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The Main Features of Resilience in Healthcare Providers: A Scoping Review

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Abstract

Background: Resilience refers to the capacity for suitable responding to stress in achieving the objectives at the least physical and psychological costs. The present review aims to illustrate the individual and contextual features of resilience improvement in healthcare professions.

Methods: A scoping review was conducted according to the PRISMA-ScR guidelines and searching the online databases as PubMed, Embase, Scopus, Web of Science, and Google Scholar from January 2014 to December 2020 using a combination of MESH and EMTREE entry terms and free keywords. The English articles, book chapters, and grey literature were included in the study. The data were recorded to an extraction form designed in Excel. The quality assessment of studies wasn't performed due to scoping review. Thematic analysis was used to synthesize the data.

Results: 5434 articles were identified via searching in the databases. 63 articles were reviewed that most of them from the USA (30 articles, 46%) and conducted as a qualitative study (32 articles, 50%). The main aspects of resilience that were extracted from the included studies were personal resilience, resilience in the emergency department, and resilience in healthcare providers. The main feature of resilience among healthcare providers was coping.

Conclusion: Studies with more accurate methodology should investigate the situation of the healthcare providers' resilience in difficult healthcare conditions instead of the mere emphasis on providing a fixed concept for all persons without considering the system impacts.

Keywords: Emergency Service, Hospital, Health Personnel, Resilience, Psychological

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Introduction

There is increasing knowledge that healthcare workers (HCWs) experience a variety of psychological consequences due to responding to diverse disaster and terrorism events (1). Also, incidents including chemical, biological, radiological, or nuclear events (CBRN), as well as incidents in which workers are exposed to secondary hazardous materials during the response, are associated with increased psychological health risk extending years after the event (2). Yet, most models of psychological support for HCWs who respond to emergencies have structural limitations that fail to address the full complexity and continuum of possible outcomes, such as new incidence comorbid disorders like posttraumatic stress disorder (PTSD) and depression (3).

One of the popular models of psychological support for HCWs in disasters is Critical Incident Stress Debriefing

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↑What is "already known" in this topic:
Health professionals face numerous stressors like the time pressure, work-load, several roles, and emotional concerns that they need to be resilient.

→What this article adds:
It is necessary to consider the system impacts for improving the healthcare providers' resilience instead of the mere emphasis on providing a fixed concept for all persons.

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(CISD), which have focused on providing a "one size fits all" single encounter "recital of events or strong emotions" limited to the immediate post response phase of a disaster. This approach continues despite international consensus findings regarding the potential harm of it (3). More recent work has focused on increasing HCW resilience, with emphasis on educating HCWs to identify roles, likely stressors, possible reactions and symptoms, and/or to develop various cognitive and behavioral coping strategies (4).

Retaining healthcare workers is one of the most important issues for countries. Exceptionally, Health professions' resilience as the latest place of investigation presents the reasons for the persisting of healthcare workers facing challenges and provides a complementary viewpoint to studies of stress, burnout, and attrition. It has been recognized for many years that surveillance can be stressful, specifically for the new workforce; however, a little seems to have been modified (5).

A new healthcare provider's system must have adequate resilience for coping with challenging circumstances. In this regard, researchers considered resilience related to staff retention in the workplace. So, it needs to investigate healthcare providers' resilience in a primary care setting. However, primary healthcare is related to community-based circumstances instead of hospital environments. Moreover, resilience has been defined as a dynamic procedure and a positive adaptation regarding multiple difficulties (6, 7).

Related studies showed that there are many stressors regarding the health professions like the time pressure, workload, several roles, and emotional concerns. Moreover, the repeated environmental stresses related to the distress in the workplace can influence the mental and physical well-being of the healthcare providers. It can lead to burnout, and in some cases, traumatic stress-like signs and symptoms (8-11). Notably, the development and promotion of resilient environments and the healthcare providers would appear as one of the ways for reducing negative consequences of stress in the healthcare experts (12, 13).

In this regard, Sheikhbardsiri et al. said that the universities of medical sciences and healthcare providers should properly prepare for emergencies and disasters. This includes the disaster medical assistance teams and the response operational comprehensive plan for emergencies and disasters (14). Jovanovic et al. focused on increasing the resilience of healthcare infrastructure, including healthcare providers' preparedness in the Covid-19 crisis (15). Another study pointed out that it is necessary to maximize healthcare workers' resilience in different disasters based on lessons learned from the Ebola epidemic in Africa (3).

Regarding different definitions of resilience, the existence of the best strategies for its management based on its professional differences is one of the critical targets in modern societies. Therefore, identifying the essential features of healthcare providers' resilience can improve their coping power facing difficulties and disasters. The current study aimed to determine the resilience features in the healthcare professions through a scoping review that showed how resilience was described in the related literature.

Methods

A scoping review was conducted according to the "Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for scoping reviews" (PRISMA-ScR) checklist (16) in 2020. The checklist includes items considered essential for the transparent reporting of a scoping review. Relevant studies were found in PubMed, Embase, Web of Science, Scopus, and Google Scholar from January 2014 to December 2020. The following search terms were used: ("healthcare providers"[Mesh]) AND ("psychological resilience"[Mesh]) alongside Emtree entry terms and free keywords. The search strategy for Pubmed is as following:

("Psychological Resilience"[tiab] OR "Psychological Resiliences"[tiab] OR (Resiliences[tiab] AND Psychological[tiab]) OR resilience[tiab]) AND ((Personnel[tiab] AND Health[tiab]) OR "Health Care Providers"[tiab] OR "Health Care Provider"[tiab] OR (Provider[tiab] AND "Health Care"[tiab]) OR "Healthcare Providers"[tiab] OR "Healthcare Provider"[tiab] OR (Provider[tiab] AND Healthcare[tiab]) OR "Healthcare Workers"[tiab] OR "Healthcare Worker"[tiab] OR "Health Care Professionals"[tiab] OR "Health Care Professional"[tiab] OR (Professional[tiab] AND HealthCare[tiab]) OR "health personnel"[tiab])

This search strategy was translated into other databases (Appendix 1). The search strategy was confirmed and replicated by two other members of the research team. We also reviewed references from included studies to identify additional relevant citations. All searches were done in September 2020.

Inclusion criteria were only English articles, book chapters, grey literature published from January 2014 to December 2020 regarding the main features of healthcare providers' resilience. Also, case reports, case series, editorials, letters to the editor, and commentaries that were not focused on the healthcare providers' resilience were excluded. Then, the abstract of all papers was imported into Endnote software version 8 and the duplicates were removed. After that, the authors read the full text and checked the introduction, results, and discussion of included studies, and if they had the inclusion criteria, they were kept for more investigation. two researchers studied full-text articles independently. Finally, we resolved the conflict between the two researchers by discussing contradicted items until consensus was reached. The third researcher decided regarding unresolved cases.

