

REVIEW ARTICLE

Experience in the development of nurses' personal resilience: A meta-synthesis

Peng Han^{1,2}  | Xia Duan^{2,3} | Jinxia Jiang^{1,2} | Li Zeng^{2,4} | Pengjia Zhang^{1,2} | Sijia Zhao^{1,2}

¹Emergency Department, Shanghai Tenth People's Hospital, School of Medicine, Tongji University, Shanghai, China

²School of Medicine, Tongji University, Shanghai, China

³Nursing Department, Shanghai First Maternity and Infant Hospital, School of Medicine, Tongji University, Shanghai, China

⁴Department of Nursing, Tongji Hospital, School of Medicine, Tongji University, Shanghai, China

Correspondence

Jinxia Jiang, Emergency Department, Shanghai Tenth People's Hospital, School of Medicine, Tongji University, Shanghai, China

Email: jjiangjinxia99@163.com

Li Zeng, Department of Nursing, Tongji Hospital, School of Medicine, Tongji University, Shanghai, China.

Email: aiyinsinian1986@163.com

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Abstract

Aim: Nurses play roles in hospitals, families, society and other aspects and often face stress sources, such as heavy workload, doctor–patient conflict and medical accidents. Resilience can help the nurses to avoid or reduce various adverse consequences caused by stress sources; however, this phenomenon remains ill-defined and under-researched. The aim of this review was to summarize the experiences of development of nurses' resilience and explore the reasons for the formation of resilience by examining the findings of the existing qualitative studies.

Design: The review is a systematic review and meta-synthesis of qualitative studies.

Data Sources: PubMed, Cochrane Library, CINAHL, Web of Science, Embase, and Ovid and Chinese databases include the following: Chinese National Knowledge Infrastructure (CNKI), Wanfang Database (CECDB), VIP Database and China Biomedical Database (CBM).

Review Methods: Relevant publications were identified by systematic searches across 11 databases in June 2021. All qualitative and mixed-method studies in English and Chinese that explored the experiences of development of nurses' resilience were included. The qualitative meta-synthesis followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) recommendations. Two independent reviewers selected the studies and assessed the quality of each study. Meta-synthesis was performed to integrate the results.

Results: A total of nine studies revealed 10 sub-themes and three descriptive themes: being psychologically strong, physical positive coping and adoption of external support.

Conclusion: Several factors contributed to the development of nurses' resilience, and various supporting strategies in the nursing management and education are helpful to their adaption ability. However, it is necessary to focus on the cultivation of nurses' resilience to improve the quality of clinical nursing. Leaders or

Peng Han and Xia Duan authors contributed equally to this work.

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organizations are required to establish and sustain multifaceted strategies to improve nurse' resilience through scientific resilience training programmes and improved organizational support.

KEYWORDS

meta-synthesis, nurses, qualitative systematic review, resilience

1 | INTRODUCTION

State of the World's Nursing 2020 is a comprehensive analysis of nursing worldwide, produced by the World Health Organization (WHO) with the International Council of Nurses and Nursing, which states that without nurses and midwives there would be no health care. Both are crucial to realizing the promises of the sustainable development agenda and universal health coverage (Lancet, 2020). During the COVID-19 pandemic in 2020, China was able to achieve success in fighting the epidemic in a difficult environment. The nurses who accounted for >60% of the medical team helped significantly during the outbreak. The quality of resilience of Chinese nurses had largely contributed to this achievement (Jiang et al., 2020). Moreover, research had shown that in the medical and health field, the higher an enterprise or team's employees' resilience, the higher its employee satisfaction and retention rate are (Zhang et al., 2020). Faced with the shortage of nursing human resources and continuing public health emergencies, relieving the nurses' work pressure and increasing the retention rate of nursing staff is paramount. Research showed that increased levels of resilience could be effective in retaining nurses and keeping them on the job (Yu & Lee, 2018).

2 | BACKGROUND

Resilience is a physiological or psychological concept (Tusaie & Dyer, 2004). It is a process, not a personality trait, and an ability to bounce back or recover easily when confronted by adversity, trauma, misfortune or change (Dyer & McGuinness, 1996). It indicates tenacious resistance, perseverance and endurance in the face of stress and also emphasizes the growth and rebirth of individuals after trauma or stress (Lazarus, 1993). Positive psychology focuses on individual positive psychological qualities, emphasizes the human value and humanistic care and pays attention to exploring people's potential strengths (Seligman & Csikszentmihalyi, 2000). On the other hand, resilience rises fundamentally from the positive forces of growth and development. The study of resilience from the perspective of positive psychology is focused on the individual potential, emphasizing the potential stimulation and self-transcendence of people when dealing with adverse situations. People with strong resilience have the inherent characteristics of coping with setbacks, adapting to the environment for positive development, including positive cognition, maintaining good emotions, self-control and self-efficacy, as well as exhibit communication skills and problem-solving abilities (Tunariu et al., 2017).

