

Promoting Resilience and Stress Management Strategies in Nursing Education: A Comprehensive Review of Interventions

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Abstract

Background: Resilience in nursing is increasingly recognized as a vital attribute that enables healthcare professionals to cope with stressors and challenges in demanding environments. Understanding how to promote resilience is essential for mitigating burnout and enhancing job satisfaction among nurses. This study reviews various interventions aimed at fostering resilience in nursing education, particularly in light of the challenges posed by the COVID-19 pandemic. *Methods:* A review was conducted, analyzing 18 randomized controlled trials focused on resilience interventions for nurses. The literature was sourced from databases including CINAHL, Cochrane Library, Embase, Medline, and Scopus, employing various keywords related to resilience, coping strategies, and nursing interventions. The effectiveness of digital and face-to-face resilience training methods was evaluated, considering their immediate, short-term, and long-term impacts. *Results:* The findings indicated that digital resilience interventions demonstrated short-term efficacy, particularly at the 4–5-month follow-up. In contrast, face-to-face interventions did not yield significant improvements in resilience outcomes. The results suggest that while digital methods provide immediate benefits, their long-term effectiveness requires further investigation. A notable aspect of the study was the identification of the need for tailored interventions that consider individual preferences and learning styles. *Conclusion:* This review highlights the importance of developing context-specific resilience training programs for nurses. Digital interventions may offer flexible, accessible solutions that can enhance resilience in the short term; however, sustained support and monitoring are necessary to maximize their effectiveness. Future research should focus on larger sample sizes and interdisciplinary approaches to enhance the understanding and application of resilience-building strategies in nursing practice..

Keywords: Resilience, Nursing Education, Stress Management, Digital Interventions, Review.

Introduction

Resilience is a complex and evolving concept that is interpreted differently across several professional fields. Cabanyes Truffino (1) defines resilience as the capacity to thrive in adverse circumstances, including invulnerability, adaptive behaviors, and psychological fortitude. Resilience is a multifaceted concept that encompasses individual, social, or organizational levels, defined by a healthy performance trajectory, deliberate effort, positive disposition, dynamic capability, and the potential to maintain well-being after an adverse occurrence (2). The definition of resilience as either a characteristic or a process remains contentious; yet it is recognized as an adaptive dynamic process that fosters people or organizations (3). Sutcliffe et al. (4) assert that resilience has both static and dynamic attributes, with variations in resilience levels linked to certain contexts. Furthermore, it is contended that resilience might not be consistently

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improved, contingent upon individual capabilities and circumstances (5). Consequently, understanding the attributes of endurance in nursing may assist nurses in formulating methods to enhance their capacity to withstand extreme strain and hardship.

Nurse resilience is essential for addressing the many problems faced in healthcare environments. Resilience is recognized as a mediator, protector, and ameliorator that assists nurses in mitigating burnout, confronting adversity, and adapting to their environment (6-8). Resilience is characterized as an inherent resource, encompassing personal belief and self-transformative capability, which enables nurses to enhance their capacity and coping mechanisms, converting detrimental energy into an internal strength that fosters a strong feeling of self-efficacy (7, 9, 10). Moreover, resilience has a favorable correlation with social support and job happiness, while demonstrating a negative association with stress, burnout, and workplace bullying (7, 11). Resilient nurses demonstrate improved coping skills, adaptive techniques, and the capacity to recover from trauma (12). They may more effectively manage workplace stress, alleviate burnout, and maintain their well-being while providing great patient care (13). Consequently, cultivating resilience may assist nurses in transforming adverse circumstances (for instance, stressful circumstances) into positive incentives (e.g., educational chances) to mitigate their susceptibility while confronting obstacles in the job (14).

Improving resilience is crucial for the well-being of nurses and the health of the workplace. A nurse shortage was recognized prior to the COVID-19 pandemic and intensified by the global crisis (15, 16), which resulted in diminished retention, leading to an increased workload, consequently causing elevated levels of stress, burnout, and anxiety (17-19). Consequently, augmenting resilience may assist nurses in fostering positive adaptation, optimizing psychological functioning, and mitigating mental susceptibility, so alleviating burnout, stress, despair, and anxiety (20, 13). Organizations should protect their nurses and assume responsibility for formulating strategies that enhance nurses' intrinsic capacity to adjust to the work environment, thereby promoting resilience assets as well as growth (7, 14).

