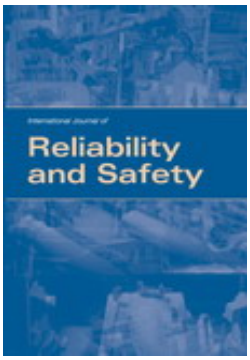
INDERSCIENCE PUBLISHERS
Linking academia, business and industry through research



International Journal of Reliability and Safety

ISSN online: 1479-3903 - ISSN print: 1479-389X
https://www.inderscience.com/ijrs

Cognitive dimensions of organisational reliability: a scoping review

Mansooreh Moeini Korbekandi, Seyed Hosein Kazemi, Hassan Danaeefard

DOI: 10.1504/IJRS.2023.10058045

Article History:

Received:	28 September 2022
Last revised:	27 March 2023
Accepted:	05 June 2023
Published online:	20 August 2023

Cognitive dimensions of organisational reliability: a scoping review

Mansooreh Moeini Korbekandi*,
Seyed Hosein Kazemi and
Hassan Danaeefard

Public Administration Department,
Faculty of Management & Economics,
Tarbiat Modares University (TMU),
Tehran, Iran
Email: mansooreh.moeini@modares.ac.ir
Email: h.kazemi@modares.ac.ir
Email: hdanaee@modares.ac.ir
*Corresponding author

Abstract: Originated in the engineering and leaked into other fields, reliability is now a demanded feature for all human-made systems, including organisations. Although the hard dimensions of reliability have been studied for decades, addressing soft and especially cognitive dimensions of reliability is an emerging research interest. To identify the conceptual borders of this multidisciplinary research area, we conducted a scoping review to find, select and map the general characteristics, methodological features, main findings and practical implications of the eligible studies. Using a search query three scientific databases (EBSCO, Wiley Online Library and Springer Link) were searched in title, abstract and keywords for relevant studies. The included studies were 57 English-written original research articles published in SJR Q1 journals. Data extraction revealed three research themes as the main paths for exploring cognitive dimensions of organisational reliability: mindfulness, safety and resilience. The safety-driven studies were focused on error management, safety knowledge management and cultural considerations. The focus of the resilience-driven strand was on crisis management, organisational resilience and employee resilience. As the last group, the mindfulness-driven studies were considered as the explicitly cognitive centre of the emerging field that pursues cognitive-based reliability by improving safety and resilience.

Keywords: organisational reliability; scoping review; safety; resilience.

Reference to this paper should be made as follows: Moeini Korbekandi, M., Kazemi, S.H. and Danaeefard, H. (2023) 'Cognitive dimensions of organisational reliability: a scoping review', *Int. J. Reliability and Safety*, Vol. 17, No. 1, pp.55–102.

Biographical notes: Mansooreh Moeini Korbekandi is a PhD student in Management at the Tarbiat Modares University. Her main research interests are organisational safety, sustainability, and reliability with respect to soft and cognitive aspects of human behaviour.

Seyed Hosein Kazemi is an Assistant Professor in Department of Public Administration at Tarbiat Modares University. His research interests include corporate social responsibility, business ethics, stakeholder theory, and the

social identity approach. His works have been published in *Organization, Public Organization Review*, etc. He teaches organisation theories, qualitative research methods, and organisational behaviour at the graduate level.

Hassan Danaeefard is a Full Professor of Public Administration in Department of Public Administration at Tarbiat Modares University. He has published articles in *Public Organization Review*, *European Journal of Scientific Research*, and *European Journal of Economics, Finance and Administrative Sciences* among others.

1 Introduction

Originated in the engineering and leaked into other fields, reliability is now a demanded feature for all human-made systems, including organisations (Weick, 1987; LaPorte and Consolini, 1991; Roe and Schulman, 2008; Riley et al., 2011; Weick and Sutcliffe, 2015). Notably, the increasing rates of environmental and organisational crises and failures (Varuvel and Pruno, 2019; Wang et al., 2020) in recent decades have led many topics such as crisis management, business continuity, sustainable organisations, resilience management, organisational resilience and safety culture to get entrenched into the literature of organisational studies. Despite the differences, all these concepts have always been on the same track of scholarship, i.e., how the reliability and smooth functioning of organisations can be ensured by pre-empting malfunctions and errors and bouncing back from failures and crises (Weick et al., 2005; Labib and Read, 2015; Sindhu et al., 2017).

Obviously, various external and internal factors could challenge the reliability of organisations, such as environmental changes (Rougier et al., 2010; Chandler et al., 2012; Slonosky and Mayer-Jouanjean, 2020), increased demand of stakeholders (Agwu et al., 2019), failure to update routines and procedures (Berland et al., 2012; Claesson et al., 2020). More important, however, in determining the level of organisational reliability is how organisational members, individually and collectively, make sense of and respond to the demanding situations they face. This is in line with those studies that regard organisational and individual sensemaking errors as the main cause of those incidents, malfunctions and failures that threaten organisational reliability (Labib and Read, 2013; Labib, 2014; Labib and Harris, 2015; Moura et al., 2016; Agwu et al., 2019; Kumar et al., 2019). Such cognitive errors can be made at individual or organisational levels due to, among other things, unintended deviations from prespecified standards (Goodman et al., 2011; Frese and Keith, 2015; Javed et al., 2020), an organisational culture centred on concealing and blaming error (Bagnara et al., 2010; Duryan et al., 2020), engaging in trial and error and other experimental forms of learning (Roberts and Rousseau, 1989; Shrivastava et al., 2009), absence or existence of a weak error reporting system (Ghaith et al., 2022) and human factors such as distraction, over-concentration, and failure to consider all factors (Gordon et al., 2005). Paying more attention to these cognitive aspects of organisational reliability indicates a substantial shift in the reliability literature, from focusing mainly on hard elements of reliability (technology, strategy, structure) to the soft aspects (sensemaking, communication, culture). The main theme of the latter

approach is that the cognitive system of organisations (Jensen et al., 2022) should be designed in such a way that when facing uncertain and threatening situations, organisations can properly make sense and respond to the situations ensuring that they can continue to function without serious harm as well as learn from their mistakes (Youngberg et al., 2004; Weick et al., 2005; Labib and Read, 2015). Such reliable organisations can prevent failures or act so that failures do not lead to disasters, and even if catastrophic failures occur, these organisations can bounce back and withstand the consequences (Weick and Sutcliffe, 2015).

The concept of organisational reliability in the new sense shows a conceptual turn in the studies of this field by paying attention to the soft dimensions of reliability. At the beginning, the researches' attention was mainly focused on the hard dimensions of reliability where the main targets of reliability studies were special kind of organisations that are called as 'exotic' organisations (Lekka, 2011). These organisations comprise military, air transportation, nuclear organisations that are complex and somewhat unpredictable systems which operate in tense environments (Ghaith et al., 2022). These early studies often had an engineering approach that motivated them to look for reliability in the design of hard systems and technologies of the organisations. But in light of the abovementioned conceptual turn, the scope of organisational reliability studies was expanded. Accordingly, in the next generation of reliability studies, efforts were made to apply reliability principles to wider range of organisations, such as healthcare or software companies (Kim et al., 2022) and finally, some researchers, whose number is increasing, have expanded the scope of organisational reliability to all organisations and thus paved the way for a soft and cognitive perception of reliability dimensions.

Taking this cognitive approach to organisational reliability, Weick and Sutcliffe (2015) conceptualised the organisational cognitive system as the internalised methods of sensemaking, sense-giving and enactment shared by organisational members that can determine the reliable functioning of an organisation if they take the form of collective mindfulness. These concepts, and in particular the collective mindfulness that Weick and his colleagues have added to the literature on organisational reliability for the first time (Weick et al., 1999), are at the heart of a reliable organisation's cognitive system (Hales and Chakravorty, 2016). Weick et al. (1999) criticised organisational scholars for naively borrowing the concept of reliability from the engineering field as it ignores the underlying cognitive processes. They continue that in the organisational context, reliability is not the consequence of organisational invariability, but the result of fluctuation management. Thus, the emphasis shifts from sustainable procedures to sustainable cognitive processes that should make sense of different production processes; it is only a conscious mind that is aware of the subtle differences and thus able to produce reliable results (Weick et al., 1999).

Since its introduction, many studies have utilised the cognitive approach to explore the soft aspects of organisational reliability (e.g., Hodgkinson and Healey, 2008; Biggiero, 2009; Jensen et al., 2022). For instance, Roberts et al. (2004); Wu et al. (2007); Mengolini and Debarberis (2007); Bagnara et al. (2010) and Gong (2019) emphasised the importance of safety culture in enhancing organisational reliability. In the same vein, Weick et al. (1999), Weick and Sutcliffe (2015); Linnenluecke (2017) and Andersson et al. (2019) observed that cognitive-based resilience plays an essential role in generating

organisational reliability. Despite the numerous existing studies that have addressed the subject, this growing literature has yet to be examined systematically so that its main areas of research, methodologies, implications and its future paths of exploration could be framed and represented to scholars and practitioners. Therefore, this study aims for a systematic review of the studies that have addressed the cognitive components affecting organisational reliability. We believe that such a review will greatly help interested researchers who want to study this field and also the engaged practitioners who looking for summarised actionable results. To do so, our main research question is 'how does the current literature portray the cognitive aspects of organisational reliability?'

In the following sections, after describing our methodology of review, the main characteristics of the reviewed studies, including their main foci and findings, will be provided in detail, followed by a summary of their limitations and implications for practitioners and scholars.

2 Methods

Congruent with our research problem, a scoping review is a kind of literature mapping that can be used when: a narrow review question is difficult to define; studies of interest have employed a variety of data collection and analysis techniques; no prior knowledge synthesis or literature mapping has been undertaken on the topic; and assessing the quality of reviewed studies is not a main concern for the reviewers. This scoping review was performed according to the framework developed by Arksey and O'Malley (2005) and ensuing recommendations of PRISMA's (Tricco et al., 2018) (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) scoping review extension. Accordingly, the review follows these five key phases: (1) identifying the initial research question, (2) identifying relevant studies, (3) study selection, (4) charting the data and (5) collating, summarising and reporting the results.

2.1 Identifying the initial research question

Developing the scoping questions, as our first step, was done through a research team discussion to identify the potentially useful cognitive issues regarding organisational reliability. However, the unexamined vastness of the topic led us to choose two general review questions: what is known and explored about the cognitive aspects of organisational reliability? How and what cognitive-related processes and activities can impact organisational reliability?

2.2 Identifying relevant studies

The next step was to set a search strategy to reach out to the relevant literature. To obtain the relevant keywords, a broad preliminary search was done to find some initial relevant papers. Based on these initial papers, we found more papers by manually searching their reference lists and identifying their related papers owing to the artificial intelligence of (www.connectedpapers.com) and (www.researchrabbitapp.com). Reading through these papers, a long list of potential keywords was generated, which was then shortened by the research team screening and consensus. Next, the final keywords were combined using Boolean operators as a search query that we employed to search the selected electronic

databases (i.e., EBSCO, Wiley Online Library and Springer Link): '(routines OR rumination OR ruminative thinking OR scattered attention OR distraction OR mind wandering OR mimetic behaviour OR mindlessness OR learning from errors OR learning from failures OR error management OR warning signals OR organisational schema OR organisational narcissism OR mindful change OR mindful implementation OR cognitive mindset OR cognitive capabilities OR cognitive processes OR stable cognitive processes OR experiential avoidance OR mindful*) AND (reliabl* OR resilience OR sustainable work system OR sustainable safety OR safety culture) AND (work OR workplace OR job OR organisation OR firm OR business)'. The electronic databases were searched on 24 May 2021 in 'Title, Abstract and Keywords', limited to English papers yet without limitation on publication date in order to maximise inclusion. To explain the range of study, the data collected in EBSCO is from 1974 to 2021, the data collected in Wiley is from 1955 to 2021 and the data collected in Springer is from 1932 to 2021.

