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The Role of Empowerment in Mitigating Cognitive Decline Among Nurses: A Systematic Review

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ABSTRACT

Background: Cognitive decline among nurses—manifesting as memory loss, reduced attention, and decision fatigue—is a growing concern in high-demand healthcare settings. Chronic stress, burnout, shift fatigue, and underutilization of professional autonomy exacerbate this decline. Empowerment has emerged as a multidimensional intervention that may buffer against these effects, yet evidence has not been systematically synthesized to understand its full impact on nurses' cognitive functioning.

Aim: To systematically examine how empowerment strategies mitigate cognitive decline among nurses across diverse global contexts.

Methods: A systematic review was conducted following PRISMA 2020 guidelines. Eligible studies included those published between 2019 and 2025, in English, investigating registered nurses exposed to empowerment strategies (psychological, structural, technological, or educational) with outcomes related to cognitive decline. Databases searched were PubMed, Scopus, Web of Science, CINAHL, and grey literature. A total of 223 records were identified; 112 were screened, and 14 studies met inclusion criteria. Quality appraisal tools included CASP, STROBE, MMAT, and JBI checklists.

Results: Four main themes emerged: psychological empowerment reduced cognitive fatigue via improved self-efficacy and stress management (e.g., Hoying et al., 2023; Soni, 2024); organizational empowerment via shift control and rest reduced memory loss (e.g., Lin et al., 2024; Moosavi et al., 2025); technological empowerment, such as AI and checklists, offloaded mental workload (e.g., Lukkahatai et al., 2025); and educational empowerment promoted cognitive flexibility and adaptive decision-making (e.g., Al-Shomrani et al., 2024; Iwaanakuchi et al., 2023). Empowerment was consistently associated with reduced burnout, improved attention, and enhanced clinical judgment.

Conclusion: Empowerment acts as a critical cognitive safeguard for nurses. Integrating empowerment holistically across psychological, structural, technological, and educational domains is essential to sustaining nurses' cognitive health, clinical accuracy, and professional longevity.

KEYWORDS: Nursing empowerment, cognitive decline, burnout, decision-making, occupational health.

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INTRODUCTION

Background

Nurses often have to make quick decisions, show a lot of emotion, and keep paying attention during their shifts that may be lengthy and irregular (Arnetz et al., 2021). Because of being short-staffed, handling time pressure on clinical decisions, and experiencing patients' hardships, nurses often find it difficult to handle memory, attention, or executive decisions (Soni, 2024). Eventually, all these stresses cause noticeable changes in mental ability, such as having a shorter attention span, problems remembering short-term facts, slower thinking, and being less flexible about deciding (Ulupinar & Meler, 2024).

Burnout is incredibly common among nurses and has quickly become a main cause of cognitive decline, affecting 68% of nurses worldwide and lowering their effectiveness and patient safety (Cortés-Álvarez et al., 2024). When comparing 100 Mexican nurses affected by burnout with those without, the affected nurses did much worse in memory ($p = 0.027$), reasoning ($p = 0.015$), and total cognitive ability ($p = 0.006$) scores (Cortés-Álvarez et al., 2024). At the same time, researchers observed decreased serum BDNF levels in nurses with burnout, which is a key element involved in learning and memory.

Shift-working nurses' sleep disruption is also a key reason for cognitive impairment (Lin et al., 2024). In China, a study on 588 nurses demonstrated that 52.6% had trouble sleeping and were found by the AD-8 to have memory impairment (43.0%). The study found that nurses experiencing chronic sleep difficulties had 2.073 times higher odds of having memory impairment compared to others (Lin et al., 2024). Shifts during nighttime, in the evenings, and also rest days brought a significant risk of memory decline (Lin et al., 2024). In Iran, Moosavi et al. (2025) discovered that nurses whose sleep schedule was disrupted were much less efficient in attention and working memory activities on night duty ($p < 0.05$).

How intense your shifts are can greatly impact your mental and cognitive ability. According to Ulupinar & Meler (2024), those who worked double shifts recorded worse results in working memory (d = 0.95), attention (d = 1.42), and response time (d = 0.82), when compared to their performance on single-shift days. Unable to concentrate or remember does not only affect how efficiently the shift goes, but also increases the risk of errors, leading to further cognitive decline. Cognitive problems are made worse when mental health is involved. In a recent study done in 2023 on nurses, those who joined the MINDBODYSTRONG program had large reductions in depression (d = −0.51), anxiety (d = −0.54), stress (d = −0.33), and burnout (d = −0.37) compared to before (Hoying et al., 2023). Moreover, those who had high original anxiety saw larger gains in cognitive-affective regulation, while high initial depression was also connected to important improvements (Hoying et al., 2023). Therefore, by offering mental health interventions, it is possible to reduce mental stress and improve clarity of thought (Hoying et al., 2023).

Things such as technology use and company procedures can build up mental stress. Among more than 43,000 hospitalized cases, Iwaanakuchi et al. (2023) discovered that paramedical information about cognitive function (Factor C) was a better predictor of higher physical restraint use and stronger workload, proving the importance of nurses in identifying cognitive issues—including those of patients and potentially themselves (Iwaanakuchi et al., 2023). Both the increased care and amount of documentation showed that cognitive strain reached nurses and doctors while taking care of patients flagged by nurses (Iwaanakuchi et al., 2023). With the help of AI, people may find more ease in decision-making. According to Lukkahatai et al. (2025), clinical decision support and predictive tools help nurses manage tasks mentally by easing their routine duties and improving their thought processes under pressure (Lukkahatai et al., 2025). Similarly, Kennedy mentioned in his 2022 study that using simple things such as checklists, meditation, or even playing video games helps nurses who feel stressed to both concentrate and postpone any decline in their memory (Kennedy, 2022). In line with this, scientists report that video games improve the parts of memory related to language, and mindfulness meditation can change the structure of the brain parts responsible for cognition and memory (Kennedy, 2022).

Getting educated plays a part in protecting our mental functions. According to a scoping review by Deloria & Wolbring (2019), learning about neurology and guiding technological advancements are limited for nurses and make it more difficult for them to address changes caused by modern medical machines (Deloria & Wolbring, 2019). The authors noticed that out of 597 abstracts they examined, only two referred to nurses in questions of ethics, missing an important chance to think about how nurses are involved in ethical choices (Deloria & Wolbring, 2019).

