

The relations between resilience and self-efficacy among healthcare practitioners in context of the COVID-19 pandemic – a rapid review

The relations
between
resilience and
self-efficacy

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Abstract

Purpose – The purpose of this rapid review was to present current evidence on relations between resilience and self-efficacy among healthcare practitioners in the context of COVID-19 pandemic.

Design/methodology/approach – Literature searches were conducted in February/2022 in the online database MEDLINE EBSCO and not date/time limited. Eligibility criteria were as follows: population – healthcare practitioners, interest – relations between resilience and self-efficacy and context – COVID-19.

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Findings – Six eligible studies from Italy, China, United Kingdom, India, Pakistan and Spain, published between 2020 and 2021 were included in the review. All studies used quantitative methods. The relations between resilience and self-efficacy were identified in contexts of resilience programs, measuring mental health of frontline nurses, measuring nurses' and nursing students' perception of psychological preparedness for pandemic management, perception of COVID-19 severity and mediating roles of self-efficacy and resilience between stress and both physical and mental quality of life. Findings indicated limited research on this topic and a need for more research.

Practical implications – Broader understanding of the relations between resilience and self-efficacy may help healthcare organizations' leaders/managers aiming to support resilience of their employees under challenging circumstances such as future pandemic.

Originality/value – The latest COVID-19 pandemic presented the opportunity to research relations between resilience and self-efficacy and enrich existed research in a new and extraordinary context.

Keywords Behavioral, Social or mental health issues, Quality improvement, COVID-19, Relations, Healthcare quality, Healthcare practitioners, Health professions' outbreak response, Resilience, Self-efficacy

Paper type General review

Introduction

COVID-19 put global healthcare systems to a test and healthcare practitioners in the frontline when delivering essential health care services. This pandemic has impacted healthcare practitioners in complex ways both in personal and professional life through workplace stressors. A recent systematic review on mental health outcomes among nurses during COVID-19 indicated prevalence of anxiety, stress, depression, post-traumatic stress disorder and insomnia (Varghese *et al.*, 2021). Nurses' physical and mental quality of life have worsened during pandemic, having a negative impact on the quality and safety of patient care (An *et al.*, 2020). It is therefore an ethical imperative for healthcare organizations' leaders and other stakeholders to support resilience of their employees, if they are to provide safe and effective care to patients under challenging circumstances (Adams and Walls, 2020; Dewey *et al.*, 2020).

Resilience – in a psychological resilience perspective – is an important concept in health care and research context, as its deficiency can affect practitioners' wellbeing and thus indirectly patients' safety and quality of care. Resilience may be defined as “. . . process and outcome of successfully adapting to difficult or challenging life experiences, especially through mental, emotional, and behavioral flexibility and adjustment to external and internal demands. . . .” (APA Dictionary of Psychology, 2022). To support resilience among practitioners in times of future pandemics, stakeholders need to know what mechanisms may be involved, allowing individuals to become resilient. The focus for this review is therefore put on the relations between resilience which refers to adapting to change and withstanding challenges and self-efficacy which refers to task accomplishment (Schwarzer and Warner, 2013).

Self-efficacy is a personal factor which refers to individuals' beliefs about their capabilities and capacity to execute courses of behaviors necessary to attain designated performances (Bandura, 1977, 1997, 1986), both as a general propensity and in specific domains of functioning. General self-efficacy is the belief of an individual in her ability to cope with a broad range of stressors (Schwarzer and Jerusalem, 1995a), whereas specific self-efficacy is limited to a particular task/domain (Bandura, 2006). Various of types of self-efficacy may therefore exist, such as e-work self-efficacy, pandemic self-efficacy, etc. Albert Bandura – an influential social cognitive psychologist – researched and opted on domains specific self-efficacy.

Self-efficacy represents a self-confident view of one's capability to deal with stressors in life. By activating positive affective, motivational and behavioral mechanisms in challenging situations, self-efficacy beliefs may be helpful to promote resilience when facing adversity (Schwarzer and Warner, 2013). In previous research, self-efficacy has been conceptualized as one component of resilience (Rutter, 1987). Furthermore, reinforcing self-efficacy may be the most important resilience factor against appraising high levels of stress (Meyer *et al.*, 2022). Thus, building self-efficacy can lead to resilience (Benight and Bandura, 2004) and Bandura (1977, 1997) proposed four sources of self-efficacy: mastery experiences, vicarious

experiences, verbal persuasion and physiological and affective states which can represent ways of promoting self-efficacy in interventions.