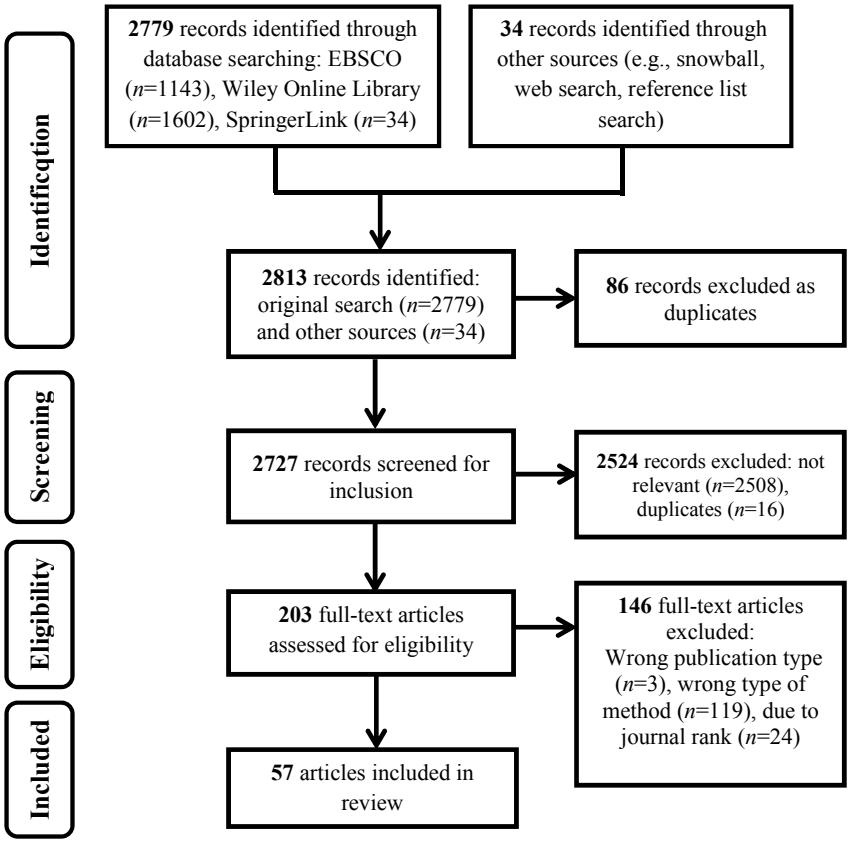
2.3 Study selection

Employing the search query, 2779 records were identified in the electronic databases. To this, were added 34 articles which we obtained from other sources abovementioned. After excluding 86 records as duplicates, a review of abstracts revealed that a large number of records (n=2524) were irrelevant, thus excluded. The remaining 203 articles were assessed for inclusion in review against the eligibility criteria. All studies that addressed cognitive aspects of organisational reliability were eligible for review. The inclusion criteria were a) being an empirical study no matter qualitative, quantitative or mixed-methods, b) written in English and c) published in a scholarly peer-reviewed journal ranked as Q1 in JSR. We also excluded irrelevant, duplicates, wrong publication type, wrong type of method, journal rank Q2–Q4, grey literature publications and review studies. Eligibility assessment was performed based on a circular process between the first author (M. Moeini Korbekandi) and the other co-authors (H. Danaeefard, S.H. Kazemi). The first author reviewed and selected the in/eligible articles, and other co-authors double-checked the articles. Additionally, the final selected articles were reviewed separately by each member of the team, and disagreements were resolved through a full research team meeting. Having these eligibility criteria applied, 57 full-text articles were included in this review. The flow of studies through identification to final inclusion is represented in Figure 1.

2.4 Data charting and collation

At this step, the researchers determined which dimensions should be in the focus of data extraction. Accordingly, data were extracted mainly by the first author (M. Moeini Korbekandi) from included articles and entered into a Microsoft Excel spreadsheet. The following data dimensions were extracted: title, journal, author/s, year or publication, author'/s' country of origin, study aim, study design, data collection methods, sample type, study setting/context, main foci, main findings and implications.

Figure 1 PRISMA flow diagram for article selection



2.5 Summarising and reporting findings

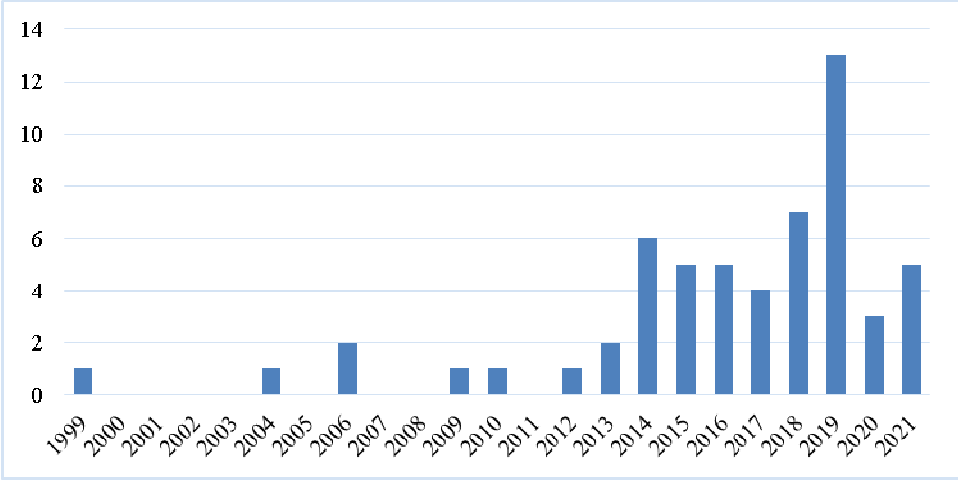
According to Arksey and O'Malley (2005), the fifth and final step of scoping review is summarising and reporting the findings presented in the below sections.

3 Findings

3.1 General characteristics of included studies

The publication date of the included studies began in 1999 and continued until 2021, with a sensible increase after 2012, where 85% (51/57) of studies were published after this year. Generally, the publication of the articles shows an increasing average with the maximum number of published articles (*n*=13) in 2019. See Figure 2 for more details.

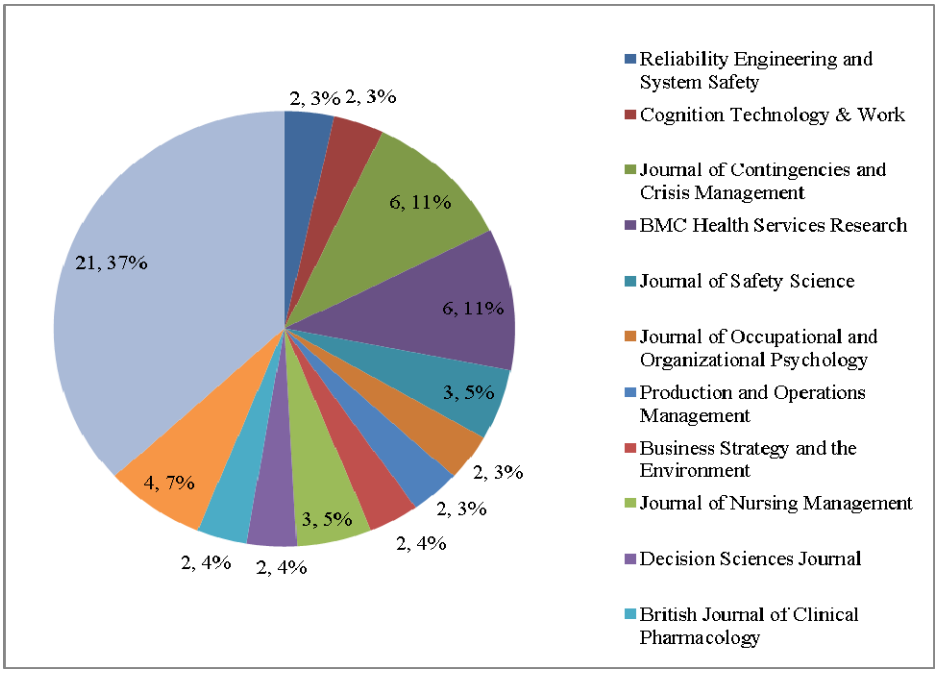
Figure 2 Number of published articles per year



Regarding the studies' country of origin, we used the affiliation of author/s as the proxy. While some studies are co-authored by researchers from multiple countries (*n*=7; 12.28%), the majority of the studies are conducted by one or more researchers from the same nationality, among them the most notable are the USA (*n*=15; 26.32%), Sweden (*n*=4; 7.02%) and Australia (*n*=4; 7.02%). Other studies were from Saudi Arabia (*n*=3; 5.26%), Norway (*n*=3; 5.26%), Germany (*n*=3; 5.26%), England (*n*=2; 3.51%), UK (*n*=2; 3.51%), Iran (*n*=2; 3.51%), Canada (*n*=2; 3.51%). The remaining 10 studies were from Switzerland, Oman, China, Denmark, Italy, Netherlands, Finland, Greece, Singapore and UAE.

The reviewed articles were published in 33 different scientific journals, among them *BMC Health Services Research* and *Journal of Contingencies and Crisis Management* have the largest share, 6 (10.53%) for each one: the articles (Bondevik et al., 2019; Alzahrani et al., 2018; Danielsson et al., 2018; Khoshakhlagh et al., 2019; Sutton et al., 2018; Lindblad et al., 2017) were published by *BMC Health Services Research*, and the articles (Herbane, 2013; Broekema et al., 2017; Brooks et al., 2018; Nowell et al., 2017; Teo et al., 2017; Mendonça et al., 2014) in *Journal of Contingencies and Crisis Management*. From the remaining studies, 4 articles (7.02%) (Rauter et al., 2018; Hartmann et al., 2021; Tamuz and Thomas, 2006; Blatt et al., 2006) were published in *Journal of Organisational Behaviour*, 3 articles (Abdi et al., 2015; Berland et al., 2012; Mcdonald et al., 2016) in *Journal of Nursing Management*, 3 articles (Vendelø and Rerup, 2020; Zotzmann et al., 2019; Cooper et al., 2019) in *Safety Science*, 2 articles (Ndubisi and Al-Shuridah, 2019; Halkos et al., 2018) in *Business Strategy and the Environment*, 2 articles (Mendonça and Wallace, 2015; Gressgård and Hansen, 2015) in *Reliability Engineering and System Safety*, 2 articles (Grote et al., 2009; Rankin et al., 2011) in *Cognition Technology and Work*, 2 articles (Alison et al., 2015; Kinnunen et al., 2019) in *Journal of Occupational and Organisational Psychology*, 2 articles (Labib et al., 2019; Stewart and Chase, 2009) in *Production and Operations Management*, 2 articles (Tenhiälä and Salvador, 2014; Su and Linderman, 2016) in *Decision Sciences Journal*, 2 articles (Adie et al., 2021; Lewis et al., 2014), in *British Journal of Clinical Pharmacology*. Other 21 journals included only one of the articles (see Figure 3).

Figure 3 Distribution of the reviewed articles according to journal



3.2 *Methodological choices of the included studies*

The methodological characteristics of included studies are briefly presented in Table 1.