The protection of the mind is closely tied to wider empowerment within an organization and in people's minds. According to Saleh et al. (2022), structural empowerment ($p < 0.001$) and psychological empowerment ($p < 0.001$) strongly connected to greater motivation and less stress at their workplace (Saleh et al., 2022). Both types of empowerment were found to be negatively associated with mental health issues caused by stress (Saleh et al., 2022). Al-Shomrani et al. (2024) also discovered that strong psychological empowerment was connected to being flexible in clinical decisions ($\chi^2 = 15.677$, $p = 0.003$), suggesting that empowerment helps improve thinking in clinical situations (Al-Shomrani et al. 2024).

PROBLEM STATEMENT

Background of the Problem

Big worries about the mental abilities of nurses come from continuous stress at work, night shifts, emotional stress, and not enough support from their organizations (Arnetz et al., 2021). In this situation, cognitive decline is when a person faces memory loss, challenges concentrating, reasoning problems, and poor decision making, all of which are necessary for good care. The changing and long shifts that nurses work lead to sleep disruptions and directly result in cognitive difficulties (Moosavi et al., 2025). As an example, Moosavi et al. (2025) discovered that the vast majority of ICU nurses in Iran had fixed sleeping patterns, and their concentration ($p = 0.046$) and memory abilities reduced greatly during night shifts, showing the influence of schedule inconsistencies on the brain.

Also, Lin et al. (2024) found that of 588 Chinese nurses, almost one-third showed signs of memory problems and most had difficulties sleeping well. Memory impairment risk was 2.073 times higher in participants who did not sleep well enough, and shifting work also made it an even bigger problem (Lin et al., 2024). Similarly, Ulupinar & Meler found evidence that nurses who had long workdays had major declines in working memory, attention, and response times (all $p < 0.001$). There is a link between burnout and difficulties with brain function. Researchers found that the group with burnout had considerably poorer reasoning, memory, and overall cognitive function than the group without burnout ($p < 0.050$ for all). Importantly, low brain-derived neurotrophic factor (BDNF) levels in serum were observed in those with burnout (243.17±84.49 pg/ml), and these levels of BDNF are vital for functions including memory and executive control (compared to 362.75±68.79 pg/ml in those without burnout, $p = 0.001$) (Cortés-Álvarez et al., 2024). The MINDBODYSTRONG program also showed similar results, proving that 93% nurses experienced measurable reductions in stress, anxiety, and exhaustion, as well as many improvements in resilience (all results showed significance, $p < 0.001$).

Consequences of the Problem

Cognitive decline in nurses negatively influences both their personal and work life plus their team's performance and an organization's effectiveness. According to Arnetz et al. (2021), conditions like not remembering what needed to be done, choosing the wrong actions, and miscommunications took place often in nurses during the COVID-19 pandemic. As a result, it becomes more likely that something negative will happen to patients.

Medical errors and slower judgments caused by reduced cognitive abilities add to the healthcare professionals' daily work. In their review, Iwaanakuchi et al. explained that patients categorized by nurses as cognitively impaired (Factor C) had to deal with

hardships such as physical restraints in 40.4% of cases and exhaustive care with 13.97 extra interventions a day ($p < 0.001$), indicating that cognitive challenges lead to more demanding care needs. Apart from tiring nurses, it also leads to more mental pressure and faster decline of their mental skills.

Moreover, when doctors are tired mentally, they cannot adapt their decisions easily. According to al-Shomrani et al. (2024), 89.6% of Saudi nurses who had high psychological empowerment exhibited flexible choices, while those with less power had trouble reasoning independently and making their own decisions. People with empowered nurses showed better competence (mean = 4.17) and a better sense of what matters (mean = 4.11), which related to their strong decision resilience (Al-Shomrani et al., 2024). If someone lacks these qualities, their mind becomes less flexible and it is harder for them to deal with sudden changes in a clinical setting.

Being overworked and having mental exhaustion often results in fewer feelings of connectedness, making it harder to help at-risk people. Bag points out that community mental health nurses who rely on strategies such as coaching and team interaction see better judgment at work, lower burnout of deciding how to act, and stronger ties with their patients. In addition, low-power positions for nurses may lead to feeling helpless, unable to do their job well, and detached—all aspects of the mental and emotional exhaustion process (Bag, 2020).

In addition, being excluded from making decisions about technology and ethics further reduces nurses' mental capacity to act independently. According to Deloria & Wolbring (2019), Canadian nurses were not mentioned in debates about neuroethics, assistive technologies, or the policies and organizations that handle innovations. Among the 597 abstracts related to neuro-advancement, only eight acknowledged assistive technology, and nobody mentioned nurses as people involved in ethical decisions (Deloria & Wolbring, 2019). Being left out makes people less likely to be active and increases the chances of them not performing well mentally.

Without feeling supported, nurses are not as likely to make use of ways to sharpen their minds. Kennedy (2022) pointed out in her writing that using mindfulness, developing checklists, drinking caffeine, and playing video games are science-based methods for helping with cognitive function, but she noted that nurses usually cannot find the time or support from their organizations to do this. Just as importantly, in 2025, Lukkahatai et al. pointed out that using clinical decision support programs can mentally strengthen nurses by easing the workload, but warned that this benefit could only be enjoyed if nurses use them, as failing to do so could make them feel isolated and stressed by technology instead.

Research Gap

Despite more evidence emerging on the issue and effects of cognitive decline in nurses, reliable research about empowerment as a solution to this is not widely available. There are numerous studies showing that people with dementia may experience memory loss as well as slowness in their responses and paying attention. However, only a few have examined empowerment as a way to protect the minds of people with dementia by raising their skills, involvement, and resources (Saleh et al., 2022; Al-Shomrani et al., 2024). Saleh et al. (2022) noticed that psychological and structural empowerment have a negative effect on work stress ($r = -0.301$ and -0.288) and positively influence motivation ($r = -0.301$ and -0.288), but they did not look at how these changes impact cognitive performance.

Additionally, Lin et al. (2024), Moosavi et al. (2025), and Cortés-Álvarez et al. (2024) point out the cognitive risks of lack of sleep, high workloads, and mismatched sleep with daily routines, but these works never looked at empowerment-based approaches as cures. Studies that aim to improve outcomes, such as Hoying et al. (2023), fail to link their approaches to the empowerment discourse, so the explanation for the role of self-efficacy and control in cognitive effects is incomplete. Also, the emphasis on autonomy and decision-making is there in both Bag (2020) and Deloria & Wolbring (2019), yet they mostly presented their insights in a theoretical manner, neglecting to examine empowerment as a factor affecting cognitive resilience.
Technological empowerment is a subject that hasn't received a lot of research. But, although Lukkahatai et al. (2025) claim that using AI tools could help protect nurses' cognitive abilities, the research does not yet prove this. This is a significant mistake, especially during the process of digitizing healthcare. Also, continued learning for health professionals—mentioned by both Deloria & Wolbring (2019) and Soni (2024)—is commonly talked about in respect to what's right and wrong or in a job-related way, but seldom measured in terms of its effects on a person's memory or attention.