Currently there is a knowledge gap in understanding the relations between resilience and self-efficacy among healthcare practitioners during a pandemic. Closing this gap will contribute new knowledge on how to promote resilience, relevant for healthcare organizations' leaders and other stakeholders and thereby improve quality and safety of healthcare services in extraordinary times. The situation with the COVID-19 outbreak highlighted the relevance of this subject in this new and extraordinary (pandemic) context. This literature review aimed therefore to identify evidence on relations between resilience and self-efficacy among healthcare practitioners in context of COVID-19. The research question was: What are the relations between resilience and self-efficacy among healthcare practitioners during COVID-19 pandemic?

Method

The present review was conducted using an adapted version of the rapid review approach (Tricco *et al.*, 2017). A rapid review approach was chosen during the pandemic as a way of providing results and making conclusions quickly to inform future research and stakeholders. Due to time and resource limitations this rapid review was done with acceleration and reduction of some of conventional review methods' elements (Tricco *et al.*, 2017).

Eligibility criteria

The "Population-Interest-Context" (PICO, 2022) approach was applied in this review to specify eligibility criteria.

Population. To be included in the review, the participants of the studies had to be healthcare practitioners such as doctors, nurses, paramedics, psychologists etc. from all kinds of healthcare services (primary and secondary healthcare, emergency care, etc.) who are directly responsible for providing healthcare to patients during COVID-19 pandemic. Hospital leaders, students, patients and next of kin were excluded.

Interest. The main variables of interest in the studies were the relations between (different types) of resiliency and (general and/or domain specific) self-efficacy. Relations in this review was defined as a way in which resilience and self-efficacy are associated or/and the mechanisms by which they may affect each other. The variables needed to be measured by psychometrics measures/scales/instruments made to measure resilience and self-efficacy explicitly. Therefore, just quantitative studies were eligible.

Context. The context of the studies needed be under COVID 19-pandemic – a coronavirus disease 2019, caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).

Search and information sources search strategy

A search in the electronic database MEDLINE EBSCO was conducted on 12th February 2022. Different search strategies were drafted and tested using terms and synonyms to: "resilience", "self-efficacy" and "COVID-19". Those three single searches were thereafter combined using Boolean AND which resulted in total of 155 hits. The term "practitioners" was not included into the search string as this would limit hits and may result in missing some of important records. The searches were not date/time limited. Search in reference lists of retrieved papers and grey literature was not conducted. Detailed search strategy can be found in [Table 1](#).

Selection of sources of evidence, data items and charting process

The final search resulted in a total of 155 hits. Those hits were first briefly screened (titles and abstracts) and 78 titles were retrieved into a Word document where titles and abstracts were screened once again. This resulted in 66 records retrieved to full text screening which were read

in full text and assessed for eligibility. Excluded were among others: papers not in English, study protocols, papers about general population, caregivers of children, older adults, pregnant women, children and adolescences. Finally, six papers meet eligibility criteria and were included in the review. Only peer-reviewed papers were eligible. Main inclusion and exclusion criteria can be found in [Table 2](#). The following data was extracted to a table in Word document: authors, country, year published, aims, methods, population, measurement of resilience, measurement of self-efficacy and relations between resilience and self-efficacy.

Results

Selection of sources of evidence

The search process and results are presented in [Figure 1](#) ([Page et al., 2021](#)).

The included studies' characteristics are presented in [Table 3](#).

