction but also save medical expenses and boost productivity inside the company(European Agency for Safety and Health at Work., 2013). A wide range of coping strategies, including active coping, planning, suppressing competing activities, seeking instrumental support, seeking social support, positive framing, acceptance, denial, seeking a religious soothing, emotional ventilation, and behavioral or mental disengagement, are suggested by other scholars in addition to the problem- and emotion-focused coping(Scheier, Weintraub and Carver, 1986; Carver, Scheier and Weintraub, 1989). Coping mechanisms are therefore essential for managing stress at work and its concomitant stressors(Labrague *et al.*, 2017)as well as for improving the results of specific investigations.

Asian tradition has not thoroughly examined this idea of stress and coping mechanisms from a wider angle. Research on stress at work and coping mechanisms that simultaneously affect different professions in Asian nations is still lacking. Several systematic reviews on this topic focus just on nurses' coping mechanisms and stress(Teixeira *et al.*, 2015; Labrague *et al.*, 2017, 2018; Wazqar *et al.*, 2017).

As a result, the goal of this review was to methodically assess and summarise the body of research that addressed the following research questions:

1) What kinds of stress management therapies have proven effective?
2) Is there any evidence that coping strategies affect stress management?

**Methods Design:**

This study has been conducted in two sections, the first section is a bibliometric analysis conducted using Vos Viewer software in terms of countries, authorship, and citations and the second section is a systematic literature review by relevant criteria from the Preferred Reporting items for Systematic Reviews and Meta-Analyses (PRISMA). A PRISMA 2020 flow diagram was used to conduct the analysis. It consists of strategy, inclusion and exclusion criteria, eligibility, data abstraction, and analysis.

**Bibliometric analysis:**

To quantitatively assess scientific output, bibliometric techniques are applied(Dervis, 2019) It generates analysis, including statistical techniques that gather data regarding research activity using particular indicators(Valérie and Pierre, 2010). It makes it possible to study knowledge in a particular field through the examination of current literature by allowing the finding of developing trends in articles and journals(Verma and Gustafsson, 2020). The most productive authors, institutions, nations, and journals in a field of study can be found using this technique, together with information about journal impact, citation patterns, and research subjects and trends based on published work(De Bellis, 2009).

***Country-wise scientific productions:***

According to all author affiliations, 81 nations have contributed to the advancement of the field's study. Geographically, these nations are spread across North America, South America, Asia, Europe, Africa, and Oceania. According to Table 1, the three most producing nations were the United States of America (USA) (n = 546), China (n = 432), and Spain (n = 250).

**Table1: Scientific production country-wise**

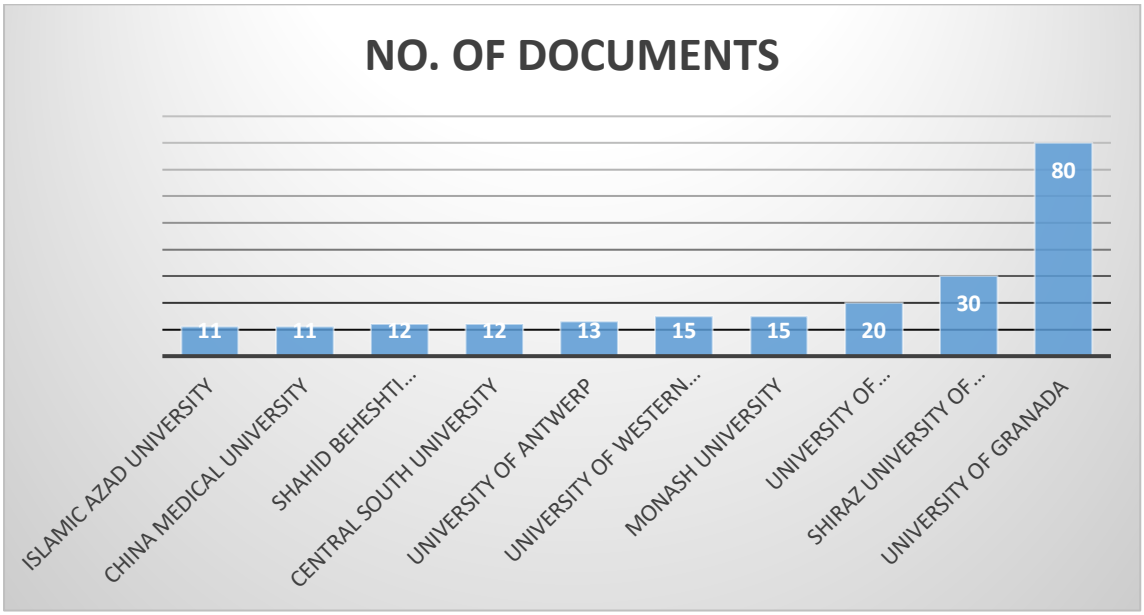
| Countries | Frequency of publication |
|---|---|
| USA | 546 |
| CHINA | 432 |
| SPAIN | 250 |
| IRAN | 205 |
| BRAZIL | 168 |
| TURKEY | 165 |
| UK | 132 |
| CANADA | 112 |
| AUSTRALIA | 108 |
| SOUTH KOREA | 105 |