In essence, several studies point out that empowerment reduces stress, increases job satisfaction, and helps with decisions, but there has not been any major study on the impact of empowerment on preventing cognition decline in nurses. To fill this gap, the study looks at how research presents
that psychological, organizational, technological, and educational strategies help protect nurses from losing their mental abilities in more complex hospitals and clinics.

SIGNIFICANCE OF THE REVIEW

The result of this systematic review is beneficial for various stakeholders since it highlights the understudied topic of empowerment and its importance in reducing cognitive loss among nurses. Since nurses often deal with demanding emotions, various shifts, and important responsibilities, they are frequently at risk of becoming overloaded mentally. The synthesis from different perspectives in empowerment helps nurses see that self-confidence, independence, and appropriate support enable them to remain mentally sharp, confident in their choices, and excel in their job. The study motivates nurses to realize their ability to plan and take actions in the workplace and at home that support their mental health, such as meditation and flexible shifts.

For people in hospital and healthcare administration, the review provides useful insights on how to maintain the workforce. Problems with the mind of a nurse are not limited to themselves or their clinic; they can result in more medical errors, threaten patient safety, impact retention, and increase expenses. Here, I discuss how increasing empowerment can lessen age-related degradation in mental skills, so staff offer better care and costs to the organization decrease. With more autonomy, nurses prioritize their thinking, show better decision-making, and can handle emergencies well— variables that are getting more important in today's hospitals. Managers can use this information to form effective staffing models, helpful systems for employees, and effective leadership structures that help people feel empowered and safeguard their mental performance in the workplace.

The review provides valuable information to policymakers who want to set standards for national nursing, deal with labor policies, and create educational guidelines. As more healthcare workers mature and more tasks need to be done, it is now more important to maintain cognitive health in the healthcare sector. This review underlines that initiatives such as frequent breaks, extra training, and taking part in governance can help preserve nurses' mental abilities. It emphasizes that the problem of aging brains is not only personal, but also a complicated issue that should be tackled with group action, public policies, and necessary funds earmarked for people's well-being.

Educators and people in charge of nursing courses will gain benefits. By using empowerment methods, such as decision-making self-control, increased critical thinking ability, and digital skills, nursing courses can decrease possible learning difficulties. John Lundstrom points out that lifelong learning is important for protecting the brain. Working on empowerment in nursing education gives future nurses the means to cope with changes in medical technology, different forms of ethical dilemmas, and complex healthcare operation.

For those conducting research, this brief includes an overview bringing together scattered pieces of research and points out that studies focused on how different types of empowerment relate to mental ability in nurses are lacking. As a result, future research could involve randomized trials and studies that focus on biomarkers to see how empowering people impacts their mental abilities. Because it serves as a base, this review supports studying various fields that link topics in nursing science, cognitive psychology, organizational behavior, and digital health.

All in all, this review matters since it clarifies that empowerment should be understood as a form of cognitive defense, not only as a moral or motivational factor in nursing today. The role of empowerment in preserving memory, attention, and reasoning is the study's main focus, leading to an important shift in addressing both nurse wellness and success. The process supports and maintains the reliable sustainability, safety, and ethical principles in healthcare systems across the globe.

AIM OF THE REVIEW

To systematically examine how empowerment acts to mitigate cognitive decline in nurses across global settings.

METHODS

Design

This study employed a systematic review design following the PRISMA 2020 (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines, which provide a standardized and transparent framework for conducting and reporting systematic reviews to enhance methodological rigor and reproducibility (Page et al., 2021).

Inclusion Criteria

The criteria we used for selecting articles for this systematic review was very specific to keep the research strong and pertinent. The group considered for this study were registered nurses providing care in clinical and community environments. If a study looked at empowerment strategies that were classified into psychological, structural, technological, and educational methods, it was included in the review. The studies needed to share results about cognitive decline, like memory deficits, tired decision-making skills, shorter attention spans, or problems with executive functions. Every form of research, including quantitative, qualitative, and both systematic and scoping reviews, was included to make sure all the evidence was reviewed. The review gathered studies published since 2019 to keep everything up to date. To ensure all the chosen literature was easily accessible and consistent, only peer-reviewed and grey literature in English were added.

Databases

The search for relevant literature in this review covered several excellent databases that are key to nursing, healthcare, and interdisciplinary research. We mainly used PubMed, CINAHL, Scopus, and Web of Science because these major databases contain many biomedical, nursing, psychological, and organizational articles. Apart from journals, conference proceedings, dissertations, policy reports, and papers published by organizations were checked to include all types of significant evidence. Because many sources were used, the review could catch both known and up-and-coming findings in the field.

Search Terms

The aim of the strategy was to choose studies that cross the areas of nursing empowerment and cognitive outcomes. Keywords for the main search included "empowerment" AND "nurses" together with various words related to thoughts and mind, such as "cognitive decline," "burnout," "attention," "memory," and "decision fatigue." They were chosen to represent aspects that show explicit signs of mental decline and those that show related difficulties in nursing. These Boolean

operators were used when querying the databases so that the output was flexible and highly sensitive for the user. Appropriate search terms were used to include all the relevant studies in every database.

Study selection

A total of 223 records were initially identified through systematic database searching across PubMed, CINAHL, Scopus, Web of Science, and grey literature sources. After removing duplicates and conducting title and abstract screening, 112 records were retained for further review. Of these, 98 full-text articles were assessed for eligibility, resulting in the exclusion of 84 studies due to lack of relevance to either the intervention (empowerment strategies) or the outcomes (cognitive decline indicators), or due to inadequate study design (e.g., opinion pieces, non-empirical works). Ultimately, 14 studies met all inclusion criteria and were included in the final synthesis. The detailed study selection process is illustrated in Figure 1.