Data extraction

A data sheet was created in the Excel software and imported the data of suitable variables. The extracted data were as follows: title, year of the study, methods of study, and main features of resilience in healthcare providers. The search generated a total of 5434 plus 33 identified additional records, of which 2227 papers were duplicated, and 3207 titles and abstracts were reviewed. The most fundamental reasons for omission were studies not report-

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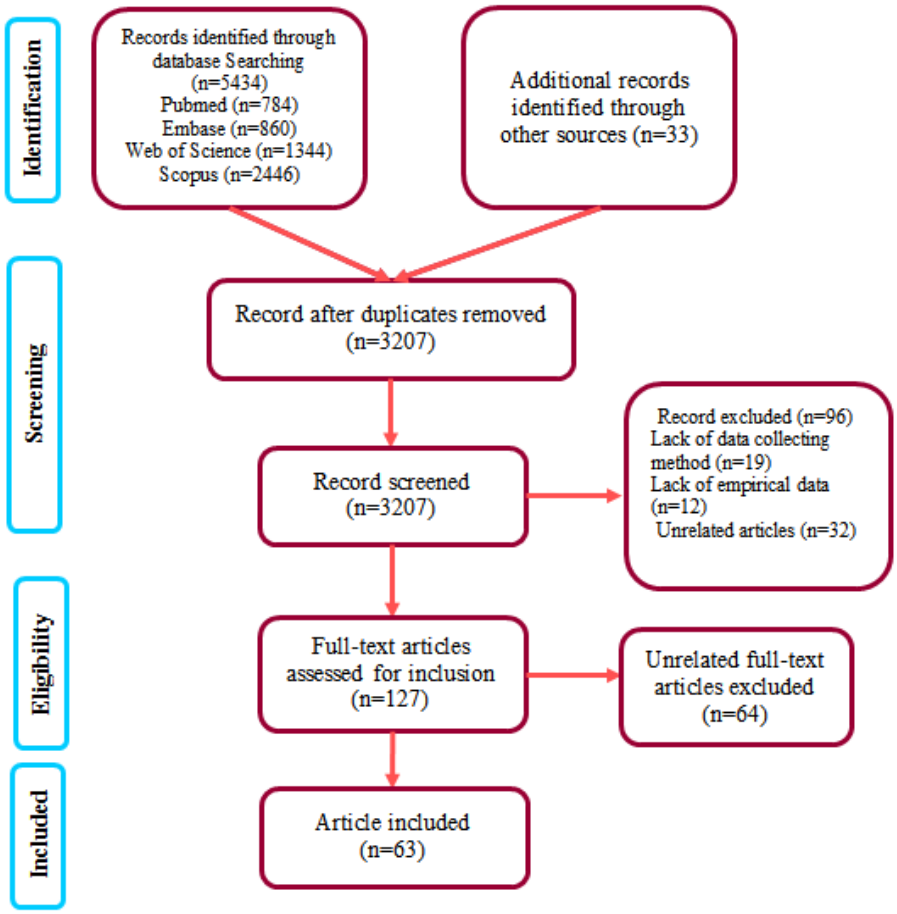

Fig. 1. Flowchart of the present scoping review

ing the main features of healthcare providers' resilience. A total of 63 articles were included in the scoping review and data were extracted. Supplementary information can be accessed in Figure 1.

Data analysis

Content and thematic analysis were used to analyze the records.

Results

Quality assessment of studies

The quality assessment of studies wasn't performed due to the type of review that was scoping review (16). As shown in Figure 1, 64 studies entered to qualitative synthesis phase. The studies are shown in Appendix 2.

Overall, 63 articles were included in the scoping review. From these, USA (30 articles), UK (11 articles), Australia (5 articles), Canada (2 articles), Ireland, Finland, Israel, Norway, Spain, Singapore, Chile, Portugal, Brazil, Lebanon, India, South Korea, Germany, South Africa, and Suriname with one article contributed in this topic. Research methods in these studies were 32 qualitative studies, 18 survey studies, 3 interventional studies, 1 cross-sectional study, 2 developmental studies, 1 mixed-method study, 1 clinical trial, 1 quasi-experimental study. 4 book sections also were included in the study.

Analytical results

The studies showed that coping is one of the main tools for improving resilience, hardiness, well-being, and any proper handling of difficult situations in all health disciplines. Coping is a series of behavioral and cognitive approaches, which people apply when facing stress. It includes positive techniques like support seeking, a work-life balance, problem-focused behaviors, or maladaptive emotional coping as avoidance, denial, and inhibition. Therefore, hardiness and resilience have been considered as a basis that includes the cognitive assessment of challenges, commitment, and control. Literature review revealed that resilience had been studied from various aspects such as personal resilience, resilience in the emergency department, and resilience in healthcare providers. There are some differences between these three categories in which personal resilience is different based on his/her personality. For having a resilient emergency department, it must be had a suitable infrastructure. This resilient healthcare system helps to have resilient healthcare providers who resist hardships and stressful situations. The main features of healthcare providers' resilience are presented in Table 1.

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Table 1. Main features of healthcare providers' resilience

Category	Sub-category	Sub-sub category
Healthcare providers' resilience	Personal resilience	Personality
		Self-care
	Resilience in the emergency department	Organizational support
		Geographical capacity
		Suitable healthcare infrastructure
	Resilience in healthcare providers	Escalation activities
		Resilience in physicians
		Resilience in nurses
		Resilience in psychologists

Personal resilience

According to the studies, personal resilience has been described as a series of individual behaviors, skills, and attitudes involving emotional, social, physical, and personal well-being, like preventing burnout. However, in healthcare professions with inherent stresses, physicians must internalize a professional task for pursuing healthy personal behaviors. Moreover, physicians' health maintenance and their clinical care consequences can be more significant for attenuating the medical norms, which characterized self-care as selfish. Besides, supporting the self-care by the cultural norms and the efficacy of clinical practices provide enough time for self-care, then doctors can reinforce personal resilience (17-20). In this regard, some studies pointed out that multiple approaches have been presented that healthcare providers can utilize these ways for improving their resilience. For instance, optimized nutrition, exercise, and adequate sleeping reduce risks of burnout and improve general well-being. Moreover, they can potentially improve cognitive functions. Also, trying to reduce stress through mindfulness and creating a sense of compassion can lead to strategies for enhancing personal resilience (21, 22). Other studies mentioned the organizational approaches for promoting personal resilience are limited work hours, easy access to inexpensive or free healthy foodstuff, on-site exercise facilities, and having places for taking a nap (relaxation or meditation) in the course of overnight, on-call, or long-shift duties (23-27).

Resilience in the emergency department

Different studies showed a special relationship between the capacity of a geographical region to the reaction and resistance to an emergency independent of the spatial scale of the intended region and appropriate functions of existing systems in that area (28-30). Based on other findings, this dependency was seen distressingly when the critical infrastructure systems failed in a disaster, and it became a key cause of human and economic losses (31-35).

