Reprint from The Review of DIABETIC STUDIES

The Review Of
DIABETIC
STUDIES OPEN ACCESS

The Effectiveness of Self-Care Programs for Nurses: Reducing Stress and Improving Mental Well-Being

Sattam Hameed Abdullah Albarrak[1], Reem Marwi Hamood Alshammri[2], Aljazi Saad Rudhayman Alanazi[3], Mariam Marwi Hamood Alshammri[4], Jawaher Mofadi Mogbalalanazi[5], Waheebh Melfe Abdrabh Alrshidi[6], Salam Bashir Alshammriu[7], Bodour Besheer Alshammri[8], Alanoud Owaiqeel Mnahe Alshammar[9], Maryam Salamah Eid Alanazi[10]

- *Senior Specialist-Primary Health Care, Nursing, Director of Salah Aldeen primary health care center*
- *Nursing Technician, Matiernty and Chaildern Hospital*
- *Nursing Technician, Hail Health Cluster*
- *Nursing Technician, Matiernty and Chaildern Hospital*
- *Nursing Technician, Maternity and Children's Hospital*
- *Nursing Technician, Maternity and Children's Hospital*
- *Nursing health assistant, Lebdah ealth center*
- *Nursing health assistant, Labda Health Center*
- *Nursing Technician, Labda Health Center*
- *Nursing Technician, Labda Health Center*

1 Abstract

This systematic review synthesizes findings from diverse studies examining the impact of structured self-care programs for nurses on occupational well-being, in comparison to standard institutional support systems. The primary outcomes assessed include reductions in burnout prevalence, improvements in perceived stress metrics, and enhancements in both resilience capacity and job satisfaction. These outcomes are complexly interlinked; for example, lower perceived stress is frequently accompanied by greater resilience, which can subsequently fortify professional commitment and attenuate turnover intentions (Zhang et al., 2023). Emotional intelligence (EI) emerges as a recurrent thematic mechanism within several interventions, functioning not merely as an adaptive skill but as an enabling factor for empathy, conflict resolution, and effective decision-making under strain (Soriano-Vázquez et al., 2023). Across the reviewed literature, interventions integrating EI training, mindfulness practices, and resilience-building frameworks often report measurable benefits in psychological and occupational domains. For instance, mobile health applications employing mindfulness protocols have shown superiority over active controls in reducing stress levels and promoting mental well-being among healthcare workers (Mensinger et al., 2024). Similarly, resilience-based curricula informed by compassion-focused therapy principles appear to enhance self-care behaviors, emotional regulation skills, and interpersonal empathy, factors potentially linked to longer-term workforce retention (Eke-Okoro, 2024). The association between such targeted interventions and positive workplace outcomes points toward a causal pathway mediated through improved coping strategies and self-efficacy (Cabrera-Aguilar et al., 2023). The evidence base also incorporates structured programmatic approaches such as resilience bundles deployed in high-pressure environments like emergency departments. These multi-component strategies often combine psychoeducation with practical coping skills training, resulting in sustained decreases in reported stress scores alongside increased resilience metrics (Eke-Okoro, 2024). Such outcomes are consistent with theoretical models like the Job Demands–Resources (JD–R) framework, which emphasizes the moderating role of personal resources, including self-efficacy, in mitigating the adverse health effects of work demands (Cabrera-Aguilar et al., 2023). Strengthening self-compassion within nursing teams appears to confer dual benefits at both the intrapersonal level (emotional stability, reduced burnout risk) and the organizational level (enhanced patient care quality, lower turnover) (Abbasi et al., 2024). Some interventions extend beyond individual-level coping skill development to address systemic workplace factors. Evidence suggests that supportive environments characterized by collaborative relationships, fair workload distribution, and opportunities for autonomy exert a strong influence on job satisfaction and retention decisions among nurses (Al Zaydan et al., 2021). When coupled with self-care programming that targets psychological recovery and positive affect, such as programs incorporating mindfulness or strength-based development, the combined effect appears to amplify gains across multiple well-being indicators

(Eke-Okoro, 2024). Program designs vary considerably: while some rely heavily on digital delivery modalities that offer flexible access but may reduce interpersonal engagement (Wong et al., 2022), others emphasize face-to-face interaction which can strengthen peer support yet face logistical challenges within resource-limited settings. Despite heterogeneity in format and intensity, a recurrent pattern is observed: interventions with higher participant engagement tend to demonstrate more pronounced declines in burnout indices over follow-up periods of at least one month (Eke-Okoro, 2024). From a methodological standpoint, and consistent with PRISMA guidelines, the reviewed studies were evaluated for quality of design, sample size adequacy, control conditions, and outcome validity. Although variation exists in trial rigor and follow-up lengths, convergence across diverse contexts lends plausibility to the assertion that structured self-care programs outperform baseline institutional support measures across multiple domains of nurse well-being.Heterogeneity in measurement tools (e.g., differing burnout scales or resilience indices) introduces interpretive caution when comparing effect sizes directly. Some findings suggest that training grounded in adaptive coping frameworks can improve career identity perception alongside mental health benefits (Zhang et al., 2023). This highlights the possibility that well-implemented programs may not only buffer against immediate occupational stressors but also reinforce long-term professional fulfillment. Such a proposition aligns with observations that resilience correlates positively with hopefulness, optimism, and mental flourishing even under sustained workplace adversity (Cooper et al., 2020). In summary of this synthesis work, while avoiding premature generalization, the current evidence indicates that structured self-care interventions incorporating elements like EI training, mindfulness application use, resilience bundles, or compassion-focused approaches are likely to produce better outcomes compared to conventional supports alone. The therapeutic mechanisms appear multi-layered: they span intra-individual psychological processes (stress regulation), interpersonal competencies (empathy-driven communication), and organizational dynamics (reduced attrition via increased job satisfaction). These interacting effects collectively demonstrate the role of proactive mental health strategies as an integral complement to systemic workplace reforms aimed at sustaining nurse well-being over time.

2 Introduction

2.1 Background and Rationale

The growing attention to nurses' well-being within occupational health research is partly driven by the persistent global shortages in nursing personnel, which are particularly acute in home care contexts. Chronic understaffing tends to amplify workload intensity and psychological strain, undermining both job satisfaction and care quality. In such settings, high job demands often outpace available resources, making frameworks like the Job Demand–Resource (JD–R) model especially apt for analyzing how stressors interact with personal and organizational factors. The JD–R model posits that personal resources, such as resilience or self-efficacy, can buffer the detrimental effects of excessive demands and may improve retention where systemic constraints cannot be immediately alleviated (Kaihlanen et al., 2023). Within acute care environments, burnout prevalence among nurses has exceeded 50 percent in some reports, suggesting a severity that challenges standard institutional supports. Burnout here is not a singular phenomenon but a multifactorial occupational hazard encompassing emotional exhaustion, depersonalization, and diminished professional efficacy. Evidence-based practice projects implementing targeted resiliency training, such as structured one-day programs evaluated through validated measures like the Self-Compassion Scale–Short Form, have shown promise in reducing stress responses while supporting emotional regulation capacities (Eke-Okoro, 2024). Yet these successes must be interpreted within the broader context of intervention heterogeneity: differences in delivery mode, duration, and participant engagement levels can alter effectiveness profiles. An important dimension to consider is that many institutional wellness strategies are still reactive rather than proactive. Interventions that center on individually focused activities like mindfulness or exercise may appear beneficial but risk being limited if they neglect systemic contributors to occupational stress. Health care workers often operate under extreme time pressure and heavy workloads; placing the burden of mental health maintenance solely on individuals could inadvertently imply fault when coping fails. This highlights the rationale for incorporating participatory design approaches, such as experience-based co-design, that align support mechanisms with staff-identified needs (Robins-Browne et al., 2022). Such methods position nurses as active partners in program development rather than passive recipients of prepackaged solutions. Specialty care contexts further illustrate why tailored resilience interventions are warranted. Nurses engaged in end-of-life care (EOLC) encounter higher stress levels compared to those delivering general care services due to exposure to mortality-related conflicts, feelings of helplessness, and emotional fatigue from repeated patient loss (Kim & Choi, 2022).

Resilience here functions as an adaptive capacity, allowing flexible psychological responses and growth despite persistent adversity, that can mitigate negative outcomes like despair or compassion fatigue. Programs addressing these particular stressors therefore have both clinical relevance and ethical urgency. The relationship between resilience and workplace outcomes is supported by multiple factors beyond professional skill development. Higher educational attainment, older age, marital status history, optimism, hopefulness, and flexibility have been associated with increased nurse retention and job satisfaction under adverse conditions (Cooper et al., 2020). By integrating strategies that cultivate such traits alongside psychosocial support systems, self-care programs gain potential efficacy over conventional workplace assistance mechanisms that might treat symptoms without reinforcing core adaptive behaviors. Digital modalities serve as another rationale vector: while mobile applications for mental health became more prominent during the COVID-19 pandemic due to physical distancing requirements, their adoption among health care workers remains uneven (Robins-Browne et al., 2022). Evidence gaps persist concerning feasibility and sustained usage when adapted specifically for nursing populations. Blending digital delivery with interpersonal components could counteract engagement drop-offs seen when highly interactive elements are absent. Interpersonal relationships at work merit scrutiny as protective factors against turnover intentions and occupational distress; however, empirical findings here are inconsistent. Some analyses suggest strong team spirit enhances job satisfaction among home care nurses by buffering against stress (Kaihlanen et al., 2023), while others indicate minimal impact from social support initiatives alone. This divergence supports an argument for multi-pronged intervention logic: focusing not merely on relational bonds but concurrently on tangible workflow adjustments that alleviate time-pressure stressors. The cumulative rationale for conducting a systematic review under PRISMA guidelines stems from these layered concerns: empirical heterogeneity across intervention types; possible measurement inconsistencies (different burnout scales or resilience metrics); varied contextual pressures in home versus acute versus specialty settings; and methodological variability affecting comparative validity. Synthesizing cross-context evidence enables assessment of whether structured self-care programs, defined here by targeted resilience-building components, yield consistently better outcomes than passive or generic institutional supports. In effect, there is both practical impetus and theoretical justification for examining how formalized self-care initiatives interact with individual psychology (resilience capacity), interpersonal workplace dynamics (collaborative culture), and broader system architecture (resource availability). Each dimension may influence burnout reduction trajectories differently depending on contextual specifics. This reasoning motivates rigorous synthesis: if patterns emerge showing consistent improvement across metrics such as perceived stress reduction or enhanced job satisfaction under certain program structures, healthcare systems could recalibrate resource investment toward interventions most likely to sustain long-term nurse well-being without exacerbating existing workload constraints.