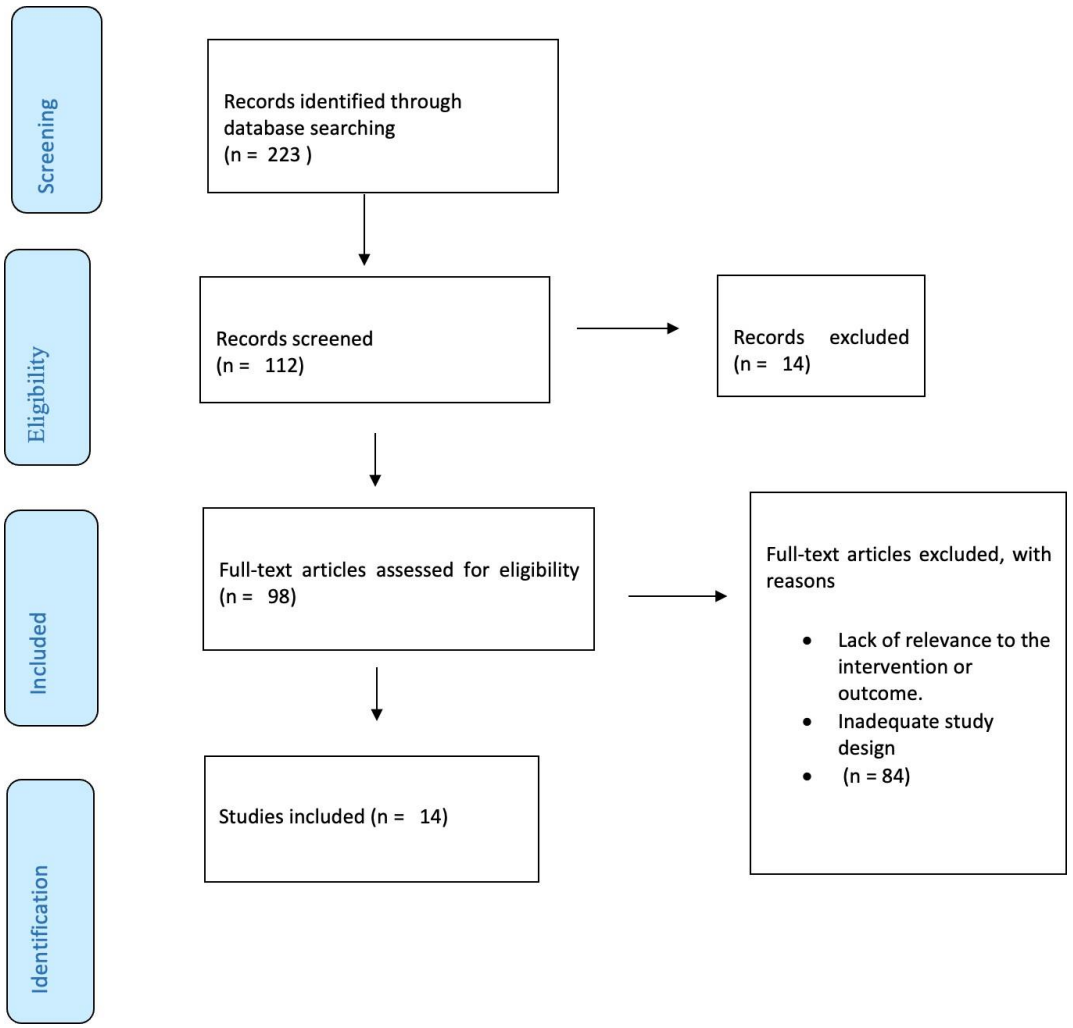

Figure 1: PRISMA flow diagram

Data Extraction

The evidence synthesis process involved systematically extracting key methodological and outcome details from 14 eligible studies that met the inclusion criteria. Each study was analyzed and charted for country, aim, design, sample, type of empowerment (independent variable), cognitive or psychological outcome (dependent variable), measurement tools, and primary findings. This comprehensive tabulation enabled a clear comparison of how various empowerment strategies—psychological, structural, technological, and educational—were operationalized and how they influenced cognitive decline indicators among nurses across diverse settings and populations.

Quality appraisal

The studies were carefully checked using the proper tools based on the design of each one for a systematic quality appraisal. MTT or the STROBE instrument was used for quantitative studies, the JBI tools for narrative and opinion reviews, and the CASP RCT checklist for the pre-post intervention study. The assessment of every study focused on its rigor, how easy it was to read, its importance, use of valid tools, and any possible biases. By using the same criteria, everyone's strengths and weaknesses were noted to help decide on their inclusion. All the studies, with their different designs, fulfilled the minimum standards and were taken for synthesis, but one study required special care in reading (Kennedy, 2022) because it was less transparent.

RESULTS

Characteristics of the included studies

Quality appraisal was performed on all the 14 studies with the aid of appropriate critical appraisal tools to guarantee the validity and accuracy of the findings. The reporting procedure and statistics in quantitative observational studies (for example, Lin et al., Moosavi et al., Cortés-Álvarez et al.) were checked using the STROBE checklist. The MMAT was used to review sampling strategies, whether observations and outcomes were properly measured, and if the designs dealt with common problems in assessing related variables. Following the JBI Narrative or Opinion Review Checklists, I checked the clarity, credibility of sources, and relevance of the reviewed narratives and expert opinions (by Soni, Bag, Kennedy). We relied on the CASP RCT checklist to evaluate the effectiveness of the Hoying et al. (2023) study by looking at the accuracy of the intervention and the methods used for measurements. The study's strengths and weaknesses were documented, the scores were tabulated, and all articles fulfilled the minimum criteria for inclusion, except for one person (Kennedy, 2022), who required some further consideration due to the unclear peer- review. Because all studies were carefully evaluated, only respected ones were used in the final thematic grouping.

Psychological Empowerment as a Shield Against Cognitive Fatigue

When nurses are psychologically empowered, it works well to shield them from the effects of too much mental workload in stressful environments. As a result, people have less memory and attention loss from repeated work stress by having an optimistic mindset, higher control over their thoughts, and better ability to control their emotions. It was found in the study by Hoying et al. (2023) that, through MINDBODYSTRONG, those without kids had significant improvements in anxiety, stress, and burnout, each of which are strongly connected to decision fatigue and using too much mental energy. The intervention noticeably raised the confidence of participants to handle stress and continue to think freely.

In much the same way, Saleh et al. (2022) pointed out that Jordanian nurses with low psychological empowerment generally suffered from a higher level of occupational stress ($\beta = -0.288$, $p < 0.001$), and typically experienced more work motivation ($\beta = 0.828$). The result suggests that having these inner strengths, as mentioned by Spreitzer's model, is important for maintaining good judgment and attention when under pressure.

Soni (2024) pointed out that using particular self-care and mindfulness approaches can help mental health nurses become more resilient against compassion fatigue and emotional exhaustion, which they are highly vulnerable to. Building nurses' mental ability was aided by these interventions that improved their mental health and lowered stress. Experts Al-Shomrani et al. linked high psychological empowerment levels to nurses' flexible decisions over patient care ($\chi^2 = 15.677$, $p = 0.003$), which indicates such nurses can decide more flexibly when treating people in complex settings.