Table 1 Methodological characteristics of included studies

Research design	• Qualitative (*n*=23; 40.35%): (Duryan et al., 2020; Jha et al., 2020; Adie et al., 2021; Mendonça and Wallace, 2015; Sessions et al., 2019; Labib et al., 2019; Alison et al., 2015; Broekema et al., 2017; Drach-Zahavy et al., 2015; Rankin et al., 2011; Berland et al., 2012; Danielsson et al., 2018; Sutton et al., 2018; Winkel et al., 2019; Rampa and Agogué, 2021; Mcdonald et al., 2016; Provera et al., 2010; Lewis et al., 2014; Nowell et al., 2017; Teo et al., 2017; Mendonça et al., 2014; Blatt et al., 2006; Brooks et al., 2018). • Quantitative (*n*=22; 38.60%): (Fan et al., 2016; Cao and Chen, 2019; Wong et al., 2021; Zipperer and Sykes, 2004; Gressgård and Hansen, 2015; Rauter et al., 2018; Herbane, 2013; Zotzmann et al., 2019; Bondevik et al., 2019; Ndubisi and Al-Shuridah, 2019; Stewart and Chase, 2009; Singh et al., 2021; Reader et al., 2015; AL Lawati et al., 2019; Alzahrani et al., 2018; Khoshakhlagh et al., 2019; Goodman et al., 2016; Kinnunen et al., 2019; Su and Linderman, 2016; Halkos et al., 2018; Delgado et al., 2020; Hartmann et al., 2021). • Mixed methods designs (*n*=12; 21.05%): (Nevill and Havercamp, 2019; Abdi et al., 2015; Orellana-Rios et al., 2018; Cooper et al., 2019; Richtnér and Löfsten, 2014; Vendelø and Rerup, 2020; Grote et al., 2009; Tenhiälä and Salvador, 2014; Lindblad et al., 2017; D'Esmond, 2017; Su et al., 2014; Tamuz and Thomas, 2006).

Table 1 Methodological characteristics of included studies (continued

Study Settings	• Business organisations (*n*=29; 50.88%): (Jha et al., 2020; Vendelø and Rerup, 2020; Mendonça and Wallace, 2015; Grote et al., 2009; Wong et al., 2021; Labib et al., 2019; Rauter et al., 2018; Broekema et al., 2017; Rankin et al., 2011; Zotzmann et al., 2019; Ndubisi and Al-Shuridah, 2019; Singh et al., 2021; Reader et al., 2015; Cooper et al., 2019; Brooks et al., 2018; Provera et al., 2010; Kinnunen et al., 2019; Nowell et al., 2017; Mendonça et al., 2014; Duryan et al., 2020; Tenhiälä and Salvador, 2014; Gressgård and Hansen, 2015; Herbane, 2013; Richtnér and Löfsten, 2014; Rampa and Agogué, 2021; Su et al., 2014; Su and Linderman, 2016; Halkos et al., 2018; Hartmann et al., 2021). • Hospitals and healthcare settings (*n*=24; 42.11%): (Fan et al., 2016; Cao and Chen, 2019; Adie et al., 2021; Abdi et al., 2015; Zipperer and Sykes, 2004; Sessions et al., 2019; Orellana-Rios et al., 2018; Drach-Zahavy et al., 2015; AL Lawati et al., 2019; Berland et al., 2012; Alzahrani et al., 2018; Danielsson et al., 2018; Khoshakhlagh et al., 2019; Sutton et al., 2018; Lindblad et al., 2017; Winkel et al., 2019; Mcdonald et al., 2016; Lewis et al., 2014; Teo et al., 2017; Delgado et al., 2020; Tamuz and Thomas, 2006; Blatt et al., 2006; D'Esmond, 2017; Bondevik et al., 2019). • Other settings (*n*=4; 7.01%): (Nevill and Havercamp, 2019; Alison et al., 2015; Stewart and Chase, 2009; Goodman et al., 2016).
Data collection	• Survey (n=22; 38.60%): (Fan et al., 2016; Cao and Chen, 2019; Wong et al., 2021; Zipperer and Sykes, 2004; Gressgård and Hansen, 2015; Rauter et al., 2018; Herbane, 2013; Zotzmann et al., 2019; Bondevik et al., 2019; Ndubisi and Al-Shuridah, 2019; Stewart and Chase, 2009; Singh et al., 2021; Reader et al., 2015; AL Lawati et al., 2019; Alzahrani et al., 2018; Khoshakhlagh et al., 2019; Goodman et al., 2016; Kinnunen et al., 2019; Su and Linderman, 2016; Halkos et al., 2018; Delgado et al., 2020; Hartmann et al., 2021). • Interview (n=17; 29.82%): (Duryan et al., 2020; Mendonça and Wallace, 2015; Sessions et al., 2019; Broekema et al., 2017; Drach-Zahavy et al., 2015; Berland et al., 2012; Danielsson et al., 2018; Sutton et al., 2018; Winkel et al., 2019; Rampa and Agogué, 2021; Mcdonald et al., 2016; Provera et al., 2010; Lewis et al., 2014; Nowell et al., 2017; Teo et al., 2017; Mendonça et al., 2014; Blatt et al., 2006). • Observation (*n*=4; 7.01%): (Jha et al., 2020; Alison et al., 2015; Rankin et al., 2011; Brooks et al., 2018). • Multi-method (*n*=12; 21.05%): • Survey / interview: (Nevill and Havercamp, 2019; Abdi et al., 2015; Orellana-Rios et al., 2018; Cooper et al., 2019; Richtnér and Löfsten, 2014). • Observations / interview: (Vendelø and Rerup, 2020; Grote et al., 2009; Lindblad et al., 2017; D'Esmond, 2017; Su et al., 2014; Tamuz and Thomas, 2006). • Survey / observation / interview: (Tenhiälä and Salvador, 2014). • Others (*n*=2; 3.5%): (Adie et al., 2021; Labib et al., 2019).

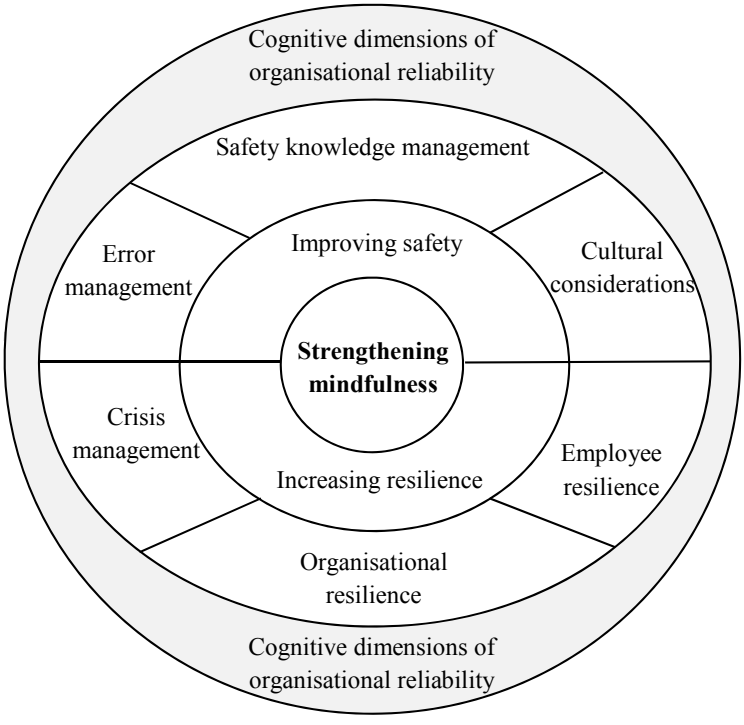
Table 1 Methodological characteristics of included studies (continued

Sample type	• Employees (*n*=35): (Nevill and Havercamp, 2019; Duryan et al., 2020; Jha et al., 2020; Cao and Chen, 2019; Vendelø and Rerup, 2020; Alison et al., 2015; Wong et al., 2021; Zipperer and Sykes, 2004; Mendonça and Wallace, 2015; Gressgård and Hansen, 2015; Zotzmann et al., 2019; Bondevik et al., 2019; Orellana-Rios et al., 2018; Reader et al., 2015; Cooper et al., 2019; Khoshakhlagh et al., 2019; Kinnunen et al., 2019; Goodman et al., 2016; Mcdonald et al., 2016; Su et al., 2014; Lindblad et al., 2017; AL Lawati et al., 2019; Singh et al., 2021; Rankin et al., 2011; Rauter et al., 2018; Sessions et al., 2019; Stewart and Chase, 2009; Drach-Zahavy et al., 2015; Winkel et al., 2019; Berland et al., 2012; D'Esmond, 2017; Rampa and Agogué, 2021; Blatt et al., 2006; Hartmann et al., 2021; Delgado et al., 2020). • Work units (*n*=5): (Fan et al., 2016; Adie et al., 2021; Ndubisi and Al-Shuridah, 2019; Su and Linderman, 2016; Halkos et al., 2018). • Managers (*n*=15): (Grote et al., 2009; Labib et al., 2019; Herbane, 2013; Richtnér and Löfsten, 2014; Provera et al., 2010; Nowell et al., 2017; Teo et al., 2017; Broekema et al., 2017; Danielsson et al., 2018; Lewis et al., 2014; Tamuz and Thomas, 2006; Sutton et al., 2018; Alzahrani et al., 2018; Tenhiälä and Salvador, 2014; Abdi et al., 2015). • Records (*n*=2): (Brooks et al., 2018; Mendonça et al., 2014).

3.3 Main foci of the studies

Regarding our main research questions, the main focus of the studies can be summarised in three main themes, namely safety, resilience and mindfulness; based on them we can represent the explored cognitive aspects of organisational reliability. Notably, organisational reliability, as an overarching term that we proposed in this paper, is addressed through two main research areas: safety and resilience. Those studies that are mainly concerned with safety as an important factor in the reliability of organisations and their activities, covered a broad range of cognitive-related issues such as attitudes and perceptions toward safety culture, the no-blame approach to error management, possible human errors in responding to disasters, distracted behaviours and other causes of mistakes and errors, the tools for learning from rare events and for measuring safety climate, the factors that may curb unsafe behaviours and reduce the likelihood of occupational injuries and incidents. Another majority of the studies were mainly focused on resilience as the ability of systems to return to normal operation despite the challenges threatening their survival. These studies have pursued the resilience-based organisational reliability through the cognitive lens of the factors that drive learning from crises, training for enhancing cognitive resilience, the strategies and processes to develop the individual, team and organisational resilience, the processes taking place during improvised work and the factors affecting improvisational capability. While these main approaches show two distinct and established areas of organisational reliability scholarship, which have been explored cognitive issues for enhancing safety and resilience, another emerging and mainly cognitive-based approach to organisational reliability is also discernable in the studies, i.e., mindfulness. Contrary to safety and resilience approaches, the mindfulness-driven studies show an originally cognitive approach to organisational reliability. This is why we located mindfulness at the centre of our cognitive-based map of the reviewed literature (see Figure 4), which may help both safety and resilience.

Figure 4 Cognitive contributions to organisational reliability



Those studies that were mainly focused on safety addressed these issues:

- *Exploring the different aspects of operational errors*: the no-blame approach to error management and its link to organisational learning (Provera et al., 2010), country-level differences in error orientation and its relation to cultural values and personality dimensions (Zotzmann et al., 2019), the frequency and distribution of human error at different levels of coordination during the multilevel responses to disasters (Brooks et al., 2018), distracted behaviours that lead to error and affect patient safety (D'Esmond, 2017), error mechanisms as important sources of service failure and how the different roles of customers and providers affect the errors made by each (Stewart and Chase, 2009), the nature, causes, and error reporting systems related of medication incidents and prescribing mistakes made by doctors and pharmacologists (Adie et al., 2021; Lewis et al., 2014).
- *Developing tools for safety management:* providing a set of tools that operationalise 'rich' learning from rare events and reiterate the importance of organisational learning from failures (Labib et al., 2019), developing an appropriate instrument for measuring safety climate to identify possible weaknesses and motivate quality improvement interventions leading to reductions in medical errors (Bondevik et al., 2019), validating measures of safety culture for impacting personnel's safety-related behaviour (Cooper et al., 2019), developing a measure of safety culture within a single industry operating across different cultural environments (Reader et al., 2015), exploring the organisational routines and rules management as means for

coordinating processes in high-risk organisations in a flexible and concurrently safe manner (Grote et al., 2009).