Resilience, a critical psychological capital, was put forward in the 1970s and 1980s. Since then, it has become a research hotspot and gradually introduced into the nursing field. Clinical nursing work is often considered as a high risk, high investment, but low achievement of work. Moreover, the social requirements for the quality of nursing are high, and the scope of nurses' work is expanding, requiring continuous, seamless care for patients. Furthermore, nurses need to face a special working environment, communication problems, medical malpractice, nursing ethics and other pressures, which affect the mental health of the nurses. Factors, such as sadness, depression, post-traumatic stress disorder (PTSD) and job burnout (Munnangi et al., 2018; Portero de la Cruz et al., 2020), exerted a negative impact on the career of the individual, which not conducive to the stability of the nursing team and further development of the nursing field. Therefore, relieving the nurses' work pressure and increasing the retention rate of nursing staff is the key to resolving the shortage of human nursing resources (Harris et al., 2020).

Resilience may help to mitigate the deleterious effects of stress. For nurses, resilience is one of the factors that reduces their stress level and increases endurance. The core of nurse resilience is good control and effective coping skills (McGee, 2006). Resilience in nursing was defined by the researchers as a measure of a nurse's ability to cope with stressors and mental health threats that resilient people were emotionally calmer while dealing with catastrophic situations (Foster et al., 2019). As a critical part of positive psychology, resilience can help individuals to cope with stressful events, including public health emergencies, successfully. For instance, a qualitative study on public health workers in the field during an emergency event, such as 2014–2016 Ebola, 2016–2017 Zika and 2017 hurricane responses, found that autonomy in solving difficulties has elucidated the response role, the desire to be challenged, and the desire to be helpful; these factors make them respond positively, and the results reflect the importance of resilience (Chiang et al., 2021). In like manner, nurses played a huge role in China's medical teams successful fight against COVID-19 in 2019–2020. The quality of resilience of Chinese nurses had largely contributed to this achievement (Jiang et al., 2020). Furthermore, resilience enables nurses to manage their emotions intelligently and build effective interpersonal relationships (Mazzella Ebstein et al., 2019). It is a necessary feature that helps the nurses adapt to nursing work's physical and emotional needs, calmly deal with various difficulties and adversity during work (McGee, 2006), and alleviate the helpless mood during challenging times. Finally, developing resilience helps nurses gain professional benefit and occupational well-being, enables them

to achieve success both professionally and personally (Earvolino-Ramirez, 2007). Building the resilience of nurses has been listed as one of the top 10 'Nursing Standard's Care Campaign' in the world (Gillespie, Chaboyer, & Wallis, 2007; Gillespie, Chaboyer, Wallis, & Grimbeek, 2007).

Thus, resilience is the key element of nurses and nursing units (Badu et al., 2020), to describe the connotation of resilience from the perspective of clinical nurses, and to make targeted changes based on the causes of resilience would contribute to the personnel training in hospitals and the improvement of nursing quality. Our study would summarize the development experience and influencing factors of nurses' resilience, to extract results from different qualitative studies and try to solve the problem that the nature of nurses' resilience and the way it is developed. Clinical managers and researchers could use our research data as a reference to study resilience and prepare for practical actions that promote nurses' personal growth and professional development.

3 | METHODS

3.1 | Design

This study intended to identify, appraise and synthesize data from the qualitative studies that describe resilience from clinical nurses' perspectives. The purpose is to summarize the experiences of development of nurses' resilience and explore the reasons for the formation of resilience by examining the findings of the existing qualitative studies. A meta-synthesis approach was used to combine and present the qualitative findings (Siddaway et al., 2019). Relevant articles were searched, and data were extracted and critically evaluated using a thematic synthesis based on the three steps outlined by Thomas and Harden (2008): text coding line by line; developing descriptive themes; generating analytic themes.

3.2 | Search methods

Qualitative studies published from January 1998 to June 2021 in PubMed, Cochrane Library, CINAHL, Web of Science, Embase, Ovid and Chinese databases, including Chinese National Knowledge Infrastructure (CNKI), Wanfang Database (CECDB), VIP Database and China Biomedical Database (CBM) were collected.

The search terms were developed, and subject headings were used where possible and adjusted for different databases. Three groups of keywords or MeSH terms were included and combined using Boolean operators: (1) Nurse*, Nurses*; (2) Resilience*, Resilience building*, Resilience experience*, Positive psychology*; (3) Qualitative study*, Qualitative research*, Qualitative method*. To determine the eligibility of the potentially relevant studies, all titles and abstracts were reviewed by a researcher.

A reverse citation trail audit was then undertaken to identify published peer-reviewed literature. Citations for each primary reference

were then manually reviewed to determine which studies reported any literature that conforms to the evaluation of this systematic review.

3.3 | Inclusion and exclusion criteria

3.3.1 | Inclusion criteria

- Qualitative research or mixed-methods studies from which qualitative data could be extracted.
- Written in English or Chinese.
- Participants were exclusively registered nurses or wherein data for registered nurses were extractable.
- The phenomenon of interest was resilience.
- The context was defined as conditions for nurses' resilience development.

The primary qualitative research studies were included but were not limited to methodologies, such as phenomenology, grounded theory, action research, ethnography and feminist research.

3.3.2 | Exclusion criteria

- Not qualitative research or collected qualitative data but analysed using quantitative methods.
- Not written in English or Chinese.
- Focus on the experiences of patients, informal caregivers or family members.
- Not published in peer-reviewed journals.
- Case reports, conference proceedings, poster abstracts and theses.

Systematic reviews and other types of reviews were excluded but their references were examined to identify any possible relevant study.