**Source: Extracted Form VosViewer**

***Top 10 Most Relevant Institutions:***

The top 10 institutions are shown in Figure 1. Shiraz University of Medical Sciences (n = 30; 2.0%), University of Pennsylvania Central (n = 20; 1.0%), and University of Granada (n = 80; 6.0%) were the next most pertinent institutions. Iran had three of the top ten most important institutions, followed by China with two, the United States with one, Australia with one, Belgium with one, Spain with one, and Canada with one.

**Figure 1: Most relevant institutions**

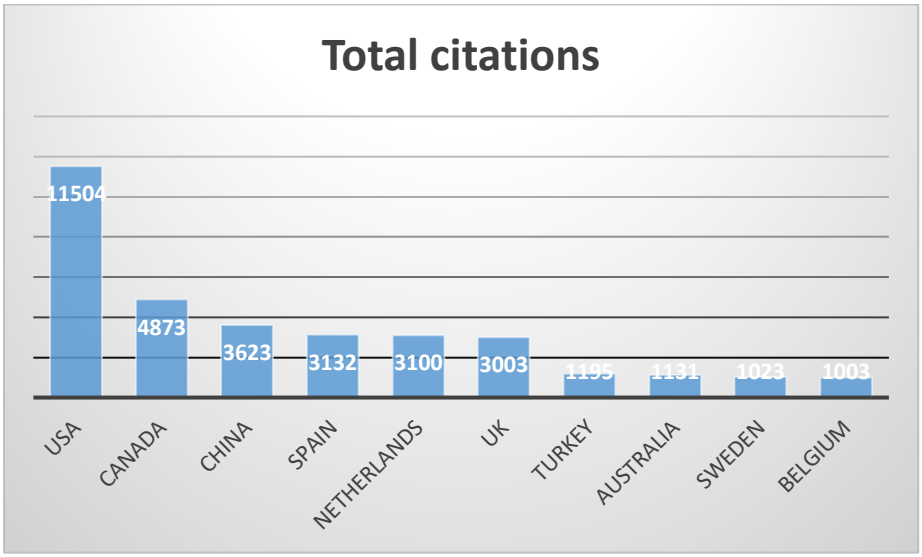



**Source: Extracted Form VosViewer**

***Most Cited Countries:***

The top 10 most mentioned nations that advanced the field's research are displayed in Figure 2. The United States of America (n = 11,504 citations), Canada (n = 4873 citations), and China (n = 3623 citations) were the three most cited nations. The USA had over twice as many citations as Canada, while China had almost four times as many citations overall.