Cimellaro et al. developed a discrete event simulation model for the emergency department of a hospital with and without an emergency plan. Therefore, they observed its outputs and computed the waiting times by the emergency plan. The researchers compared these outputs to ones at normal operating conditions that revealed the effectiveness of the current emergency plan. Nonetheless, constructing a DES model was laborious. Thus, a convenient model as a meta-model was introduced. Hence, the researchers studied diverse protocols considering the intensity of the seismic inputs and numbers of the functional emergency rooms for developing this meta-model. Consequently, all hospitals could use the introduced model for measuring their emergency department performance apart from the complicated simulations and improving their resilience to disasters (36).

Alongside a reported protocol based on the healthcare resilient theory, Back et al. investigated the extraction and classification of the escalation activities for EDs in the policy-making and practical longitudinal observation of real escalations. They applied mixed-method research, including a conceptual analysis of the National Health Service escalation policies (n = 12), the related escalation actions (n = 92), and a comprehensive ethnographic investigation of the escalation in-situ in the 16 months at a big UK ED (30 observations). According to this conceptual analysis, the escalation activities require a dynamic reconfiguration of the resources (personnel and equipment), alteration of workflow, and relocation of the patients. Practically, the researchers determined when the ED was under pressure, including the constant lack of prerequisites. Therefore, the escalation procedures have been informally modified for the management of the pressures. The findings showed that such adaptive procedures had been partially assumed in the existing policies (37).

Another study developed a simple model, which defined the ability of the hospital emergency department to provide services to each patient following natural disasters or other emergencies. Notably, the waiting time is one of the crucial response parameters utilized for the measurement of hospital resilience in a disaster. Initially, a discrete event simulation model of the emergency department in a hospital situated in Italy had been developed for the emergency rooms, hospital resources, circulation patterns, and the patients' codes. According to the outputs of the Monte Carlo simulations, the waiting time for yellow codes in the emergency plan declined by 96%, whereas it was 75% for the green codes. Finally, their new meta-model was general because it can be used for all types of hospitals (38).

Resilience in healthcare providers

Some studies showed that burnout and stress of healthcare providers (physician, surgery resident, nurse, and psychologist) are the main issues regarding the workforce projections, costs, quality of care, and life of healthcare providers and their families (39, 40).

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Resilience in physicians

As shown by several studies, a profession like medicine could be a very encouraging job. Moreover, this field could be unusually challenging so that doctors are at higher risks of depression, burnout, suicide, and anxiety compared to the other populations. Therefore, there may be a correlation between the risks of doctors' burnout and the other psychological morbidities and their resilience (41-44). In fact, resilience can be described as individuals' capability in the complete adaptation of problems or remarkable stress so that they may have a stronger return later. Thus, the psychologists determined some of the personality parameters which help a person's resilience, including the positive attitude, optimism, controlling the emotions, and seeing failure as helpful feedback (45, 46).

McCain et al. investigated coping, resilience, and quality of life in physicians. They included both primary and secondary care physicians in their cross-sectional study. Consequently, 283 physicians participated in the study, and their resilience mean of 68.9 revealed that they were more resilient than others. Besides, 100 of physicians experienced increased burnout, 194 showed higher secondary traumatic stress, and 64 (24%) exhibited lower satisfaction regarding compassion. Burnout had a positive association with lower resilience, lower satisfaction regarding compassion, higher secondary traumatic stress, and repeated utilization of maladaptive coping strategies like self-blame, substance uses, and behavioral non-commitment. Also, the non-clinical concerns in the workplace are the main issue, which contributed to the lower resilience in the physicians. Despite the increased resilience, the physicians experienced higher burnout and secondary traumatic stress. Moreover, those physicians with burnout used more maladaptive coping strategies. However, in physicians with higher resilience, improving personal resilience didn't have more advantages to their quality of professional life (47).

Generally, the overwhelming or chronic stress in the lack of suitable coping skills will enhance the psychological distress signs like depression, suicidal thoughts, as well as substance abuse. In this regard, the mentioned investigations suggested a contribution to the overwhelmed stress under the distress, and also bad effects of burnout in physicians (48-50).

Despite the universal concerns about burnout, there is not enough knowledge regarding burnout causality or risks and the resilience parameters. Some studies demonstrated the existence of depression, overwhelming stress, and burnout in the same range; however, their direction would be ambiguous (51-54).

Lebares et al. studied burnout and its psychological features, which can affect the vulnerability to burnout and reduce resilience in a group of surgical trainees. Therefore, the researchers distributed an online survey in September 2016 to each ACGME-accredited general surgery program. Then, an abbreviated Maslach Burnout Inventory was used to evaluate burnout. Afterward, anxiety, stress, resilience, depression, alcohol use, and mindfulness were evaluated and examined for prevalence or pervasiveness. Next, the magnitude of the assumed risks and resilience parameters were determined by the odds ratios. Out of 566 surgical residents involved in the survey, the burnout prevalence was 69%, depersonalization and emotional exhaustion had the same contribution. Therefore, the distress and perceived stress symptoms like suicidal ideation, depression, and anxiety remarkably increased based on training levels; however, they were ameliorated during the years of study (50).

Moreover, a relationship had been found between increased burnout and greater stress, depression, and suicidal ideation. Contrarily, dispositional mindfulness has been correlated to the declined risks of burnout, stress, anxiety, depression, and suicidal ideation. The increased level of burnout, acute stress, and distress signs had been observed over the general surgery training, and they relatively improved during the years of study. Besides, the trainees with burnout and increased stress were at higher risks for suicidal ideation and depression. The increased dispositional mindfulness had been correlated to the decreased risks of burnout, serious stress, as well as distress symptoms, which approved the potential of the mindfulness training for promoting resilience in the course of the surgery residency (55).

For example, Lebares et al. performed a pilot randomized clinical trial regarding the modified Mindfulness-Based Stress Reduction (MBSR) versus an active control. They selected 21 surgical interns in the residency training plan at a tertiary academic medical center from 30 April 2016 to December 2017. Moreover, a weekly 2-hour modified MBSR classes and 20 minutes of the proposed daily home practice had been considered for 8 weeks. Also, its feasibility had been evaluated in six domains (implementation, demand, acceptability, practicality, integration, and adaptation) along with the use of the focus groups, daily practice time, surveys, attendance, interviews, and subjective self-reports of the experiences. According to the investigation outputs of the 21 residents, 13(62%) were males (56).