3.4 | Search outcome

In strict accordance with the inclusion and exclusion criteria, two researchers independently screened and extracted the literature. An initial search using the above strategy yielded a total of 847 articles. First, the title and abstract of the literature were read to exclude the articles unrelated to the subject, were repetitive, and unable to obtain full text. As a result, 809 articles were excluded. After reading the full text, 29 articles were excluded, and finally, nine articles were identified as relevant. This search process is illustrated in [Appendix 1: Figure A1](#).

3.5 | Quality appraisal

The methodological quality of the nine included studies was independently assessed by two authors. Initially, the authors worked

independently from the Joanna Briggs Critical Assessment Tool for Methodological Quality Assessment (Lockwood et al., 2015). The tool contains 10 questions designed to quickly and efficiently evaluate studies with a simple yes, no or no answer to each question. Subsequently, the results were discussed to reach a consensus, and no studies were excluded from the quality appraisal process.

3.6 | Data extraction

A comprehensive study was conducted to include the basic content of the acquired documents to show their characteristics such that the quality of their content and methodological development can be assessed (Kastner et al., 2016). The extracted data included the author, the year of publication, country or region, research method, research subjects, interesting phenomena and main research results. The results were cross-reviewed by two investigators and the disagreement was resolved by discussion with a third investigator. These results are shown in Table A1.

3.7 | Data analysis and synthesis

We used meta-aggregation to synthesize the findings of the qualitative studies. This is a method of systematic review that involves the categorizing and re-categorizing of the findings of two or more studies for synthesized findings (Joanna Briggs Institute, 2014).

First, each identified article was read multiple times to increase familiarity and obtain a thorough understanding of the study aims, methods and outcomes. Then, each discovery was extracted with the text data explaining or supporting the finding. The consistency between the research results and supporting data was evaluated by two researchers independently. Each finding provided some credibility: unequivocal, credible or unsupported (Joanna Briggs Institute, 2014). The researchers studied the coded text to find the similarities and contradictions between these findings and explanatory data and then created a classification to determine the meaning of the initial dataset. Finally, these categories were assessed repeatedly to identify similarities and obtain synthesized results.

4 | RESULTS

The studies were conducted in the following countries: Australia ($n = 3$), China ($n = 2$), United States ($n = 1$), Japan ($n = 1$), Singapore ($n = 1$) and Iran ($n = 1$). These nine studies involved 132 nurses. All the included studies were either qualitative ($n = 7$) or mixed methods with extractable qualitative results ($n = 2$) and used interviews to collect data. All studies were published after 2011. Of these, one was a Master's thesis, and the remaining were original articles (Table A2). Three major themes emerged from the selected studies, reflecting the experience of nurses in developing resilience: being

psychologically strong, physical positive coping, adoption of external support. The themes were divided into several sub-themes of meaningful units, as demonstrated in Table A3.

4.1 | Theme 1: Being psychologically strong

4.1.1 | Personal and professional experience

Many nurses believed that their experience in clinical work had helped them to develop good psychological quality and improved their ability to deal with problems. Several years of work experience helped them to develop resilience: "Twenty years of nursing career, I have developed a strong ability to resist pressure and adjust the mentality of the ability" (Li et al., 2020) and: "If I can make that woman's stay as pleasant as possible, I know I've done a good job... and it doesn't hurt [me] as much. I've learnt these strategies over the years and it's only experience that gives it to you" (McDonald et al., 2016). Personal and professional experiences were built on the development of resilience, and occasionally specific experiences triggered the nurse into changing her approach. Effective forms of communication were used for dealing with patients regarding the issues of daily life and treatment. "Encounter doctor-patient conflict, I can only change my view, more from the perspective of the patient to look at the problem, actively deal with, encounter more harsh patients, is to explain more, more communication, so that they have more understanding of our work, but also let them put themselves in the position of thinking, to deal with the problem for the purpose of peace" (Zander et al., 2013).

4.1.2 | Emotional detachment

Emotional detachment helped nurses get rid of negative emotions in the face of adverse situations. The need to detach emotionally from their work was prevalent. "I just, I just absolutely try and lock it out (screaming) and get on with my work and get it over and done as quickly as possible. You know you cannot avoid that pain, but the only thing you can do is just do it very quickly, so you need staff who can do it quickly instead of drag it on for many hours" (Kornhaber & Wilson, 2011). When there was a troubling patient or a stressful condition in their wards, some nurses attempted to distance themselves from that patient or condition. "Sometimes, I can't control myself. In such situations, I attempt to distance myself from that situation or the immediate environment. In these conditions, I ask my colleagues to continue care delivery, and then I leave the situation. I never stay in such a situation because I know that my presence will aggravate the problem. Thus, I leave that situation and start providing care to another patient" (Imani et al., 2018). Nurses with high resilience were able to achieve an optimal work-life balance, did not bring their work emotions or problems to their families, never let their families interfere with their work, and were more focused. "Don't worry too much when you go to work. Just be simple and take it as the job you should do" (Xu, 2017).

4.1.3 | Toughness and optimism

Toughness and optimism were important psychological qualities for nurses because the nursing work was complicated. Owing to the unfair treatment in work and life, such as lower pay, night shifts, complex work or other pressures and adversity, nurses with high resilience would actively conduct self-control and remained strong and optimistic. "I could definitely say I've hardened. Maybe not on the inside, but definitely I come across a little bit hardened on some situations, but I think you kind of have to be if you need to do something; I think you need to harden a little bit" (Kornhaber & Wilson, 2011) and: "I let things fall off of me. I try to look on the bright side of everything I don't sit and mull over things. If it was a bad day, I'm sorry it was a bad day and you sort of get on with it. Tomorrow is coming and it will be better" (Mealer, Jones, & Moss, 2012; Mealer, Jones, Newman, et al., 2012).