Presentation of findings across studies

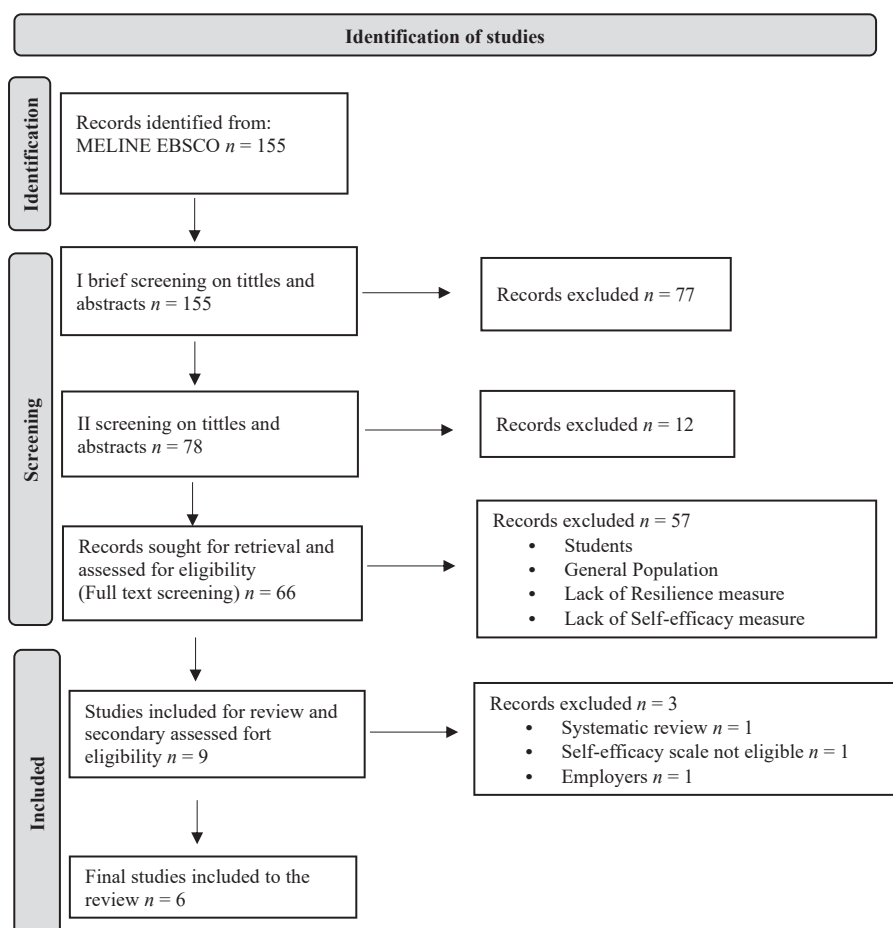
In the study by [Giordano et al. \(2022\)](#) the authors aimed to “. . . evaluate the impact of the R2 resilience program tailored for healthcare leaders working in a highly affected COVID-19 area in Italy”. This program followed a multisystemic resilience-oriented approach, aiming to prepare healthcare leaders to lead their staff and organizations more effectively during the pandemic. The authors conducted a survey study on 17 healthcare leaders and 62 members of their staff. To measure self-efficacy, they used The General Self-Efficacy Scale ([Schwarzer and Jerusalem, 1995a](#)). To measure resilience, they used the 10-item Rugged Resilience Measure ([Jefferies et al., 2020](#)) and the 17-item Adult Resilience Measure Revised ([Liebenberg and Moore, 2018](#)). The authors based their study on the assumption that resilience is the ability to find and make use of internal and external resources to successfully cope with adversity. They proposed that those protective internal resources include for example self-efficacy ([Ostafin and Proulx, 2020](#)), together with external resources such as personal and professional relationships ([Pipe et al., 2012](#)) and a safe work environment. Therefore, resilience can be considered as a process that is revealed over time in person–environment

Database	MEDLINE EBSCO
Search date	12.02.2022
Search history or procedure	(1) Resilience or resiliency or resilient (50,423) (2) Efficacy or self efficacy or Bandura (937, 234) (3) COVID-19 or coronavirus or 2019-ncov or sars-cov-2 or cov-19 or pandemic (268,132)
Records	(4) 1 and 2 and 3 (155) 155

Table 1.
Search strategy

Inclusion criteria	<ul style="list-style-type: none"> • Healthcare practitioners • Report about relations between resilience and self-efficacy • Under COVID-19 pandemic context • Original measures for resilience and self-efficacy
Exclusion criteria	<ul style="list-style-type: none"> • Not about healthcare practitioners • Relations between resilience and self-efficacy not found in paper • Not in English language • Lack of eligible measure for resilience and self-efficacy

Table 2.
Inclusion and exclusion criteria



Source(s): Page *et al.* (2021)