**Figure 2: Most cited countries**



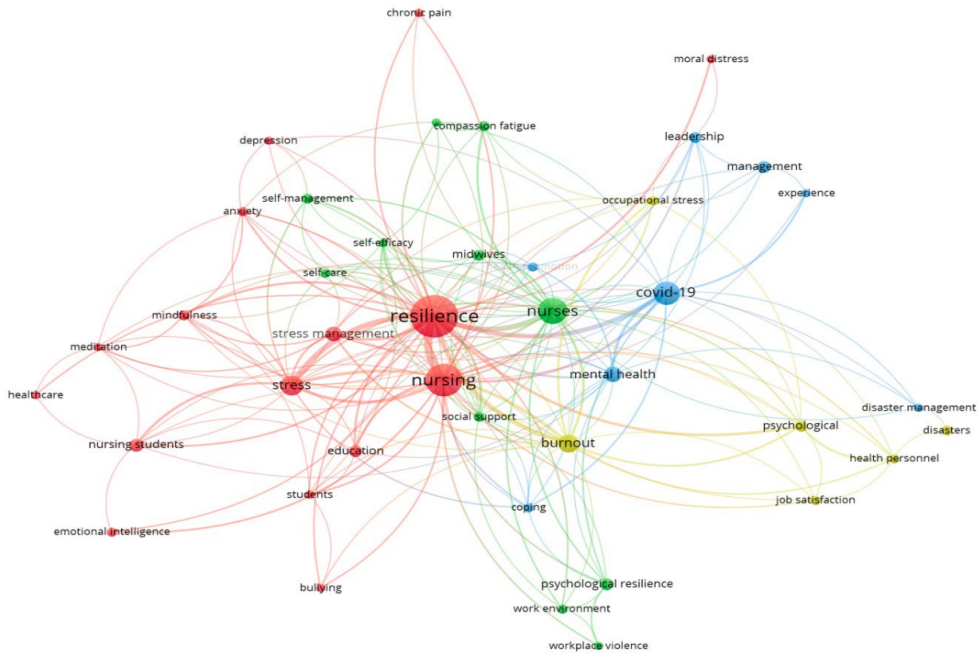

**Source: Extracted Form VosViewer**

***Trending Topics:***

Observations were made in the surveys about terms such as nurse (n = 85), burnout syndrome (n = 39), China (n = 19), patient safety (n = 18), and turnover intention (n = 17). The phrases mental health (n = 34), emotional tiredness (n = 32), resilience (n = 27), professional burnout (n = 25), and depression (n = 22) might be identified in 2020. Twenty-nine (n = 30), emergency department (n = 6), Spain (n = 5), qualitative research (n = 5), and the COVID-19 pandemic (n = 5) were the emphasized terms in 2021. The COVID-19 pandemic was proclaimed by the World Health Organisation (WHO) in March 2020. Given that many medical personnel interact directly with patients who are impacted by the disease, the studies that are conducted might accurately reflect the effects of this circumstance. According to recent studies, some health workers experienced psychological anguish, tiredness, and fatigue as a result of the pandemic(Lai *et al.*, 2020; S. Zhang *et al.*, 2020; Y. Zhang *et al.*, 2020). One area of unmet study need is how the pandemic may affect the mental health of medical workers(Duarte *et al.*, 2020).

**Figure 3:**

**A network map depicting the cooccurrence of keywords**




**Source: Extracted From VosViewer**

The scientific material that was obtained from the database was analyzed, and the results indicated that the years 2017–2018 served as a benchmark for resilience research (Fig. 3). Given the foregoing, it is appropriate to take into account the most current scientific advancements about this area of study. Consequently, using the bibliometrics analysis methodology(Soliman *et al.*, 2021) the results showed that four clusters were found, which broadly summarized the research on nurse resilience management (Fig. 3).

The largest red cluster indicates that the majority of the publications examined resilience issues related to nurses under the headings of stress and stress management, anxiety, depression, emotional intelligence, mindfulness and meditation, and chronic pain and education. According to (Taylor *et al.*, 2022) the stress levels of nurses and other healthcare professionals are higher than those of the general working population. (Lee and Kim, 2020)found that the workload stress experienced by nurses is greater than that of doctors, lawyers, teachers, life insurance agents, and engineers altogether. According to this perspective, it is pertinent to bring up the research conducted by (Slatyer *et al.*, 2018)which established a substantial negative correlation between occupational stress and nurse well-being. According to (Alharbi, Jackson, and Usher, 2020)it reduces their productivity and results in burnout and compassion fatigue. The authors concluded that self-care interventions based on mindfulness could enhance nurses' emotional states and increase their resilience through an efficient management technique after interviewing 91 nurses in an Australian tertiary hospital. The research examining the nurse's psychological elements including palliative care, self-efficacy, self-management, self-care, social support, and work environment are revealed by the second cluster (green). According to earlier research, social support from friends, family, and coworkers can help nurses develop their coping mechanisms, styles, and talents. Thus, it lessens the psychological strain experienced by nurses(Chang and Cho, 2021).