4.1.4 | Professional values

Nurses' positive professional values were beneficial to help them establish an optimal professional attitude to improve the quality of clinical nursing. Nurses with a passion for the profession could develop resilience. "I'm very proud of my work; nursing work is very fulfilling, the sense of achievement is the biggest motivation for me to persist" (Xu, 2017) and: "I feel very pleased when a patient who usually has [a] rigid expression shows a smile after having [a] bath or his symptoms controlled" (Shimoinaba et al., 2015).

4.2 | Theme 2: Physical positive coping

4.2.1 | Taking positive action

Taking an active approach to stress helped the nurses to develop resilience. Highly resilient nurses did not resort to passive or evasive solutions. They coped by adopting problem-solving methods to cope with stress: "I find myself as a troubleshooter whenever I'm at work. I have to come up with a solution or approach whoever [someone who] can give me a better solution" (Ang et al., 2019). One participant who discussed coping with the challenges of burns' nursing claimed that positive skills developed over a period: "I think you cope; the longer you work there, the more coping skills you develop..." (Kornhaber & Wilson, 2011).

4.2.2 | Improving the professional ability

Professional ability played a major role in the development of nurses' personal resilience. Highly resilient nurses improved their professional ability through studying and making progress at work. They believed that excellent nursing skills and experiences of working ability could help them cope with difficulties at work. Thus, these nurses could cope with stress caused by a lack of

experience and professional skills at the beginning of the profession, which attained a successful career. "I am quite satisfied with my working ability and operation skills. Faced with the challenges of new nursing technologies, such as arterial blood pumping, I master them through more practice. Given this opportunity, I will actively grasp and exercise the method. Ability is one aspect, I may slowly improve myself, keep learning, practice makes perfect, the pace and difficulty of nursing work are completely adaptable to a nurse who has worked for several years, and nursing work has no pressure on me" (Xu, 2017).

4.2.3 | Enriching off-work life

In order to solve the bad feelings brought by the work, nurses would enrich their spare time life through various ways, such as sports and singing. A rich spare time is an effective distraction. Kornhaber and Wilson (2011) proposed that it was a strategy to recharge. "I exercise because I think that one of the things about nursing is that it is a giving profession and I think that you have to do things that renew yourself so that you don't... so that you have that to give the next day" (Mealer, Jones, & Moss, 2012; Mealer, Jones, Newman, et al., 2012) and "When I'm really upset, I'll sit on my bed at night and read a book to adjust and improve my sleep. Using break time to travel around the area let me feel better" (Xu, 2017).

4.3 | Theme 3: Adoption of external support

4.3.1 | Support within the work environment

Nurses believed that high-quality hospital security avoided the stress caused by the following problems, such as medical disputes and injuries from patients and their families. "The hospital has a security department, and if there's a dispute they'll protect us" (Xu, 2017). Access to a professional, such as a counsellor or a psychologist, would be appreciated. This kind of external support could help the nurses to reduce stress and increase resilience. "I strongly think that we need at least one or two professionals for staff support in the hospital. I want to have a case worker not only for patients but also for healthcare professionals (laugh)" (Shimoinaba et al., 2015). Nurses believed that they need the care and recognition of leaders who would consider the problems in the interest of the nurses. "[Her (leader)] door is always open if you're stressed, you can always knock on her door, sit down in her office and go through it" (McDonald et al., 2016). When encountering difficulties, teamwork and mutual support by colleagues were of great significance to improve resilience. "Choose a person who you trust, at work especially, who you can talk to about things... and it doesn't mean you have to talk to everybody, but if it can just be one key person who... you can grab when you are feeling a little bit unsure... I think that's really important, and that's what's helped me" (Zander et al., 2013).

4.3.2 | Support outside of work

Families and friends were often able to understand the heart of the nurses, and their support helped them to cope with the difficulties at work. Thus, high resilience was established. "I have a very supportive husband, he's good to talk to and he does more than me on the home front... I go to a Mothers Group... they're a really great support network..." (McDonald et al., 2016) and "When I'm having a tough time at work, I buy some food and go to dinner with my friends. Or I get together with my friends and just vent about it" (Xu, 2017).

5 | DISCUSSION

A systematic review of qualitative studies about the experiences of development of nurses' resilience, followed by a meta-synthesis, was performed on various databases after a manual search. Subsequently, nine articles were selected across six countries. The previous questions that guided this review (What are the causes of high resilience of clinical nurses? What is the nature of nurses' resilience and the way it is developed? What are the influencing factors of resilience in nursing work?) clarified what the themes suggested in terms of answers to the questions. The meta-synthesis identified the following themes: being psychologically strong, physical positive coping, adoption of external support.