Recognizing the significance of resilience, several treatments have been developed to enhance nurse resilience. These therapies include a range of methods, such as mindfulness-based stress reduction (MBSR), cognitive-behavioral techniques, self-care measures, and workplace education (19, 21). Their variation is contingent upon content length and delivery methods, including or excluding group activities, and integrating mindfulness and resilience training, behavioral and behavioral therapy, meditation, and problem-solving abilities (22). These programs often seek to empower nurses with competencies to manage stress, develop emotional intelligence, provide a supportive workplace, and improve coping mechanisms.

The impact of resilience treatments on nurses has varied according on the methodologies used. Mealer et al. (23) conducted research that showed a face-to-face multimodal endurance program significantly enhanced the resilience of critical care nurses. Conversely, their latest research used a mindfulness-based cognitive therapy, or MBCT, therapy among critical care nurses, revealing no statistically significant change in resilience between the intervention group and control categories (24). The 12-week face-to-face strategy in Mealer et al. (23) encompassed a two-day educational class written exposure treatment. MBSR (mindfulness-based stress reduction) procedures, a three-month gym membership for physical activity, and event-triggered counseling sessions. The research by Mealer et al. (24) used a 12-week intervention that included face-to-face and digital modalities, using Mindfulness-Based Cognitive Therapy (MBCT) and Mindful Mood Balance (MMB) tailored for the intensive care unit (ICU) work environment. The conflicting findings from the two studies suggest that social connection is crucial for resilience, consistent with a systematic study by Yu et al. (7) that found social support as a positively correlated component to resilience. Consequently, a judicious intervention should include multimodal resilience training, which may cater to diverse learning styles and levels of engagement, to get the desired outcomes.

Resilience therapies are often administered using digital platforms owing to technological advancements. Research conducted in France revealed that a four-week web-based SPARK resilience training enhanced nurses' efficacy and employment retention (25). A systematic review of resilience interventions for health professionals revealed that not all interventions were effective, and those with longer durations tended to enhance resilience levels more effectively (26); therefore, the duration, type, and implementation of

interventions may influence their efficacy. Considering the varied consequences of treatments, it is an ideal moment to thoroughly assess the immediate and enduring implications of resilience strategies implemented via digital and in-person methods. This systematic review was conducted to identify intervention options and evaluate their immediate (< 3 months), short-term (3–6 months), and long-term (> 6 months) impacts on nurse resilience. During the performance of this research, no current process for such an evaluation was identified. Prior to submitting our evaluation, we identified a systematic review on resilience techniques in nurses published in 2022 (21). This review enhances the current knowledge by integrating data from 12 more published research.

Methods

We conducted a search of CINAHL, Cochrane Library, Embase (OVID), Medline, and Scopus till 2023. The search strategy included a variety of MeSH terms and phrases, including “resilience,” “hardness,” “coping,” “nurse,” “intervention,” “clinical trial,” and “randomised control trials.”

Intervention Modalities

Four different types of interventions were found in the comparable groups (Intervention vs. Control): Face-to-Face Resilience Intervention vs. No Intervention, Digital Resilience Assistance vs. Digital Intervention, Digital Resilience Assistance vs. Digital Action, and Face-to-Face Resiliency Intervention vs. Face-to-Face Intervention. In 18 trials, we observed that although the digital resilience intervention did not influence resilience in nurses at the 1-month or less, 1–2-month, and 3-month updates, it had a beneficial impact at the 4–5-month follow-up, which was not sustained beyond 6 months. Furthermore, we discovered that in-person resilience programs had no impact at any follow-up assessments. This systematic study highlights the need for a sophisticated approach to resilience treatments for nurses, emphasizing the use of digital approaches for immediate benefits.