**Results derived from Bibliometric Analysis:**

Over the examined period (1978–2021), annual scientific output rose, showing an exponential growth rate (11.63%). Given that Burnout syndrome can affect a professional's mental health,

their ability to do their job, and the safety of patients they care for at various healthcare facilities, it is evident that there is a need to generate knowledge on the topic. By 2021, the ten most pertinent sources accounted for 32% of all articles. Four-thirds of the total citations came from the top ten sites. The Journal of Advanced Nursing, the Journal of Nursing Management, the International Journal of Nursing Studies, the International Journal of Environmental Research and Public Health, the Journal of Clinical Nursing, and the Journal of Nursing Administration were the only six journals to be listed among the top ten journals that were both highly cited and highly relevant.

The Journal of Nursing Administration and the Journal of Clinical Nursing. With an average of 3207 citations per piece, the articles earned 45,085 citations in total. The Journal of the American Medical Association produced the most cited article. The third most citations were made to this publication. When the number of published documents is taken into account, this source did not rank in the top ten most relevant ones.

One noteworthy finding from this study is that nurses who work in hospitals with higher patient-to-nurse ratios are nearly twice as likely to be dissatisfied with their jobs and more than twice as likely to experience burnout related to their work than nurses who work in hospitals with lower ratios.

In a study conducted with nurses from six nations—the United States, Canada, the United Kingdom (Scotland and England), Germany, New Zealand, and Japan—prevalence was measured. The highest rate of nurse burnout was seen in Japan. Conversely, the German nurses had the lowest rates of burnout. Compared to nurses from Japan and the USA, nurses from Canada, the UK, and New Zealand showed lower levels of burnout, but greater levels than those from Germany(Poghosyan *et al.*, 2010).

Studies addressing topics found in keywords—like professional burnout, patient safety, intention to leave, COVID-19, emergency room, resilience, emotional exhaustion, mental health, and depression—started to appear in the trend starting in 2019. It was interesting to see that these terms highlight potential areas of research and potentially point to future directions for the field. Regarding COVID-19, there is probably going to be a rise in the number of articles assessing how this epidemic has affected the mental health of professionals.

Some nurses reported moderate to severe emotional weariness and depersonalization during a month of working on the front lines of the COVID-19 epidemic(S. Zhang *et al.*, 2020). Health professionals reported much greater levels of anxiety and despair throughout the outbreak(Xu *et al.*, 2020). Due to the high demands of work, it becomes difficult to provide treatments or assistance that might help reduce stress and weariness because of time constraints(Dincer and Inangil, 2021).

**Limitation:**

The current study has certain limitations; for example, the sample consisted only of articles written in English. There may be articles in other languages with greater contributions, even if English is the language that is most frequently used in worldwide databases. Other than that, the analysis was conducted using only the databases from Scopus and Web of Science. To see if the results are comparable, it would be interesting to expand this investigation to additional databases.

The majority of the studies that were found have an emphasis on determinants, related factors, predictors, and prevalence. Few studies in the sample offer preventative methods, which

highlights the significance of conducting targeted research on nursing team interventions—particularly those aimed at lowering stress and burnout among these professionals. Studies assessing nursing professionals during the pandemic are presented in the sample under analysis. Furthermore, there weren't many studies on the subject throughout the outbreak. To expand the scope of the study and disseminate the results, it would be interesting to use the methodology in other databases for future research. This would enable the evaluated sample to grow. It is also possible to find additional factors and analyses that this study did not take into account.

**Search Strategy for systematic review:**

Web of Science and Scopus were two of the three electronic databases used in a methodical search technique. During the search procedure, keywords such as "stress", "work-related stress", "work stress", "occupational stress", "coping strategies", "coping skills", "coping", "cope", and "coping mechanisms" were used in the titles and abstracts. Following this procedure, 2332 documents from Scopus databases and 1321 documents from Web of Science (WOS) databases were obtained.