Positive psychology mainly studies personality traits such as wisdom, courage, enthusiasm and gratitude. Cultivating the positive strength of personality ensures that individuals acquire good resilience (Tunariu et al., 2017). Also, there is a need for self-actualization deep in everyone's heart, which stimulates the positive power and excellent qualities within people. The key point of resilience is to be able to adapt to various environments. Positive psychological strength and excellent psychological qualities improve the adaptability (Hogan, 2020). Therefore, the positive psychological quality and resilience are interrelated in essence. As described by Jnah and Robinson (2015), the positive emotions and self-efficacy of nurses exert a positive effect on the improvement of their resilience, indicating that they have a high degree of confidence in the face of difficulties.

Some studies have shown that nurses become resilient the longer they work (Xu, 2017). With the increasing number working years, nurses' ability to deal with emergencies, cope with pressure and execute plans is constantly improved, and their social experience is rich, which further enhances their resilience. However, nurses with fewer working years tend to compromise or even escape when facing pressure due to the lack of experience and skills, which affects the development of resilience (Teng et al., 2009). Thus, prompt attention should be paid to the resilience training of inexperienced nurses through human resources, conflict processing mode of training and training of positive release of stress relief method. In addition, reducing the work pressure and enhancing the ability of inexperienced nurses to cope with stress also improve their level of resilience.

Detachment is a concept in psychology and a natural process that humans use to ease and evaluate emotions. It is summed up as

'a stand on the sidelines' standpoint. As an excellent psychological quality, detachment helps nurses overcome difficulties and improve resilience based on their emotions, especially during patient death, major changes and other circumstances (Sonntag et al., 2014).

Positive emotions, such as toughness and optimism, are very effective in developing resilience (Kharatzadeh et al., 2020). Nurses with low levels of depression can establish a positive cognitive evaluation system (Haefel & Vargas, 2011), reduce depression when dealing with adversity, and have strong confidence and action power to overcome difficulties; this indicates high resilience. Therefore, in nursing work, leaders should conduct appropriate training of nurses' mental health. Positive professional identity and self-cognition are favourable factors for nurses' career development. Correct professional values underlie clinical nursing practice, their overall quality and the improvement of the quality of nursing service. Therefore, training to reduce emotional exhaustion and improve the personal sense of achievement should be strengthened. For example, nurses should be encouraged to cope with difficulties within their capacity in order to obtain positive feedback. Professional identity training may enhance the nurses' sense of professional value and resilience.

Gillespie, Chaboyer, and Wallis (2007), Gillespie, Chaboyer, Wallis, and Grimbeek (2007) speculated that resilience is related to positive coping, which was consistent with the findings of this study. A positive coping style alleviates negative emotions by improving the individuals' understanding of negative events and enhancing the ability to solve and cope with problems. When confronted with difficulties at work, highly resilient nurses can resolve the issues in a short time through positive physical actions. This often depends on their self-efficacy and execution. This ability helps them feel confident in finding solutions (Harzer & Ruch, 2015). A proactive problem-solving approach is a good guide in a clinical work environment. Nurse leaders should focus on the cultivation of team action and non-escape character. Professional competence and knowledge are at the heart of how nurses deal with difficult situations. It also directly affects the quality of hospital care and patient satisfaction. In some cases, nurses are emotionally affected due to their incompetence and even physical health. Therefore, improving the nurses' professional knowledge, operational skills and soft skills, such as cooperation and communication abilities, would be valuable in building clinical experience, which guarantees resilience development. Intermittent away from work also helps the nurses to build resilience. Moreover, the importance of measures to remove themselves from the unsatisfactory environment during times of high emotion and stress has been realized (Kornhaber & Wilson, 2011). Work-related suffering affects one's family life and is prone to excessive empathy. O'Mahony et al. (2018) speculated that nurses who are overly empathic have a high prevalence of secondary traumatic stress and compassion fatigue. Rich spare time helps the nurses to live an active life and achieve work-family separation.

Social support refers to the social resources provided by formal or informal support groups that are perceived subjectively and/or received objectively by individuals (Gottlieb & Bergen, 2010). It is a protective factor for resilience that alleviates stress, eliminates psychological obstacles and improves mental health and individual

stress ability. External support includes religious belief, friends, information from the environment and support from colleagues, family or social circle (Gottlieb & Bergen, 2010). This systematic review demonstrated that the leader's concern for nurses is mainly based on the interests of nurses. When colleagues encounter difficulties, team cooperation and mutual support are of great significance to improve resilience. Family members and friends are often able to understand the nurses' situation; their persuasion and comfort are focused and effective, and their support is primarily outside of work.

In addition, the negative psychology of nurses is closely related to the adverse medical environment. The contradiction between nurses and patients has always affected the development of medical treatment and the quality of nursing. High-quality hospital safety is necessary to protect nurses' safety. Nurses with high resilience expressed that the external support of the hospital safety system made the nursing work go smoothly and improve their work enthusiasm (Xu, 2017). Previous studies have shown that special psychological departments set up in hospitals offer personalized counselling to staff to help them recover from the hardship (Fisher, 2005), such that resilience developed gradually. Therefore, to improve the external support of the hospital environment, attention should be focused on the following aspects: perfecting the hospital psychological service network, establishing the staff health management programme, paying attention to the protection of nurses' rights and interests and enhancing the job satisfaction of nurses.