- *Exploring different aspects of safety knowledge management*: the factors that facilitate occupational health and safety knowledge transfer in and between organisations involved in projects (Duryan et al., 2020), the role of information professionals in patient safety initiatives and how much they believed they could positively affect patient safety (Zipperer and Sykes, 2004), to examine how the information gathered about patient safety-related events is influenced by the interpretation and classification of these events (Tamuz and Thomas, 2006), to investigate the relationship between organisations' abilities to learn from failures, knowledge exchange, quality of contractor relationship management and work characteristics (Gressgård and Hansen, 2015), to explore the teams' setback experiences for team learning by identifying team reflexivity as a significant moderator between team-experienced setbacks and team learning (Rauter et al., 2018), to examine the role of intra-organisational communication channels in glitch mitigation capability of a production process (Tenhiälä and Salvador, 2014).
- *Exploring the cultural aspects of safety*: the nurses' and physicians' attitudes, perceptions, values, norms, views and experiences relevant to patient safety culture (Abdi et al., 2015; Sessions et al., 2019; AL Lawati et al., 2019; Berland et al., 2012; Alzahrani et al., 2018; Khoshakhlagh et al., 2019; Danielsson et al., 2018; Sutton et al., 2018), understanding how nurses manage handovers at shift change and to identify the working strategies they employ to maintain patients' safety (Drach-Zahavy et al., 2015), to explore the role of positive safety and teamwork culture and engaged management in producing high-quality outcomes (Fan et al., 2016).

Those studies that were mainly focused on resilience addressed these issues:

- *Exploring the role of resilience training*: training for innovation and creativity to foster radical innovation capabilities as an essential source of organisational resilience (Rampa and Agogué, 2021), special training for enhancing physician resilience (Winkel et al., 2019), providing training to promote cognitive resilience in highly demanding jobs (Jha et al., 2020).
- *Investigating the causes/effects of resilience*: the relationship between nurses' workplace resilience and emotional labour (Delgado et al., 2020), the relationships between resilience and social support, empathy and work engagement (Cao and Chen, 2019), how personality strengths predict reactions to negative life events (Goodman et al., 2016).
- *Exploring responses to workplace crises:* the factors inducing organisational learning from crises (Broekema et al., 2017), exploring the barriers to SMEs' resilience against extreme events to shed light on factors that define effective organisational responses to non-linear environmental stimuli (Halkos et al., 2018), the strategies used by nurses and midwives to develop and maintain their resilience, despite encountering serious workplace adversity (Mcdonald et al., 2016), how leaders utilise social relationships to activate resilience in a crisis (Teo et al., 2017), the cognitive processes that underlie the behaviour of response personnel in the post-disaster environment (Mendonça et al., 2014), a typology of redundancy strategies and investigating their application and associated consequences in disaster response (Nowell et al., 2017), to assess the appropriateness of the prevention and resilience approaches to reliability in a dynamic context and to better understand residents'

sensemaking processes during lapses in reliability (Blatt et al., 2006), the complexity of the medication management process and the healthcare professionals' strategies to handle this complexity consistent with the resilience perspective (Lindblad et al., 2017).

- *Exploring the concepts of capabilities and improvisation*: the processes taking place during improvised work (Rankin et al., 2011), a dynamic capability-based strategy that explains how organisations sustain a competitive advantage in quality (Su et al., 2014), to investigate the effects of four capabilities that help maintain high-quality performance (Su and Linderman, 2016), the factors enhancing employees improvisational capability to find relevant solutions for enhanced task performance (Singh et al., 2021).
- *Exploring how individuals and organisations build and enhance resilience*: to assess the resources used to create resilience in organisations and how each of these resources relates to organisational creativity (Richtnér and Löfsten, 2014), how individual and collaborative job crafting may help digital labourers to build resilience and career commitment (Wong et al., 2021), to explore what enables and inhibits the development of resilient teams (Hartmann et al., 2021), to explore the perceptions and experiences of managing directors in crisis management planning (Herbane, 2013), observations on the processes that underlie how organisations achieve or fail to achieve the potential for resilience (Mendonça and Wallace, 2015).

Those studies that were mainly focused on mindfulness have addressed these issues:

- Exploring the role that the cognitive processes of mindfulness, coping style and resilience play in predicting caregiver retention and burnout (Nevill and Havercamp, 2019).
- Studying collective mindfulness in non-permanent organisations (Vendelø and Rerup, 2020).
- To minimise environmental vulnerability through mindfulness-based strategies and redesign organising processes (Ndubisi and Al-Shuridah, 2019).
- To pilot an 'on the job' mindfulness and compassion-oriented meditation training for interdisciplinary teams designed to reduce distress, foster resilience and strengthen prosocial motivation in the clinical encounter (Orellana-Rios et al., 2018).
- The impact of positive psychology, namely mindfulness and resilience, on improvisation and task performance (Singh et al., 2021).
- Examining the relationships between various work-related ruminative thoughts (affective rumination, problem-solving pondering, lack of detachment from work) during the off-job time and employee well-being (Kinnunen et al., 2019).
- Exploring barriers that distracted teams from timely and efficient discussions on decisions and action execution by seeking redundant information resulted in decision inertia (Alison et al., 2015).

3.4 Main findings of the included studies

The main findings of the studies can be categorised and presented into three classes: improving safety, increasing resilience, and strengthening mindfulness.

Safety culture plays a key role in workplace incidents. A workplace with a poor safety culture fosters an environment where errors are more frequently made. Moreover, a workplace with a poor safety culture could be characterised by its management's failure to acknowledge, or address, the gaps within their safety systems. Based on this, an 'ideal' safety culture has been conceptualised as 'the 'engine' that drives the system towards the goal of sustaining the maximum resistance towards its operational hazards' (Aburumman et al., 2019).

The term resilience can be reserved for the management of unexpected disturbances which exceed the anticipated areas of adaptation. A system is resilient if workers adapt themselves by understanding the context in which adaptation takes place. To be resilient, a system needs to be able to anticipate whatever may happen, monitor what is going on, respond effectively when something happens, and learn from past experiences (Villemain and Godon, 2017).

Mindfulness refers to the exercise of awareness and attention to the current moment in a non-judgmental manner. Mindfulness broadens individuals' attention and triggers a reappraisal process in which they 'savour positive features of the socioenvironmental context'. Being mindful means that a person can switch his/her awareness and attention flexibly between work tasks and leisure activities when required. This will likely prevent the interference of job demands and stressors, thus allowing employees to fully immerse themselves in the relaxing and work activities (Chong et al., 2020).

Together with their subcategories, these three categories represent the different examined paths in which cognitive issues contribute to organisational reliability. As mentioned, strengthening mindfulness as a more general and originally cognitive-based path is located at the centre, improving safety and increasing resilience located at the next layer accompanied by their respective areas of scholarship (see Figure 4).

3.5 Improving safety through:

Establishing the error management system: Some studies suggest that error management should be sought to improve safety. These studies focus on

- The no-blame approach to error management (AL Lawati et al., 2019; Provera et al., 2010).
- Communication and teamwork (Abdi et al., 2015; Khoshakhlagh et al., 2019), human and system skills and factors to support communication (Adie et al., 2021; Brooks et al., 2018).
- The error and incident reporting program (Adie et al., 2021; Abdi et al., 2015; Khoshakhlagh et al., 2019).
- The safety attitudes toward error (Alzahrani et al., 2018).
- The committed leadership to feedback and inform from the errors (Khoshakhlagh et al., 2019).
- The relationship of cultural values and personality dimensions with error (Zotzmann et al., 2019).
- The error mechanisms and the roles of persons in the errors (Stewart and Chase, 2009).

- Avoidance of decision-makers from reporting dangerous events by classifying them in non-reportable categories (Tamuz and Thomas, 2006).
- Making distinctions among prescription-based, knowledge-based and rule-based mistakes (Lewis et al., 2014).
- The decision errors resulted from time constraints, uncertainty, fatigue, the complexity of the situation and personal interactions (Brooks et al., 2018).
- The concepts of decision inertia, failures to act, and shared situational macro cognition (Alison et al., 2015).

Establishing the safety knowledge management system: Some studies emphasise the importance of learning management in improving safety. These studies focus on

- Feedback on error reporting for learning from rare events and errors (Abdi et al., 2015; Labib et al., 2019; Danielsson et al., 2018; Khoshakhlagh et al., 2019).
- Learning from failures through knowledge exchange between units, the quality of relationship management and work characteristics (Gressgård and Hansen, 2015).
- Creating knowledge bases of incidents, providing safety training and using skills to organise, analyse and share information (Zipperer & Sykes, 2004).
- Explorsing the outcomes of teams' setback experiences for team learning and team reflexivity as a moderator in this relationship (Rauter et al., 2018).
- Exploring factors that drive organisational learning from crises: political-economic context, social-emotional understanding, organisational culture, organisational structure, crisis management stage and organisational forgetting (Broekema et al., 2017).
- The effect of training, knowledge and communication skills in improving communication and resilience in role improvisation (Rankin et al., 2011).
- Exploring the effects of professional perspectives, professional responsibility, event contingencies and surveillance technology on event classification and standardising event definitions to promote learning (Tamuz and Thomas, 2006).
- Sharing the lessons learned from failures and incidents and cultivating a learning culture through the quality of interactions among social actors and creating a relation between teams via routines (Duryan et al., 2020).

Paying attention to the cultural considerations: Some studies emphasise the role of culture in improving safety. These studies focus on

- Identifying the barriers to the implementation of a coherent safety culture, including the subcultures, hierarchically structured social relations, lack of leadership, failure to update routines and procedures and the lack of knowledge and education between workers (Duryan et al., 2020; Berland et al., 2012).
- Developing a tool for measuring safety culture to determine the effectiveness of programs in improving workplace culture and to compare safety culture in different countries (Fan et al., 2016; Bondevik et al., 2019; Reader et al., 2015; Cooper et al., 2019).
- Improving the safety culture through teamwork, organisation learning and continuous improvement, employee competence, collaboration and engagement (Sessions et al., 2019; AL Lawati et al., 2019).

- Exploring the managers' safety-related values, norms and expectations in a distinct subculture (Danielsson et al., 2018).
- Examining the relationship between professional and national backgrounds to safety attitudes to represent cross-cultural differences in the effectiveness of safety administration (Alzahrani et al., 2018).
- The association of the managers' autonomy with expectations to act independently to determine the extent to engage in safety initiatives (Danielsson et al., 2018).

3.6 Increasing resilience through

Establishing the crisis management system: Some studies emphasise the importance of crisis management in increasing resilience. These studies focus on

- Exploring the link of cognitive processes to the performance of disaster management and the role of human agency in organisational responses to disaster (Mendonça et al., 2014).
- Exploring the link between formal crisis management planning with improved resilience and reflecting the experience of managers of crises in their planning priorities (Herbane, 2013).
- Promoting organisational resilience in a crisis through the role of leadership and relational connections (Teo et al., 2017).
- Handling operational uncertainties through the actors' competence and more detailed and prescriptive rules (Grote et al., 2009).

Establishing the organisational resilience: Some studies emphasise the role of organisational resilience in increasing resilience. These studies focus on

- Designing intra and formal organisational communication channels to cope with disruptions (Tenhiälä and Salvador, 2014).
- Allocating time to increase awareness and preparedness to manage complexity and fluctuating conditions (Lindblad et al., 2017).
- The effects of external barriers (institutional conditions and mechanisms of external support and guidance) and internal barriers (resources and managerial perceptions) on the resilience of organisations (Halkos et al., 2018).
- Exploring the relationship between organisational resilience and organisational creativity and cognitive and emotional resources (the soft skills), and structural resources to manage turbulence and make a creative organisation (Richtnér and Löfsten, 2014).
- Exploring the factors that shape organisational resilience and the processes that underlie how organisations attain resilience (Mendonça and Wallace, 2015).
- Maintaining organisational quality and detecting and correcting organisations' potential performance disruptions by sensing weak signals (Su et al., 2014).
- Developing improvement capabilities, innovation, sensing weak signals and responsiveness for sustaining quality performance (Su and Linderman, 2016).