**Inclusion and Exclusion Criteria:**

One of the inclusion criteria was timeliness, and a ten-year window, spanning from 2010 to 2022, was chosen. The selection of journal (research article) document types that included empirical data as the main sources was the second inclusion criterion. To enhance the likelihood of obtaining similar papers, the third inclusion comprised articles published in the fields of business and management, organizational psychology, and social science. The fourth inclusion concerned region; in this review, only the Asian area was chosen. The fifth was centered around English-language publications. Choosing samples of workers from a variety of professions was the last inclusion. The systematic review, meta-analysis, book chapter, review papers, non-research papers, non-English papers, and samples other than staff members were among the exclusion criteria. As shown in Figure 4, a total of 1283 items were eliminated based on these standards. Following the identification process, 1783 of the screened documents were kept to verify their suitability for study.

**Eligibility:**

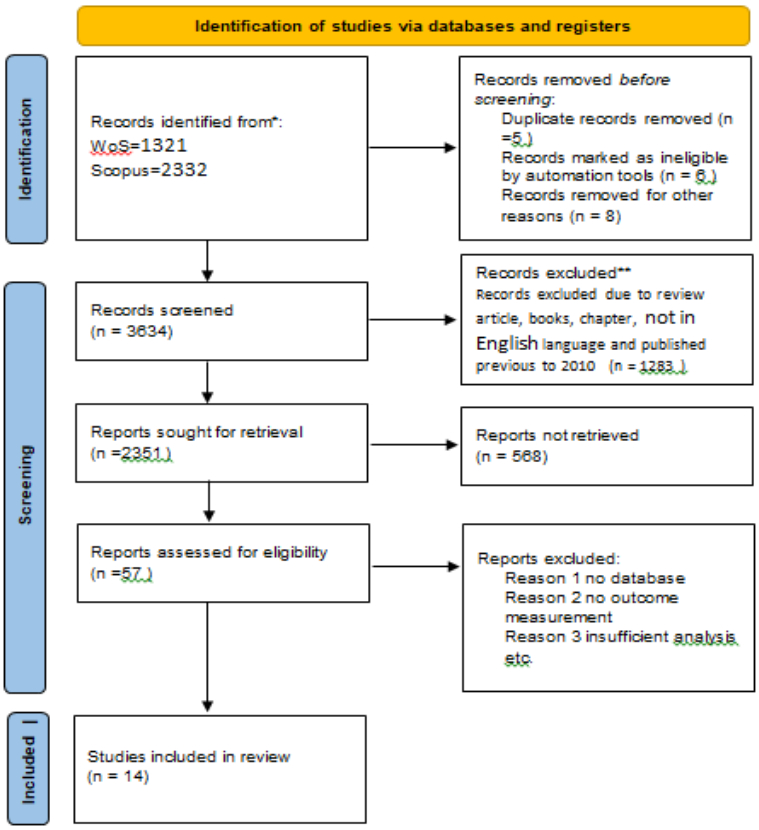
For the eligibility stage, the third step, 57 articles were prepared. The process of eligibility involves manually adding or removing articles based on the writers' particular standards. At this point, all article titles, abstracts, and primary contents were carefully reviewed to ensure they met the inclusion criteria and were appropriate for use in the current study to meet the goal of the research. The redundant documents were eliminated before the eligibility procedure. After comparable items were removed from both databases for the following stage, a total of eighteen articles were tracked down. Ultimately, 14 of the 57 articles still under analysis are prepared.

**Data Abstraction and Analysis:**

Once the eligibility process was completed, the remaining papers were assessed, examined, and examined. By reading the titles, abstracts, and then the entire texts of the publications (in-depth), the data were extracted to find pertinent themes and sub-themes for the current investigation. The following factors were taken into consideration during the review process: (a) the research design; (b) the type of stress; (c) the coping strategies used; (d) the sample selection; and (e) the study region. A total of 57 articles were found using the search method mentioned above. 43 papers were removed after reading the abstracts due to unrelated research

concerns. These excluded studies either didn't test the hypothesis that stress and coping mechanisms are related, or they looked at stress and coping mechanisms in patients, seniors, and students. There were still 14 articles after carefully going over the entire text.