Figure 1.
PRISMA-based
diagram

interactions (Egeland *et al.*, 1993) and may consequently be modifiable in an intervention. The R2 resilience program was associated with reduced levels of stress and burnout symptoms and increases in self-efficacy, social-ecological resilience and “rugged qualities”. Rugged qualities according to authors, is one of the categories of resilience qualities and comprises gratitude, self-confidence, optimism, problem-solving, mindfulness, sleep, nutrition and physical activity. Healthcare leaders showed a significant increase with a large effect size in the two measures of rugged and resourced resilience, targeted during the program and in personal self-efficacy with a medium effect size. Interestingly, the results were similar for staff members, reporting a large effect size for the increase in rugged resilience and a medium effect size related to the increase of self-efficacy. Thus, an explanation may be that while healthcare employees may be insufficiently equipped to cope with the stress inducted by a public health crisis, a positive attitude in the workplace demonstrated by supervisors may reduce staff stress (Cai *et al.*, 2020), increase employees’ self-efficacy and enhance psychological wellbeing (Flesia, 2020). A conclusion from this study is therefore that the

Author(s)/ Country/ Year	Aims	Methods	Population	Measurement of resilience	Measurement of self-efficacy
Giordano et al. (2022) Italy	“To evaluate the impact of the R2 resilience program . . .”	Online survey	17 leaders and 62 members of their staff	- The 10-item Rugged Resilience Measure - The 17-item Adult Resilience Measure Revised	The General Self-Efficacy Scale
Hu et al. (2020) China	“To examine mental health (burnout, anxiety, depression, and fear) and their associated factors . . .”	Online survey	2,014 frontline nurses	The Connor-Davidson Resilience Scale	The General Self-efficacy Scale
Panourgia et al. (2021) United Kingdom	“To investigate the concurrent effects of pre-pandemic and COVID-19 stress on resilience . . .”	Online survey	325 Mental Health Psychology Practitioners	The Connor-Davidson Resilience Scale	The Generalized Self-Efficacy Scale
Gandhi et al. (2021) India	To explore . . . “perception of psychological preparedness for the pandemic management . . .”	Online survey	676 nursing practitioners	The Brief Resilient Coping Scale	The General Self Efficacy Scale
Saleem et al. (2020) Pakistan	“To examine the Relationship between psychosocial strengths (resilience, self-efficacy beliefs and social support) and perceived severity of COVID-19 and also to gauge the mediating role of self-control . . .”	Online survey	284 doctors	The Brief Resilience Scale	Short General Self Efficacy Scale
Peñacoba et al. (2021) Spain	“To explore the mediating roles of self-efficacy and resilience between stress and both physical and mental quality-of-life components . . .”	Online survey	308 intensive care nurses	The Resilience Scale (RS-14)	The General Self-Efficacy Scale

Table 3.
Descriptive characteristics of included studies

resilience program has a potential to build resilience by strengthening the rugged factors that exist within individuals, including self-efficacy.

In the study by [Hu et al. \(2020\)](#) the authors aimed to “. . . examine mental health (burnout, anxiety, depression, and fear) and their associated factors among frontline nurses who were caring for COVID-19 patients in Wuhan, China”. They conducted a large-scale cross-sectional, descriptive, correlational study on 2014 eligible frontline nurses from two hospitals. To measure self-efficacy, they used a Chinese version of The General Self-Efficacy Scale ([Schwarzer and Jerusalem, 1995a](#)). To measure resiliency, they used a Chinese version of the

Connor-Davidson Resilience Scale-10 (Connor and Davidson, 2003). They used Pearson product-moment correlations coefficient to examine the relationships between burnout, fear, anxiety and depression and all other continuous outcome variables such as skin lesion, self-efficacy, resilience, intra-family social support, extra-family social support. Result from this study showed that burnout (emotional exhaustion), burnout (depersonalization), anxiety, depression and fear were negatively correlated with resilience. Burnout (emotional exhaustion), anxiety and depression were negatively correlated with self-efficacy. Burnout (personal accomplishment) was positively correlated with self-efficacy and resilience. The results from this study showed that both self-efficacy and resilience were moderately negatively correlated with frontline nurses' mental health outcomes such as burnout, anxiety and depression. These results suggest that when nurses have higher self-efficacy and resilience levels, they may experience less mental health problems. The authors suggest that future interventions at the national and organizational levels are needed to improve mental health during this pandemic by (among others) building self-efficacy beliefs among nurses.