- Associating redundancies with related capabilities and risks for enhancing system resilience (Nowell et al., 2017).
- Increasing the emotional culture of joy through change in social and cognitive mechanisms to cultivate relationships and reflexivity to enhance team resilience (Hartmann et al., 2021).
- Supporting care processes and systems' resilience even in limited-resource environments (Sutton et al., 2018).

Establishing the employee resilience: Some studies emphasise the role of employee resilience in increasing resilience. These studies focus on

- Developing personal resilience through engaging in collaborative jobs (Wong et al., 2021).
- Impact of the personal and professional environments on the individual resilience and response to adversity (Winkel et al., 2019).
- Taking advantage of hope as a resilience improving factor (Goodman et al., 2016).
- Impact of psychological resilience and support from others on work engagement (Cao and Chen, 2019).
- The positive impact of resilience on employee well-being and the negative impact of emotional labour via supervision and resilience, emotional regulation as a core skill in work (Delgado et al., 2020).
- The role of training in developing individual creative skills and creating a common language among the different groups to talk about exploration (Rampa and Agogué, 2021).
- The personal and organisational initiatives to withstand workplace adversity (Mcdonald et al., 2016).
- Restructuring job procedures for assuring resilience in employees and limiting the risk of vulnerability (Drach-Zahavy et al., 2015).

3.7 Strengthening mindfulness

These studies mainly focus on:

- Training for mindfulness and problem coping skills to increase positive outcomes in the workplace (Nevill and Havercamp, 2019; Jha et al., 2020), and for reducing distress and enhancing the resources of teams (Orellana-Rios et al., 2018).
- Establishing clear roles, communication and role expectations to regenerate a mindful organisation and distributing sub-processes of collective mindfulness unequally in the organisation (Vendelø and Rerup, 2020).
- The positive relationship between mindful organising and environmental and resources sustainability (Ndubisi and Al-Shuridah, 2019).
- The integration of mindful pauses in work routines, reducing rumination and distress as well as enhancing interpersonal connection skills and improvement of team communication (Orellana-Rios et al., 2018).

- The role of the sensemaking process and factors that shape it on how and why lapses in reliability occur and will be managed (Blatt et al., 2006).
- The lagged effects of work-related rumination and high exhaustion on problem-solving pondering (Kinnunen et al., 2019).
- The effect of inadequate cognitive resources on occurring distracted practice and impeding an individual from thinking critically and pushing him to work in an automatic mode prone to making errors (D'Esmond, 2017).

3.8 Implications

The practical implications of the studies can be categorised into four sections, as mentioned below.

1 *Managers are recommended*:

- To be preoccupied with failure, respect expertise, delegate decisions to individuals or groups with experience and overcome errors via a commitment to resilience and mindful organising (Ndubisi and Al-Shuridah, 2019).
- To develop suitable formal communication channels and train staff in related work features (Tenhiälä and Salvador, 2014).
- To improve error communication and learning from errors by sharing error knowledge (Zotzmann et al., 2019).
- To expand a staff safety initiative for improving communication openness and making an automated incidence reporting system (AL Lawati et al., 2019).
- To overcome communication problems, make strategies for creating a blame-free environment, increase awareness of safety and promote the learning culture by developing appropriate mechanisms for disseminating information about errors (Abdi et al., 2015).
- To adjust to fluctuating conditions and pay attention to face-to-face communication and continuous learning and safe processes (Lindblad et al., 2017).
- To acquire skills and knowledge about learning and knowledge sharing in the organisation and to encourage staff to take the initiative, look for knowledge and make contact (Richtnér and Löfsten, 2014).
- To establish supportive work environments and enhance staff resilience and empathic capacity through training (Cao and Chen, 2019).
- To provide training by highlighting local initiatives, structuring the new routines and institutionalising the common language to talk about exploration (Rampa and Agogué, 2021).
- To hold meetings to address issues, support staff in decision-making and listen to challenges that staff experience in making decisions about safety (Berland et al., 2012).
- To determine the staff beliefs about self-care in the workplace, to build supportive networks between staff and to align roles and work tasks with satisfactory aspects for staff (Mcdonald et al., 2016).

- To stimulate learning-based and participative processes supported with economic incentives (Halkos et al., 2018).
- To encourage staff to take steps during crisis, have a system for sharing the potential problems, and the cycle of continuous improvement (Su and Linderman, 2016).
- To support supervision and employees' resilience to encounter emotional adversity in the workplace (Delgado et al., 2020).
- To increase attentiveness to delicate cues and develop a capability of resilience to quality by training programs and selective hiring (Su et al., 2014).
- To strengthen the organisation's resilience capacity and to resolve knowledge gaps and to help staff via training and development programs (Halkos et al., 2018).
- To expand education to decrease distracted practice and its impact on safety (D'Esmond, 2017).

2 *Employees are recommended*:

- To develop personal resilience to meet the demands of their careers (Mcdonald et al., 2016).
- To devote time for reading reports and creating interpersonal trust by beginning team discussions and achieving agreement about the order and way of delivering information (Drach-Zahavy et al., 2015).
- To rely on their ability to act appropriately when dangers arise (Duryan et al., 2020).
- To accept routines and rules as a coordination mechanism for improving the organisations' capabilities of managing uncertainties (Grote et al., 2009).

3 *Teams are recommended*:

- To foster team learning via coaching and context support on behalf of the team leader and assign a coach to provide consultation in the context of setbacks and deal with team-experienced setbacks (Rauter et al., 2018).
- To grow resilience capacity by investing in affect-oriented management to nurture cognitive and social processes and establishing team routines to facilitate cognitive exchange and growing an emotional team culture of joy (Hartmann et al., 2021).
- To pay attention to socialisation spaces and team work by recombining teams to encourage meetings among diverse expertise's (Rampa and Agogué, 2021).
- To be attentive to team attributes and preferences for work tasks and variety (Mcdonald et al., 2016).

4 *Organisations are recommended*:

- To address competing goals for prioritising safety, create strategies for improving interprofessional collaboration about staff safety, create an organisational culture for supporting collaboration, education of safe practices, pragmatic policies and enhanced technology for hindering errors (Sessions et al., 2019).
- To notice mindfulness-based interventions for decreasing affective work-related rumination and decreasing and increasing Vigor at work (Kinnunen et al., 2019).

- To create a crowd work community and promote a knowledge-sharing culture (Wong et al., 2021).
- To expand crisis management capabilities and enhance resilience through resilience cooperation and support networks (Herbane, 2013).
- To take care of the organisation's cognitive and emotional resources and examine whether the teams or processes have the resilience potential (Richtnér and Löfsten, 2014).
- To encourage an open and blame-free positive safety culture and to learn from incidents in the safety management system, create safety norms for decision-making and develop approaches for transferring tacit and explicit knowledge (Duryan et al., 2020).
- To develop feeling mechanisms and normative enactment for fostering the expression of joy among employees (Hartmann et al., 2021).
- To provide training and experiences to staff for nurturing positive psychological capacities of mindfulness and resilience (Singh et al., 2021).
- To analyse incidents to identify causes of error for developing preventive strategies and create a safety centre with an incident's reservoir to maximise learning and sharing capabilities (Adie et al., 2021).
- To develop a model of safety culture for identifying problems and good practices, and facilitating learning in safety management (Reader et al., 2015).
- To establish formal feedback channels for linking staff to managers and for providing feedback on errors (Tamuz and Thomas, 2006).

4 Discussion

This scoping review was conducted to map relevant literature on cognitive dimensions of organisational reliability to identify potential research gaps and present recommendations for future research. This review has potential to guide the future research on this subject as it identified several research gaps related to study characteristics, research themes and research methodologies.

By carefully selecting and representing the included studies, we highlighted the conceptual borders of emerging research interest in cognitive dimensions of organisational reliability. We extracted and summarised the main foci, findings and recommendations of the reviewed studies aiming to provide knowledge for managers, policymakers and interested researchers.

Publication years of the studies revealed that cognitive dimensions of organisational reliability were and are topical research areas experiencing an increasing number of articles in recent years. While most of the studies were conducted in the USA and European countries, other countries from the Middle East and the Far East had also contributed to the research on cognitive dimensions of organisational reliability. This can be interpreted as proof of an increasing research interest in organisational reliability in general and its cognitive dimensions in particular.

Organisations' employees and managers were the most common populations studied in the cognitive approach to reliability research. While we acknowledge the important role of organisational members in the reliable functioning of organisations, we believe

that other occupational groups and organisational stakeholders should be studied more as they have their special characteristics and roles to play in reliable organisational functioning. Similarly, hospitals, health care settings and some kinds of businesses appeared frequently in the studies. Although these organisations' sensitive nature has made them a natural candidate for reliability studies, future research does not need to be limited to these special kinds of organisations as reliability is not a particular demand of highly complex organisations anymore. Therefore, organisational reliability's cognitive dimensions should be studied in different settings in the public and private sectors.

From a methodological viewpoint, qualitative and quantitative research designs have an almost equal share of the total studies. Interesting is the considerable number of studies that utilised mixed methods. Mixed methods studies may bring understanding that quantitative and qualitative research cannot produce where they might introduce new angles and research themes to the subject area, as argued in Singh et al. (2021). In addition, longitudinal designs are appropriate for studying the cognitive dimensions of organisational reliability and could be used more to investigate changes over time (Cao and Chen, 2019; Tenhiälä and Salvador, 2014; Grote et al., 2009; Richtnér and Löfsten, 2014; Provera et al., 2010; Halkos et al., 2018; Hartmann et al., 2021). The survey is a generally accepted instrument as it has been used in numerous studies, whereas another frequently used instrument is the interview. Besides using single data collection instruments, juxtaposing two or multiple instruments might measure the cognitive dimensions from different perspectives and provide deeper data on perceptions of organisational reliability.

The review also identified three major research themes composed of studies with various research purposes. Safety, resilience and mindfulness are important research themes that appeared recurrently in the reviewed studies focused on organisational reliability.

Improving safety at work plays a key role in a workplace incident. A workplace with a poor safety fosters an environment where errors and violations are more frequently made. Based on this, an 'ideal' safety culture has been conceptualised as 'the 'engine' that drives the system towards the goal of sustaining the maximum resistance towards its operational hazards' (Aburumman et al., 2019). Improving safety at work was a common research theme among the included studies. Those studies that adopted this research theme have focused on: the different aspects of operational errors and error management (Zotzmann et al., 2019; Stewart and Chase, 2009; Brooks et al., 2018; Provera et al., 2010; D'Esmond, 2017; Lewis et al., 2014; Adie et al., 2021); developing tools for measuring and managing safety at work (Grote et al., 2009; Labib et al., 2019; Reader et al., 2015; Bondevik et al., 2019; Cooper et al., 2019); exploring different aspects of safety knowledge management: (Duryan et al., 2020; Tenhiälä and Salvador, 2014; Zipperer and Sykes, 2004; Gressgård and Hansen, 2015; Rauter et al., 2018; Tamuz and Thomas, 2006), exploring organisational members' attitudes, perceptions, values, norms, views and experiences relevant to safety culture (Abdi et al., 2015; Sessions et al., 2019; AL Lawati et al., 2019; Drach-Zahavy et al., 2015; Berland et al., 2012; Alzahrani et al., 2018; Danielsson et al., 2018; Khoshakhlagh et al., 2019; Sutton et al., 2018; Fan et al., 2016). Improving safety is also pursued through three main paths of establishing the error management system, establishing the learning management system and paying attention to cultural considerations. Overall, improving safety at work is a recurrent research theme with important implications for future research.