The mean age of the case and control groups were 29.0 and 27.4 years old. In this regard, formal stress-resilience training has been feasible by increasing stakeholder supports. Consequently, the modified MBSR was reasonable based on the following findings as higher attendance (13% absence in the case group versus 15% in the control group), lack of significant difference between two groups about practicing days per week, the same mean of daily practice time for two groups with the significant difference just in the first week (28.15 minutes in the control group versus 15.47 minutes in the case group; P=0.02), for the second week (23.89 minutes in the control group versus 12.61 minutes in the case group; P=0.03), and in the fourth week (26.26 minutes for the control group versus 15.36 for the case group; P=0.04), their satisfaction of the training course (based on interviews and focus group feedback); and perceived post-training credibility (18.00 for control group versus 20.00 for case group; P=0.03). Hence, mindfulness skills had been integrated into professional and personal contexts, and independent practice of the mindfulness skills proceeded during 12 months of follow-up (formal practice days' mean per week= 3). Nota-

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bly, formal MBSR training was possible and reasonable for the surgical interns at a tertiary academic center. Finally, studied interns discovered some skills and concepts that had personal and professional benefits so that the cooperation didn't have any harmful effects on patients' care or the interns' surgical training (56).

Resilience in nurses

As shown in the studies, resilience has been considered as a capability for overcoming difficulties and getting power from the experiences. However, higher resilience had a positive influence on nurses. Besides, nurses' abilities for recovering or rebounding are crucial. In this regard, previous studies described the significance of resilience in the nursing profession and recommended some considerations to improve the resilience of clinical nurses (57, 58).

Yang and Smith also found a correlation between resilience and stress regarding the psychological well-being of Chinese undergraduate nursing students. The results showed that the nursing students in their last year of education had the maximum stress mean of based on SINS CN and concerning 12 scores General Health Questionnaire (GHQ-12). Moreover, moderate resilience was reported among all 4 years of the nursing education programmers. It has been found that the scores of the resilience scale (RS) have been negatively associated with the total mean score of stress and psychological well-being. Besides, the psychological well-being was seemingly damaged to the Chinese nursing students, in particular, the final year students and before their registration (59).

Also, Mathad et al. identified the predictors and correlation of resilience among nursing students. They included 194 subjects in their descriptive-correlation study. Then, they used Pearson's correlation and multiple regression analysis for data analysis. The results showed that resilience had a significant correlation with perseverative thinking, mindfulness, and empathy in nursing students. According to the regression analysis, their model justified nearly 33% of the variance in resilience. The obtained outcome was interesting because mindfulness independently justified 23% of the variance, so that the Repeated Negative Thinking (RNT) consuming mental capacity and unproductive RNT anticipated 2% and 8%, respectively. Based on the outputs, resilience had a significant association with empathy, mindfulness, and RNT. Also, the regression results revealed that mindfulness could anticipate 23% of the variance in resilience. In general, the mentioned results supported the significance of mindfulness and resilience in nursing students (60).

Another research reported the impacts of violence coping program (VCP) regarding Polk's middle-range theory of resilience on the nursing competency, burnout, resilience, and capability of coping with violence in the nurses operating in the emergency rooms. Notably, the experimental group participated in VCP two times each week for eight weeks. The results showed that the level of resilience, active coping behavior, and nursing competency was considerably enhanced, and the level of passive coping behavior and burnout declined remarkably in the experimental group. Thus, it could be assumed that VCP is one of the efficient strategies to decrease burnout and ameliorate resilience, nursing competency, and active coping behavior (61).

Resilience in psychologists

It has been widely demonstrated that psychology can analyze how difficulties and strains lead to pertinent clinical burdens on a person. For many years, researchers considered the initial psychosocial outcomes of negative life events as the hurts and damages imposed on individuals. In general, the psychologists considered stressful situations of life and their negative effects on the mental, physical, and social individuals' functions (62-66). As a result of higher morbidities and deaths related to illnesses like anxiety and depression, it will be necessary to emphasize the prevention of mental diseases. These specialists increasingly supported resilience training as a procedure for the possible prevention of mental illnesses and psychological distress. So, resilience can be characterized as a capability of effective withstanding and recovering from mental problems (67, 68).

Moreover, Bacchi and Licinio determined the levels of psychological distress and resilience in psychology and medical students. They also investigated parameters influencing these levels, the relationships between psychological distress and resilience, and students' opinions on the causes of stress and possible interventions. Then, the researchers distributed their voluntary, anonymous online surveys to medical and psychology students at Adelaide University. According to the results, the medical and psychological students exhibited the same mean of psychological distress and resilience. Besides, 55.1% of psychology students and 47.9% of medical students experienced psychological distress. Moreover, increased resilience was correlated to decreased distress ($p<0.001$). Furthermore, the students confirmed the resilience-based intervention, more clear learning objectives, higher financial support, and continuous evaluation as the potential tools for reducing the impacts of stress. Finally, there was an association between increased and decreased psychological distress (69).

Hendriks et al. also determined the impacts of a culturally adapted positive multicomponent psychological intervention (MPPI) on resilience. Therefore, a randomized controlled trial was performed among 158 employees of multiethnic origin in Paramaribo, Suriname. Then, a six-session interventional program was held for studied persons and a wait-list control group. After that, the data was collected at the baseline and post-intervention with three months follow-up. Thus, the precise instructions had been followed for reducing the risks of bias and increasing the assurance of great methodological quality. Moreover, the covariance analysis revealed a great amelioration in mental well-being, positive effects, resilience, also a moderate improvement in negative effects, depression, and minor improvement in anxiety compared with the control groups. The analyses showed that this intervention was not more helpful in stress, psychological flexibility, and financial distress than control groups. Consequently, a

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culturally adapted MPPI could be an encouraging intervention for increasing well-being and resilience among healthy adults with a multiethnic background in the Caribbean (67).

In another research, Matsuno and Israel combined the psychological literature on resilience approaches among transgender people, then used this information in the minority stress framework and introduced an adapted model known as the transgender resilience intervention model (TRIM). TRIM suggested that family acceptance, social support, community belonging, positive role models, participation in an activity, and being a positive role model are the group-level resilience parameters. Hence, self-definition, self-worth, pride, self-acceptance, hope, and transition have been considered as the individual-level parameters promoting resilience. Moreover, the researchers illustrated topics like group, community, and individual interventions as potential influences on resilience. The model calls for developing additional interventions aimed at increasing resilience for transgender people (70).

Discussion

The purpose of this study was to review related studies and procedures regarding healthcare professions' resilience, the ways that resilience has been conceptualized, what is known about the danger, protective factors, and their relationships. Overall, 5434 articles were identified via searching in the databases. After deleting duplicates and excluding unrelated studies, 63 articles were reviewed. Most of these studies were from the USA and conducted by the qualitative method. The main features of healthcare providers' resilience were personal resilience, resilience in the emergency department, and healthcare providers' resilience.