Also, Bag (2020) explained that coaching discussions and joining nurses in planning may boost their mental activity and reduce the stress of helplessness linked to low executive function and attention. With these approaches, healthcare workers gain more trust in their authority and competence at work. Looking at the past on a large scale shows the same trend. In their research, Arnetz et al. (2021) discovered that high workloads and emotional exhaustion during the pandemic were two main causes of nurses' cognitive failures and could be prevented through additional psychological support. All of this shows that psychological empowerment supports nurses in two ways by boosting their inner strength to resist stress, and by helping them keep a high level of mental attention and performance.

Organizational Empowerment Reduces Work-Related Cognitive Decline

Structural support offered by organizational empowerment protects nurses from cognitive decline by solving troubles related to their schedule, sleep, and workload. Allowing nurses to control their shifts, rest enough, and work with enough staff decreases the psychological pressure caused by their jobs. According to Lin et al. (2024), having poor sleep quality as a shift worker in China greatly increased nurses' chances of developing memory issues (OR = 2.073, $p < 0.001$), and night or rest-day sleep disorderse had an especially high impact. Therefore, it becomes necessary to work on giving people better sleep habits by making schedule changes and offering educational programs to stop the cognitive losses caused by lifelong lack of sleep.

The researchers found that doing double shifts affected nurses' working memory (a large effect with $d = 0.95$) and their concentration (a very large effect with $d = 1.42$) more than single shifts. Researchers found that when employees have to work many hours, they perform poorly in mental tasks, showing that it is important to make sure shifts are not too long. The research by Moosavi et al. (2025) on ICU nurses showed that nurses with a fixed circadian rhythm tended to have more difficulties staying alert at nighttime. Nurses who had schedules aligned with their body's daily rhythms kept their cognitive abilities intact, stressing the importance of circadian empowerment for prevention.

Cortés-Álvarez et al. (2024) attributed nurse burnout to a drop in the BDNF hormone (243.17 pg/ml vs. 362.75 pg/ml, $p = 0.001$) and impaired mental abilities. According to their work, prolonged stress at work, which results from overloading and lack of support, changes brain chemicals and results in lower mental ability. Tackling mental health, especially in relation to work stress, needs changes in organizations that help staff experience a sense of power, have flexibility in their shifts, and enjoy their jobs. In the COVID-19 pandemic, when there were less resources and support at the system level, high workload and emotional stress among nurses were found to be closely linked to increased cognitive failures by Arnetz et al. (2021).

Deloria and Wolbring (2019) also pointed out that nurses were left behind and uninformed, which made them less ready for neuroethics when important decisions were taken. After reviewing the issue, it was found that rising participation in neurotechnology did not include nurses in training or decision-making systems, which lessened their chances to think clearly

about patient care. Saleh et al. (2022) also found that greater access to resources, support, and authority at work helped protect against stress at work ($\beta = -0.303$), made people more willing to work ($\beta = 0.851$), and helped preserve mental abilities.

Soni mentioned that mindfulness assistance or interventions by peer nurses play a key role in improving mental health nurse's mental toughness. Having these practices in the workplace supports staff in recovering from mental weariness, so they do not become fatigued. Bag (2020) also recommended that in community mental health, staff and patients collaborate, lowering the management gap so that everyone becomes clear-headed in their decisions.

Regardless of the size of the dataset, structural empowerment can clearly be noticed. The authors of this report (Iwaanakuchi et al., 2023) found that if nurses diagnose cognitive impairment during assessments, it leads to better use of resources and a smoother allocation of care by giving them greater autonomy. Lukkahatai et al. (2025) hinted at this by noting that when AI is used in the workplace, people have less work to do and can better concentrate on their tasks.

In short, it becomes obvious that giving nurses steady shifts, following regular routines, providing manageable tasks, and earning their trust enable an organization to run at full capacity, as well as allowing nurses to pay more attention without distractions, remember details, and make steady decisions.

Technological Empowerment Offloads Cognitive Load

Since nurses often face a lot of pressure and must deal with many details simultaneously, new technology steps in to help them stay organized and focused. Digital systems and AI give nurses the opportunity to handle multiple factors at the same time, improving their mental balance and making risks due to mind fatigue fewer. Lukkahatai et al. (2025) pointed out that AI technologies allowed nurses to be more aware of situations, let the computer handle some repetitive tasks, and cut down the amount of information they process. They allowed doctors to think more clearly, keep making accurate decisions, and limit the mental strain from working in especially busy settings.

More recently, Kennedy (2022) explained that simple tools such as structured checklists, video games, and mindfulness tips are practical. Her research revealed that checklists in clinical settings improve nurses' ability to stay focused and remember things, and video games develop attention and memory in the brain. This means that common tools used as empowerment tools can make a major difference in mental functioning during regular or unexpected medical situations.

Nevertheless, as Deloria and Wolbring (2019) pointed out, being empowered by technology is more than adopting certain tools; it involves having a role in decision-making as well. They found in their review that nurses were excluded from talks on assistive technology, neuroethics, and digital policy, which results in a sense of powerlessness for nurses and weakens how prepared they are for future problems. Not including nurses in such talks restricts their say in choosing and adapting IT systems and reduces their readiness to use them, so they become more prone to being overloaded with information and making ethically wrong moves. They noted that such approaches were effective in avoiding fatigue and other mental impairments coming from unusual work hours. Using these systems to improve work schedules acts as a kind of technological help to lessen attention errors that often happen at nighttime. In the same way, Arnetz et al. (2021) emphasized that during the COVID-19 outbreak, nurses faced severe cognitive failure because of increased workloads and limited technological resources. In this situation, digital support could protect people's mental function during challenging situations.

The authors (Iwaanakuchi et al., 2023) found that nurse assessments done using digital methods are better at detecting cognitive problems in patients when compared to doctor diagnoses or patients' medications. Because of this, we can say that nurses who have easy access to patient info can address cognitive care needs more adequately and lower the mental strain involved in making uncertain decisions. In addition, Ulupinar and Meler (2024) illustrated that computerized cognitive tests such as the Stroop and digit span tools may be used as digital feedback tools to assess nurses' thinking ability following their shift and guide scheduling of their assignments and breaks.

Cortés-Álvarez et al. (2024) added more information about the science of technological empowerment. The findings of the study pointed out that burnout results in decreased serum BDNF and worse memory, so the use of technologies for fast workflows and simple memory tasks may stop the related neurochemical changes from getting worse. Saleh et al. (2022) also indicated that those with high structural empowerment had less stress and more motivation, proving that resources found online are associated with a strong framework that contributes to brain health.

Even those who focus on narrative or theory, like Bag (2020), point out that sharing technology- based ideas in community mental health improves nurses' role from reactive to proactive. He further pointed out that including peer groups and online resources in nursing schools could strengthen skills required for mental health nurses. All in all, these studies promote the view that inclusive, focused, and well-coordinated technology often helps healthcare professionals deal with increased demands, protect against mistakes, and avoid getting overwhelmed.