Resilience and its enhancement was another major research themes appeared in the reviewed studies. Resilience can be reserved for the management of unexpected disturbances 'which exceed the anticipated areas of adaptation'. A system is resilient if workers adapt themselves by understanding the context in which adaptation takes place. To be resilient, a system needs to be able to anticipate whatever may happen, monitor what is going on, respond effectively when something happens, and learn from past experiences (Villemain and Godon, 2017). These resilience-focused studies have mainly explored the role of training for resilience (Jha et al., 2020; Rampa and Agogué, 2021; Winkel et al., 2019); the causes/effects of resilience (Cao and Chen, 2019; Goodman et al., 2016; Delgado et al., 2020); the responses to workplace crises: (Broekema et al., 2017; Lindblad et al., 2017; Mcdonald et al., 2016; Halkos et al., 2018; Nowell et al., 2017; Teo et al., 2017; Mendonça et al., 2014; Blatt et al., 2006); the concepts of capabilities and improvisation: (Rankin et al., 2011; Singh et al., 2021; Su et al., 2014; Su and Linderman, 2016), how individuals and organisations build and enhance resilience: (Mendonça and Wallace, 2015; Wong et al., 2021; Herbane, 2013; Richtnér and Löfsten, 2014; Hartmann et al., 2021). Establishing crisis management system, establishing organisational resilience and establishing employee resilience were the three well-trodden paths to enhance the resilience by the included studies. Therefore, we think that resilience is a vital study subject that could be studied in future research.

As an important emerging research theme, mindfulness was the third theme. While mindfulness has the smallest share of the studies, it plays a central role in exploring organisational reliability's cognitive dimensions. Mindfulness broadens individuals' attention and triggers a reappraisal process. When one is mindful, s/he switches awareness and attention flexibly between work tasks and leisure activities when required. This will prevent the interference of job demands and stressors (Chong et al., 2020). Accordingly, future studies can work on mindfulness development in organisational contexts and may utilise this concept as an exemplar of a cognitive approach to organisational reliability. Those studies that were mainly focused on mindfulness have addressed the most direct cognitive issues such as the role of cognitive processes of mindfulness, coping style and resilience in predicting employees' retention and burnout (Nevill and Havercamp, 2019); the collective mindfulness in organisations (Vendelø and Rerup, 2020); minimising the environmental vulnerability through mindfulness-based strategies (Ndubisi and Al-Shuridah, 2019); mindfulness and compassion-oriented meditation training for interdisciplinary teams designed to reduce distress, foster resilience and strengthen prosocial motivation in the clinical encounter (Orellana-Rios et al., 2018); examining the relationships between various work-related ruminative thoughts during the off-job time and employee well-being (Kinnunen et al., 2019); exploring barriers that distracted teams from timely and efficient discussions on decisions and action execution (Alison et al., 2015). Strengthening mindfulness has also been pursued through training for mindfulness and problem coping skills (Nevill and Havercamp, 2019; Jha et al., 2020; Orellana-Rios et al., 2018); establishing clear roles, communication and role expectations (Vendelø and Rerup, 2020); mindful organising (Ndubisi and Al-Shuridah, 2019); the integration of mindful pauses in work routines, reducing rumination and distress as well as enhancing the interpersonal connection skills and improvement of team communication (Orellana-Rios et al., 2018); exploring the role of the sensemaking process (Blatt et al., 2006); exploring the ways of avoiding work-related rumination (Kinnunen et al., 2019); distracted practice and automatic mode of working (D'Esmond, 2017).

Finally, we categorised and summarised the practical recommendations of the studies for the managers, employees, teams and organisations. One of the most important and recurrent recommendations for managers is to pay special attention to the role of open communication, effective learning and knowledge management regarding errors and crises (Abdi et al., 2015; Zotzmann et al., 2019; Al Lawati et al., 2019; Tenhiälä and Salvador, 2014; Richtnér and Löfsten, 2014). Congruent with this is the emphasis on collaboration, the blame-free culture, the culture of knowledge sharing and joy and job redesigning for teams and organisations (Sessions et al., 2019; Rauter et al., 2018; Rampa and Agogué, 2021; Mcdonald et al., 2016; Hartmann et al., 2021). The teams are recommended to foster team learning via coaching and support on behalf of the team leader (Rauter et al., 2018) and encouraging generative dialogues among diverse team members (Rampa and Agogué, 2021; Mcdonald et al., 2016). The organisations are recommended to encourage an open and blame-free positive safety culture, to learn from incidents using the safety management system (Duryan et al., 2020) and to provide training and experiences to staff for nurturing positive psychological capacities of mindfulness and resilience (Singh et al., 2021). As a collective responsibility, having a reliable organisation necessitates that employees play their part by acquiring relevant skills (Drach-Zahavy et al., 2015; Mcdonald et al., 2016) while the organisations also are recommended to provide employees the appropriate training (Reader et al., 2015; Singh et al., 2021; Tamuz and Thomas, 2006).

All in all, there is an urgent need for further studies concerning cognitive dimensions of organisational reliability in the organisations. However, the positive outcomes that cognitive dimensions of organisational reliability fosters, cannot be gained without first promoting and developing cognitive dimensions of organisational reliability in the organisations. Thus, organisations need more technical information and advice on how to promote cognitive dimensions of organisational reliability. To do this, future studies should embrace more variation in their study populations and theoretical perspectives. All kinds of organisations should be studied using different theoretical perspectives. Future researchers may also aim for further work on each of the capabilities that we introduced in this review. They can work on how to implement and improve these capabilities. Also, future researchers can work on designing maturity models to measure the current status of organisations' reliability and proposing adapted action plans to improve their reliability. Finally, another path to be pursued by future studies is methodological diversification. Qualitative research and mixed methods may bring a kind of understanding which quantitative research cannot. Thus, more qualitative and mixed methods studies might bring new angles and research themes to the subject area. In addition, longitudinal designs could be used more to investigate organisational reliability changes over time.

Although this review has intended to be comprehensive by being not time-bounded and searching three online scientific databases, it naturally has its own limitations. We only searched for English-written research articles published in Q1 peer-reviewed journals with grey literature excluded. Further, the subject's interdisciplinary nature, which makes it more prone to evade from our search net, should be considered another source of limitation. These acknowledged limitations mean that there could be other relevant information sources that we have excluded unintendedly and are there to be explored by future studies. At the end, the extracted data from the 57 reviewed articles such as variables, sampling technique, main finding, limitation and future research recommendations has described in Table 2.

Table 2 Summary of results

	Variables	*sampling technique*	*main finding*	*limitation*	*future research*
Nevill and Havercamp (2019)	– Mindfulness – Coping styles – Resilience – Job retention – Burnout	– Purposive sampling – Normative sampling	Training for mindfulness and problem coping skills to increase positive outcomes in the workplace	--------	--------
Duryan et al. (2020)	– Knowledge transfer – Occupational health and safety – Health and safety learning culture	Purposive sampling	The importance of cultivating a positive safety culture to encourage transfer of lessons learnt from good practices, incidents, near misses and failures between projects	--------	– A conceptual model on the role of knowledge management and transfer for better performance
Fan et al. (2016)	– Safety culture	Normative sampling	Developing a tool for measuring safety culture to determine the effectiveness of programs in improving workplace culture and to compare safety culture in different countries	--------	--------
Jha et al. (2020)	– Mindfulness – Positivity trainings	Purposive sampling	Training for mindfulness and problem coping skills to increase positive outcomes in the workplace	--------	--------
Adie et al. (2021)	– Medication incidents – Incident reporting system	Random sampling	An MI reporting programme to capture and characterise medication safety problems in the community and identify the human and system factors that contribute to errors	--------	– The relationships between risk and predictor variables to determine the types of error – Exploring the mitigating and preventive factors identified by the study

Table 2 Summary of results (continued)

	Variables	*sampling technique*	*main finding*	*limitation*	*future research*
Abdi et al. (2015)	– Culture of patient safety	– Purposive sampling – Normative sampling	Feedback on error reporting for learning from rare events and errors	– Small sample sizes – The problems related to the validity and reliability – Generalisability of the findings	– Validating the questionnaire
Cao and Chen (2019)	– Social support – Empathy – Resilience – Work engagement	Convenience sampling	Impact of psychological resilience and support from others on work engagement	– Limited scope of the studies referring to single time studies – Generalisability of the findings	– Doing longitudinal studies – The reciprocal associations among social support, empathy and resilience on engagement
Tenhiälä and Salvador (2014)	– Glitch mitigation capability – Intraorganisational communication channels	– Purposive sampling – Normative sampling	Designing intra and formal organisational communication channels to cope with disruptions	– Single-source bias – Limited scope of the studies referring to single time studies	– Sample diversity and expansion – Doing longitudinal studies – Whether the availability of multiple channels create choice complexity diseconomies among decision makers – How interorganisational communication channels contribute to the mitigation of operational glitches, and whether their characteristics would be any different from the intraorganisation a channels studied

Table 2 Summary of results (continued)

	Variables	*sampling technique*	*main finding*	*limitation*	*future research*
Vendelø and Rerup (2020)	– Collective mindfulness	Normative sampling	Distributing five subprocesses of collective mindfulness unequally across the four hierarchical layers of the Crowd Safety Organisation	-------	-------
Mendonça et al. (2014)	– Factors underlying organisational resilience	Purposive sampling	A refined set of factors that shape organisational resilience	--------	– Points of contact as a ground of inquiry into sources of resilience in organizations exposed to hazard
Grote et al. (2009)	– Organisational routines – Management of uncertainties	Purposive sampling	Handling operational uncertainties through the actors' competence and more detailed and prescriptive rules	---------	– Doing longitudinal studies – Using a qualitative approach – How to put loose coupling into practice, and what the role of organisational routines is in achieving loose coupling in high-risk organisations – The variables that influence balance between standardisation and flexibility and their interrelations

Table 2 Summary of results (continued)

	Variables	*sampling technique*	*main finding*	*limitation*	*future research*
Alison et al. (2015)	– Decision inertia	Purposive sampling	The concepts of decision inertia, failures to act, and shared situational macro cognition	– The objectivity of research conclusions is reduced – Bias the interpretation of the data – Lack of cause-effect estimation in descriptive research designs – Impossibility of reviewing all the variables or dimensions	– Exploring the barriers of non-time-bounded choice, large team size, and a failure to set clear strategic direction – Whether experts are more willing to take action despite the absence of deadlines or whether they will continue to avoid choice if the opportunity arises
Wong et al. (2021)	– Resilience – Career commitment	Convenience Sampling	Developing personal resilience through engaging in collaborative jobs	– Self-reported data – Reduce the degree of common method variance – Bias in use from method – Generalisability of the findings	– Multiple measures
Labib et al. (2019)	– Operationalising learning	Purposive sampling	Feedback on error reporting for learning from rare events and errors	--------	– Using hybrid modelling, examining the same disaster using multiple models independently and comparing their findings

Table 2 Summary of results (continued)

	Variables	*sampling technique*	*main finding*	*limitation*	*future research*
Zipperer and Sykes (2004)	– Patient safety	Convenience Sampling	Creating knowledge bases of incidents, providing safety training, and using skills to organise, analyse, and share information	--------	--------
Gressgård and Hansen (2015)	– Knowledge exchange – Learning from failures – Relationship management – Work characteristics	Maximum variation sampling	Learning from failures through knowledge exchange between units, the quality of relationship management, and work characteristics	---------	---------
Sessions et al. (2019)	– Perceptions of high‐alert medication administration safety	Purposive sampling	Improving the safety culture through teamwork, organisation learning and continuous improvement, employee competence, collaboration, and engagement	– Biased samples in terms of participant group – Generalisability of the findings	– The impact of staff engagement on errors and the potential of staff collaboration
Rauter et al. (2018)	– Team learning from setbacks	Volunteer or self-selection sampling	Exploring the outcomes of teams' setback experiences for team learning and team reflexivity as a moderator in this relationship	– Self-selection bias	– Doing longitudinal studies – Doing research in other organizations and different types of industries, organisational contexts – A comprehensive theory on the conditions that facilitate or hamper team learning from setbacks – How experienced setbacks influence the longevity of start‐up teams – Exploring other team resources that help teams to learn from setbacks