**Figure 4: PRISMA framework for review**




**Interventions:**

A randomized controlled trial was employed in nine investigations (do Prado, Kurebayashi and da Silva, 2018; Gollwitzer *et al.*, 2018; Bernburg, Groneberg and Mache, 2019; Hwang and Jo, 2019; Lin *et al.*, 2019; Alkhawaldeh *et al.*, 2020; Ghawadra *et al.*, 2020; W.J *et al.*, 2021; Akyurek, Avci and Ekici, 2022) to examine the impact of the treatment on the stress level of nurses. But just three investigations(Prado, Kurebayashi, and da Silva, 2018; Bernburg, Groneberg, and Mache, 2019; Alkhawaldeh et al., 2020) used blind techniques. The remaining studies either did not record any attempts at blinding or did not use blinding protocols. A quasi-experimental design was employed in two research(Lary, Borimnejad, and Mardani-Hamooleh, 2019; Hsieh et al., 2020). Only five of the fourteen studies that made up the review's sample used psychological screening to determine whether or not study participants experienced high or moderate psychological stress before being asked to participate in the research(Prado, Kurebayashi and da Silva, 2018; Yang, Tang and Zhou, 2018; Ghawadra et al., 2020; W.J et al., 2021); (Singh & Jain, 2017).

**Table 2: Interventions and Results**

| Sl.no. | Author, year, place | Population | Interventions | Results |
|---|---|---|---|---|
| **1** | (Akyurek, Avci and Ekici, 2022) (Turkey) | RCT Female hospital nurses (15/15) | Progressive muscle relaxation, breathing posture exercises, 40 min × 5 weeks | Significant stress reduction in IG vs CG ($p$ = .041) |
| **2** | (Mandal *et al.*, 2021) (India) | RCT Hospital nurses (19/32) | Yoga, 50 min twice weekly × 12 weeks | Significant stress reduction in IG vs CG ($p$ < .0001) |
| **3** | (W.J *et al.*, 2021) (India) | Total (N = 30): Treatment (n = 15); Control (n = 15); Tertiary care hospital | Mahamantra chanting intervention for 45 days (20 min/day) Passive control group | ↓ serum cortisol (p = 0.012), SAA level (p = 0.04), glucose (p = 0.001), HbA1c (p = 0.041), total cholesterol (p < 0.001), LDLc (p < 0.001) and TGL (p = 0.17) ↑ HDLc (p = 0.033) |
| **4** | (Lin *et al.*, 2019) (China) | Total (N = 90): Treatment (n = 44); Control (n = 46); General hospital | PSS PANAS CD-RISC MMSS | ↓ stress and negative affect at T1 (p < 0.01) and T2 (p < 0.05) respectively ↑ positive affect at T1 and T2 (p < 0.05) and resilience at T2 (p < 0.05) No effect |
| **5** | (Bernburg, Groneberg and Mache, 2019) (Germany) | Total (N = 86): Treatment (n = 44); Control (n = 42); Psychiatric hospitals | 12-week mental health program (1.5–2 h/week) Waitlist control group | ↓ stress at T1 (p < 0.01), T2 (p < 0.01) and T3 (p < 0.01) ↑ for all additional outcomes at T1, T2and T3 (p < 0.05) ↑ program evaluation |
| **6** | (Ghawadra *et al.*, 2020) (Malaysia) | Total (N = 249: Treatment (n = 123); Control (n = 126); Teaching hospital | 4-week mindfulness-based intervention (2-hour workshop; self-practice guided by a | e intervention and follow-up 8 weeks after the intervention ↓ stress (p < 0.001), anxiety (p = 0.001) and depression (p < 0.001) over time ↑ mindfulness (p < 0.001) over time ↑ job satisfaction (p <0.001) |