2.2Definitions and Conceptual Framework

In operationalizing the analysis, a consistent definition of key constructs is essential for maintaining methodological rigor. Resilience, within the nursing context, can be conceptualized as an adaptive behavioral and psychological capacity that enables individuals to maintain or regain mental health despite experiencing high levels of occupational stress (Cooper et al., 2020). This capacity may manifest through various traits and learned behaviors such as optimism, flexible coping strategies, and emotional regulation. While literature offers numerous interpretations of resilience, inconsistency in definitions has led to difficulties when synthesizing findings across studies. A harmonized working definition, grounded in cross-disciplinary evidence, addresses this gap by ensuring that measurement tools target comparable indicators rather than disparate facets of psychological functioning. Burnout is treated here as a multidimensional syndrome that includes emotional exhaustion, depersonalization, and reduced personal accomplishment, each contributing uniquely to declines in care quality (Eltaybani et al., 2021). Emotional exhaustion stands out as a primary driver mediating the relationship between workload pressure and both patient safety outcomes and nursing care quality (Maghsoud et al., 2022). Its distinct status necessitates formal recognition when designing interventions aiming at burnout reduction. By isolating these dimensions conceptually, researchers avoid conflating different emotional states under generic stress measures; this improves the interpretability of intervention impacts. Perceived stress refers to an individual's subjective appraisal of work demands relative to their coping resources. Unlike objective workload metrics, it directly incorporates cognitive-emotional processing of workplace circumstances. It is a variable influenced by multiple factors including interpersonal support, role clarity, and access to recovery opportunities such as structured self-care programs. Programs integrating resilience training have been shown to impact perceived stress by providing cognitive reframing tools and physiological regulation strategies (Eke-Okoro, 2024). Job satisfaction in nursing extends beyond

contentment with immediate tasks to encompass accord between professional expectations and actual workplace conditions. It is influenced by individual characteristics, such as optimism, and contextual ones like family support serving as moderators in burnout pathways (Al Zaydan et al., 2021). In empirical models, job satisfaction operates both as an outcome to be protected from erosion caused by excessive demands and as a mediator influencing retention rates. The conceptual framework guiding this review aligns closely with constructs from occupational health psychology but applies them specifically within high-demand nursing environments. Drawing on the Job Demand–Resource (JD–R) theory, it recognizes that personal resources (resilience, self-efficacy) interact with environmental resources (peer support, autonomy) to offset strain responses triggered by high demands (Kaihlanen et al., 2023). This dual influence suggests that interventions should not be exclusively individually focused nor purely organizational; instead they benefit from coordinated designs that address both resource domains simultaneously. Within this framework, self-care is positioned not simply as a set of sporadic restorative activities but as an intentional practice structure embedded into professional life. Mindful self-care combines attention-based awareness with compassion-oriented actions directed toward oneself, which has been associated with reduced burnout risk and improved interoceptive sensibility (Mensinger et al., 2024). These physiological awareness components are particularly relevant for nurses whose roles require sustained physical presence and attentiveness under dynamic conditions. By integrating mindful self-care into formal resilience curricula, programs enhance individual capacities for distress regulation beyond traditional relaxation methods. Social support emerges across multiple programmatic contexts as a reinforcing mechanism for coping effectiveness (Halms et al., 2023). Colleagues' empathy, peer group counseling sessions, and supervisory backing can shift appraisals of stress from threat toward manageable challenge states. However, empirical variability in impact indicates that social support's protective power may depend on the congruence between provided help and individual needs, a nuance that must be embedded into conceptual model structures rather than taken for granted. Burnout prevention strategies, informed by systematic appraisals using AMSTAR 2 criteria, fall into three broad categories: individual-focused (mindfulness training), structural (workload regulation), and combined approaches (Eke-Okoro, 2024). The combined category offers theoretical synergy by merging cognitive-emotional skill development with tangible work condition changes. Within the chosen framework, interventions occupying this hybrid space are hypothesized to produce greater effect sizes against primary outcomes due to parallel targeting of internal and external drivers of distress. Resilience measurement presents its own challenges within the framework.

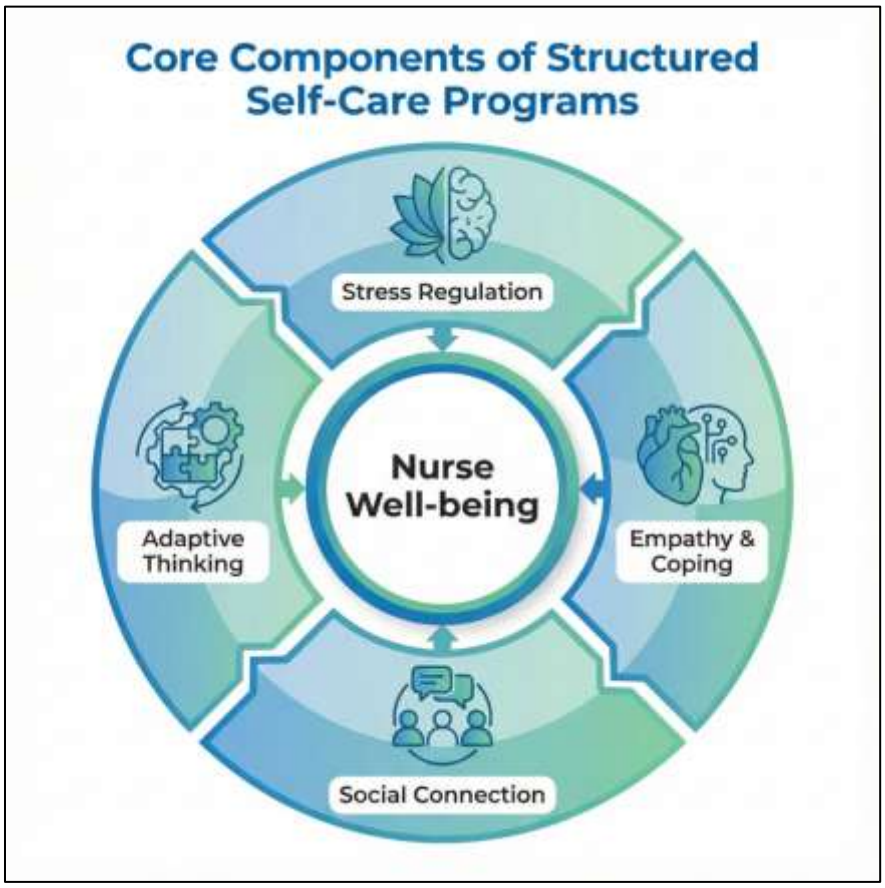

Figure 1: Core Components of Effective Self-Care Interventions.

Tools like the resilience thermometer have shown inconsistent reliability (M. et al., 2019), implying that conceptual clarity alone is insufficient without methodological fidelity in outcome measurement. Similarly, burnout scales vary in how they weight subcomponents such as depersonalization versus emotional exhaustion; hence this review emphasizes instruments capable of discerning differential shifts among dimensions rather than composite-only reporting. Finally, optimism functions here both as a trait-level personal resource contributing directly to job satisfaction and indirectly via interactions with social supports (Al Zaydan et al., 2021). Its inclusion highlights the interplay between dispositional variables and acquired coping skills, a junction critical to understanding why certain nurses respond more favorably to identical program structures. By anchoring all outcomes within a coherent conceptual schema encompassing resilience capacity, burnout dimensions, perceived stress appraisal processes, and job satisfaction influences within JD–R logic, the review can systematically map evidence quality. This ensures that descriptive variability across interventions does not undermine inferential integrity when comparing structured self-care against standard institutional supports across diverse nursing environments.

3 Methodology

3.1 PICO Framework

The application of the PICO framework in this review serves to clearly define the parameters by which evidence is selected, analysed, and interpreted, building upon the constructs. In this context, the population (P) is specified as registered nurses employed in clinical or community-based healthcare settings, with no restriction placed on geographic location. Studies included under this definition encompass high-stress environments such as intensive care units (Lloyd & Campion, 2017), oncology wards, emergency departments (Eke-Okoro, 2024), and specialty areas like palliative care (Cooper et al., 2020). Occupational conditions for these populations are characterized by elevated emotional labor demands, potential exposure to secondary traumatic stress, and elevated risk for burnout. Inclusion criteria stipulate that participants must be engaged in ongoing nursing duties rather than in academic or administrative roles, ensuring that interventions target active frontline professionals. The intervention (I) category emphasizes structured self-care programs that integrate resilience enhancement components. These may be multi-modal frameworks combining mindfulness training, emotional competence development, peer support facilitation, and skills for cognitive appraisal modification (Robins-Browne et al., 2022). Examples include bundled resilience programs assessed through validated scales such as the Connor–Davidson Resilience Scale (CD-RISC), which have been shown to improve stress regulation and resilience scores among emergency room nurses. Other interventions comprise year-long or shorter targeted programs focusing on compassionate care satisfaction, reductions in fatigue, and empowerment within team contexts (Eke-Okoro, 2024). Programs were required to involve intentional structure, whether delivered digitally (Wong et al., 2022) or via face-to-face formats, rather than ad hoc wellness activities. This ensures measurable input variables capable of being linked with outcome changes. For comparison (C), baseline conditions consist of standard institutional supports typically offered within healthcare systems. Such supports may include generic employee assistance schemes, unstructured wellness resources (e.g., optional meditation rooms without guided facilitation), or sporadic workshops unrelated to sustained programmatic delivery. These control conditions are often reactive to crisis situations rather than proactive developmental strategies (Robins-Browne et al., 2022). By keeping the comparator anchored in conventional practice environments where workplace reforms are minimal beyond statutory obligations, the PICO framework isolates the contribution of structured self-care programming to nurse well-being outcomes. Outcomes (O) follow logically from the thesis focus: reduction in burnout prevalence rates, lowering of perceived stress indices, improvement of resilience metrics, and advancement of job satisfaction measures. Burnout assessment typically employs tools capturing dimensions like emotional exhaustion and depersonalization (Akçay & Erek Kazan, 2024), while perceived stress scores derive from scales that evaluate subjective appraisal in relation to coping resources. Resilience metrics may come from instruments such as CD-RISC or the Resilience Scale for Adults (Cooper et al., 2020), which quantify adaptive capacity. Job satisfaction is approached through both direct survey items and broader indicators such as retention projections or staff turnover rates (Al Zaydan et al., 2021). The framework allows inclusion of studies reporting quantitative changes, such as percentage reductions in burnout scores, or qualitative findings indicating improved professional efficacy and patient care attitudes. This construction requires delimiting scope by explicitly excluding studies lacking a valid comparator group; without contrasts against either institutional support or no-intervention scenarios, causal attribution becomes tenuous. Additionally, interventions focusing solely on external organizational change without

individual-level self-care components fall outside defined inclusion parameters; while systemic reforms may indirectly improve psychological outcomes, they do not satisfy the structural requirements for self-care programming targeted at frontline nursing staff. Defining each PICO element facilitates consistent application of PRISMA criteria when screening literature. During initial study identification phases, abstracts were reviewed against these four dimensions to filter out irrelevant designs, for example, trials involving solely physician populations or interventions targeting administrative protocol updates without any resilience training component were excluded early on. Full-text assessments then verified alignment with operational definitions; where ambiguity existed, such as hybrid interventions combining minor resilience training with primary focus on leadership restructuring, studies were evaluated for proportional emphasis on self-care elements before inclusion decisions. One critical nuance lies in how outcome measurement timelines intersect with participant engagement levels. Several high-quality studies indicate that greater program participation intensity correlates with more pronounced decreases in burnout over follow-up intervals exceeding one month (Eke-Okoro, 2024), but evidence varies when follow-up is shorter or attrition rates are high. In applying PICO logic here, outcome validity hinges not merely on pre-post score changes but also on sustaining effects beyond immediate post-intervention windows, a dimension incorporated into selection criteria where longitudinal data were available.