In the study by Panourgia *et al.* (2021), the authors aimed to "... investigate the concurrent effects of pre-pandemic and COVID-19 stress on resilience". They conducted an online study on 325 Mental Health Psychology Practitioners focusing on the mediation effects of specific individual factors. To measure self-efficacy the authors used the 10-item Generalized Self-Efficacy Scale (Schwarzer and Jerusalem, 1995b). To measure resiliency, they used the Connor-Davidson Resilience Scale (Connor and Davidson, 2003). Authors framed this study based on the assumptions that self-efficacy and optimism might link to the ways pre-pandemic and COVID-19 stress influences the development of resilience. They adopted the transactional theory of stress and model proposed by Lazarus and Folkman (1984). This theory proposes that the variations in how individuals respond to stressors can be explained by individual differences that can affect cognitive appraisals and coping strategies, such as different self-efficacy levels among practitioners. Among individuals with high self-efficacy levels, being convinced that one can successfully deal with a stressor can change the appraisal and reduce the level of stress (Lazarus and Folkman, 1984). Furthermore, a high level of self-efficacy is linked with both: a positive self-concept and self-appraisal of personal control (Rodriguez and Loos-Sant'Ana, 2015). Therefore, mental health psychology practitioners, with sufficient self-efficacy levels are expected to be equipped and prepared for effective action by their self-confidence and, consequently, show resilience. The results from this study showed that optimism, burnout and secondary traumatic stress, mediated both the relationship between pre-pandemic stress and resilience and COVID-19 stress and resilience. Surprisingly in this study, coping strategies, self-efficacy, compassion satisfaction, or self-compassion, did not mediate the relationship between pre-pandemic stress and resilience, or COVID-19 stress and resilience. Authors suggest that those unexpected findings may be explained by extraordinary circumstances related to COVID-19 pandemic such as: increased job demands, the nature and duration of COVID-19 stress.

In the study by Gandhi *et al.* (2021) the authors aimed at "... exploring nurses' and nursing students' perception of psychological preparedness for the pandemic (COVID-19) management". Psychological preparedness can be succinctly described as an individual state of awareness, anticipation *and* readiness capacity to manage one's psychological response in an emergency and it may be determined by self-efficacy, optimism, state-trait anxiety and resilience (Reser and Morrissey, 2009). They conducted a cross-sectional online survey research on 676 nursing officers, nurse administrators, nursing teachers and nursing students. To measure self-efficacy, they used the General Self Efficacy Scale (Schwarzer and Jerusalem, 1995a). To measure resiliency, they used the Coping – Brief Resilient Coping Scale. The authors rely on previous research on emergency department nurses suggesting that presence of self-efficacy and resilience helps an individual to handle difficult situations and conversely, the higher the psychological preparedness, the more the perceived self-efficacy or

resilience (Jonson *et al.*, 2017). Results showed that psychological preparedness, self-efficacy, optimism and resilience were positively correlated with each other. Self-efficacy, optimism and resilience emerged as predictors of psychological preparedness and were able to explain 62% of the variance in psychological preparedness. A conclusion from this study is that the self-efficacy, optimism and resilience can be considered as predictors for psychological preparedness. This study showed that psychological preparedness, self-efficacy, optimism and resilience were positively correlated to each other. In other words, if the self-efficacy level rises then the level of resilience rises as well.

In the study by Saleem *et al.* (2020) authors aimed “. . . to examine the relationship between psychosocial strengths (resilience, self-efficacy beliefs and social support) and perceived severity of COVID-19 and also to gauge the mediating role of self-control among frontline health care professionals of Pakistan”. They conducted cross-sectional research with an online survey on 284 doctors from one medical teaching hospital. To measure self-efficacy, they used the Short General Self-Efficacy Scale (Romppel *et al.*, 2013 Schwarzer and Jerusalem, 1995a). To measure resilience, they used the Brief Resilience Scale (Smith *et al.*, 2008). To measure the perceived severity of COVID-19 authors asked questions about perceptions of severity, susceptibility, response efficacy and self-efficacy (The Risk Behavior Diagnostic scale). The authors assumed that resilience, efficacy beliefs, accepting challenges and positive coping strategies would reduce perceived severity of disease in individuals. Perceived severity of disease refers to the phenomenon that when individuals experience a health threat, they manage this potential danger by controlling either the threat or the fear of it. They do this by evaluating the perceived chance of risk of the threat (perceived threat) against behavior that would have to be taken to protect themselves against it (perceived efficacy) (Rubin *et al.*, 2009). Psychosocial strengths (resilience, self-efficacy beliefs and social support) were significantly negatively correlated with perceived severity of COVID-19, with 72% explained variance in perceived severity due to psychosocial strengths. One of the conclusions from this study is that psychosocial strengths (self-efficacy and resilience) can play a significant role in reducing the risk associated with severity of disease. Results suggests that when in time of crisis, those healthcare practitioners who have strong self-control, have resilient personality, self-efficacy beliefs and adequate social support can cope well with the adversity.