| | | | | |
|---|---|---|---|---|
| | | | website) Waitlist control group | |
| **7** | (Hsieh *et al.*, 2020) (Taiwan) | Total (N = 135): Treatment (BT, n = 49; SDBT, n = 47) Control (n = 39); Psychiatric wards | 6-week BT (1 h/week) 6-week SDBT (once a week) Waitlist control group | ↓ stress ($p = 0.013$) in SDBT group ↑ depressive symptoms ($p < 0.001$), resilience ($p < 0.001$), and respiration rate for BT ($p < 0.001$) and SDBT ($p = 0.002$) |
| **8** | (Maran *et al.*, 2022) (USA, Europe) | Medical staff/ nurses | Animal program | Work stress/ satisfaction questionnaire, validated scales, and cortisol (serum/salivary) |
| **9** | (Berardo *et al.*, 2021) (USA) | Residents and faculty of neurosurgery | Wellness initiative | Well-being and self-care/stress scale |
| **10** | (Cheetham *et al.*, 2021) (Europe, Asia) | Nurses mostly | Education | Sharp and splash injuries, questionnaires, and hospital data |
| **11** | (Cocchiara *et al.*, 2020) (USA, Ireland) | Nurses (mostly) | Tai Shi program once a week | Scores of stress/ sleep/wellbeing |
| **12** | (Park *et al.*, 2022) (USA) | Nurses | Web-based program, e mental health condition, positive thinking on application. | Work functioning, job stress, mental health |
| **13** | (Pollock *et al.*, 2020) Sierra Leone /Liberia | Nurse and maternal health assistant | Training in the delivery of psychological first aid | Self-report questionnaire of burnout, mixed form Burnout scale/ProQoL5/compassion fatigue scale |
| **14** | (Tully, et al., 2023) | Acute-Care Health Professionals | 21-day gratitude journaling intervention | Stress significantly decreased post-intervention |

## DISCUSSION:

A comprehensive analysis of the literature on individual-level stress management interventions for nurses found a wide range of programs that fall into four main categories: (a) technology-based interventions for mental health and stress management, which can be administered via mobile apps or websites; (b) mindfulness-based and spiritual interventions; (c) programs with cognitive-behavioral components; and (d) programs addressing the body. Specifically, some signs of technology-delivered relaxation interventions and stress management interventions that combine self-care techniques, cognitive behavioral elements, and relaxation may be useful in lowering stress levels and enhancing the mental health of nurses. Previous evaluations of the literature have pointed to a variety of therapies that appear to be promising in this regard for reducing psychological discomfort(Delgado *et al.*, 2017; Bakker *et al.*, 2020; Ghawadra *et al.*, 2020). The need for interventions tailored to the new, overwhelming demands is highlighted by the rapid changes in healthcare systems and the unprecedented strain that nurses face, even though the data supports the effectiveness of these strategies in addressing stress. Mental health issues are indeed very common among healthcare professionals, particularly during and after outbreaks(Serrano-Ripoll *et al.*, 2020). Moreover, these issues are typically linked to a long-term mental health burden, which makes it more difficult to respond quickly to health dangers like the current COVID-19 situation.

Developing and implementing stress management strategies that are not only easily accessible in the workplace but also adhere to rigorous guidelines for minimizing human contact is crucial. In light of this, evidence-based interventions and self-care techniques for individuals in need that are provided via digital technology appear to be a viable way to counteract the negative psychological and physiological effects on nurses. For instance, a growing body of research, as of late, has examined the use of a self-help virtual reality (VR) protocol to help people relieve stress to mitigate the harmful effects of quarantine(Riva *et al.*, 2020). The routine is made to mimic a natural setting, and the user can engage in regular activities that are meant to promote relaxation and self-awareness. This concept could be used in a tough work environment where social contact limits are in place to strengthen nurses' resilience and generally improve their mental health. Consequently, more research will be required to determine whether ongoing usage of technology-based stress management and advancements in its technological capabilities will result in more positive outcomes and individually personalized self-help programs. Moreover, self-reported scales were the most widely used tool for evaluating the main effect of stress. Nonetheless, the current literature analysis found that certain interventions attempted to incorporate scientifically determined parameters to investigate the impact of created techniques on a physiological level. An excessive amount of stress at work might change the physiological processes that the body uses to try and restore equilibrium within. According to psychophysiological studies, experiencing a stressful event is linked to a high heart rate(Johnston *et al.*, 2016). This finding could be interpreted as a risk factor for the development of lifestyle disorders including depression and heart disease. Furthermore, persistent HPA axis activation may result in elevated stress hormone concentrations that compromise the immune system(Aguilera, 2011; Herman *et al.*, 2016).