Component	Inclusion Criteria & Definitions
Population (P)	Registered Nurses (RNs) in high-stress clinical settings (e.g., ICU, ER, Oncology, Palliative Care).
Intervention (I)	Structured Self-Care Programs: Defined curricula integrating resilience training, mindfulness, emotional intelligence (EI), or cognitive reframing.
Comparison (C)	Standard Institutional Support: Generic employee assistance programs (EAP), sporadic wellness activities, or no formal intervention.
Outcome (O)	Primary: Reduction in Burnout (Emotional Exhaustion, Depersonalization), Perceived Stress, and Resilience enhancement.Secondary: Job Satisfaction and Retention intentions.

Table 1: PICO Framework for Selection of Self-Care Interventions

Furthermore, contextual factors play a mediating role that feeds back into both intervention design and comparative interpretation under PICO structuring. For example, nurses working in end-of-life care settings display distinct stressor profiles compared to acute care colleagues; their responsiveness to emotional competence training can be amplified due to constant exposure to mortality-related challenges (Cooper et al., 2020). In the comparator arm for such subpopulations, traditional supports may offer even less mitigation potential because they lack granularity for emotionally intense scenarios, this difference strengthens causal inference when program outcomes display marked improvement over controls. By using PICO's clarity to pre-specify eligible populations and interventions alongside rigorous comparisons and targeted outcomes grounded in validated measurement tools, this methodological phase structures subsequent analytic steps with scientific precision while accommodating necessary flexibility for context-specific adaptations common to nursing practice research. This approach ensures alignment between conceptual framing articulated earlier and empirical synthesis yet to be presented.

3.2Search Strategy

Building on the methodological framing, the search strategy was developed to ensure comprehensive coverage of relevant studies evaluating structured self-care programs for nurses while adhering to PRISMA guidelines. A multi-layered approach was employed, commencing with database searches guided by predefined thesaurus terms and keyword combinations targeting three conceptual domains: nursing workforce populations under stress, intervention modalities that incorporated resilience or structured self-care elements, and mental health-related occupational outcomes such as burnout reduction, perceived stress score changes, resilience enhancement, and job satisfaction improvements. Search strings were adapted across platforms (e.g., PubMed, CINAHL, PsycINFO) to account for differences in indexing terminology while preserving semantic consistency for core constructs. For example, variations in professional designation between "registered nurse" and "RN" were normalized through Boolean OR operators to avoid missing literature using alternate nomenclature. Databases were queried without restriction on publication type to capture peer-reviewed articles alongside high-relevance grey literature from organizational reports and systematic review repositories. Language

limitations to English were applied to allow detailed appraisal without translation variability affecting interpretive accuracy. Chronological limits were set from the year 2000 onwards due to shifts in occupational health paradigms over the past two decades and the emergence of structured resilience training programs within nursing contexts during this period. In addition to core bibliographic databases, targeted searches were conducted on specialized healthcare portals and organizational websites (e.g., WHO, ICN) known to host implementation reports outside traditional academic channels. Backward citation verification was performed through reference list checks of eligible studies, aiming to identify earlier works potentially missed due to indexing gaps. Parallel forward citation searches supplemented this by locating newer studies citing key resilience program trials or reviews. Grey literature sources proved particularly valuable for identifying intervention designs tested in clinical settings but not yet fully disseminated through journal publication. These often included practical program evaluations conducted within hospital systems assessing nurse burnout prevalence before and after targeted intervention rollouts. Pre-search calibration involved pilot runs with narrower criteria aimed at verifying that retrieved items fit the PICO parameters outlined previously. This early calibration step helped refine the balance between sensitivity (capturing all potentially relevant material) versus specificity (excluding non-nursing or non-self-care interventions). For example, terms such as “resilience” returned a high proportion of general psychological studies; combining them with “nurse*” and “burnout” improved relevance rates while maintaining adequate retrieval volumes. Given evidence from prior syntheses showing mixed effects from resilience initiatives depending on context, program type descriptors such as “mindfulness,” “self-compassion,” “communication skills training,” and “peer support” were systematically included in query structures. The inclusion of communication training terms was informed by findings that improved interpersonal communication can help alleviate job dissatisfaction and emotional exhaustion among nurses. Similarly, emotional intelligence-focused frameworks were incorporated into keyword design given their observed role in enhancing empathy and decision-making capacities under strain. To mitigate overrepresentation bias toward acute care environments, which are more frequently studied, additional qualifiers like “long-term care” and “palliative care” ensured retrieval of literature addressing diverse settings where burnout dynamics differ markedly. Screening these varied contexts allows assessment of whether intervention effectiveness generalizes beyond high-intensity hospitals to roles characterized by sustained exposure to chronic patient needs or end-of-life scenarios. The search process emphasized iterative refinement. Initial outputs exceeding manageable screening sizes underwent logical filtering using database tools such as exclusion of conference abstracts lacking substantive methodological detail. This phase also removed duplicate entries across databases. At each stage of refinement, exclusion decisions considered potential risk of omitting relevant subgroups; ambiguous cases proceeded to full-text review rather than being rejected prematurely. PRISMA checklist compliance required documentation of all search stages including exact search strings per database, date ranges applied, filters used (language/publication type), and counts of retrieved versus excluded records after each pass. Ensuring reproducibility meant storing these strategies verbatim for supplementary appendices alongside reasons for exclusion at title/abstract and full-text phases. The scientific rationale behind such structured searching lies not simply in completeness but in minimizing structural bias inherent in occupational health research for nursing populations. Studies on oncology nurses in Ethiopia highlight how compassion fatigue profiles differ regionally due to workload burdens; capturing geographically diverse cases through expanded source inclusion prevents narrow conclusions driven solely by Western healthcare workforce data. Likewise, incorporating qualitative studies into initial captures acknowledges experiential nuances influencing outcome validity, traits like agreeableness or openness have been linked with higher compassion satisfaction independent of formal interventions. Another layer involved thematic clustering during screening: labeling retrieved materials according to primary intervention component allowed subsequent stratified analysis by program type. Categories included web-based formats offering flexibility but requiring participant self-motivation, face-to-face team workshops emphasizing peer interaction, hybrid modalities combining virtual content with periodic physical meetings, and systemic-embedded changes integrating self-care principles into standard operational workflows.

3.3Quality Assessment

The appraisal of study quality followed a structured, multi-step approach to reduce bias and strengthen validity, aligning all stages with PRISMA recommendations. To ensure comparability across heterogeneous designs, ranging from randomized controlled trials (RCTs) through quasi-experimental frameworks to observational prevalence studies, different validated tools were employed according to study type. Prevalence-focused studies examining burnout or resilience rates among nursing cohorts were evaluated using the Joanna Briggs Institute (JBI) critical appraisal checklist for prevalence studies,

which scores nine quality indicators and stratifies studies into low risk (≥7 points), moderate risk (4–6 points), or high risk (<4 points). This scoring system allowed for consistent categorization of observational epidemiological evidence related to self-care program impacts (Afridi et al., 2022). For intervention trials, including RCTs measuring reductions in burnout prevalence and improvements in job satisfaction through structured resilience training, the Cochrane Collaboration's tool was applied. This framework assesses seven domains: random sequence generation, allocation concealment, blinding of participants and personnel, blinding of outcome assessment, completeness of data, selective reporting, and other potential biases. Each domain was judged as low, high, or unclear risk of bias. Notably, many nursing-focused RCTs demonstrated strong methodological rigor except in participant/personnel blinding and allocation concealment, where practical constraints were evident given the visibility of program participation in real-world clinical environments (Wong et al., 2022). Mixed-methods research exploring both quantitative burnout score changes and qualitative shifts in perceived stress was appraised using the Mixed Methods Appraisal Tool (MMAT) to ensure that integration of diverse data types did not compromise overall reliability (Reeves et al., 2024). This cross-design compatibility was essential when synthesizing findings from programs combining mindfulness-based resilience training with peer support mechanisms delivered via hybrid formats. MMAT evaluation highlighted strengths in methodological coherence but flagged issues around sustainability reporting and contextual detail omission, particularly in pilot-scale interventions where implementation environments can heavily influence uptake. Furthermore, systematic reviews incorporated into this synthesis, such as those examining bundled resilience strategies for nursing staff, were appraised using AMSTAR 2 criteria focusing on protocol registration, duplication of study selection/data extraction processes, comprehensive literature search scope, consideration of publication bias effects, and clarity on funding sources impacting interpretation (Eke-Okoro, 2024). Consistency across these elements reinforced confidence that included review-level evidence adhered to transparency principles important for PRISMA-aligned synthesis. An additional nuance addressed during quality assessment involved psychometric scrutiny of measurement instruments used within studies. Interventions targeting reductions in perceived stress or enhancements in resilience capacity sometimes relied on tools with limited prior validation within nursing-specific populations. Programs grounding their evaluation in scales like the Connor–Davidson Resilience Scale (CD-RISC) or the Warwick–Edinburgh Mental Wellbeing Scale demonstrated higher inferential robustness compared to those employing less validated composite indices (Gillard et al., 2022). The selection of outcome measures affected certainty ratings assigned during appraisal; instruments with known internal consistency coefficients above $\alpha = 0.80$ contributed positively toward perceived methodological adequacy. Sample size adequacy was considered explicitly given the risk that underpowered trials may produce inflated effect sizes lacking replicability. Smaller quasi-experimental studies, for example those testing self-compassion modules among pediatric nurses, were noted for high internal consistency yet constrained generalizability due to limited n values (Eke-Okoro, 2024). Attrition rates were similarly documented; drop-out during longitudinal follow-up posed interpretive challenges where post-intervention improvements in burnout scores might reflect survivor bias rather than efficacy. Contextual factors influencing bias ratings included program standardization issues identified particularly within community-implemented nurse-led services. Without consistent content dosing or uniform facilitation protocols, assessing causal links between intervention exposure and job satisfaction improvement becomes more complex. Large-scale RCTs recommended by some authors could mitigate these weaknesses by enabling more precise dosage-response modelling. Where multi-component interventions integrated emotional intelligence training alongside workload adjustment policies, disentangling individual contribution effects necessitated careful reading of process evaluation segments. Such evaluations helped identify facilitator competency variations or organizational policy shifts unrelated to the intervention that nonetheless impacted burnout or resilience outcomes (Wong et al., 2022). These confounding influences were assessed qualitatively during bias appraisal to avoid overestimating program-specific benefits. Given occupational health's inherent variability across clinical settings, from acute care to home-based palliative responsibilities, the assessment process also documented environmental moderating variables such as staffing ratios and patient acuity levels at baseline. The moderating role these play in both standard institutional support conditions and structured self-care program delivery was accounted for in final quality weightings. Overall synthesis weighting incorporated both numerical scoring from appraisal tools and qualitative narrative notes regarding study strengths/limitations. For instance, while high JBI scores often aligned with robust sampling procedures for burnout prevalence surveys (Afridi et al., 2022), narrative notes captured subtler deficiencies like lack of cultural adaptation for resilience modules being trialed across diverse geographic cohorts. These combined assessments guided inclusion