Individual behaviors, skills, and attitudes, healthy behaviors and self-care like optimized nutrition, exercise, and adequate sleeping, and organizational support including limited work hours, easy access to inexpensive or free healthy foodstuff, on-site exercise facilities, and having relaxation or meditation in the course of overnight, on-call, or long-shift duties can improve personal resilience. In this regard, Mcdonald et al. said that educational intervention had implications for the education and practice of nurses and midwives in terms of building and maintaining their personal resilience, especially those exposed to workplace adversity (71) that is similar to the present finding. other studies showed that strategies of personal resilience like inner resources expanding and work-based educational interventions enable successful adaptation in adversity (72, 73). Similar to the current study, Matheson et al. identified the personal resilience characteristics like optimism, flexibility and adaptability, initiative, tolerance, organizational skills, being a team worker, keeping within professional boundaries, assertiveness, humor, and a sense of self-worth (74). Having resilient healthcare providers needs to strengthen their positive attitudes, behaviors, and skills which can be provided by educating them. Therefore, healthcare managers should employ persons with a powerful personality and encourage them in different ways like financial and emotional supports. Literature shows that improving personal resilience needs to be investigated more in future research.

On the other hand, the healthcare systems can improve healthcare workers' resilience by providing suitable infrastructure and resources. Also, escalation activities can be applied when there aren't enough resources like health workers and financial resources in disasters. Geographical capacity of ED place can facilitate relief. Providing a sufficient and resilient ED can improve resilience among healthcare providers. Achour and Price pointed out that climate change of healthcare systems must be addressed comprehensively through fusing resilience and sustainability strategies into a more comprehensive strategy of adaptation (75). Matheson et al. said that promoters of professional resilience were strong management support, teamwork, workplace buffers, and social factors such as friends, family, and leisure activities (74). So, managers of health systems should consider different aspects of their systems that affect the healthcare providers' resilience. Future studies should investigate other factors of the health system that can influence healthcare workers' resilience.

Besides, it is necessary that healthcare managers consider distinctive strategies to strengthen resilience in different healthcare providers like physicians, nurses, and psychologists. It requires some interventions like educating mindfulness, violent coping, and positive attitudes. Bar et al. (76) showed that nursing students' perception of actual cooperation with other professions and their perceived competency and autonomy in their profession were slightly lower than those of other students. Among nursing students, positive correlations were found between competency & autonomy and resilience and between competency & autonomy and agreeableness. Positive correlations were also found between their perception of actual cooperation with other professions and resilience, agreeableness, conscientiousness, openness. These results like our study, revealed the importance of educational interventions like Problem-Based Learning (PBL) should be integrated into health professions students' training.

Several studies revealed that resilience-promoting programs, including psychosocial skills and mindfulness training, should also strive to build community among clinicians and other members of the health care workforce (77, 78). Disasters like the Coronavirus-19 pandemic also have a serious effect on all healthcare workers, and surgical residents have experienced a considerable amount of stress. Accordingly, this psychological burden should be appropriately addressed in organizations planning strategies (55, 79). Aljehani et al. suggest formulating guidelines to help surgical trainees to continue their learning process with the least psychological burden (79).

Regarding psychologists' resilience, Kolar et al. said that workplace factors including leadership, organizational culture, effort-reward imbalance, and emotional labor affect resilience. Strategies reported to foster resilience in early-career psychologists included workload management, professional development, utilizing peer networks, reflection, exercise, and socializing. These results were similar to the present study somewhat. Regarding the uni-

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versity training pathway, support from the psychological societies and colleges was important, as well as a greater focus on work placements, supervision, work-integrated learning, job-relevant coursework, self-care education, teamwork, critical thinking skills, work readiness initiatives, career management support, and experience working within multidisciplinary teams (80). Resilience improving like the present study results, depends on individual, community, and institutional factors (77)

Included studies reviewed using distinctive theoretical frameworks, but the findings still support the perception of resilience as a complex, personal, and cyclical construction related to dynamic techniques of interaction over time between person and surroundings (81). Similarly, resilience is defined as how people respond to hard or unfavorable situations, also defensive and dangerous elements of working places. The main strategy to be resilient is coping with bad situations and difficulties. According to this, the current study has illustrated some problems regarding resilience. So, these problems need to be investigated in future empirical studies.

On the other hand, considering resilience as a multifaceted and complicated issue, as mentioned in recent literature, makes challenges in providing comprehensive definitions. There are multiple possible risks and defensive elements, but we see a complex relationship between them. Personal life and working conditions may also change in unpredictable ways. The review showed some methodological challenges among the included studies. Reviewing research with some dependent variables provides demanding situations in a way to study or measure it. The last challenge is possibly an ethical one. If resilience could be truly defined and measured, selection strategies and methods will be available to identify more individual protective factors. Besides, more research needs to investigate the key factors and reactions of individuals in different settings, as well as the relative impact of reactions and enhancement of realized factors.

A main limitation of the present study was the lack of access to full-text of related articles. So, we send e-mail to corresponding authors of these articles or make contact with them in social networks like Researchgate to get the full text.

Conclusion

The main features of healthcare providers are divided into three categories as personal resilience, emergency department resilience, and resilience in physicians, nurses, and psychologists. So, it requires considering healthcare personality, self-care, organizational supports, geographical capacity, suitable infrastructure, escalation activities, and the difference between healthcare professions to improve the resilience of healthcare workers. Therefore, resilience is in its initial stage because of the absence of investigation or utilization of the relevant theory, inconsistency in the measurement of the outcomes, and considerable methodological flaws.

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Conflict of Interests

The authors declare that they have no competing interests.

Abbreviation

ED: Emergency Department, PTQ: Perseverative Thinking Questionnaire, EWEs: Extreme Weather Events, CD-RISC: Connor Davidson Resilience Scale, GHQ-12: General Health Questionnaire 12, RNT: Repeated Negative Thinking, SINS CN: Stress in Nursing Student, VCP: Violence Coping Program, RS: Resilience scale, MAAS: Mindful Attention Awareness Scale, FMI: Freiburg Mindfulness Inventory, CD-RISC: Connor-Davidson Resilience Scale, TEQ: Toronto Empathy Questionnaire, PANAS: Positive and Negative Affect Schedule, BCSQ-2: Burn out Clinical Subtype Questionnaire, ULS: Unweighted Least Squares, MPPI: Multi-component Positive Psychology Interventionm, TRIM: Transgender Resilience Intervention Model, PTG: Posttraumatic Growth, EE: Participation in Experiential Education, PCA: Principal Components Analysis, PLS-SEM: Partial Least Squares Structural Equation Model.