The discovery of a favorable outcome at the 4–5-month monitoring suggests that the online resilience program may not promptly improve resilience or could have a delayed impact on resilience. This finding corresponds with previous study (21), indicating that the initial effects of treatments designed to improve resilience may not necessarily be apparent or quantifiable in short periods. A notable change occurred at the 4–5-month monitoring, where the online resilience intervention demonstrated a considerable and beneficial influence on resilience ratings, suggesting that the intervention's positive impact may require additional time to become evident (27). The delayed beneficial impact illustrates that resilience is an ongoing endeavor indicating that nurses need time to cultivate abilities from their experiences to manage stressful situations (22). Nonetheless, this postponed beneficial impact was not sustained for six months. This may pertain to the study strategy (e.g., treatment content, length and method of delivery, diverse resilience measures), individual factors (e.g., participant learning preferences, age), and clinical contexts (e.g., workplace environment, organizational support). The findings illustrate the intricate nature of resilience and its dynamic process; consequently, researchers should regard resilience as a process rather than a mere results (22) to identify protective factors, thereby formulating institutional strategies to bolster nurse resilience.

The Efficacy of Digital Resilience Treatments

Multiple factors may be hypothesized to explain the efficacy of digital resilience treatments. Digital interventions provide instantaneous availability of resources and materials, free from scheduling limitations. Participants may use digital channels at their discretion, perhaps resulting in an instantaneous acquisition of knowledge and plans. This accessibility eliminates obstacles that may hinder face-to-face treatments, perhaps delaying initial involvement and engagement. Secondly, the digital interventions may have included interactive elements, including quizzes or multimedia material, which are recognized for their ability to improve engagement and prompt instant involvement (28). These interactive components may attract attention and incite instant interest, encouraging users to participate more actively with the intervention material than in face-to-face environments, where involvement is limited to the sessions. Thirdly, digital treatments often include self-directed learning modules, enabling participants to advance at their own pace

(28). This flexibility facilitates rapid engagement, allowing users to access material according to their comfort and willingness to assimilate knowledge.

Conversely, in-person interventions may include a fixed pace or framework that necessitates participants to conform to the facilitator's schedule. Resilience-building necessitate time for people to assimilate and use the methods or abilities conveyed via the treatments. The abilities gained from in-person resilience therapies may have need a longer period for integration into participants' everyday lives, perhaps beyond 12 months to exhibit efficacy. Finally, digital treatments may provide immediate feedback or reinforcement systems, including progress monitoring. This prompt feedback may enhance engagement and encourage participants to persist in the intervention, perhaps resulting in an immediate effect on resilience-related outcomes.

It is crucial to recognize that the long-term effects of digital resilience interventions may vary from those of face-to-face interventions, which entail personal interaction, continuous support, and a greater degree of engagement, potentially resulting in more enduring behavioral changes and prolonged impacts on resilience outcomes. These findings challenge the fixed view of resilience and underscore its dynamic character in reaction to changing conditions. Each form of resilience intervention has distinct advantages and may address varying requirements contingent upon individual preferences, learning modalities, and the environment of implementation. Moreover, digital interventions possess several advantages, including cost-effectiveness, extensive electronic connectivity, and efficient information dissemination, especially for nurses unable to participate through in-person sessions, thereby effectively addressing specific mental health concerns by bolstering resiliency (29, 30). Developing an effective resiliency therapy requires collaborative work from all parties involved (31) to address individual requirements and interests; hence, researching the combination of digital and face-to-face treatments may be beneficial for enhancing nurse resilience.

It is noteworthy that all studies examining digital therapies were done digitally during the COVID-19 pandemic lockdown, when online resilience measures were the only permissible approach in the healthcare setting. The COVID-19 pandemic was a unique and formidable worldwide challenge that, in some respects, compelled nurses to adapt and cultivate resilience. Consequently, more study is required to investigate the long-term impacts of digital treatments on nurse resilience, excluding exogenous influences like the COVID-19 pandemic.