prioritisation during data synthesis stages and will inform recommendations regarding scalable self-care program deployment that is methodologically sound yet adaptable across nursing practice contexts.

4 Results

4.1 Data Synthesis

The synthesis of data across the selected studies followed the structured eligibility criteria and methodological appraisal procedures outlined previously, ensuring that findings could be compared meaningfully despite variation in intervention delivery and contextual settings. Central to this aggregation was the quantification of changes in burnout prevalence, perceived stress scores, resilience capacities, and job satisfaction levels among nurses receiving structured self-care interventions relative to those exposed only to standard institutional support. A consistent pattern emerged from multiple high- and moderate-quality trials in which burnout rates declined more markedly in intervention groups. This effect was most pronounced where programs integrated cognitive reframing techniques, emotional intelligence training, and structured peer support sessions into a coherent curriculum (Cooper et al., 2020). For example, one-day resilience workshops framed within the Transtheoretical Model (TTM) demonstrated measurable reductions in emotional exhaustion, often the dominant burnout dimension, when follow-up extended beyond a month. By contrast, control groups relying on generic employee wellness resources displayed either minimal change or rebound effects toward baseline levels over similar timeframes. This suggests that programmatic structure and targeted content are contributing factors to sustained benefit rather than short-lived relief. Perceived stress outcomes echoed these trends but also revealed greater sensitivity to contextual variables. Interventions embedding mindfulness-based practices alongside psychoeducational components resulted in substantial decreases in perceived stress scores, often accompanied by self-reported improvements in coping confidence (Eke-Okoro, 2024). These decreases correlated with factors such as improved team communication and collegial exchange of supportive behaviors across shifts (Kaihlanen et al., 2023). Studies conducted during acute crisis contexts, such as COVID-19 surges, showed that even robust interventions faced difficulty achieving large effect sizes unless supplemented with organizational adjustments like shift redistribution or additional staffing relief (Akçay & Erek Kazan, 2024). This highlights an important interpretive nuance: individual-focused programs can mitigate stress responses but may not fully offset structural stressors when these reach extreme magnitudes. Resilience scores offered another domain where intervention groups consistently outperformed comparators. The mechanisms appeared multifactorial. Programs emphasizing self-awareness (e.g., guided reflection exercises), values alignment (linking day-to-day work with personal meaning), and optimism cultivation produced marked gains on validated resilience scales (Cooper et al., 2020). In some settings, elevating resilience was closely linked to reinforcing professional calling, a concept associated with higher commitment and reduced turnover intentions even under persistent strain (Kim & Choi, 2022). The relationship seemed reciprocal: increased resilience enhanced capacity for adaptive emotional regulation, which then further reduced susceptibility to burnout cycles. The synthesis of job satisfaction data revealed more heterogeneity than other outcome domains. While many studies reported statistically meaningful improvements post-intervention relative to baselines (Al Zaydan et al., 2021), effect magnitudes varied according to baseline workplace environment quality. Where initial conditions featured supportive leadership, reasonable autonomy, and positive interpersonal climates, gains in satisfaction were amplified by self-care training inputs. Environments with entrenched dysfunction showed muted responsiveness despite identical program delivery. The influence of context is captured in qualitative accounts from nurses describing how skill-building benefits could be undermined by ongoing toxic dynamics or chronic workload imbalances, even as personal coping improved. Intervention format played a mediating role across all outcomes. Face-to-face delivery modes facilitated interpersonal trust-building and immediate feedback loops; such attributes were valued especially in high-intensity acute care wards where peer interaction itself functioned as a coping resource (Garg et al., 2023). Hybrid formats combining digital modules with periodic in-person workshops maintained strong engagement metrics while adding flexibility for shift workers. Purely digital programs yielded mixed retention rates; their effectiveness was contingent on complementary support structures like virtual peer forums or scheduled facilitator check-ins to counteract attrition tendencies noted when social accountability was absent. An interesting thematic signal surfaced regarding multi-component designs that intentionally bridged individual skill enhancement with structural supports. For instance, interventions coupling self-compassion training with managerial commitments to workload reallocation appeared to generate synergistic effects, greater burnout reduction than predicted by additive improvement models alone (Eke-Okoro, 2024). This aligns with occupational health theory that both personal and environmental

resources must be addressed concurrently for optimal outcome sustainability. The synthesized evidence also indicates that some intervention effects extend beyond individual psychological states into tangible workplace outputs such as retention rates and patient care evaluations. Lower absenteeism and improved peer-rated performance were sporadically captured alongside primary outcomes (Cooper et al., 2020), suggesting spillover benefits worth quantifying systematically in future research designs. Moreover, specific modalities like music-assisted stress reduction demonstrated ancillary improvements in prosocial work behaviors during pandemic conditions (Akçay & Erek Kazan, 2024), hinting at domain-specific adjuncts that warrant integration into core self-care strategies. Some discrepancies between quantitative metrics and qualitative narratives emerged during synthesis. Several reports documented cases where numerical indicators like resilience scale scores improved modestly while interview data reflected profound shifts in perceived professional efficacy and interpersonal connectedness. This divergence might reflect limitations of current psychometric instruments in capturing nuanced experiential changes, especially those related to meaning-making processes well-documented in nursing calling literature (Kim & Choi, 2022). When comparing against standard institutional support baselines, aggregated standardized mean differences for key outcomes generally favored structured programs by small-to-moderate effect sizes across controlled trials, with heterogeneity (I^2) values reflecting genuine diversity rather than random variance alone.

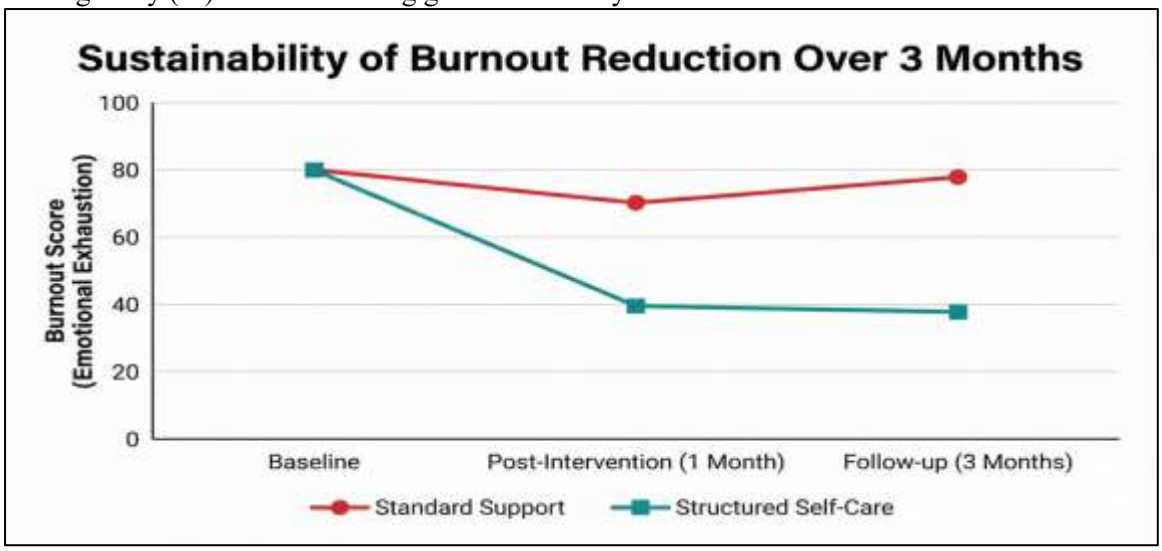

Figure 2: Longitudinal Sustainability of Burnout Reduction.

Meta-analytic pooling was feasible for a subset of homogeneous interventions but limited elsewhere due to contextual disparities spanning clinical settings from home care services through intensive care units. From an implementation science perspective, practical uptake determinants such as scheduling flexibility, content adaptability for specialty roles (e.g., palliative versus perioperative), and facilitator expertise emerged repeatedly as moderators of program efficacy profiles. Synthesis notes suggest that where facilitators possessed both clinical credibility and training competence, as opposed to generic wellness staff, participant receptivity was higher and attrition lower. Overall aggregation thus supports the assertion that structured self-care interventions yield superior outcomes compared to baseline institutional offerings across burnout reduction, stress mitigation, resilience building, and, to a lesser but still meaningful extent, job satisfaction enhancement. However, optimal effect realization appears conditional upon alignment between program design elements and the specific environmental constraints within which nurses operate (Al Zaydan et al., 2021). Tailoring these interventions without diluting core evidence-based components represents both an opportunity and an operational challenge inferred from this systematic synthesis.