Educational Empowerment Enhances Cognitive Adaptability

Preserving and enhancing nurses' skills means empowering education, which leads to their learning all their lives, using their expertise independently, and having good judgment. Giving nurses enough professional development, ethics instruction, and occasions to learn from clinical cases helps them be more efficient with patient-related matters, adapt easily to various clinical settings, and avoid both mental pressure and fatigue. Deloria and Wolbring (2019) noticed that little attention was given to nurses in neuroethics because they lacked specialized neuroscience knowledge. According to their research, not including neuroethics,

assistive technologies, and policy training in nursing courses results in less cognitive readiness for people whose work requires quick decisions and good adaptability.

Al-Shomrani et al. (2024) proved that there was a significant relationship ($p = 0.003$) between psychological empowerment and decision-making flexibility among the staff nurses in Saudi Arabia. It was revealed that when nurses felt more confident and independent, they tended to use calmer, well-balanced strategies in important situations instead of relying on their gut feelings or fast thinking. In a similar way, Iwaanakuchi et al. (2023), by reviewing the records of over 43,000 patients, found that nurse-led judgment of less ability was a better predictor of cognitive impairment than any formal dementia diagnoses or records of medicines. It proves that nurses gain better accuracy in diagnosis when they are given more clinical experience and freedom to make decisions.

Hoying et al. (2023) emphasized that structured learning activities help improve a student's mindset. From their work on MINDBODYSTRONG, they noticed that cognitive-behavioral training increased confidence, lowered stress and burnout, and boosted the nurses' ability to deal with mental tasks. Those who joined the program noted less stress and were also more likely to live healthily, both of which help them develop better cognitive skills and adapt to new situations in healthcare. In addition, a strong sense of empowerment at school helped students with their feelings and able to reflect, both of which are important for their thought processes.

Soni (2024) repeated these points in a review showing that structured courses in self-care and programs led by peers can help mental health nurses improve their mental state and reduce their feeling of compassion fatigue. Being aware of your emotional and mental responses, in this way, helps nurses become more flexible in stressful situations, which is important for clinical reasoning. According to Bag (2020), when nurses and patients work together using coaching and learning, it helps them develop care plans and thus leads to improved decision-making and fewer cases of learned helplessness. Nurses were able to keep their clinical skills, while patients regained their sense of control in decision-making.

Their results revealed that having empowerment from both social and structural sources would predict employees would experience higher motivation at work ($\beta = 0.851$ and $\beta = 0.828$, respectively) and suffer lower occupational stress. It has been established that motivation encourages people to pay attention in class and help them stay focused for longer. Lukkahatai et al. (2025) mentioned that using technology, mainly for AI, made nurses more effective when making decisions. If people don't learn how to use them, these tools can be hard to understand, but proper training allows them to reduce mental work and help with flexible thinking.

Ulupinar and Meler (2024) backed up these findings by conducting an experiment that tested the effects of working doubles on people's mental abilities. Although the research concentrated on schedule length, it finds that training programs on fatigue management, alertness, and working priorities might assist nurses in dealing with these mental declines. Along these lines, Moosavi et al. (2025) highlighted that teaching circadian rhythm helps night-shift nurses keep their cognitive abilities and avoid reduced memory and attention.

In addition, Cortés-Álvarez et al. (2024) indicated that stress from burnout may result in a decline in brain activity and lower BDNF blood levels, signaling its negative effects on the body. Helpful information about brains, stress, and personal regulation could save brain cells and prevent deterioration at a cellular level. In all these investigations, a common point appears: Educational empowerment helps you keep your skills sharp as well as improve your mental and reflective capacities to survive the demands of modern nursing.

DISCUSSION

This systematic review finds that different empowerment methods are combined protective factors that play a key role in minimizing the decline of cognition among nurses. When viewed from a neuroscientific and behavioral aspect, empowerment helps control the body's stress reactions, mostly by controlling the HPA axis that is involved in conditions like memory loss and a shorter attention span. Nurses often face chronic stress, and it makes their cortisol levels higher, consistently linked to shrinkage of the hippocampus and a drop in executive function, according to McEwen and Sapolsky (1995). Mental health interventions, such as cognitive-behavioral therapy, mindfulness, and self-help, can help people manage stress and at the same time increase their self-efficacy, which according to Bandura and Wessels (1997), greatly influences how someone thinks and copes. If nurses feel capable and independent, they usually handle difficult situations better, which saves mental resources and helps them keep working memory and decision-making functions.

The findings are in line with Spreitzer (1995) four-dimensional empowerment framework, meaning, competence, self-determination, and impact, since these help to improve cognitive performance with more motivation and mental focus. Works by Hoying et al. (2024) and Saleh et al. (2022) prove that boosting psychological empowerment reduces stress and burnout and raises motivation and proper coping. These changes in the mind are because when we feel powerless, stress tends to suppress a key neuroprotein called BDNF, which synaptic efficacy depends on (Cortés-Álvarez et al., 2024).

It is easy to see how empowerment and cognitive adaptability work together, and results show the same relationship. Supportive tools, control, and training for nurses mean they can deal better with the mental challenges they encounter. In accordance with Job Demands-Resources (JD-R) theory (Bakker et al., 2007), having resources at work (e.g., independence, feedback, and group support) can reduce the toll that tough job parameters, like time pressure and stress, place on the mind. Fatigue-related memory problems are reduced and cognitive results improve with interventions such as scheduling around the body clock and planning

shifts with adequate time for sleep (Moosavi et al., 2025; Ulupinar & Meler, 2024). It is very important in nursing since forgetting or missing something can cause serious mistakes. At the same time, being technologically empowered allows tools like checklists and AI systems to be a part of an individual's way of thinking, following an idea from cognitive science (Clark & Chalmers, 1998). Because AI helps nurses with clinical predictions and documenting, the burden on their working memory is reduced, so they can concentrate on challenging problems and consider what's best for the patients.

Based on the reviews, there should be a combined system of cognitive preservation using elements from psychology, architecture, technology, and learning. Just one kind of empowerment is not adequate by itself. Even though methods like mindfulness can reduce anxiety (Soni, 2024), they cannot make up for the damages to mental skills that occur when people do night shifts (Lin et al., 2024). In the same way, although AI assists nurses in decision-making, its usefulness depends on ensuring they are properly trained and play a role in tech-related management (Deloria & Wolbring, 2019). Such findings underline that empowerment should cover the whole organization and focus on autonomy, resources, and learning.