In the study by Peñacoba *et al.* (2021), the authors aimed to “. . . explore the mediating roles of self-efficacy and resilience between stress and both physical and mental quality-of-life components in intensive care nurses during the COVID-19 pandemic”. The authors conducted a cross-sectional survey on 308 intensive care nurses. To measure self-efficacy, they used the General Self-Efficacy Scale (Schwarzer and Jerusalem, 1995a). To measure resilience, they used the Resilience Scale (RS-14) (Wagnild, 2009). Similarly to Panourgia *et al.* (2021), authors brought up the transactional theory of stress proposed by Lazarus and Folkman (1984) as the framework of this study. Results showed a significant indirect (mediation) effect of levels of perceived stress on both physical and mental health components through self-efficacy and resilience. Specifically, higher perception of self-efficacy was associated with lower perception of stress and greater resilience, while higher resilience was associated with better physical and mental health. Furthermore, it was observed that self-efficacy alone also mediates the relationship of the perception of stress on the components of physical and mental health. However, surprisingly, resilience alone was not a significant mediator of these associations.

Relations between resilience and self-efficacy in context of COVID-19

Despite that the relations between resilience and self-efficacy have been previously widely investigated during non-pandemic situations, the new finding confirmed that relations exist also under (pandemic) extraordinary circumstances among healthcare practitioners. This review found relations between these two variables in contexts of resilience programs,

measuring mental health of frontline nurses, measuring nurses' and nursing students' perception of psychological preparedness for the pandemic management, perception of COVID-19 severity and mediating roles of self-efficacy and resilience between stress and both physical and mental quality of life. Various relations between resilience and self-efficacy are presented in [Table 4](#).

The relations between resilience and self-efficacy

Discussion

We conducted a rapid review on relations between resilience and self-efficacy among healthcare practitioners in a context of COVID-19 pandemic. Our review presents evidence to support the assumption that resilience and self-efficacy have important reciprocal relations, as they may complement and strengthen each other. It appears that resilience can be potentially built by strengthening self-efficacy and therefore self-efficacy may be required to develop resilience and then in turn, it may be conceptualized as one component of resilience.

Pandemics are extraordinary times in which healthcare practitioners may be overwhelmed by emotional and mental issues. Nursing willingness to participate in frontline work for patients during newly emerging infectious disease was strongly negatively correlated with mental health ([Hu et al., 2020](#)). This may compromise their wellbeing and thus impair the quality of service and patient safety. Then in turn may cause a collapse of healthcare systems while these should be responding to the pandemic. Therefore, when facing future pandemic healthcare leaders and other stakeholders should continually seek evidence-based information on how to improve resilience among healthcare practitioners as this can lessen the impact of work-related stress and prevent poor psychological health outcomes ([Delgado et al., 2017](#)). Our findings on relations between resilience and self-efficacy in context of COVID-19 may serve as a source of knowledge. We believe that attention and effort undertaken to improve resilience factor such as self-efficacy may be beneficial. Resources should be addressed to build self-efficacy and resilience, to achieve improvement in the mental health ([Badu et al., 2020](#)). Possessing those positive psychological resources may reduce the negative impact associated with the COVID-19 and future pandemic among healthcare practitioners. Healthcare practitioners will possibly benefit from programs aiming at straightening, improving and building resilience and self-efficacy beliefs under extraordinary conditions from the individual perspective due to training programs. Indeed, previous studies on resilience programs report an increase in resilience resources ([Werneburg et al., 2018](#)) and self-efficacy ([Tarantino et al., 2013](#)) after completing the program. It may be beneficial, in such training, to use four sources of self-efficacy: mastery experiences,