Several effective strategies have been proposed to help nurses improve their organizational support. A multimodal resilience training programme improves the individual level of resilience and psychological outcomes, such as symptoms of anxiety, depression, burnout syndrome and posttraumatic stress disorder (PTSD). The strategies included a 2-day educational workshop, written exposure sessions, event-triggered counselling sessions, mindfulness-based stress reduction exercises and a protocolized aerobic exercise regimen (Mealer et al., 2014). The Stress Management and Resiliency Training (SMART) programme encompasses attention training and practice of gratitude, empathy, higher meaning and forgiveness (Chesak et al., 2015); a similar project is called an in-person mindfulness-based resilience training (MBRT) (Mistretta et al., 2018). Moreover, music therapy and online mind-body skills training are also effective in improving nurses' resilience (Kemper & Khirallah, 2015).

Furthermore, the resilience of nurses is a positive psychological quality, which plays a critical role in response to public health emergencies. During the COVID-19 pandemic, China was able to achieve success in fighting the epidemic in a difficult environment. The nurses who accounted for >60% of the medical team in Hubei helped significantly during the outbreak. Nurses were the main force in the treatment of patients with severe and critical illnesses, providing highly professional care to patients. For the treatment and care of mild patients in the square cabin hospital, nurses had to monitor the vital signs, collection of specimens, nutritional support and other work and carried out disinfection and isolation, life care and psychological care (Pate et al., 2021). Similarly, they were also prone to stress disorders, behavioural disorders and PTSD (Mealer, Jones, & Moss, 2012; Mealer, Jones, Newman, et al., 2012). A similar phenomenon was observed for public health emergencies, such as

H1N1, Zika and Ebola. High resilience made the nurses competent for their work (Jia et al., 2021) and heightened their patriotism and reverence for life. In the process of saving lives, they had a sense of self-worth and gained professional benefits. They also had strong organizational cohesion, and the power of unity helped them overcome difficulties. A high level of social support and recognition for healthcare workers in public health emergencies could be surprisingly healing (Li et al., 2021). Together, these phenomena were beneficial to the completion of the ambulance mission. Consequently, the resilience of nurses had increased markedly, contributing to the individual's career development and the overall quality of nursing.

6 | CONCLUSION

In conclusion, the findings of this study highlighted the factors that contribute to the development of nurses' resilience, which builds a strong psychological quality, cope with difficulties positively and seek external support. Nurses appear to cope well with the challenges of the role when they have a strong psychological quality and adequate support. Resilience is likely when nurses process their experiences cognitively by the linguistic articulation of their thoughts and feelings. Therefore, to strengthen professional quality and maintain a good attitude, try to adapt to and beat pressure in practice is the shortcut to career success. Enhanced resilience indicates that nurses stay in the profession for a prolonged period and improve the quality of care received by the patients. However, this does not suggest that responsibility does not fall solely on the individual, and organizations are required to implement multifaceted strategies to improve resilience through scientific resilience training programmes. Supporting strategies in the nursing management and education also contribute to nurses' resilience, but specific and effective plans still need to be studied. Efforts should be made to improve the education and training of new nurses, environmental safety, department atmosphere, leadership ability and other aspects. Therefore, future systematic studies should focus specifically on implementing strategies for developing resilience in nurses.

7 | LIMITATIONS

This meta-synthesis has several limitations. According to the inclusion criteria of the study, only primary qualitative studies published in indexed journals and written in English or Chinese were selected. Therefore, grey literature and dissertations were not searched, which might have introduced an information bias. Thus, this meta-synthesis is a representation of the authors and other researchers with different interests, which might provide varied results. Finally, only the experiences of the caregiver nurses are described. Thus, in future research, the inclusion of more nurse profiles, such as nurses from different departments, head nurses, nurse students and nursing preceptors.

AUTHORS' CONTRIBUTIONS

H.P., D.X., J.J., Z.L. and Z.P. were involved in review concepts. H.P., D.X., Z.P. and Z.S. carried out review design and writing of the

manuscript. H.P., D.X., J.J. and Z.L. carried out statistical analysis and editing of the manuscript. H.P. Z.P. and Z.S were involved in data extraction.

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CONFLICT OF INTEREST

The authors have no conflicts of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the author upon reasonable request.

ETHICAL APPROVAL

There is no ethical statement for this trial.