In the corporate sector, investigations confirm that allowing staff to decide things, give and receive feedback, and learn, increases their mental performance, factors found in the nursing research reviewed in this paper. When talking about healthcare, both medical training and advanced practice nursing programs rely on empowerment, underlining the need for continual learning and reflection to face burnout and lack of adaptability (Benner, 1984). While nursing also emphasizes learning new things, it carries a greater and faster risk of negative outcomes because of double emotional and mental duty, mainly when emergencies are involved.

It is worth mentioning that this review notices the role of both geography and culture as well. Such impacts were evident in Jordan, Saudi Arabia, Canada, and the United States. In those locations, disempowerment from decision-making was reported by nurses (Saleh et al., 2022; Al-Shomrani et al., 2024; Deloria & Wolbring, 2019; Kennedy, 2022). Still, the key idea holds true: making nurses powerful improves mental strength and results in improved treatment and reduced risks for patients.

In essence, this review points out that empowerment benefits the brain by assisting in memory, improving attention, higher quality choices, and handling stress. The study demonstrated that helping nurses build leadership skills, offer them access to the latest technology, train them, and build their resilience promotes brain health and prevents cognitive decline. Proper usage of empowerment as a protection method is required by healthcare systems to strive for success and meet modern-day ethics in clinical care.

IMPLICATIONS AND RECOMMENDATIONS

This review has effects on clinical work, how health is managed, teaching, and guidance on healthcare policies. It is evident that organizations should regularly incorporate psychology support for nurses, for example by including trainings and programs that change their way of thinking. This approach helps avoid stress and fatigue while ensuring that doctors do not lose their mental abilities for proper care. Leaders in an organization should focus on structural empowerment by planning fatigue-reducing work schedules, limiting staff to only one double shift at a time, and considering people's preferences in sleep and wake cycles. Encouraging nurses to have some say in scheduling their rest allows and focusing on their autonomy can help them avoid mistakes and boost mental clarity. Not only should technology be given to nurses, but they must also take part in choosing and using technology so they are well-prepared and ready to address their memory challenges and make sound judgments with the support of tools such as AI and checklists.

It is important to adopt a shift in thinking at schools and organizations so empowerment becomes a main focus in training and development for nurses. We should regard lifelong learning as a way to protect our brain, rather than just seeing it as professional duty. All levels of government should both resource and enforce such programs, treating their use as a protection against cognitive health loss, and not just as an organization's benefit. Assessing the way individuals feel autonomous and the way decisions are made, as well as support for thinking processes, should be part of quality controls for organizations and institutions. So, in the future, studies should not only survey individuals but also consider neurobiological and behavioral measures (including blood markers and response times) to make sure empowerment continues to protect people over a long time. Empowering nurses in a holistic way is both morally right and sustainable in terms of their skills and knowledge, which leads to better and safer care for patients.

STRENGTHS AND LIMITATIONS

This review presents several strengths, including a rigorous methodological framework guided by PRISMA 2020 standards, a diverse inclusion of 14 studies spanning multiple countries, and a comprehensive synthesis of psychological, structural, technological, and educational empowerment domains. The inclusion of various study designs—quantitative, qualitative, reviews, and mixed-methods—enriched the thematic depth and allowed for a multifaceted understanding of how empowerment mitigates cognitive decline. Additionally, the use of validated appraisal tools (e.g., CASP, MMAT, STROBE, JBI) ensured that only methodologically sound studies informed the analysis. However, limitations must be acknowledged. Many included studies were cross-sectional, limiting causal inference, and few directly measured cognitive function using standardized neuropsychological tools or biomarkers like sBDNF. The concept of "empowerment" was also inconsistently operationalized across studies, and some findings relied heavily on self- reported data, introducing potential bias. Finally, the geographical concentration of studies in specific regions may limit generalizability to underrepresented healthcare settings.

CONCLUSION

In conclusion, this systematic review demonstrates that empowerment—across psychological, structural, technological, and educational dimensions—plays a critical role in mitigating cognitive decline among nurses by enhancing self-efficacy, reducing stress, improving decision-making, and preserving memory and attention in high-pressure clinical environments. Empowerment is not merely a workplace enhancement but a cognitive safeguard that directly impacts nurse wellbeing, clinical performance, and patient safety. As healthcare systems face growing demands and workforce burnout, implementing holistic, evidence-based empowerment strategies is both an ethical necessity and a practical intervention to sustain the cognitive resilience and effectiveness of the nursing workforce.

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LIST OF ABBREVIATIONS

Abbreviation	Definition
9-HPT	Nine-Hole Peg Test
AD-8	Ascertain Dementia-8
AI	Artificial Intelligence
ATLAS.Ti	Qualitative Data Analysis Software
BDNF	Brain-Derived Neurotrophic Factor
BSWSQ	Bergen Shift Work Sleep Questionnaire
CAB	Cognitive Assessment Battery
CASP	Critical Appraisal Skills Programme
CDM	Clinical Decision-Making
CI	Confidence Interval
CFQ	Cognitive Failures Questionnaire
CINAHL	Cumulative Index to Nursing and Allied Health Literature
COPE	Coping Program (basis for cognitive-behavioral training adaptations)
CTI	Circadian Type Inventory
CWEQ-II	Conditions of Work Effectiveness Questionnaire-II
d	Cohen's d (effect size measure)
ELISA	Enzyme-Linked Immunosorbent Assay
EMR	Electronic Medical Records
GAD-2	Generalized Anxiety Disorder-2
HPA	Hypothalamic-Pituitary-Adrenal
JBI	Joanna Briggs Institute
JD-R	Job Demands–Resources
MBI	Maslach Burnout Inventory
MINDBODYSTRONG	Name of the specific cognitive-behavioral intervention program
MMAT	Mixed Methods Appraisal Tool
MHPSS	Mental Health Professionals Stress Scale
MWMS	Multidimensional Work Motivation Scale
OR	Odds Ratio
PE	Psychological Empowerment
PEI	Psychological Empowerment Instrument
PHQ-2	Patient Health Questionnaire-2
PSS-4	Perceived Stress Scale-4
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
SD	Standard Deviation
sBDNF	Serum Brain-Derived Neurotrophic Factor
STROBE	Strengthening the Reporting of Observational Studies in Epidemiology