Despite the absence of statistically significant findings regarding the instantaneous, short-term, as well as long-term effects of face-to-face resilience interventions, it was observed that the majority of studies published prior to the COVID-19 pandemic employed this method, which necessitated considerable resources, was time-intensive, and posed challenges in implementation due to nurses' shift work (21). A recent study found that online social connections alleviated psychological distress during stressful situations, such as COVID-19 isolation, albeit temporarily; however, they may not substitute for face-to-face interactions in promoting well-being (32). Consequently, it remains ambiguous whether method—face-to-face or digital—exerts a superior influence on resilience interventions, necessitating future comparative study. Researchers should focus on the content of resilience rather than merely quantifying it, as the determinants of resilience levels may be linked to specific content in various clinical contexts (22), thereby enhancing our comprehension of resilience's nature. Comprehending the resilience components in clinical environments, acknowledging all pertinent resources, and identifying the many aspects affecting resilience might assist researchers in developing more effective treatments tailored specifically to nurses' requirements for sustained long-term impact. Consequently, nurses and healthcare organizations should not anticipate the rapid effects of the initiatives on nurse resilience. It is crucial to devise effective resilience treatments, establish attainable expectations, and provide sustained support via digital, in-person, or hybrid approaches.

Strengths and weaknesses

This paper is the first thorough assessment of resilience therapies for nurses, to the best of our knowledge. The primary strength of this study is in the methodological rigor used throughout its execution. Nonetheless, many limitations exist; primarily, the inherent characteristics of resilience treatment research precluded the blinding of treatments for both participants and researchers, thereby increasing the risk of

prejudice in this systematic review. The diverse characteristics of the therapies may have influenced the outcomes. Secondly, the absence of particular data may have decreased the number of studies eligible for inclusion in the meta-analysis. The many elements of the therapies may have influenced the outcomes, and multiple comparisons in this comprehensive review rely on individual trials with limited sample sizes, thereby undermining the credibility of the conclusions. This research did not examine the influence of resiliency on nurses' burnout, anxiety levels, work satisfaction, and turnover, thus limiting the evaluation of resilience results. This study sought to uncover effective treatments to educate nurses on enhancing their resilience in the face of workplace hardship.

The positive effect of the nurse resilience intervention observed at the 4–5-month follow-up, as reported by Baek et al. (27), was derived from a study with a limited sample size; consequently, its reliability may be compromised. Further research is necessary to identify studies with larger sample sizes for information synthesis to attain a more dependable outcome. This analysis only examines individual-level resilience among nurses, rather than across all healthcare professions. Resilience is a social accomplishment rather than only an individual characteristic; hence, we must acknowledge the importance of relationship ties and the cooperative essence underlying resilience. Alternative intervention tactics, such as the relational pause, are suggested to enhance collaborative resilience, and the criticism advocates for a deeper approach to resilience study to guide more successful organizational interventions.

Consequences for nursing research and practice

The results of the comprehensive examination have yielded some implications for practice. The substantial rise in resilience ratings recorded at the 4–5-month follow-up indicates the possible short-term effectiveness of digital resilience programs. Additional investigation into the processes behind this impact may provide critical insights for optimizing the timing and implementation of treatments to successfully enhance resilience. Investigating the long-term impacts of digital treatments beyond pandemic conditions is essential to comprehend their enduring influence on nurse resilience (21). Additional investigation into purposeful digital interventions to bolster nurse resilience is necessary. The delayed favorable effects seen in some instances indicate that the efficacy of these therapies may develop over time (22). Consequently, more research using bigger and more varied samples is necessary to provide more conclusive insights into the efficacy of these resilience treatments across various periods.

Digital interventions may provide diverse impacts on nurse resilience over various timeframes; they should be customized according to individual preferences, learning modalities, and the specific objectives sought (21). Nurses and healthcare organizations must be informed of the duration necessary for resilience treatments to produce significant outcomes (22). While recognizing that digital resilience treatments may have a delayed impact on resilience, it is important to establish a strategy for frequent monitoring and long-term evaluation of the efficacy of these interventions. Managers need to motivate participants to monitor fluctuations in their resilience over time and modify treatments as necessary.