ORCID

Peng Han  <https://orcid.org/0000-0001-7502-905X>

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APPENDIX 1

FIGURE A1 The PRISMA flowchart of studies screened in qualitative meta-synthesis

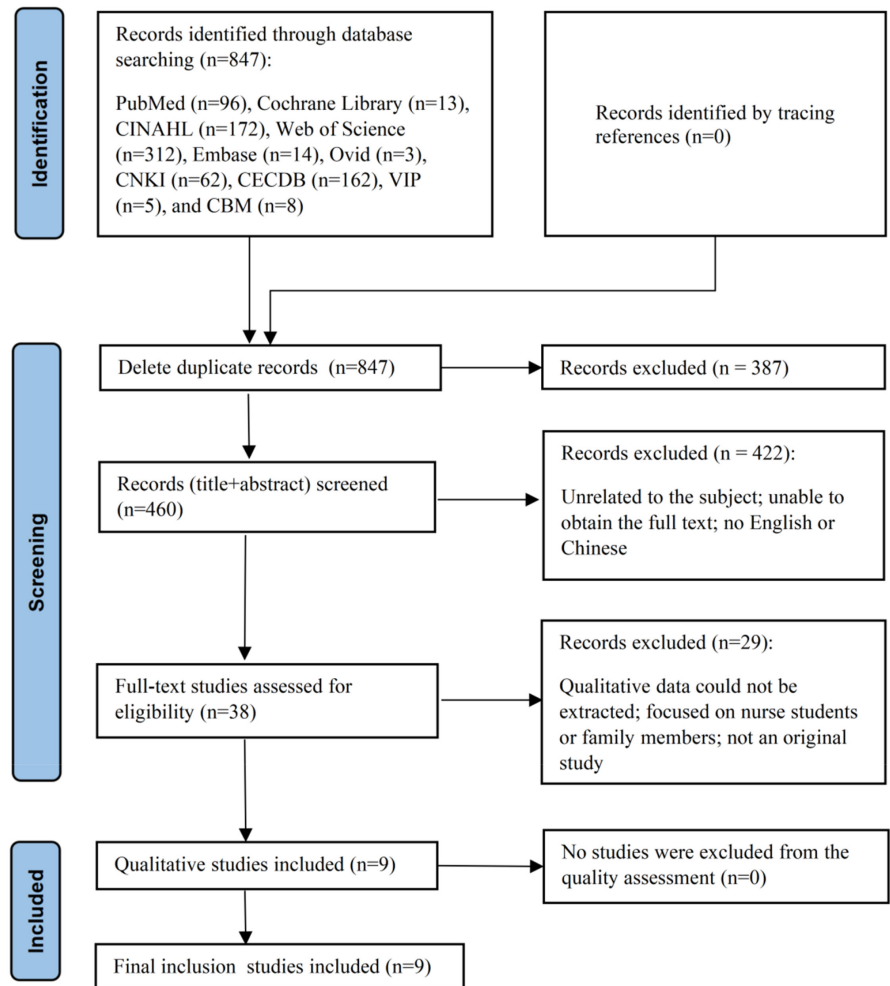


TABLE A.1 Key feature and characteristics of nine included studies

Author(s) and year	Country	Setting	Participants	Aim	Study design	Sampling	Data collection	Results
Kornhaber and Wilson (2011)	Australia	A six-bed burns unit in a large, acute care, public hospital in Sydney, Australia	7 nurses in the burn ward of a hospital in Australia	To explore the concept of building resilience as a strategy for responding to adversity experienced by burns nurses	Phenomenological approach	Purposeful sampling (n = 7, females, age 25 to 58 years)	Semi-structured one-on-one interviews	Six themes: toughening up, natural selection, emotional toughness, coping with the challenges, regrouping and recharging and emotional detachment
Mealer, Jones, and Moss (2012), Mealer, Jones, Newman, et al. (2012)	USA	Working in ICU units in the United States that may be at risk for posttraumatic stress disorder (PTSD)	27 ICU nurses in the United States	To identify mechanisms employed by highly resilient ICU nurses to develop preventative therapies	Phenomenological approach	Stratified purposeful sampling (n = 27, 26 females and 1 male, average age 44 to 48 years)	Semi-structured telephone interview	Four themes: worldview, social network, cognitive flexibility and self-care/balance
Zander et al. (2013)	Australia	An eight-bed inpatient unit with an adjoining outpatient clinical paediatric haematology/oncology unit of a tertiary metropolitan paediatric hospital in Australia	5 Australian paediatric oncology nurses	To explore the concept of resilience among paediatric oncology nurses who work at the bedside	Descriptive qualitative research	Purposeful sampling (n = 5, females, age no mentioned)	Semi-structured interview	Seven themes: the individual conceptualization of resilience, the issues and challenges faced, actions and strategies, the need for support, insight, processing situations through reflection, personal and professional experience
Shimoinaba et al. (2015)	Japan	In palliative care units (PCUs) in Japan	13 clinical nurses in Japanese hospitals	To explore the nature of nurses' resilience and the way it is developed	Grounded theory	Purposeful sampling and theoretical sampling (n = 13, females, age 29 to 53 years)	Semi-structured interview	Four themes: knowledge of self, coping adaptively, valuing care and accepting limitations
Mcdonald et al. (2016)	Australia	In a women's and children's health unit within a tertiary, public hospital in metropolitan Australia	16 Australian nurses or midwives	To explore the experiences of Australian nurses and midwives who perceived themselves as resilient	Phenomenological approach	Purposeful sampling (n = 16, females, age 26 to 59 years)	Qualitative, face-to-face interview	Three themes: support networks, personal characteristics and ability to organize work for personal resilience
Xu (2017)	China	General hospitals of different grades in Chongqing, China	15 nurses in general hospitals in Chongqing, China	To explore the causes of high resilience of clinical nurses	Phenomenological approach	Purposeful sampling (n = 15, females, age no mentioned)	Semi-structured interview	Three themes: internal factors (technical competence, effective coping, self-regulation and high professional identity); social support (family support, friend support, colleague leadership support); work environment (effective security, benefits, job stability)

TABLE A1 (Continued)