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Apendix 1. Search strategy in databases

Database	Search date	Search strategy	Results
Pubmed	30 September 2020	("Psychological Resilience"[tiab] OR "Psychological Resiliences"[tiab] OR (Resiliences[tiab] AND Psychological[tiab]) OR resilience[tiab]) AND ((Personnel[tiab] AND Health[tiab]) OR "Health Care Providers"[tiab] OR "Health Care Provider"[tiab] OR (Provider[tiab] AND "Health Care"[tiab]) OR "Healthcare Providers"[tiab] OR "Healthcare Provider"[tiab] OR (Provider[tiab] AND Healthcare[tiab]) OR "Healthcare Workers"[tiab] OR "Healthcare Worker"[tiab] OR "Health Care Professionals"[tiab] OR "Health Care Professional"[tiab] OR (Professional[tiab] AND HealthCare[tiab]) OR "health personnel"[tiab])	784
Embase	30 September 2020	("Psychological Resilience":ti,ab OR "Psychological Resiliences":ti,ab OR (Resiliences:ti,ab AND Psychological:ti,ab) OR resilience:ti,ab) AND ((Personnel:ti,ab AND Health:ti,ab) OR "Health Care Providers":ti,ab OR "Health Care Provider":ti,ab OR (Provider:ti,ab AND "Health Care":ti,ab) OR "Healthcare Providers":ti,ab OR "Healthcare Provider":ti,ab OR (Provider:ti,ab AND Healthcare:ti,ab) OR "Healthcare Workers":ti,ab OR "Healthcare Worker":ti,ab OR "Health Care Professionals":ti,ab OR "Health Care Professional":ti,ab OR (Professional:ti,ab AND HealthCare:ti,ab) OR "health personnel":ti,ab)	860
Web of Science	30 September 2020	(TS=("Psychological Resilience") OR TS=("Psychological Resiliences") OR (TS=(Resiliences) AND TS=(Psychological)) OR TS=(resilience)) AND ((TS=(Personnel) AND TS=(Health)) OR TS=("Health Care Providers") OR TS=("Health Care Provider") OR (TS=(Provider) AND TS=("Health Care")) OR TS=("Healthcare Providers") OR TS=("Healthcare Provider") OR (TS=(Provider) AND TS=(Healthcare)) OR TS=("Healthcare Workers") OR TS=("Healthcare Worker") OR TS=("Health Care Professionals") OR TS=("Health Care Professional") OR (TS=(Professional) AND TS=(Healthcare)) OR TS=("health personnel"))	1344
Scopus	30 September 2020	ABS-KEY("Health Care")) OR TITLE-ABS-KEY("Healthcare Providers") OR TITLE-ABS-KEY("Healthcare Provider") OR (TITLE-ABS-KEY(Provider) AND TITLE-ABS-KEY(Healthcare)) OR TITLE-ABS-KEY("Healthcare Workers") OR TITLE-ABS-KEY("Healthcare Worker") OR TITLE-ABS-KEY("Health Care Professionals") OR TITLE-ABS-KEY("Health Care Professional") OR (TITLE-ABS-KEY(Professional) AND TITLE-ABS-KEY(HealthCare)) OR TITLE-ABS-KEY("health personnel"))	2446

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Appendix 2. Descriptive specification of selected studies for the scoping review

First author (year)	Title	Country	Journal	Method	Main results
Eleanor E (2018)	Professional resilience in GPs working in areas of socio-economic deprivation: A qualitative study in primary care	UK	Br J Gen Pract	qualitative study	Professional resilience is about more than individual strength. policies to promote professional resilience, particularly in settings such as areas of high socioeconomic deprivation, must recognize the importance of flexibility, adaptability, working as teams, and successful integration between work and personal values.
Eliason M.J. (2018)	Coping with stress as an LGBTQ+ health care professional	USA	J Homosex	qualitative study	Mostly positive coping strategies to deal with stress, including becoming educators/advocates and self-care activities.
Fox S. (2018)	A systematic review of interventions to foster physician resilience	Ireland	Postgrad Med J	qualitative study	The most frequently employed interventional strategies were psychosocial skills training and mindfulness training.
Stolt M.	Ethics interventions for healthcare professionals and students: A systematic review	Finland	Nurs Ethics	qualitative study	Patient-related outcomes followed by organizational outcomes can be improved by ethics interventions targeting professionals
Barratt C. (2018)	Developing resilience: The role of nurses, healthcare team,s and organizations	UK	Nurs Stand	qualitative study	Resilient healthcare teams and organizations capable of supporting individuals effectively.
Trent N.L. (2018)	Improvements in psychological health following a residential yoga-based program for frontline professionals	USA	J Occup Environ Med	Survey study	RISE improved indices of psychological health and healthy behaviors that remained 2 months following RISE
Bar M.A. (2018)	The role of personal resilience and personality traits of healthcare students on their attitudes towards interprofessional collaboration	Israel	Nurse Educ Today	Cross-sectional study	Interprofessional education including problem-based learning, should be integrated in health professions students' training
Borsci S. (2018)	Designing medical technology for resilience: Integrating health economics and human factors approaches	UK	Expert Rev Med Devices	Developmental study	HERD MedTech proposes a shift from design for usability to design for resilience aspires to reduce the need for service adaptation to technological constraints
Kerig P.K. (2019)	Enhancing resilience among providers of trauma-informed care: A curriculum for protection against secondary traumatic stress among non-mental health professionals	USA	J Aggress Maltreat Trauma	Developmental study	Six core elements targeted by the curriculum are described: appraisals, self-efficacy, emotional awareness, affect regulation, resilience, and prevention. they are implemented across three stages: pre-exposure preparation, coping in the presence of trauma, and recovery in the aftermath of exposure.
Hignett S. (2018)	More holes than cheese. What prevents the delivery of effective, high quality, and safe health care in England?	UK	Ergonomics	Survey study	There needs to be a discussion about principles for human factors integration in health care to address the challenges of organizational culture, pressure at work (workload), risk management, communication, and resources
Dzau V.J(2018)	To care is human collectively confronting the clinician-burnout crisis	UK	N Engl J Med	qualitative study	The goals are to increase the visibility of clinician burnout, improve organizations' understanding of challenges to clinician well-being, identify evidence-based solutions, and monitor their effectiveness
Berg SH (2018)	Methodological strategies in resilient health care studies: An integrative review	Norway	Saf Sci	qualitative study	Improving the transparency and quality of future resilient healthcare research might be accomplished by reporting thorough descriptions of analytical strategies, in-depth descriptions of research design and sampling strategies, and discussing internal and external validity and reflexivity
Mistretta E.G. (2018)	Resilience training for work-related stress among health care workers: Results of a randomized clinical trial comparing in-person and smartphone-delivered interventions	USA	J Occup Environ Med	Interventional study	In-person mindfulness-based resilience training (MBRT) showed improvements in well-being, whereas only the MBRT group showed improvements in stress and emotional burnout over time

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Appendix 2. Descriptive specification of selected studies for the scoping review