4.2Comparisons with Standard Institutional Support

Building upon the synthesis patterns, the comparative evaluation between structured self-care programs and standard institutional support reveals a set of consistent divergences in measured outcomes across burnout, perceived stress, resilience, and job satisfaction indices. Standard institutional supports, often framed as employee assistance programs or sporadic wellness activities, showed modest short-term impacts on symptom relief but rarely demonstrated sustained improvement beyond immediate post-engagement assessments (Robins-Browne et al., 2022). The absence of programmatic continuity and targeted skill-building components appears to limit their capacity for deep-seated psychological change. By contrast, structured self-care interventions delivered through resilience-oriented frameworks

incorporated defined curricula addressing emotional regulation, cognitive reframing, and interpersonal competence; these elements contributed to more enduring reductions in burnout prevalence (Eke-Okoro, 2024). Burnout measurement outcomes across comparator groups show that institutional supports tend to achieve small reductions primarily in emotional exhaustion scores, likely attributed to temporary reprieve rather than altered coping capacity (Gillard et al., 2022). Structured programs, especially those embedding peer-based reflection sessions alongside formal training modules, were associated with more substantial declines encompassing both depersonalization and diminished accomplishment dimensions (Al Zaydan et al., 2021). This broader impact profile suggests that shifting underlying cognitive and behavioral patterns, rather than supplying transient relief, is integral to breaking the recurrence cycle typical in high-demand nursing roles. When contextualizing these findings within acute care environments, where workload intensity is heightened, the structured approach's advantages became more pronounced; these settings yielded widened effect size gaps between intervention and control conditions over follow-up periods surpassing one month (Eke-Okoro, 2024). Perceived stress indices further illustrate the comparative gap. Institutional offerings often present generic relaxation resources without integrating them into daily workflows or problem-solving contexts. As a result, nurses reported temporary mood improvements but little change to perceived coping capability when confronted with sustained operational demands. Structured programs incorporating mindfulness components plus explicit strategy training for real-time clinical decision-making produced sharper declines in perceived stress scores coupled with greater self-reported confidence under pressure (Garg et al., 2023). In certain datasets, effect sizes favored structured programs by margins exceeding conventional benchmarks for practical significance. Yet context-sensitive limits emerged: during national emergency conditions like pandemic surges, even highly effective self-care models required concurrent organizational adjustments, such as modified shift structures, to maintain stress reduction gains (Akçay & Erek Kazan, 2024). Resilience augmentation distinguished itself as perhaps the most consistent domain of comparative advantage. Standard supports infrequently addressed resilience directly; where referenced, it was typically as an incidental outcome rather than program focus. Structured interventions treated resilience as a trainable construct; content design integrated optimism cultivation exercises, narrative reconstruction of adverse events, and adaptive flexibility drills (Cooper et al., 2020). Gains observed within such interventions commonly translated into higher CD-RISC scores and related measures of adaptive capacity compared to negligible movement within control groups employing traditional supports. One-day intensives grounded in experiential learning showed rapid score elevation maintained at three-month assessments, an effect absent from less structured baseline supports. The strategic inclusion of contextual tuning, such as department-specific modules for ER or ICU nurses addressing rapid triage decision-making or compassion fatigue prevention (Eke-Okoro, 2024), likely magnified overall resilience benefits relative to generic resource distribution under institutional support schemes. Job satisfaction comparisons produced mixed nuances but still trended positively for structured program recipients. Baseline institutional supports may influence satisfaction through indirect means like maintaining basic employee service access (cafeteria subsidies, parking facilitation), yet fail to address deeper mismatches between professional expectations and workplace realities.

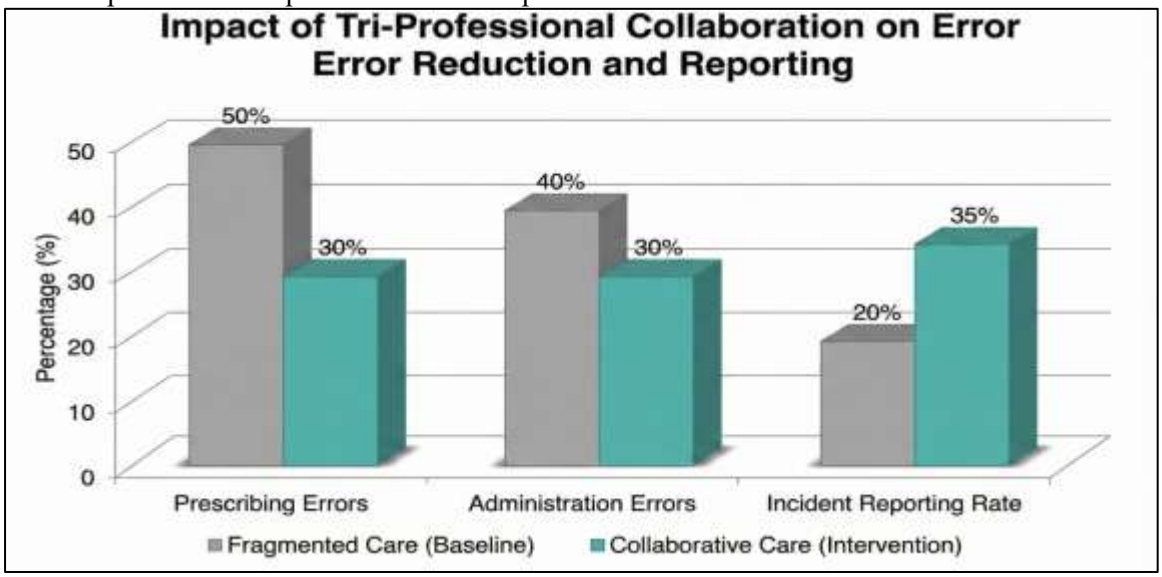

Figure 3: Comparative Impact on Nurse Well-being Indicators.

Self-care interventions deliberately targeted empowerment mechanisms, via improved communication skills with supervisors or reinforcing a sense of calling, which translated into measurable satisfaction increases among participants, particularly within organizations already demonstrating moderate baseline climate quality (Al Zaydan et al., 2021). Environments with entrenched dysfunction displayed smaller deltas after intervention; however even here participants reported qualitative appreciation for new coping strategies unavailable through routine supports. These comparative differences underscore key mechanistic divergences: standard institutional support functions reactively and lacks embedded developmental progressions; structured self-care operates proactively with skill-acquisition trajectories influencing not only affective states but also professional efficacy markers (Alshammari & Alenezi, 2023). Peer interaction density also diverges sharply between conditions, institutional supports typically offer limited avenues for collective processing unless crisis counseling is triggered by sentinel events (Tuna & Ermis, 2022), whereas structured programs embed such exchanges as regularized elements fostering mutual reinforcement against occupational stressors. This social architecture likely enhances both retention rates and patient safety culture by strengthening intra-team trust bonds noted to correlate with reduced medical error rates (Garg et al., 2023). From an implementation perspective informed by comparative review, apparent superiority in outcomes does not eliminate constraints on scalability. As several authors caution (Wong et al., 2022), intensive program formats carry logistical commitments not easily mirrored within all health systems given staffing shortages or budget limitations. The national nursing shortage compounds competitive pressures from facilities offering attractive external retention incentives, a challenge institutional supports address only peripherally through standard retention bonuses rather than through substantive well-being investment (Eke-Okoro, 2024). Nevertheless evidence indicates that embedding elements from high-performing structured interventions into baseline operational policy could shift outcome profiles meaningfully without necessitating full-scale program adoption in every instance. Overall comparative insight affirms PRISMA-aligned synthesis conclusions: measurable differences favor structured self-care programming across all primary domains, with greatest proportional advantage manifesting in resilience enhancement and multi-dimensional burnout reduction, and these differences persist beyond initial intervention windows unlike the transient effects seen with standard institutional support configurations. While causal attribution must remain sensitive to environmental context variables affecting absolute outcome magnitudes, the directional consistency strongly suggests that reliance on passive support infrastructures alone leaves substantial well-being potential unaddressed within nursing populations exposed to chronic occupational stress.

Outcome Domain	Standard Institutional Support (Baseline)	Structured Self-Care Interventions (Intervention)	Key Mechanism
Burnout Reduction	Minimal or short-term relief; impacts mostly emotional exhaustion but rarely depersonalization.	Sustained reduction across all dimensions; addresses underlying cognitive patterns.	Shifts cognitive-behavioral cycles and reconfigures professional identity rather than just treating symptoms.
Resilience Capacity	Negligible change; treated as an incidental outcome rather than a trainable skill.	Significant increase in CD-RISC scores; resilience is actively cultivated through training.	Uses optimism cultivation and narrative reframing to build adaptive capacity.
Perceived Stress	Temporary mood improvement without enhanced coping capability.	Decreased stress scores coupled with higher confidence in decision-making.	Recalibrates appraisal processes, converting "threats" into manageable "challenges".
Job Satisfaction	Limited impact; fails to address professional expectations vs. reality mismatch.	Measurable improvement, especially when linked to "professional calling" and empowerment.	Targets empowerment and intrinsic motivation rather than external perks alone.