Authors	Description of relations
Giordano <i>et al.</i>	Resilience and self-efficacy increased after resilience program
Hu <i>et al.</i>	Resilience and self-efficacy were negatively correlated with mental health outcomes such as burnout, anxiety, and depression. The correlation between resilience and self-efficacy was not measured
Panourgia <i>et al.</i>	Self-efficacy did not mediate the relationship between pre-pandemic stress and resilience and COVID-19 stress and resilience
Gandhi <i>et al.</i>	Resilience and self-efficacy were positively correlated to each other
Saleem <i>et al.</i>	Resilience and self-efficacy were significantly negatively correlated with perceived severity of COVID-19
Peñacoba <i>et al.</i>	Resilience and self-efficacy had indirect (mediation) effect of levels of perceived stress on both physical and mental health components, of quality of life during the COVID-19. Resilience alone was not a significant mediator of these associations

Table 4.
Relations between resilience and self-efficacy

vicarious experiences, verbal persuasion and physiological and affective states (Bandura, 1977, 1997). Mastery experiences relate to one's experience of success and the satisfaction and enjoyment of those successes may increase self-efficacy beliefs among healthcare practitioners. Vicarious experiences relate to observation of other people (role models) experiencing successes and by this healthcare practitioners may potentially take up some of those beliefs about the self. Verbal persuasion relate to a positive impact of words/suggestions/encouragements from others which may have an impact on healthcare practitioners' self-efficacy beliefs. And finally, physiological and affective states relate to impact of physiological and/or emotional problems (or the lack of them). For example, perceived stress, anxiety, or depression symptoms may impact the judgments of self-efficacy beliefs. Therefore, to improve the self-efficacy among healthcare practitioners it is important to take care of their mental health. We believe that self-efficacy among healthcare practitioners may be improved by implementing those four above sources of self-efficacy in various training and simulation programs. However, those programs still need to be carefully tailored to specific domain of the activity of interest and healthcare practitioners themselves.

This review has the following limitations. The heterogeneity between studies and results, was high as authors used different context these studies were carried out in, populations/samples, methods and instruments to measure and analyze findings, therefore, it is not possible to generalize these findings in different contexts, than those presented in this review. This review indicates scarcity of research conducted on this topic, for example, the possible lack of evidence on different types of self-efficacy than general self-efficacy. All the measures of self-efficacy were measured by the General Self-Efficacy Scale(s), despite the existence of other self-efficacy measures which may be relevant in the context of pandemic, such as e-work self-efficacy, or pandemic self-efficacy. An insufficiency of research and lack of other specific self-efficacy measurement decreased topic understanding and this in turn lead to the limited conclusions. Furthermore, only one researcher was responsible for screening the papers and only one database was searched. Although it is appropriate for a rapid review study, a broader search may result in more eligible studies, which might have been applicable for review. Included studies were explicitly about healthcare practitioners. This in turn led to the exclusion of papers about other stakeholders such as hospital leaders, administrative staff, patients or next of kin, which might potentially bring broader knowledge to the topic. Included studies were explicitly those where resilience and self-efficacy measures were used. This in turn led to exclusion of other scales and measures (which could contain measure of resilience and self-efficacy). Two studies were included conditionally (Gandhi *et al.*, 2021; Giordano *et al.*, 2022) as they were not 100% eligible with the review's inclusion and exclusion criteria. These were where in addition to healthcare practitioners; nursing students and leaders were the objects of research. Those studies were included because their eligibility was deemed high enough, and they brought important findings. Also, assessment of the methodological quality of included studies was not conducted. However, the included papers were published in peer-reviewed journals, which may indicate that the quality of those papers is adequate.

Conclusion

This review was conducted to provide evidence from literature about relations between resilience and self-efficacy among healthcare practitioners under COVID-19 pandemic. The reason for the above is an aim to inform development of future research and advance awareness and broader understanding of stakeholders, such as healthcare practitioners themselves, healthcare organization's leaders and policy makers. Broader understanding of the relations between resilience and self-efficacy may further help healthcare organization's leaders/managers aiming to support resilience of their employees under challenging circumstances such as future pandemic. Presented evidence indicated the complexity,

multidimension and partial ambiguity of the relations between resilience and self-efficacy under COVID-19 pandemic. Furthermore, our review identified significant heterogeneity in studies and possible lack of studies focusing on different type of specific self-efficacy. To understand the topic further and possibly to form a coherent picture of the relations between those two variables, more research is needed with advanced regression models. We suggest therefore update this review when more research from different context and conducted on various groups of healthcare practitioners will be published.

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