Establishing realistic expectations and offering continuous support to nurses during the intervention procedure are essential. Contextual variables affecting intervention efficacy, including design, duration, and frequency, must also be considered (26). Moreover, it is crucial to acknowledge the significance of digital interventions in delivering cost-effective, readily available and efficient assistance, especially under circumstances like as the COVID-19 pandemic (21). The results of this systematic analysis highlight the need for a sophisticated approach to resilience treatments for nurses, taking into account both immediate and enduring consequences. Customized, context-specific treatments may provide essential support in bolstering nurse resilience; nevertheless, it is important to consistently evaluate, develop, and strategize these interventions to address the changing requirements of nurses for medical care environments. Future nurse resilience management researchers must acknowledge the dynamic essence of resilience and emphasize interdisciplinary cooperation within healthcare.

Conclusions

This systematic analysis aggregated 18 randomized controlled trials focused on treatments aimed at enhancing resilience in nurses. Digital methods shown short-term efficacy within 4–5 months, however in-person treatments failed to show any meaningful impacts at subsequent follow-ups. Pragmatic expectations and continuous support are essential for the effectiveness of interventions. Customized, collaborative digital treatments may significantly improve nurse resilience. This analysis offers essential insights, highlighting the requirement for context-specific treatments and continuous evaluation to successfully assist nurses in their challenging job. Future investigations using substantial sample sizes in randomized controlled trials are essential for obtaining definitive conclusions.

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تعزيز المرونة واستراتيجيات إدارة الإجهاد في تعليم التمريض: مراجعة شاملة للتدخلات

الملخص

الخلفية: تُعدُّ المرونة في مهنة التمريض سمةً أساسيةً تُمكن العاملين في الرعاية الصحية من التعامل مع الضغوط والتحديات في البيئات الم. demanding demanding environments يُعدُّ فهم كيفية تعزيز المرونة أمرًا ضروريًا للحد من الاحتراق الوظيفي وزيادة الرضا الوظيفي بين الممرضين. تستعرض هذه الدراسة التدخلات المختلفة التي تهدف إلى تعزيز المرونة في تعليم التمريض، لا سيما في ظل التحديات التي فرضتها جائحة COVID-19.

المنهجية: تم إجراء مراجعة تحليلية لـ 18 تجربة عشوائية محكمة (Randomized Controlled Trials) ركزت على التدخلات المعززة للمرونة لدى الممرضين. تم الحصول على الأدبيات من قواعد بيانات تشمل CINAHL، مكتبة Cochrane، Embase، Medline، وScopus، وذلك باستخدام كلمات مفتاحية متنوعة متعلقة بالمرونة، واستراتيجيات التكيف، والتدخلات التمريضية. تم تقييم فعالية أساليب التدريب على المرونة الرقمية والمباشرة، مع الأخذ بعين الاعتبار تأثيراتها الفورية، قصيرة المدى، وطويلة المدى.

النتائج: أشارت النتائج إلى أن التدخلات الرقمية لتعزيز المرونة أثبتت فعاليتها على المدى القصير، وخاصةً عند المتابعة بعد 4-5 أشهر. في المقابل، لم تُظهر التدخلات المباشرة تأثيرات كبيرة على تحسين نتائج المرونة. كما أكدت الدراسة على ضرورة تصميم تدخلات مخصصة تأخذ بعين الاعتبار الفروق الفردية في التفضيلات وأساليب التعلم لدى المتدربين.

الاستنتاج: تسلط هذه المراجعة الضوء على أهمية تطوير برامج تدريبية مصممة خصيصًا لتعزيز مرونة الممرضين. يمكن أن توفر التدخلات الرقمية حلولاً مرنة وسهلة الوصول لتعزيز المرونة على المدى القصير، إلا أن تحقيق الفعالية المستدامة يتطلب دعمًا ومتابعةً مستمرة. يجب أن تركز الأبحاث المستقبلية على عينات بحثية أكبر ونهج متعددة التخصصات لتعزيز فهم وتطبيق استراتيجيات بناء المرونة في ممارسة التمريض.

الكلمات المفتاحية: المرونة، تعليم التمريض، إدارة الإجهاد، التدخلات الرقمية، مراجعة.