Appendix A
Evidence table

Author (Year)	Country	Aim	Design	Sample	Independent Variable (IV)	Dependent Variable (DV)	Measurements	Main Outcomes
Hoying et al. (2023)	USA	Evaluate MINDBODYSTRONG's impact on mental health	Pre-post intervention	100 hospital employees (93% nurses)	CBT-based empowerment	Stress, anxiety, burnout, lifestyle beliefs	PHQ-2, GAD-2, PSS-4, Lifestyle Beliefs/Behaviors Scales	Significant reductions in anxiety (d = −0.54), stress (d = −0.33), burnout (d = −0.37); improved self-efficacy
Saleh et al. (2022)	Jordan	Examine structural & psychological empowerment in predicting stress and motivation	Descriptive correlational	200 nurses	Psychological & structural empowerment	Occupational stress, motivation	CWEQ-II, PEQ, MWMS, MHPSS	Empowerment predicted lower stress (β = −0.288) and higher motivation (β = 0.851)
Soni (2024)	India	Explore how self-care and empowerment protect cognitive health	Narrative review	Not applicable	Empowerment via self-care	Cognitive resilience, well-being	Review of literature	Self-care interventions reduce burnout and emotional exhaustion, fostering cognitive clarity
Al-Shomrani et al. (2024)	Saudi Arabia	Assess link between psychological empowerment & decision-	Cross-sectional	318 nurses	Psychological empowerment	Clinical decision-making flexibility	Spreitzer's PEI, Lauri-Salanterä CDM Tool	High PE significantly associated with flexible decision-

		making						making (χ^2 = 15.677, p = 0.003)
Iwaanakuchi et al. (2023)	Japan	Examine how nurse assessments detect cognitive decline	Retrospective cohort	43,330 patients	Nurse-assessed cognitive status	Restraint use, workload	EMR, Logistic/ Linear regression	Nurse assessments (Factor C) predicted higher workload & care needs better than diagnoses
Lin et al. (2024)	China	Assess sleep quality and memory impairment among shift nurses	Cross-sectional	588 shift nurses	Sleep quality (empowerment via rest)	Memory impairment	PSQI, BSWSQ, AD-8	Poor sleep doubled memory impairment risk (OR = 2.073, p < 0.001)
Lukkahatai et al. (2025)	USA/Philippines	Explore how AI empowers nurses and reduces cognitive burden	Narrative synthesis	Not applicable	AI tools, decision-support tech	Cognitive overload, mental clarity	Literature review	AI aids reduce workload and enhance decision precision, acting as cognitive extenders
Kennedy (2022)	USA	Summarize practical cognitive-enhancement strategies	Narrative synthesis	Not applicable	Empowerment via mindfulness, checklists, games	Memory, attention	Review of studies	Meditation, games, and checklists shown to preserve memory and focus under stress

Deloria & Wolbring (2019)	Canada	Analyze nurse roles in neuroethics and lifelong learning	Scoping review	597 abstracts, 1365 news articles	Role exclusion, lack of learning opportunities	Cognitive empowerment, ethical agency	Atlas.Ti coding	Nurses excluded from decision-making and governance; missed cognitive development opportunities
Bag (2020)	Germany/Turkey	Investigate empowerment in community mental health nursing	Narrative review	Not applicable	Coaching, shared planning	Decision fatigue, clinical judgment	Theoretical synthesis	Empowerment improved nurse-patient relations, reduced learned helplessness and fatigue
Cortés-Álvarez et al. (2024)	Mexico	Study burnout and cognitive function with BDNF	Cross-sectional	100 nurses (50 with burnout)	Burnout status	Reasoning, memory, sBDNF	MBI, CAB, ELISA	Burnout linked to worse cognition ($p < 0.05$) & lower BDNF (243.17 vs. 362.75 pg/ml)
Ulupinar & Meler (2024)	Turkey	Compare cognitive impact of single vs. double shifts	Comparative study	45 nurses	Shift length	Working memory, attention, response time	9-HPT, Stroop, Digit Span	Double shifts significantly worsened memory ($d = 0.95$), attention ($d = 1.42$), and RT
Moosavi et	Iran	Examine circadian	Cross-section	36 ICU	Circadian	Attention,	Stroop Test,	Night shifts

al. (2025)		rhythm impact on cognition	al	nurses	rhythm adaptability	memory	Wechsler Digit Span, CTI	impaired attention /memory ($p < 0.05$); rhythm flexibility protective
Arnetz et al. (2021)	USA	Study cognitive failure during COVID-19	Cross-sectional	Nurses during COVID-19	Workload, emotional exhaustion	Cognitive failure	Cognitive Failures Questionnaire	Cognitive errors linked with high workload and emotional exhaustion

Appendix B

Quality Appraisal Table: Empowerment & Cognitive Decline in Nurses

Study	Tool Used	Strengths	Weaknesses	Score	Final Decision
Hoying et al. (2023)	CASP RCT Checklist	Clear aims, valid pre-post design, appropriate outcome measures	No control group, small sample size	8/10	Include
Saleh et al. (2022)	MMAT (Quantitative Descriptive)	Large sample, validated tools, robust stats	Cross-sectional limits causality	4/5	Include
Soni (2024)	JBI Narrative Review Checklist	Thematic clarity, relevant to topic, diverse literature	No quality assessment of included studies	7/10	Include
Al-Shomrani et al. (2024)	MMAT (Quantitative Correlational)	Large diverse sample, validated tools, strong correlation	Self-report bias, single-country data	4/5	Include
Iwaanakuchi et al. (2023)	STROBE Checklist	Very large dataset, objective EMR data, strong statistical analysis	No direct empowerment measure	20/22	Include
Lin et al. (2024)	STROBE Checklist	Large sample, validated sleep/cognition scales, rigorous stats	Self-report sleep data, no empowerment variable	19/22	Include
Lukkahatai et al. (2025)	JBI Expert Opinion Review Tool	Strong conceptual alignment, real-world scenarios	No empirical data, lacks risk of bias analysis	6/10	Include

Kennedy (2022)	JBI Opinion Checklist	Practical, evidence-informed interventions, accessible format	Not peer-reviewed, lacks method transparency	5/10	Include with caution
Deloria & Wolbring (2019)	JBI Scoping Review Tool	Comprehensive search, rigorous coding process	No formal quality grading of sources	8/11	Include
Bag (2020)	JBI Narrative Review Checklist	Conceptually rich, well-aligned to topic	No empirical validation, broad narrative	6/10	Include
Cortés-Álvarez et al. (2024)	STROBE Checklist	Biological and cognitive metrics, well-powered	Limited to burnout vs. no-burnout, lacks longitudinal data	18/22	Include
Ulupinar & Meler (2024)	MMAT (Quantitative Experimental)	Experimental setup, objective tests (Stroop, digit span)	Small sample, single-site	4/5	Include
Moosavi et al. (2025)	STROBE Checklist	Objective cognitive tests, shift comparisons, circadian tool	Small sample, limited generalizability	17/22	Include
Arnetz et al. (2021)	STROBE Checklist	Timely topic, validated tool (CFQ), relevance to workload	Self-report, lacks clinical linkage	16/22	Include