Future studies could greatly benefit from the evaluation of certain stress biomarkers since it would enable researchers to more precisely and methodically characterize the results of their interventions while accounting for individual variances. People's reactions to possible stressors

are known to vary widely(Wen, 1998). Thus, a variety of individual-related variables, including gender, age, health, and personality traits, may control not just a person's physiological response to stress but also their capacity to mobilize coping mechanisms and overcome obstacles. It would be feasible to identify the psychophysiological mechanisms behind resilience processes and how physiological attributes are influenced by individual characteristics by recording physiological responses. This could therefore lead to a deeper comprehension of the human body and the application of practical stress-reduction techniques based on objective indices. Furthermore, specific physiological results can be linked to stress measures, which may have an impact on a person's health state. Additionally, they can lessen the confounding effects caused by response bias in self-report assessments(Landsbergis, Schnall, and Picketing, 1992; Bosma et al., 1997; Wen, 1998). Consequently, physiological indicators may be used in further research as indices to evaluate their efficacy in lowering stress and getting around some methodological problems with self-reporting. The present literature review has also pointed up a few other problems. The bulk of the included studies were planned and carried out in the United States, where there may be some subtle differences from other countries in the surrounding environment and the needs of nurses for mental health care. The scientific information and data gathered from studies on preventive programs could be helpfully adapted to the situation of nurses in non-US nations. However, there may be restrictions on how broadly and comprehensively the study's findings may be applied given that many nations have radically diverse healthcare systems(Edwards and Burnard, 2003)

Consistent with this, the majority of the authors of the interventions that were found acknowledged that the outcomes had limited generalizability. In actuality, it was discovered that the majority of the therapies were created for use in clinical settings, and they typically reported on tiny sample sizes or research populations that were homogeneous. However, no strategies for drawing large, random samples—such as those seen in aged care facilities, nursing homes, or homeless health care centers—were shown to be effective. In these settings, nurses may require more assistance and be more vulnerable to chronic stress and stress-related illnesses. Overall, research findings should be extrapolated with caution, and subsequent investigations may modify their approaches to account for the regional circumstances faced by medical practitioners. Another problem with the generalizability of the study findings that were retrieved is that effect sizes, a typical way to assess the clinical utility of therapies, were not included in many of the publications where p values were published. Because of this, it was challenging to compare the results, and one could wonder if they could be applied to different contexts. While earlier studies(Edwards and Burnard, 2003; Bakker *et al.*, 2020) on stress reduction in healthcare providers have also noted the same methodological issue, it remains concerning. Additionally, by creating ways to satisfy the needs of non-hospital-based institutions, future research may focus more on various nursing specializations (Bakker *et al.*, 2020). The lack of long-term follow-up data was one of the included studies' main limitations. Just nine programs out of the identified interventions showed a long-term change in the measured outcome, even though the majority of the studies effectively reduced work-related stress immediately after the intervention and highlighted the benefits of such interventions for enhancing nurses' mental health. After completing a stress management program, nurses may have had brief increases in stress at first, but they may have eventually reverted to baseline,

especially in the absence of ongoing assistance. Longer follow-up periods are therefore required for future interventions to more accurately determine the magnitude of their impact.

**Conclusion**

Self-care techniques and individual-level treatments are essential for tackling the expanding issue of stress among nurses. Still unanswered is what stress management initiatives would best support nurses in building their stress-reduction capabilities throughout the epidemic. To reduce stress and meet the current conditions that allow fewer human contacts, this systematic review of the literature emphasizes the urgent need for evidence-based preventive interventions that may be delivered through digital technology in conjunction with relaxation and cognitive-behavioral components. Research on mental health could undergo a significant shift if virtual reality (VR) is included as a stress-reduction technique. Furthermore, given that the group may be a valuable asset for fostering group wellness, we advise expanding research in which the team of healthcare workers benefits from the right coping mechanisms. Subsequent studies ought to pay more attention to the work environment by utilizing individual coping as a group resource.

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