Table 2 Summary of results (continued)

	Variables	*sampling technique*	*main finding*	*limitation*	*future research*
Herbane (2013)	– Crisis management	Random sampling	Exploring the link between formal crisis management planning with improved resilience and reflecting the experience of managers of crises in their planning priorities	--------	--------
Zotzmann et al. (2019)	– Country differences – Cultural values – Personality dimensions – Error orientation	Volunteer or self-selection sampling	The relationship of cultural values and personality dimensions with error	– Small sample sizes – Less representative sample – Self-selected data – Bias in use from method	– Doing research in other organisations and different types of industries, organisational contexts – Using a qualitative approach
Broekema et al. (2017)	– Factors drive organisational learning from crisis	Purposive sampling	Exploring factors that drive organisational learning from crises: political-economic context, social-emotional understanding, organisational culture, organisational structure, crisis management stage and organisational forgetting	– Generalisability of the findings	– More empirical substantiation over more types of crises and organisations to further build theory on organisational learning from crises – Distinguishing studies in learning as a cognitive process
Rankin et al. (2011)	– Factor influencing role improvisation	Purposive sampling	The effect of training, knowledge, and communication skills in improving communication and resilience in role improvisation	---------	--------

Table 2 Summary of results (continued)

	Variables	*sampling technique*	*main finding*	*limitation*	*future research*
Bondevik et al. (2019)	– Safety attitudes	Random sampling	Developing a tool for measuring safety culture to determine the effectiveness of programs in improving workplace culture and to compare safety culture in different countries	---------	– Validating the questionnaire – Whether varying professional background, experience and age may influence attitudes to safety – Investigating possible differences in safety climate
Ndubisi and Al'Shuridah (2019)	– Organisational mindfulness – Mindful organising – Environmental resource sustainability	Convenience sampling	The positive relationship between mindful organising and environmental and resources sustainability	---------	– Doing research in other organisations and different types of industries, organisational contexts – Increasing in the sample size – Testing the different scales for parsimony, validity, reliability, and explanatory power – The consequences of organisational mindfulness and mindful organising – Effects of organisational mindfulness and mindful organising on organizational commitment – How and under what circumstances does individual mindfulness affect mindful organising

Table 2 Summary of results (continued)

	Variables	*sampling technique*	*main finding*	*limitation*	*future research*
					– The role of organisational and individual mindfulness in organisational buying behaviour by considering the relationship between individual/ organisation mindfulness, mindful organising, and firms' decisions – The relationship between mindful organising and internal marketing – The role of mindful organising in transfer of knowledge, creativity, and innovation capabilities
Stewart and Chase (2009)	– Human error – Service quality	Random sampling	The error mechanisms and the roles of persons in the errors	-------	--------
Orellana-Rios et al. (2018)	– Mindfulness – Compassion oriented practices	– Convenience sampling – Purposive sampling	Training for mindfulness and problem coping skills for reducing distress and enhancing the resources of teams	--------	---------
Drach-Zahavy et al. (2015)	– Standardisation – Resilience – Emergent risk management strategies	Purposive sampling	Restructuring job procedures for assuring resilience in employees and limiting the risk of vulnerability	-------	---------

Table 2 Summary of results (continued)

	Variables	*sampling technique*	*main finding*	*limitation*	*future research*
Singh et al. (2021)	– Mindfulness – Resilience – Improvisation	Random sampling	– Influencing mindfulness on resilience and improvisation – Improvisation to mediate the influence of resilience on task performance	– Limited of the studies referring to methodology type – Generalisability of the findings	– Sample diversity and expansion – Using mixed methods
Reader et al. (2015)	– Safety culture	Convenience sampling	Developing a tool for measuring safety culture to determine the effectiveness of programs in improving workplace culture and to compare safety culture in different countries	– On-line data collection – The problems related to the validity and reliability – Limited scope of the studies referring to single time studies – Bias in use from method	– Using a comparative approach – Whether supervisors moderate the relationship between national culture and safety climate – Whether the safety culture model is generalisable beyond Europe, and whether the associations between national culture and safety culture are present
AL Lawati et al. (2019)	– Patient safety culture	Random sampling	Improving the safety culture through teamwork, organisation learning and continuous improvement, employee competence, collaboration and engagement	--------	---------
Berland et al. (2012)	– Patient safety culture	Purposive sampling	Identifying the barriers to the implementation of a coherent safety culture, including the subcultures, hierarchically structured social relations, lack of leadership, failure to update routines and procedures and the lack of knowledge and education between workers	--------	---------

Table 2 Summary of results (continued)

	Variables	*sampling technique*	*main finding*	*limitation*	*future research*
Alzahrani et al. (2018)	– Attitudes toward patient safety	Convenience sampling	Examining the relationship between professional and national backgrounds to safety attitudes to represent cross-cultural differences in the effectiveness of safety administration	--------	– The relationship between safety attitudes and error rates – How the professional and cultural background of staff impact on safety attitudes – How training interventions and management support improve the safety attitudes and performance and contribute to welfare
Danielsson et al. (2018)	– Patient safety – Safety culture	Purposive sampling	Exploring the managers' safety-related values, norms, and expectations in a distinct subculture	– Lack of statistical generalisation – Impossibility of reviewing all the variables or dimensions	--------
Cooper et al. (2019)	– Safety culture – Cultural web – Organisational safety	– Purposive sampling – Normative sampling	Developing a tool for measuring safety culture to determine the effectiveness of programs in improving workplace culture and to compare safety culture in different countries	– Small sample sizes – The problems related to the validity and reliability	--------
Khoshakhlagh et al. (2019)	– Affecting factors on patient safety culture	Random sampling	The committed leadership to feedback and inform from the errors	– Lack of cause-effect estimation in descriptive research designs – Generalisability of the findings	– Implementation of interventions to promote the safety culture and the evaluation of the impact of interventions

Table 2 Summary of results (continued)

	Variables	*sampling technique*	*main finding*	*limitation*	*future research*
Sutton et al. (2018)	– Quality and safety of care	Purposive sampling	Supporting care processes and systems' resilience even in limited-resource environments	--------	--------
Lindblad et al. (2017)	– The medication management process	Purposive sampling	Allocating time to increase awareness and preparedness to manage complexity and fluctuating conditions	– Bias in use from method – Generalisability of the findings	--------
Brooks et al. (2018)	– Human error	Convenience sampling	The decision errors resulted from time constraints, uncertainty, fatigue, the complexity of the situation, and personal interactions	– Small sample sizes – Generalisability of the findings	– Increasing in the sample size – Exploring the situations in which human response to disasters occur – Exploring human error in natural disaster responses
Winkel et al. (2019)	– Resilience	Purposive sampling	Impact of the personal and professional environments on the individual resilience and response to adversity	--------	--------
Goodman et al. (2016)	– Personality strengths as resilience	Maximum variation sampling	Taking advantage of hope as a resilience improving factor	– Impossibility of reviewing all the variables or dimensions – Generalisability of the findings	– Doing longitudinal studies – Exploring occupational, social, and physical functioning as outcomes in addition to SWB

Table 2 Summary of results (continued)

	Variables	*sampling technique*	*main finding*	*limitation*	*future research*
Richtnér and Löfsten (2014)	– Resilience – Creativity	– Purposive sampling – Normative sampling	Exploring the relationship between organisational resilience and organisational creativity and cognitive and emotional resources (the soft skills), and structural resources to manage turbulence and make a creative organisation	– Limited scope of the studies referring to single time studies – Generalisability of the findings	– Doing research in other organisations and different types of industries, organisational contexts – Doing longitudinal studies – Using a qualitative approach – Testing cognitive and emotional resources – The multidimensionality of resilience, capturing resilience processes over time
Rampa and Agogué (2021)	– Radical innovation capabilities	Purposive sampling	Role of training to develop individual creative skills via common ways and a shared sense and to assist creating a common language among the different groups to talk about exploration	– Lack of multi-level approach – Generalisability of the findings	– The multi-level approach to apprehend the effects of training and the model it has enabled to identify offer new perspectives
Mcdonald et al. (2016)	– Personal resilience	Maximum variation sampling	The personal and organisational initiatives to withstand workplace adversity	Self-selected data	--------

Table 2 Summary of results (continued)

	Variables	*sampling technique*	*main finding*	*limitation*	*future research*
Provera et al. (2010)	– No blame' approach to organisational learning	Maximum variation sampling	Constructing a no blame approach for organisations that want to enhance their learning processes	--------	– Doing longitudinal studies – Using mixed methods – The organisational antecedents that favour the correct implementation of a no blame system, its consequences for organisational dynamics – Exploring dimensions that may determine the success or failure of a no blame system
D'Esmond (2017)	– Distracted practice – Patient safety	Maximum variation sampling	The effect of inadequate cognitive resources on occurring distracted practice and impeding an individual from thinking critically and pushing him to work in an automatic mode prone to making errors	– Limited scope of the studies referring to single location studies – Generalisability of the findings	– Sample diversity and expansion – The effect of distracted practice on safety and to determine the best approaches to avoid it – The levels of distractions generated and their relationship with maintaining situation awareness and its impact on avoiding distracted practice

Table 2 Summary of results (continued)

	Variables	*sampling technique*	*main finding*	*limitation*	*future research*
Su et al. (2014)	– Sustaining quality	Purposive sampling	Maintaining organisational quality and detecting and correcting organisations' potential performance disruptions by sensing weak signals	--------	– Sample diversity and expansion – Doing research in other organisations and different types of industries, organisational contexts – Considering disruptive forces such as disruptive technology, fundamental changes in business structure or changes in governmental regulations
Kinnunen et al. (2019)	– Work-related rumination – Well-being	Maximum variation sampling	The lagged effects of work-related rumination and high exhaustion on problem-solving pondering	– Low response rates – Reduce the degree of common method variance – Response bias – Self-selected data – The problems related to the validity and reliability – Bias in use from method	– Reducing common method variance – The differences between the three work-related rumination concepts

Table 2 Summary of results (continued)

	Variables	*sampling technique*	*main finding*	*limitation*	*future research*
Su and Linderman (2016)	– Sustaining high quality performance	Maximum variation sampling	Developing improvement capabilities, innovation, sensing weak signals, and responsiveness for sustaining quality performance	– Impossibility of reviewing all the variables or dimensions – Generalisability of the findings	– Doing research in other organisations and different types of industries, organisational contexts – The effect of sensing weak signals in different contexts and seeking ways address the challenge of potential trade-off between level and consistency
Halkos et al. (2018)	– Resilience barriers	Multi-stage sampling	The effects of external barriers (institutional conditions and mechanisms of external support and guidance) and internal barriers (resources and managerial perceptions) on the resilience of organisations	--------	– Doing longitudinal studies – Using a qualitative approach – Contrast SMEs' resilience barriers with inhibitory factors related to CC mitigation measures
Lewis et al. (2014)	– Causes of prescribing mistakes	Purposive sampling	Making distinctions among prescription-based, knowledge-based, and rule-based mistakes	--------	---------
Nowell et al. (2017)	– Redundancy – Disaster response systems	Purposive sampling	Associating redundancies with related capabilities and risks for enhancing system resilience	---------	---------

Table 2 Summary of results (continued)

	Variables	*sampling technique*	*main finding*	*limitation*	*future research*
Teo et al. (2017)	– The relational activation of resilience model	Purposive sampling	Promoting organisational resilience in a crisis through the role of leadership and relational connections	– Lack of exhaustive conceptualisation of the subject – Generalisability of the findings	– Doing research in other organisations and different types of industries, organisational contexts – How leadership behaviour influences relationships and organisational resilience during crisis – Whether leaders activate organisational resilience via other means
Delgado et al. (2020)	- Workplace resilience – Emotional labour	Volunteer or self-selection sampling	The positive impact of resilience on employee well-being and the negative impact of emotional labour via supervision and resilience, emotional regulation as a core skill in work	– Response rate could not be calculated – Response bias – Limited scope of the studies referring to single time studies – Generalisability of the findings	– The relationship between resilience and emotional regulation – The relationship between workplace resilience, emotional labour and well-being outcomes