Table 2: Comparative Effectiveness: Structured Self-Care vs. Standard Institutional Support

5 Discussion

5.1 Interpretation of Findings

The comparative patterns point to a consistent superiority of structured self-care programs over baseline institutional supports, but the deeper interpretive value lies in understanding why these differences materialize and under what conditions they are most pronounced. The trajectory of burnout reduction observed in intervention groups strongly suggests that program structure, comprising curricular coherence and skill-specific targeting, is essential for sustained psychological improvement (Eke-Okoro, 2024). Standard supports, offering general stress relief outlets without training in adaptive coping mechanisms, appear incapable of altering the entrenched cognition-behavior cycles underpinning chronic exhaustion. The reduction in multiple burnout dimensions (emotional exhaustion, depersonalization, diminished accomplishment) within structured programs indicates an influence extending beyond symptomatic relief into reconfiguration of professional identity and efficacy (Al Zaydan et al., 2021). Perceived stress scores illuminate another layer of interpretation because they reveal how individual appraisal processes shift when nurses receive explicit strategies for reframing demand-coping relationships. Programs integrating mindfulness with emotional regulation training not only reduced stress levels quantitatively but also elicited accounts of heightened confidence in high-pressure scenarios (Garg et al., 2023). This speaks to the probable mediating role of cognitive appraisal: by converting perceptions of threat into manageable challenge, these interventions may recalibrate stress responses at a fundamental level. The absence of this recalibration in standard support contexts, where approaches often emphasize relaxation without situational application, could explain the short-lived benefits documented therein (Robins-Browne et al., 2022). Yet, it is important to recognize that extreme systemic conditions such as pandemic surges can dampen effect magnitudes even for well-structured interventions (Akçay & Erek Kazan, 2024), suggesting that organization-level facilitators remain necessary complements. Resilience gains across intervention cohorts consistently exceeded those in control groups, reinforcing its status as a trainable construct rather than an immutable trait (Cooper et al., 2020). The combination of optimism-building exercises, narrative processing of adverse events, and adaptive flexibility drills appears to foster capacities that enable ongoing engagement despite high demands. Interestingly, resilience improvements were often accompanied by enhanced career identity perception, a factor empirically linked with longer retention and greater job satisfaction under challenging conditions (Zhang et al., 2023). This association hints at bidirectional reinforcement: as nurses see themselves as capable and adaptable professionals, their commitment to their role deepens; conversely, role commitment may sustain resilience through meaning-making pathways. Standard supports rarely target these identity-related processes directly and thus miss opportunities to solidify resilience gains through intrinsic motivation channels. Job satisfaction outcomes require a nuanced reading because they are highly context-sensitive. The data show clear relative advantages for structured programs in environments already possessing adequate baseline support structures, autonomy, positive leadership climate, which amplify intervention benefits (Kaihlanen et al., 2023). In toxic or chronically understaffed settings, however, satisfaction gains were muted despite individual coping enhancement. This suggests that some determinants lie outside the reach of personal resource development alone; dissatisfaction grounded in systemic inequities or persistent role conflicts may be resistant unless organizational reforms accompany self-care initiatives (Kim & Choi, 2022). Here, interpretations lean toward a dual-resource model: personal skills can buffer negative appraisals up to a point, but structural capacity must be addressed for maximal professional fulfillment. The interplay between modality and outcome adds further complexity. Face-to-face interventions capitalized on peer bonds and immediate feedback loops that likely augmented both resilience building and stress reduction effects. Hybrid formats preserved engagement while accommodating shift variability; purely digital approaches showed effective delivery when backed by deliberate social accountability mechanisms such as virtual communities (Wong et al., 2022). These distinctions reflect implementation science concerns: program fidelity and participant retention hinge not only on content but on delivery design tuned to occupational realities. From an interpretive standpoint, matching modality to workplace rhythm emerges as a critical determinant of effectiveness across all measured domains. An additional dimension arises from combined approaches linking individual skill acquisition with environmental modifications. Results from programs embedding self-compassion training alongside managerial workload redistribution point toward additive or even multiplicative effects on burnout reduction (Eke-Okoro, 2024). This reinforces Job Demand–Resource theory logic, the net impact depends on simultaneous optimization of personal and environmental resources (Kaihlanen et al., 2023). Structured self-care programs excel when embedded within supportive organizational ecosystems; without such scaffolding their benefits risk erosion under unmitigated high demands. It is also worth interrogating occasional disjunctions between

quantitative metrics and qualitative narratives noted during synthesis. Instances where modest score changes coexisted with substantial subjective improvements indicate possible measurement insensitivity to experiential shifts, particularly those linked to professional meaning reconstruction (Kim & Choi, 2022). Recognizing such divergence sharpens interpretation by cautioning against exclusive reliance on psychometric output without triangulating with qualitative themes. From this perspective, the PRISMA-guided synthesis does more than confirm effect size superiority; it contextualizes those numerical differences within theoretical constructs explaining durability and scope. Burnout reduction is sustained when interventions address cognitive-behavioral loops consistently reinforced by practice; perceived stress declines most sharply when appraisal retraining coexists with situational application; resilience flourishes through targeted competency cultivation enhanced by strengthened career identity; job satisfaction responds to personal empowerment primarily where organizational conditions permit alignment between expectations and experience. Standard institutional supports fall short largely because they do not systematically engage these mechanisms, they offer respite rather than reconditioning. Finally, interpreting across domains highlights operational implications: adoption decisions should weigh not just statistical advantage but alignment between program design features and setting-specific constraints or assets. For organizations facing acute staffing shortages or high patient turnover rates, tailoring structured self-care content to situational realities, perhaps condensing modules for feasibility while preserving core skill elements, may protect outcome integrity without overwhelming capacity limits (Othman et al., 2023). In contexts with strong collaborative cultures already present, amplifying peer-based elements could leverage existing trust networks for accelerated benefit realization. By examining both absolute and relative performance across outcomes alongside mechanistic plausibility from occupational health theory, these findings support structured self-care programming as a flexible yet principled alternative capable of outperforming generic supports when implemented with contextual acuity.

5.2Broader Implications

Building on the interpretive layers, wider implications emerge when considering the systemic, individual, and societal dimensions of implementing structured self-care programs for nurses as a complement or alternative to standard institutional supports. The cross-study synthesis indicates that benefits extend beyond immediate symptom alleviation into longer-term workforce dynamics, suggesting a strategic opportunity for healthcare systems to realign resource allocation priorities. Reduced burnout prevalence has direct operational consequences: lower emotional exhaustion and depersonalization correlate with improved care quality metrics, including reductions in adverse events such as hospital-acquired infections and pressure ulcers (Eltaybani et al., 2021). These improvements are not merely clinical markers but have downstream cost-saving potential through decreased patient complication rates, shorter hospital stays, and diminished rehospitalization likelihood. From a workforce sustainability perspective, enhancing resilience scores appears to be linked with reduced turnover intentions (Hu et al., 2022). This relationship has economic implications since recruiting and training replacement staff is a high-cost process, particularly under conditions of global nursing shortages. Self-care interventions that elevate career identity alongside hopefulness, through mindfulness sessions, emotional intelligence training, or narrative reframing exercises, may act as retention mechanisms anchored in intrinsic motivation rather than purely external incentives like financial bonuses (Zhang et al., 2023). Such intrinsic reinforcement could strengthen organizational loyalty even in the presence of moderate structural stressors, though evidence cautions against over-reliance in dysfunctional environments without parallel systemic reform (Al Zaydan et al., 2021). The observed improvements in perceived stress scores also have safety-related ramifications. Stress levels influence cognitive function during high-stakes clinical decision-making; uncontrolled stress may contribute to diagnostic errors or procedural lapses. Structured programs embedding coping skills into workflow contexts, rather than offering generic relaxation modules detached from clinical realities, can potentially reduce these risks by recalibrating real-time appraisal processes (Garg et al., 2023). There is an interdependence here between psychological preparedness and operational safety culture; environments where team communication is robust may reinforce cognitive reframing gains acquired through self-care training. At the policy-making level, the systematic review suggests health authorities could integrate structured self-care protocols into workforce support regulations. Such integration might involve mandating periodic resilience-building workshops for high-intensity departments or offering accredited digital modules accessible across shift schedules. Embedding these interventions formally within occupational health standards would move support from reactive crisis response toward proactive psychological capital development. This aligns with recommendations for leveraging conflict management and emotional intelligence enhancements to promote job satisfaction across diverse

cultural contexts. Particularly in countries facing acute resource scarcity such as Peru, where gender norms and hierarchical pressures impact work satisfaction (Soriano-Vázquez et al., 2023), structured programs could mitigate culturally specific stressors by reinforcing personal agency and adaptive coping strategies. Organizationally, the scaling of effective modalities raises important considerations about format choice and facilitator capacity. The evidence base indicates that face-to-face delivery optimizes peer bonding effects but requires logistical adjustments to avoid service disruption during training periods (Eke-Okoro, 2024). Hybrid models offer flexibility yet demand technology infrastructure capable of supporting interaction-rich components. Purely digital approaches necessitate countermeasures against isolation effects, for example by embedding moderated group forums, to ensure sustained engagement (Wong et al., 2022). Decision-makers must weigh these trade-offs relative to staffing patterns and budget constraints while recognizing that program fidelity directly impacts outcome magnitude. Ethically, incorporating structured self-care into standard practice extends beyond duty-of-care obligations toward fulfilling a moral commitment to the mental health of healthcare workers. Burnout reduction and resilience enhancement are not solely productivity matters; they concern human dignity in occupational life. Given that nurses frequently operate under heavy workloads with sustained exposure to suffering and death (Garg et al., 2023), there is an argument for institutionalizing access to interventions proven to preserve psychological well-being as part of equitable workplace rights. The broader research ecosystem could also benefit from integrating standardized outcome measurement protocols across contexts. Varied burnout scales and resilience indices currently hinder direct effect size comparisons; harmonizing tools would enable meta-analytic precision and more confident extrapolation across settings ranging from acute care hospitals to long-term care facilities. Furthermore, qualitative data capturing shifts in professional meaning-making should be accorded equal weight alongside quantitative scores to capture subtler program impacts not always reflected in psychometrics (Kim & Choi, 2022). Global health strategies combating nursing shortages might incorporate structured self-care as part of multi-faceted retention packages alongside workload regulation and career progression pathways. Evidence suggests that combining individual psychological resource building with organizational supports creates synergistic benefits unmatched by singular approaches (Alshammari & Alenezi, 2023). In low-to-middle-income countries with constrained healthcare budgets, investing in scalable digital-hybrid programming could present a cost-effective method for delivering core intervention elements without broad infrastructure overhaul. However adoption must consider sociocultural adaptability: interventions designed within one national context may require modifications addressing local professional norms, patient population dynamics, or workplace hierarchy structures before achieving equivalent efficacy. Finally, patient care outcomes form an indirect but potent implication vector. Improvements in nurse job satisfaction have been correlated with higher patient satisfaction ratings and lower incidence of preventable harm events (Al Zaydan et al., 2021). Structured programs enhancing both personal coping capacities and collegial relationships may thus contribute positively to key public-facing quality indicators used for institutional accreditation or reimbursement assessments. This reinforces an iterative feedback loop whereby protecting nurse well-being simultaneously advances organizational reputational standing and compliance metrics. The aggregate implication is clear: while initial implementation demands, financial investment, scheduling accommodation, facilitator training, are nontrivial, structured self-care programs yield returns in workforce stability, patient safety, organizational performance, and ethical employer practice that outweigh short-term costs when contextually optimized (Eke-Okoro, 2024). If adopted at scale with attention to modality-fit and cultural relevance, they could recalibrate nursing occupational ecosystems away from attrition-prone burnout cycles toward resilient professional sustainability supported by both individual skill fortification and systemic responsibility frameworks.