First author (year)	Title	Country	Journal	Method	Main results
Adams J.M (2018)	Improving the work life of healthcare workers: Building on nursing's experience	USA	Med Care	Qualitative study	Critical elements of healthy work environment affect the quality of the work environment to patients, nurse, and organizational outcomes.
Benson J (2008)	Mental Health Across Cultures: A practical guide for health professionals	UK	Aust J Prim Health	Book chapter	Self-reflection on cultural context, networking and mentoring cultural mentors, review of psychotherapy skills, management team (holistic team), hearing the patient's story and using cultural awareness questions, potential barriers, choosing appropriate therapeutic options, follow-up of the patient, boundaries of self-care, evaluation of the process are essential in mental health for health professionals
Rees C. (2018)	Mindful Self-Care and Resiliency (MSCR): Protocol for a pilot trial of a brief mindfulness intervention to promote occupational resilience in rural general practitioners	Australia	BMJ Open	Qualitative study	Effective interventions that can be implemented into busy workplaces are important if we are to support doctors to remain resilient in the face of workplace stress.
Winblad NE (2018)	Effect of somatic experiencing resiliency-based trauma treatment training on quality of life and psychological health as potential markers of resilience in treating professionals	USA	Front Neurosci	Survey study	Results suggest that professionals attending the 3-year SE® training course experience a significant improvement in self-reported measures associated with resiliency including: quality of life and psychological symptoms.
Hansel T (2018)	Lessons learned from a Quad-State post disaster project: Developing accessible and sustainable integrated mental and physical health care services	USA	JAmbul Care Manage	Qualitative study	Improved population health outcomes are possible even in low-income, high-stress regions through intentional and collaborative efforts integrating MBH into primary cares settings
Paige JT (2018)	Priorities related to improving healthcare safety through simulation	USA	Simul Healthc	Qualitative study	Simulation-based activities can be brought to bear on research and training priorities related to education and training, assessment and metrics, process improvement, and culture change to help move forward both patient safety and quality of care.
Stoffel JM (2018)	Review of grit and resilience literature within health professions education	USA	Am J Pharm Educ	Qualitative study	Developing protective factors appears to be the most common approach in helping students become more resilient.
Braithwaite J(2016)	Understanding resilient clinical practices in emergency department ecosystems	UK	CRC Press	Book chapter	learning from the under-recognized habituations, caregiving activities and taken-for-granted routines that characterize the ebb and flow of clinical work as it unfolds in everyday practice
Martin C (2018)	Resilience, health perceptions, (QOL), stressors, and hospital admissions: Observations from the real world of clinical care of unstable health journeys in Monash Watch (MW), Victoria, Australia	Australia	J Eval Clin Pract	Survey study	Both static and dynamic indicators representing stressors, resilience, and health perceptions have the potential to inform threshold models of admission risk in ways that could be clinically useful
Rodríguez-Rey R (2019)	Burnout and posttraumatic stress in pediatric critical care personnel: Prediction from resilience and coping styles	Spain	Aust Crit Care	Survey study	Interventions to prevent and treat distress among pediatric staff members are: promoting active emotional processing of traumatic events and encouraging positive thinking; developing a sense of detached concern; improving the ability to solve interpersonal conflicts, and providing adequate training in end-of-life care
Dryden-Palmer K (2018)	Care for dying children and their families in the PICU: Promoting clinician education, support, and resilience	Canada	Pediatr Crit Care Med	Qualitative study	The well-being of healthcare clinicians in the PICU influences the day-to-day quality and effectiveness of patient care, team functioning, and the retention of skilled individuals in the PICU workforce
Ang SY (2018)	Understanding the influence of resilience on psychological outcomes: Comparing results from acute care nurses in Canada and Singapore	Singapore	Appl Nurs Res	Survey study	A resilience-based approach will help reduce nurses' BO and STS while caring for their patients, and in turn reduce turnover.
Fylan B (2018)	A qualitative study of patient involvement in medicines management after hospital discharge: An under-recognized source of systems resilience	UK	BMJ Qual Saf	Qualitative study	Many are able to enhance system resilience through developing strategies to reduce the risk of medicines errors occurring
Holtz H (2018)	Interprofessionals' definitions of moral resilience	USA	J Clin Nurs	Qualitative study	Individual healthcare providers and healthcare systems can use this research to help negate the detrimental effects of moral distress by finding ways to develop interventions to cultivate moral resilience

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Appendix 2. Descriptive specification of selected studies for the scoping review

First author (year)	Title	Country	Journal	Method	Main results
Winkel AF (2018)	Thriving in scrubs: a qualitative study of resident resilience	USA	Reprod Health	Qualitative study	Resilience in residents is rooted in personal and professional identity, and requires engagement with adversity to develop. Connections within the medical community, finding personal fulfillment in the work, and developing self-care practices enhance resilience
Cimellaro GP	Using discrete event simulation models to evaluate resilience of an emergency department.	USA	J Earthq Eng	Qualitative study	The results of the Monte Carlo simulations show that the waiting time for yellow codes, when the emergency plan is applied, are reduced by 96%, while for green codes by 75%
Back J(2017)	Emergency department escalation in theory and practice: a mixed-methods study using a model of organizational resilience	UK	Ann Emerg Med	mixed-method study	Formal escalation actions and their implementation in practice differed and varied in their effectiveness
Cimellaro GP (2016)	A Model to Evaluate Disaster Resilience of an Emergency Department. Urban Resilience for Emergency Response and Recovery	USA	Springer	Book chapter	The results of the Monte Carlo simulations show that the waiting time for yellow codes, when the emergency plan is applied, are reduced by 96%, while for green codes by 75%
Johnson J (2017)	Integrating positive and clinical psychology: Viewing human functioning as continua from positive to negative can benefit clinical assessment, interventions and understandings of resilience	UK	Cognit Ther Res	Qualitative study	We argue that there is much benefit to clinical psychology of considering positive psychology constructs
Bernabé M (2016)	Resilience as a mediator in emotional social support's relationship with occupational psychology health in firefighters	Chile	J Health Psychol	Survey study	The findings confirm the mediating role of resilience and the relationship with emotional social support from the boss on firefighters' occupational health.
Russo G (2016)	A tale of loss of privilege, resilience and change: the impact of the economic crisis on physicians and medical services in Portugal	Portugal	Health Policy	Qualitative study	The existence of resilience among Portuguese physicians and in the country's market for medical services, will need to be taken into account by national health policies
Anandarajah AP (2018)	Adopting the quadruple aim: The University of Rochester Medical Center experience: Moving from physician burnout to physician resilience	USA	The American journal of medicine	Survey study	Changes at the organizational level are needed to overcome these impediments and recreate joy in the practice of medicine.
Gheihman G (2019)	Everyday resilience: Practical tools to promote resilience among medical students	USA	J Gen Intern Med	Survey study	Implementing effective programs to build resilience in our future physicians is critical to enhancing well-being and reducing burnout
Jones KF (2018)	The role of spirituality in spinal cord injury (SCI) rehabilitation: Exploring health professional perspectives	Australia	Spinal Cord Ser Cases	Qualitative study	Spiritual needs of clients and their family members during SCI rehabilitation are important. A range of initiatives including staff training and the use of standardized spiritual assessment tools can be effective.
Rosso CB (2018)	The joint use of resilience engineering and lean production for work system design: A study in healthcare	Brazil	Appl Ergon	Qualitative study	Both the framework and its corresponding propositions can contribute to the design of socio-technical systems that are at the same time safe and efficient.
Alameddine M (2018)	Resilience capacities of health systems: Accommodating the needs of Palestinian refugees from Syria	Lebanon	Social Science & Medicine	Qualitative study	Capacity-oriented framings of resilience are valuable in extracting generalizable lessons for health systems facing adversity.
McCain RS (2018)	A study of the relationship between resilience, burnout, and coping strategies in doctors.	UK	Postgrad Med J	Survey study	Doctors suffering from burnout were more likely to use maladaptive coping mechanisms. As doctors already have high resilience, improving personal resilience further may not offer much benefit to professional quality of life.
Kalil JA (2018)	How resilient are general surgery residents?	USA	J Am Coll Surg	Survey study	Surgery residents need to be resilient and cope with bad situation in their workplace.
Vickers SM (2017)	Lessons learned from mentors and heroes on leadership and surgical resilience	USA	J Gastrointest Surg	Qualitative study	Stress and burnout remain a significant and growing challenge for physicians and leaders in academic medicine.
Gurland B (2019)	Mindfulness-Based training improves technical skills and emotional regulation for surgical residents	USA	JAMA Netw Open	Interventional study	There is no clear panacea for improving resident well-being during training, but a mindfulness program warrants greater attention