Author(s) and year	Country	Setting	Participants	Aim	Study design	Sampling	Data collection	Results
Imani et al. (2018)	Iran	In an affiliated hospitals in Hamadan, Iran, including hospital emergency, internal diseases, infectious diseases, urology, dialysis, ICU and CCU	10 nurses in a hospital in Iran	To explore Iranian hospital nurses lived experiences of intelligent resilience	Phenomenological approach	Purposive sampling (n = 10, 4 females and 6 male, age 34 to 52 years)	Semi-structured interview	Four main themes of patience and wisdom, reverence, situational self-control and appealing to religiosity
Ang et al. (2019)	Singapore	Staff nurses and enrolled nurses from Singapore General Hospital	18 nurses in a hospital in Singapore	To generate a comprehensive account of the experiences of nurses as they cope with stress and the demands of work and to develop knowledge of the phenomenon of resilience among nurses	Grounded theory	Purposive sampling (n = 18, 15 females and 3 male, age 24 to 68 years)	semi-structured one-on-one interview	Three themes: outlook on work, self-efficacy and coping responses
Li et al. (2020)	China	General hospitals of different grades in Hunan Province, China	21 nurses in general hospitals in Hunan, China	To explore the influencing factors of resilience and provide some reference for the development of nursing professional mental health	Phenomenological approach	Random sampling (n = 21, gender and age no mentioned)	Semi-structured interview	Two themes: internal factors (personal adaptation ability to improve the awareness of mental health guidance is not sufficient); external factors (differences in hospital management culture, lack of psychological service institutions and professionals, and lack of trust)

TABLE A2 Quality assessment of included studies in accordance

Study ^a	Q1 ^b	2	3	4	5	6	7	8	9	10
Kornhaber and Wilson (2011)	Y	Y	Y	Y	Y	N	N	Y	Y	Y
Mealer, Jones, and Moss (2012), Mealer, Jones, Newman, et al. (2012)	Y	Y	Y	Y	Y	N	N	Y	Y	Y
Zander et al. (2013)	Y	Y	Y	Y	Y	N	N	Y	Y	Y
Shimoinaba et al. (2015)	Y	Y	Y	Y	Y	N	U	Y	Y	Y
Mcdonald et al. (2016)	Y	Y	Y	Y	Y	N	N	Y	Y	Y
Xu (2017)	Y	Y	Y	Y	Y	N	N	Y	Y	Y
Imani et al. (2018)	Y	Y	Y	Y	Y	Y	U	Y	Y	Y
Ang et al. (2019)	Y	Y	Y	Y	Y	N	N	Y	Y	Y
Li et al. (2020)	Y	Y	Y	Y	Y	N	U	Y	Y	Y

^aCritical appraisal (n = 10) of (Y = yes; N = no; U = unclear; NA = not applicable).

^bQ1: Is there congruity between the stated philosophical perspective and the research methodology? Q2: Is there congruity between the research methodology and the research question or objectives? Q3: Is there congruity between the research methodology and the methods used to collect data? Q4: Is there congruity between the research methodology and the representation and analysis of data? Q5: Is there congruity between the research methodology and the interpretation of results? Q6: Is there a statement locating the researcher culturally or theoretically? Q7: Is the influence of the researcher on the research and vice-versa addressed? Q8: Are participants and their voices adequately represented? Q9: Is the research ethics according to the current criteria or for recent studies, and is there evidence of ethics approval by an appropriate body? Q10: Are the conclusions drawn in the research report arise from the analysis or interpretation of the data?

TABLE A3 Thematic synthesis findings

Descriptive themes:	Sub-themes:	Studies that have contributed to the themes
Being psychologically strong	Personal and professional experience	Kornhaber and Wilson (2011), Zander et al. (2013), Shimoinaba et al. (2015), Mcdonald et al. (2016), Xu (2017), Imani et al. (2018), Li et al. (2020)
	Emotional detachment	Kornhaber and Wilson (2011), Kaori et al. (2015), Xu (2017), Imani et al. (2018)
	Toughness and optimism	Kornhaber and Wilson (2011), Mealer, Jones, and Moss (2012), Mealer, Jones, Newman, et al. (2012), Zander et al. (2013), Mcdonald et al. (2016), Xu (2017), Imani et al. (2018)
	Professional values	Kornhaber and Wilson (2011), Mealer, Jones, and Moss (2012), Mealer, Jones, Newman, et al. (2012); Zander et al. (2013), Mcdonald et al. (2016), Xu (2017), Ang et al. (2019); Li et al. (2020)
Physical positive coping	Taking positive action	Kornhaber and Wilson (2011), Mealer, Jones, and Moss (2012), Mealer, Jones, Newman, et al. (2012), Zander et al. (2013), Shimoinaba et al. (2015), Mcdonald et al. (2016), Ang et al. (2019)
	Improving professional ability	Kornhaber and Wilson (2011), Mealer, Jones, and Moss (2012), Mealer, Jones, Newman, et al. (2012), Zander et al. (2013), Shimoinaba et al. (2015), Mcdonald et al. (2016), Xu (2017), Ang et al. (2019), Li et al. (2020)
	Enriching off-work life	Mealer, Jones, and Moss (2012), Mealer, Jones, Newman, et al. (2012), Shimoinaba et al. (2015), Xu (2017), Imani et al. (2018)
Adoption of external support	Support within the work environment	Zander et al. (2013), Shimoinaba et al. (2015), Mcdonald et al. (2016), Xu (2017), Li et al. (2020)
	Support outside of work	Mealer, Jones, and Moss (2012), Mealer, Jones, Newman, et al. (2012), Zander et al. (2013), Mcdonald et al. (2016), Xu (2017), Imani et al. (2018), Li et al. (2020)