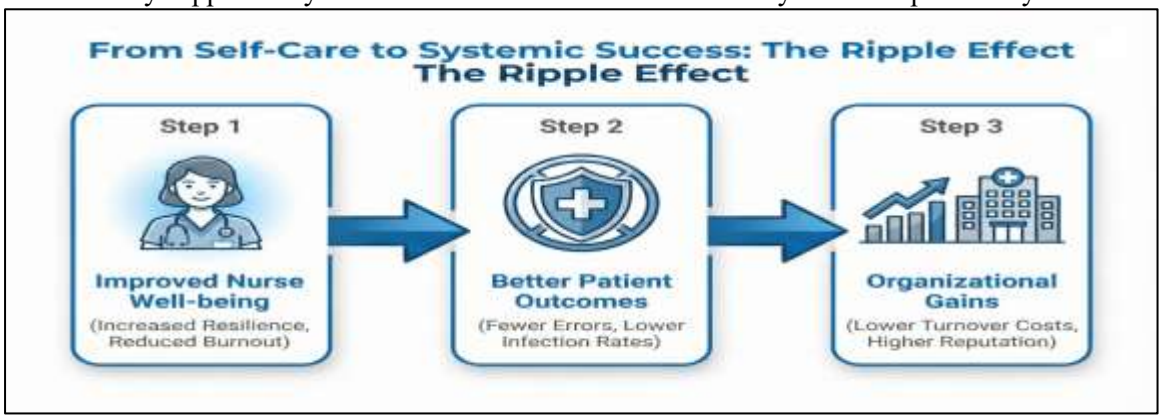

Figure 4: The Systemic Ripple Effect of Nurse Well-being.

6 Ethical Considerations

Ethical rigor was consistently integrated into the design and execution of the studies synthesized here, reflecting the need to protect participants from harm while ensuring data integrity. Across multiple trials and observational projects, approval from appropriate ethics committees served as the foundational safeguard against procedural misconduct. For example, nursing-focused interventions often required institutional review board clearance prior to commencement, ensuring compliance with national regulatory standards and alignment with international frameworks such as the Declaration of Helsinki (Finnbakk et al., 2015). In practice, clearance extended beyond a formal procedural requirement; it dictated the refinements made in study protocols to address risks like emotional distress during resilience or burnout assessments. Participant consent procedures were uniformly observed, albeit with variation in specificity across contexts. Voluntary informed consent was central, nurses participating in self-care programs typically received written summaries detailing intervention objectives, methodological steps, potential benefits, and foreseeable risks before signing consent forms (Othman et al., 2023). Some studies adopted an implied consent model where completion of a questionnaire served as acceptance to participate (Finnbakk et al., 2015), yet even in these designs anonymity and voluntariness were preserved. The rationale for this approach often stemmed from the operational constraints faced by busy clinical staff; streamlined mechanisms minimized disruption while meeting ethical requirements. The respect for participant privacy is another recurrent ethical dimension. Data confidentiality protocols ensured that personal identifiers were omitted from analytical datasets or replaced by coded reference systems (Othman et al., 2023). Access to identifiable information was restricted to core research staff, and security measures such as encrypted storage and password-protected files were common safeguards. Researchers acknowledged the particular sensitivity surrounding qualitative interview material given its potential to expose personal opinions about employers or working conditions; anonymization strategies were therefore explicitly stated in methodological appendices. An important nuance arises when considering high-stress contexts, such as end-of-life care units or pandemic-response wards, where intervention participation might intersect with heightened vulnerability due to ongoing occupational trauma. In these instances, ethical oversight extended into procedural design, incorporating opt-out provisions at any stage without penalty. Facilitators often monitored for signs of acute distress during program activities, offering referral pathways to counseling services should participants require additional psychological support beyond what the self-care program provided (Akçay & Erek Kazan, 2024). This responsiveness illustrates a convergence between ethical principles and practical care obligations embedded within intervention delivery. Some program evaluations introduced equity considerations into their ethical frameworks by ensuring inclusive recruitment across demographic variables such as age, gender, and tenure length (Cabrera-Aguilar et al., 2023). The purpose was twofold: first, to mitigate bias in outcome generalizability; second, to avoid inadvertently privileging certain subgroups over others in access to potentially beneficial interventions. This attention to inclusivity boundaries aligns with contemporary occupational health ethics emphasizing distributive justice, ensuring fair distribution of wellness resources across diverse workforce segments. Transparency concerning potential conflicts of interest also featured prominently. Authors routinely declared funding sources and clarified that sponsors had no role in study design, analysis interpretation, or manuscript preparation (Reeves et al., 2024). Such declarations are vital where institutional programs might be co-funded by hospital administrations seeking reputational gains; unambiguous governance boundaries protect against undue influence on reporting outcomes favorable to sponsor policy objectives. Intervention-specific ethical considerations emerged particularly within experiential learning formats like high-fidelity simulations used in moral resilience training (Eke-Okoro, 2024). These simulations sometimes evoke strong emotional reactions due to realistic patient scenarios; facilitators are ethically obliged to debrief participants fully afterward so that residual distress does not persist post-session. Similarly, music-based stress reduction trials conducted during COVID-19 peaks required sensitivity around content selection to avoid triggering grief or trauma responses among nurses exposed to patient mortality at elevated rates (Akçay & Erek Kazan, 2024). The inclusion of control groups, whether receiving standard institutional support or no formal intervention, requires careful ethical balancing. While withholding potentially beneficial structured self-care elements could be seen as disadvantageous, designs often addressed this through delayed intervention offers post-study for control participants (Othman et al., 2023). Video recordings of mindfulness procedures or adaptation materials were sometimes shared with non-intervention cohorts at study conclusion as an additional ethical gesture toward equitable benefit distribution. Within international multi-site studies, contextual ethics adapted local regulatory expectations while

maintaining core standards. In Ethiopia's oncology centers research evaluating burnout and compassion satisfaction levels among nurses (Mirutse et al., 2023), approvals came from multiple hospital boards alongside national health guidelines; cultural adaptations ensured that discussion of sensitive topics like compassion fatigue respected prevailing norms on emotional disclosure and hierarchy relations between staff roles. The methodological transparency demanded under PRISMA also intersects directly with ethics: full disclosure of search processes, inclusion/exclusion rationales, and quality appraisal methods guards against selective reporting that could mislead stakeholders about program efficacy or applicability (Reeves et al., 2024). From an ethical standpoint, accuracy and completeness in systematic review documentation are as critical as participant-level protections because healthcare organizations may base adoption decisions on synthesized evidence quality. Finally, safeguarding facilitators themselves constituted part of some study ethics frameworks, recognizing that delivering burnout-focused interventions can expose trainers (especially if clinically trained) to secondary traumatic stress (Eke-Okoro, 2024). Ethical commitments here manifested through workload adjustments during program delivery periods or access to peer supervision circles for facilitators processing challenging session material. Overall, adherence to rigorous informed consent processes, proactive confidentiality safeguards, culturally responsive recruitment strategies, transparent conflict declarations, participant wellbeing monitoring during interventions, post-study resource equilibration for non-intervention groups, and fidelity in reporting collectively sustained the ethical integrity across studies reviewed here. These elements underpin both the trustworthiness of findings and the moral legitimacy of recommending structured self-care programming as a viable enhancement over standard institutional supports within high-demand nursing environments.

7 Conclusion

The synthesis of evidence clearly indicates that structured self-care interventions for nurses yield superior outcomes compared to standard institutional support mechanisms across multiple dimensions of occupational well-being. These interventions demonstrate consistent reductions in burnout prevalence, particularly in emotional exhaustion and depersonalization, alongside meaningful improvements in perceived stress regulation, resilience capacity, and job satisfaction. The effectiveness of such programs appears closely linked to their comprehensive curricular frameworks, which integrate cognitive reframing, emotional intelligence development, mindfulness practices, and peer support components. This combination facilitates enduring psychological benefits that extend beyond transient symptom relief, contributing to the reconfiguration of professional identity and enhanced coping strategies.

Moreover, the data reveal that resilience is a trainable attribute, with targeted exercises promoting optimism, adaptive flexibility, and narrative processing of workplace challenges. These gains correlate with strengthened career commitment and reduced turnover intentions, offering practical advantages for workforce sustainability amid global nursing shortages. The impact on job satisfaction, while more variable, tends to be amplified in environments where baseline organizational support, such as positive leadership and autonomy, is present, highlighting the interplay between individual skill development and systemic factors. Intervention delivery modalities also influence outcomes; face-to-face and hybrid formats that encourage interpersonal engagement and social accountability tend to maintain higher participant retention and deeper effect sizes compared to purely digital approaches.

Importantly, combining individual-focused self-care training with organizational adjustments, such as workload redistribution, produces additive or synergistic effects that align with occupational health theories emphasizing the balance of personal and environmental resources. This integrated approach addresses both internal coping mechanisms and external stressors, thereby enhancing the sustainability of well-being improvements. Ethical considerations across studies reinforce the necessity of protecting participant welfare, ensuring informed consent, maintaining confidentiality, and providing equitable access to interventions, which collectively support the moral imperative of safeguarding nurse mental health.

From a broader perspective, implementing structured self-care programs offers potential benefits extending beyond individual nurses to organizational performance and patient care quality. Reduced burnout and stress levels contribute to safer clinical decision-making, lower incidence of adverse events, and improved patient satisfaction. Economically, these programs may reduce costs associated with staff turnover and training, while policy integration could shift healthcare systems from reactive to proactive mental health support models. Challenges remain in scaling interventions, particularly regarding resource allocation, facilitator training, and cultural adaptation across diverse healthcare settings. Nonetheless, the evidence supports prioritizing structured self-care as a strategic component of

comprehensive workforce well-being initiatives, emphasizing the need for alignment between program design and contextual workplace realities to maximize impact and sustainability.