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Appendix 2. Descriptive specification of selected studies for the scoping review

First author (year)	Title	Country	Journal	Method	Main results
Hasty BN (2018)	Medical student mistreatment: Coping strategies and resilience on the surgery clerkship.	USA	J Am Coll Surg	Survey study	Medical students need to be resilient and cope with bad situation.
Riall TS (2018)	Evaluating the feasibility of stress-resilience training in surgical residency: A step toward improving surgeon well-being	USA	JAMA Surg	Qualitative study	In 2017, the Accreditation Council for Graduate Medical Education began mandating that training programs address physician well-being
Greenbaum VJ (2018)	Multi-level prevention of human trafficking: The role of health care professionals	USA	Prev Med	Qualitative study	HCPs use their diverse skills to target risk factors for HT at multiple levels and thereby expand their impact in preventing this form of exploitation
Al-Majid S (2018)	Assessing the degree of compassion satisfaction and compassion fatigue among critical care, oncology, and charge nurses	USA	JONA: The Journal of Nursing Administration	Survey study	Interventions should be considered for clinical providers and charge nurses including debriefing, stress reduction, peer support, and team building
Lebares CC (2018)	Burnout and stress among US surgery residents: Psychological distress and resilience	USA	Journal of the American College of Surgeons	Survey study	Higher dispositional mindfulness was associated with lower risk of burnout, severe stress, and distress symptoms, supporting the potential of mindfulness training to promote resilience during surgery residency.
Lebares CC (2018)	Feasibility of formal mindfulness-based stress-resilience training among surgery interns: A randomized clinical trial	USA	JAMA Surg	Clinical trial	Formal MBSR training is feasible and acceptable to surgical interns at a tertiary academic center. Interns found the concepts and skills useful both personally and professionally and participation had no detrimental effect on their surgical training or patient care.
Rushton CH (2017)	Executive summary: Transforming moral distress into moral resilience in nursing	USA	J Christ Nurs	Qualitative study	The result of the symposium was group consensus on recommendations for addressing moral distress and building moral resilience in four areas: practice, education, research, and policy.
Thomas LJ (2018)	Promoting resilience among nursing students in clinical education	USA	Nurse Educ Pract	Qualitative study	Specific strategies for clinical educators to incorporate resilience training are suggested. Strategies are organized into three categories, support, education and reflection.
Smith GD (2017)	Stress, resilience and psychological well-being in Chinese undergraduate nursing students	USA	Nurse Educ Today	Survey study	Globally, more attention could be given to the potential role of resilience training and other forms effective coping strategies to deal with the inevitable sources of stress in student nurse training.
Matha D (2017)	Correlates and predictors of resilience among baccalaureate nursing students	India	J Clin Diagn Res	Survey study	resilience and/or mindfulness enhancing interventions should be inculcated in nursing education.
Lee SM (2017)	The effects of violence coping program based on middle-range theory of resilience on emergency room nurses' resilience, violence coping, nursing competency and burnout	South Korea	J Korean Acad Nurs	Quasi-experimental study	the VCP could be an effective strategy for reducing burnout and improving resilience, active coping behavior, and nursing competency.
Wicher M (2017)	Positive psychology: A pathway to principal wellbeing and resilience	Australia	Educ Today	Qualitative study	Mindfulness meditation facilitates enhanced present-focused and more effective emotional regulation
Schwarz S (2018)	Resilience in psychology: A critical analysis of the concept	Germany	Theory Psychol	Qualitative study	Resilience accounts for political, historical, and socioeconomic contexts at analytical levels besides the individual may overcome this ethnocentric and neoliberal bias.
Yates TM (2015)	Resilience theory and the practice of positive psychology from individuals to societies. Positive psychology in practice: Promoting human flourishing in work, health, education, and everyday life	USA	John Wiley & Sons, Inc	Book chapter	Positive psychology is being used in real-world settings, and the new directions emerging in the field

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First author (year)	Title	Country	Journal	Method	Main results
Munoz RT (2017)	The psychology of resilience: A model of the relationship of locus of control to hope among survivors of intimate partner violence	USA	Traumatology	Survey study	The PCA recovered 4 unique components, consisting of (a) hope; (b) internal locus of control; (c) powerful others locus of control; and (d) chance locus of control
Theron LC (2016)	The everyday ways that school ecologies facilitate resilience: Implications for school psychologists	South Africa	Sch Psychol Int	Qualitative study	These include championing resilience in contextually-sensitive ways, pre-empting risk and advocating for systemic change, and being mindful of the costs of resilience
Hendriks T (2020)	Resilience and well-being in the Caribbean: Findings from a randomized controlled trial of a culturally adapted multi-component positive psychology intervention	Suriname	J Posit Psychol	Interventional study	A culturally adapted MPPI may be a promising intervention to increase resilience and well-being among healthy adults with a multi-ethnic background in the Caribbean
Armstrong LL (2019)	The DREAM program: Developing resilience through emotions, attitudes, & meaning (gifted edition)–a second wave positive psychology approach	Canada	Couns Psychol Q	Qualitative study	Through building a sustainable, easy to implement program, we aim to build resilience and enhance gifted children's capacity to reach their potential.
Bacchi S (2017)	Resilience and psychological distress in psychology and medical students	Australia	Academic Psychiatry	Survey study	Higher levels of resilience were associated with lower levels of psychological distress
Matsuno E (2018)	Psychological interventions promoting resilience among transgender individuals: Transgender resilience intervention model (TRIM)	USA	The Counseling Psychologist	Qualitative study	Self-worth, self-acceptance and/or pride, self-definition, hope, and transition are individual-level factors that promote resilience. Community, group, and individual interventions and their potential influence on resilience.

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