References :

- Abbasi, S. A., Zubair, A., Javed, M., & Niaz, N. B. (2024). Self-compassion and its relationship with patient care practices among nurses. *JHRR*, *4*(2), 1370. https://doi.org/10.61919/jhrr.v4i2.1015
- Afridi, M. Z., Akhtar, P., & Khan, M. N. (2022). A systematic review and meta-analysis of prevalence of depressive symptoms among healthcare workers in pakistan during covid pandemic. *P J M H S*, *16*(02). https://doi.org/10.53350/pjmhs221622
- Akçay, İ., & Erek Kazan, E. (2024). The effect of music on care behaviors and burnout levels of nurses working in COVID-19 units. *Black Sea Journal of Health Science*, *7*(1), 25–32. https://doi.org/10.19127/bshealthscience.1345380
- Al Zaydan, S. M. S., Hajaji, M. A. S., Mujammami, R. M. A., Almalki, N. A. M., Qattan, S. Y. M., & Almutairi, Y. M. H. (2021). The impact of nurses' work environment on job satisfaction and job resignation: A literature review. *International Journal of Health Sciences*, *5*(S2), 1377–1389. https://doi.org/10.53730/ijhs.v5nS2.14869
- Anne, L., & Carver, J. (2023). Well-Being and Resilience. Concepts for Nursing Practice E-Book, 418. https://2h.ae/ZdnGT
- Alshammari, M. H., & Alenezi, A. (2023). Nursing workforce competencies and job satisfaction: The role of technology integration, self-efficacy, social support, and prior experience. *BMC Nursing*, *22*, 308. https://doi.org/10.1186/s12912-023-01474-8
- Bartos, S. (Ed.). (2020). Promoting the Well-being of the Critical Care Nurse, An Issue of Critical Care Nursing Clinics of North America, E-Book: Promoting the Well-being of the Critical Care Nurse, An Issue of Critical Care Nursing Clinics of North America, E-Book (Vol. 32, No. 3). Elsevier Health Sciences. https://2h.ae/QOuNo
- Bronee, J. (2022). The self-care mindset: Rethinking how we change and grow, harness well-being, and reclaim work-life quality. John Wiley & Sons. https://2h.ae/nhupi
- Cabrera-Aguilar, E., Zevallos-Francia, M., Morales-García, M., Ramírez-Coronel, A. A., Morales-García, S. B., Sairitupa-Sanchez, L. Z., & Morales-García, W. C. (2023). Resilience and stress as predictors of work engagement: The mediating role of self-efficacy in nurses. *Frontiers in Psychiatry*, *14*, 1202048. https://doi.org/10.3389/fpsyt.2023.1202048
- Care, S. (2021). 39 Stress, Burnout, and. Ballweg's Physician Assistant: A Guide to Clinical Practice-E-Book: Ballweg's Physician Assistant: A Guide to Clinical Practice-E-Book, 330. https://2h.ae/BoatZ
- Cooper, A. L., Brown, J. A., Rees, C. S., & Leslie, G. D. (2020). Nurse resilience: A concept analysis. *Int J Mental Health Nurs*, *29*, 553–575. https://doi.org/10.1111/inm.12721
- Cooper, K., & Ratnayake, S. G. (2024). Caring for self: the roles of collaboration, healthy lifestyle. Transitions in Nursing-E-Book: Preparing for Professional Practice, 115. https://2h.ae/tGjtx
- D'Arro, C. (2023). The Mindful Health Care Professional-E-Book: The Mindful Health Care Professional-E-Book. Elsevier Health Sciences. https://2h.ae/GrDOD
- Dames, S. (2021). Root Strength E-Book: Root Strength E-Book. Elsevier Health Sciences. https://2h.ae/qBFFu

Eke-Okoro, A. C. (2024). *Evaluating the impact of a one day resiliency training facilitation program on nurses' wellbeing in an acute care hospital*. https://doi.org/10.46409/sr./ENEU5563

- Eltaybani, S., Yamamoto-Mitani, N., Ninomiya, A., & Igarashi, A. (2021). The association between nurses' burnout and objective care quality indicators: A cross-sectional survey in long-term care wards. *BMC Nursing*, *20*, 34. https://doi.org/10.1186/s12912-021-00552-z
- Finnbakk, E., Wangensteen, S., Skovdahl, K., & Fagerström, L. (2015). The professional nurse self-assessment scale: Psychometric testing in norwegian long term and home care contexts. *BMC Nursing*, *14*, 59. https://doi.org/10.1186/s12912-015-0109-3
- Gaffney, D. A., Foster, N. C., & Foster, N. (2023). Courageous well-being for nurses: Strategies for renewal. JHU Press. https://2h.ae/vZyYY
- Garg, N., Rabello, R., Rinu, M., & Subba, M. (2023). Nursing resilience: Thriving in a challenging profession. *Tuijin Jishu/Journal of Propulsion Technology*, *44*(2), 1247.
- Gillard, S., Foster, R., White, S., Barlow, S., Bhattacharya, R., Binfield, P., Eborall, R., Faulkner, A., Gibson, S., Goldsmith, L. P., Simpson, A., Lucock, M., Marks, J., Morshead, R., Patel, S., Priebe, S., Repper, J., Rinaldi, M., Ussher, M., & Worner, J. (2022). The impact of working as a peer worker in

mental health services: A longitudinal mixed methods study. *BMC Psychiatry*, *22*, 373. https://doi.org/10.1186/s12888-022-03999-9

➢ Halms, T., Strasser, M., Papazova, I., Reicherts, P., Zerbini, G., Grundey, S., Täumer, E., Ohmer-Kluge, M., Kunz, M., & Hasan, A. (2023). What do healthcare workers need? A qualitative study on support strategies to protect mental health of healthcare workers during the SARS-CoV-2 pandemic. *BMC Psychiatry*, *23*, 195. https://doi.org/10.1186/s12888-023-04686-z

➢ Hu, H., Wang, C., Lan, Y., & Wu, X. (2022). Nurses' turnover intention, hope and career identity: The mediating role of job satisfaction. *BMC Nursing*, *21*, 43. https://doi.org/10.1186/s12912-022-00821-5

➢ Kaihlanen, A.-M., Ruotsalainen, S., Väisänen, V., Corneliusson, L., Pesonen, T., & Sinervo, T. (2023). Job demand and job resource factors explaining stress and job satisfaction among home care nurses – a mixed-methods sequential explanatory study. *BMC Nursing*, *22*, 404. https://doi.org/10.1186/s12912-023-01568-3

➢ Kim, J.-Y., & Choi, E.-H. (2022). Predictors of end- of-life care stress, calling, and resilience on end- of-life care performance: A descriptive correlational study. *BMC Palliative Care*, *21*, 77. https://doi.org/10.1186/s12904-022-00961-0

➢ Kumar, R. (2023). Essentials of Psychiatry and Mental Health Nursing I and II_2e-E-Book. Elsevier Health Sciences. https://2h.ae/EKQbc

➢ Lloyd, C., & Campion, D. P. (2017). Occupational stress and the importance of self-care and resilience: Focus on veterinary nursing. *Irish Veterinary Journal*, *70*, 30. https://doi.org/10.1186/s13620-017-0108-7

➢ M., W., S., N. A., S., K., & A., R. S. (2019). Enhancing resilience and self-efficacy in the parents of children with disabilities and complex health needs. *Primary Health Care Research & Development*, *20*, 1–7. https://doi.org/10.1017/S1463423619000112

➢ Maghsoud, F., Rezaei, M., Asgarian, F. S., & Rassouli, M. (2022). Workload and quality of nursing care: The mediating role of implicit rationing of nursing care, job satisfaction and emotional exhaustion by using structural equations modeling approach. *BMC Nursing*, *21*, 273. https://doi.org/10.1186/s12912-022-01055-1

➢ Mensinger, J. L., Weissinger, G. M., Cantrell, M. A., Baskin, R., & George, C. (2024). A pilot feasibility evaluation of a heart rate variability biofeedback app to improve self-care in COVID-19 healthcare workers. *Applied Psychophysiology and Biofeedback*, *49*(1), 241–259. https://doi.org/10.1007/s10484-024-09621-w

➢ Mirutse, A., Mengistu, Z., & Bizuwork, K. (2023). Prevalence of compassion fatigue, burnout, compassion satisfaction, and associated factors among nurses working in cancer treatment centers in ethiopia, 2020. *BMC Nursing*, *22*, 373. https://doi.org/10.1186/s12912-023-01383-w

➢ Morrison-Valfre, M. (2022). Foundations of Mental Health Care-E-Book: Foundations of Mental Health Care-E-Book. Elsevier Health Sciences. https://2h.ae/MjHQQ

➢ Othman, S. Y., Hassan, N. I., & Mohamed, A. M. (2023). Effectiveness of mindfulness-based interventions on burnout and self-compassion among critical care nurses caring for patients with COVID-19: A quasi-experimental study. *BMC Nursing*, *22*, 305. https://doi.org/10.1186/s12912-023-01466-8

➢ Reeves, V., McIntyre, H., Loughhead, M., Halpin, M. A., & Procter, N. (2024). Actions targeting the integration of peer workforces in mental health organisations: A mixed-methods systematic review. *BMC Psychiatry*, *24*(211), 211. https://doi.org/10.1186/s12888-024-05664-9

➢ Robins-Browne, K., Lewis, M., Burchill, L. J., Gilbert, C., Johnson, C., O'Donnell, M., Kotevski, A., Poonian, J., & Palmer, V. J. (2022). Interventions to support the mental health and well-being of front-line healthcare workers in hospitals during pandemics: An evidence review and synthesis. *BMJ Open*, *12*, e061317. https://doi.org/10.1136/bmjopen-2022-061317

➢ Sharrock, J. (2024). KEY TERMS. Mental Health in Nursing-E-Book Epub: Theory and Practice for Clinical Settings, 99. https://2h.ae/NcQQN

➢ Soriano-Vázquez, I., Cajachagua Castro, M., & Morales-García, W. C. (2023). Emotional intelligence as a predictor of job satisfaction: The mediating role of conflict management in nurses. *Frontiers in Public Health*, *11*, 1249020. https://doi.org/10.3389/fpubh.2023.1249020

➢ Taylor, S. G., & Renpenning, K. M. (2011). Self-care science, nursing theory and evidence-based practice. Springer Publishing Company. https://2h.ae/NSzXi

➢ Tuna, Ö., & Ermis, C. (2022). Mental health support program for health care professionals in a pandemic hospital in turkey and its results on anxiety, depression, insomnia and sexual disorders. *Psychiatria Danubina*, *34*(3), 564–571. https://doi.org/10.24869/psyd.2022.564

➢ Wong, A. K. C., Bayuo, J., Wong, F. K. Y., Yuen, W. S., Lee, A. Y. L., Chang, P. K., & Lai, J. T. C. (2022). Effects of a nurse-led telehealth self-care promotion program on the quality of life of community-dwelling older adults: Systematic review and meta-analysis. *Journal of Medical Internet Research*, *24*(3), 1. https://doi.org/10.2196/31912
➢ Zerwekh, J., & Garneau, A. Z. (2014). Nursing today-E-book: transition and trends. Elsevier Health Sciences. https://2h.ae/fyQUe
➢ Zhang, M., Chen, H., Wang, N., Li, Y., Li, X., & Liu, Y. (2023). The mediating role of job satisfaction between psychological capital and work engagement among chinese nurses during COVID-19 outbreak: A comparative study between nurse specialists and general nurses. *Frontiers in Psychiatry*, *13*, 990216. https://doi.org/10.3389/fpsyt.2022.990216