Table 2 Summary of results (continued)

	Variables	*sampling technique*	*main finding*	*limitation*	*future research*
Mendonça et al. (2014)	– Improvised behaviour	Random sampling	Exploring the link of cognitive processes to the performance of disaster management and the role of human agency in organisational responses to disaster	----------	– Frameworks for comparing disasters according to the demands they place on response personnel – The cognitive processes that underlie routine and improvise responses to disaster provide how emergency response organisations develop the capacity to enact and learn from improvised decisions
Hartmann et al. (2021)	– Emotional culture of joy – Team resilience	Volunteer or self-selection sampling	Increasing the emotional culture of joy through change in social and cognitive mechanisms to cultivate relationships and reflexivity to enhance team resilience	– Single-source bias – Lack of cause-effect estimation in descriptive research designs – Limited scope of the studies referring to single time studies	– Doing longitudinal studies – Doing research in other organisations and different types of industries, organisational contexts – A more controlled field experiment – Exploring team members' turnover affects changes in team resilience capacity – Exploring mechanisms of socialisation within a team

Table 2 Summary of results (continued)

Variables		*sampling technique*	*main finding*	*limitation*	*future research*
					– Whether positive emotions of different levels of activation are related to different aspects of resilience – How processes underlying the formation of shared emotional cultures influence the nature and embodiment of the emotional cultures – The role of moderating conditions that might influence the relationship between the antecedents and team resilience
Tamuz and Thomas (2006)	– Patient safety	Random sampling	Exploring the effects of professional perspectives, professional responsibility, event contingencies, and surveillance technology on event classification and standardising event definitions to promote learning	– Small sample sizes – Generalisability of the findings	– Doing research in other organisations and different types of industries, organisational contexts
Blatt et al. (2006)	– Sensemaking	Random sample	The role of the sense making process and factors that shape it on how and why lapses in reliability occur and will be managed	– Self-reported data – Bias in use from method	– Using future work on reliability in dynamic organisational settings from methodologies that explore the perspective of organisational actors as they deal with day-to-day fluctuations in their work

References

Abdi, Z., Delgoshaei, B., Ravaghi, H., Abbasi, M. and Heyrani, A. (2015) 'The culture of patient safety in an Iranian intensive care unit', *Journal of Nursing Management*, Vol. 23, No. 3, pp.333–345. Doi: 10.1111/jonm.12135.

Aburumman, M., Newnam, S. and Fildes, B. (2019) 'Evaluating the effectiveness of workplace interventions in improving safety culture: a systematic review', *Safety Science*, Vol. 115, pp.376–392. Doi: 10.1016/j.ssci.2019.02.027.

Adie, K., Fois, R.A., McLachlan, A.J., Walpola, R.L. and Chen, T.F. (2021) 'The nature, severity and causes of medication incidents from an Australian community pharmacy incident reporting system: the QUM watch study', *British Journal of Clinical Pharmacology Accepted Articles*, Vol. 87, No. 12, pp.4809–4822. Doi: 10.1111/bcp.14924.

Agwu, A.E., Labib, A. and Hadleigh-Dunn, S. (2019) 'Disaster prevention through a harmonized framework for high reliability organisations', *Safety Science*, Vol. 111, pp.298–312. https://doi.org/10.1016/j.ssci.2018.09.005

AL Lawati, M.H., Short, S.D., Abdulhadi, N.N., Panchatcharam, S.M. and Dennis, S. (2019) 'Assessment of patient safety culture in primary health care in Muscat, Oman: a questionnaire-based survey', *BMC Family Practice*, Vol. 20, No. 1, pp.1–8. Doi: 10.1186/s12875-019-0937-4.

Alison, L., Power, N., Van den Heuvel, C., Humann, M., Palasinksi, M. and Crego, J. (2015) 'Decision inertia: deciding between least worst outcomes in emergency responses to disasters', *Journal of Occupational and Organizational Psychology*, Vol. 88, No. 2, pp.295–321. Doi: 10.1111/joop.12108.

Alzahrani, N., Jones, R. and Abdel-Latif, M.E. (2018) 'Attitudes of doctors and nurses toward patient safety within emergency departments of two Saudi Arabian hospitals', *BMC Health Services Research*, Vol. 18, No. 1, pp.1–7. Doi: 10.1186/s12913-018-3542-7.

Andersson, T., Cäker, M., Tengblad, S. and Wickelgren, M. (2019) 'Building traits for organizational resilience through balancing organizational structures', *Scandinavian Journal of Management*, Vol. 35, No. 1, pp.36–45. Doi: 10.1016/j.scaman.2019.01.001.

Arksey, H. and O'Malley, L. (2005) 'Scoping studies: towards a methodological framework', *International Journal of Social Research Methodology*, Vol. 8, No. 1, pp.19–32. Doi: 10.1080/1364557032000119616.

Bagnara, S., Parlangeli, O. and Tartaglia, R. (2010) 'Are hospitals becoming high reliability organizations?', *Applied Ergonomics*, Vol. 41, No. 5, pp.713–718. Doi: 10.1016/j.apergo.2009.12.009.

Berland, A., Holm, A.L., Gundersen, D. and Bentsen, S.B. (2012) 'Patient safety culture in home care: experiences of home-care nurses', *Journal of Nursing Management*, Vol. 20, No. 6, pp.794–801. Doi: 10.1111/j.1365-2834.2012.01461.x.

Biggiero, L. (2009) 'Organizations as cognitive systems: is knowledge AN emergent property of information networks?', *Processes O12f Emergence of Systems and Systemic Properties: Towards a General Theory of Emergence*, pp.697–712.

Blatt, R., Christianson, M.K., Sutcliffe, K.M. and Rosenthal, M.M. (2006) 'A sensemaking lens on reliability', *Journal of Organizational Behavior*, Vol. 27, No. 7, pp.897–917. Doi: 10.1002/job.392.

Bondevik, G.T., Hofoss, D., Husebø, B.S. and Deilkås, E.C.T. (2019) 'The safety attitudes questionnaire – ambulatory version: psychometric properties of the Norwegian version for nursing homes', *BMC Health Services Research*, Vol. 19, No. 1. Doi: 10.1186/s12913-019-4244-5.

Broekema, W., Van Kleef, D. and Steen, T. (2017) 'What factors drive organizational learning from crisis? Insights from the dutch food safety services' response to four veterinary crises', *Journal of Contingencies and Crisis Management*, Vol. 25, No. 4, pp.326–340. Doi: 10.1111/1468-5973.12161.

Brooks, B., Curnin, S., Bearman, C. and Owen, C. (2018) 'Human error during the multilevel responses to three Australian bushfire disasters', *Journal of Contingencies and Crisis Management*, Vol. 26, pp.440–452. Doi: 10.1111/1468-5973.12221.

Cao, X. and Chen, L. (2019) 'Relationships among social support, empathy, resilience and work engagement in haemodialysis nurses', *International Nursing Review*, pp.1–8. Doi: 10.1111/inr.12516.

Chandler, R.E., Thorne, P., Lawrimore, J. and Willett, K. (2012) 'Building trust in climate science: data products for the 21st century', *Environmetrics*, Vol. 23, No. 5, pp.373–381. Doi: 10.1002/env.2141.

Chong, S., Kim, Y.J., Lee, H.W., Johnson, R. and Lin, S.H.J. (2020) 'Mind your own break! The interactive effect of workday respite activities and mindfulness on employee outcomes via affective linkages', *Organizational Behavior and Human Decision Processes*, Vol. 159, pp.64–77. Doi: 10.1016/j.obhdp.2019.11.001.

Claesson, M., Jonasson, L.L., Lindberg, E. et al. (2020) 'What implies registered nurses' leadership close to older adults in municipal home health care? A systematic review', *BMC Nursing*, Vol. 19, No. 30, pp.1–11. Doi: 10.1186/s12912-020-00413-1.

Cooper, M.D., Collins, M., Bernard, R., Schwann, S. and Knox, R.J. (2019) 'Criterion-related validity of the cultural web when assessing safety culture', *Safety Science*, Vol. 111, pp.49–66. Doi: 10.1016/j.ssci.2018.09.013.

D'Esmond, L.K. (2017) 'Distracted practice and patient safety: the healthcare team experience', *Nursing Forum*, Vol. 52, No. 3, pp.149–164. Doi: 10.1111/nuf.12173.

Danielsson, M., Nilsen, P., Rutberg, H. and Carlfjord, S. (2018) 'The professional culture among physicians in Sweden: potential implications for patient safety', *BMC Health Services Research*, Vol. 18, No. 1, pp.1–9. Doi: 10.1186/s12913-018-3328-y.

Delgado, C., Roche, M., Fethney, J. and Foster, K. (2020) 'Workplace resilience and emotional labour of Australian mental health nurses: results of a national survey', *International Journal of Mental Health Nursing*, Vol. 29, No. 1, pp.35–46. Doi: 10.1111/inm.12598.

Drach-Zahavy, A., Goldblatt, H. and Maizel, A. (2015) 'Between standardisation and resilience: nurses' emergent risk management strategies during handovers', *Journal of Clinical Nursing*, Vol. 24, Nos. 3/4, pp.592–601. Doi: 10.1111/jocn.12725.

Duryan, M., Smyth, H., Roberts, A., Rowlinson, S. and Sherratt, F. (2020) 'Knowledge transfer for occupational health and safety: cultivating health and safety learning culture in construction firms', *Accident Analysis and Prevention*, Vol. 139. Doi: 10.1016/j.aap.2020.105496.

Fan, C.J., Pawlik, T.M., Daniels, T., Vernon, N., Banks, K., Westby, P., Wick, E.C., Sexton, J. B., Makary, M.A. (2016) 'Association of safety culture with surgical site infection outcomes', *Journal of the American College of Surgeons*, Vol. 222, No. 2, pp.122–128. Doi: 10.1016/j.jamcollsurg.2015.11.008.

Frese, M. and Keith, N. (2015) 'Action errors, error management, and learning in organizations', *Annual Review of Psychology*, Vol. 66, pp.661–687. Doi: 10.1146/annurev-psych-010814-015205.

Ghaith, A., Ma, H. and Labib, A.W. (2022) 'A pursuit to reliability – toward a structural based reliability framework (FSR)', *International Journal of Quality and Reliability Management*. Doi: 10.1108/IJQRM-08-2020-0277.

Gong, Y. (2019) 'Safety culture among Chinese undergraduates: a survey at a university', *Safety Science*, Vol. 111, pp.17–21. Doi: 10.1016/j.ssci.2018.09.010.

Goodman, F.R., Disabato, D.J., Kashdan, T.B. and Machell, K.A. (2016) 'Personality strengths as resilience: a one-year multiwave study', *Journal of Personality*, Vol. 85, No. 3, pp.423–434. Doi: 10.1111/jopy.12250.

Goodman, P.S. et al. (2011) 'Organizational errors: directions for future research', *Research in Organizational Behavior*, Vol. 31, pp.151–176. Doi: 10.1016/j.riob.2011.09.003.

Gordon, R., Flin, R. and Mearns, K. (2005) 'Designing and evaluating a human factors investigation tool (HFIT) for accident analysis', *Safety Science*, Vol. 43, No. 3, pp.147–171. Doi: 10.1016/j.ssci.2005.02.002.

Gressgård, L.J. and Hansen, K. (2015) 'Knowledge exchange and learning from failures in distributed environments: the role of contractor relationship management and work characteristics', *Reliability Engineering and System Safety*, Vol. 133, pp.167–175. Doi: 10.1016/j.ress.2014.09.010.

Grote, G., Weichbrodt, J.C., Günter, H., Zala-Mezö, E. and Künzle, B. (2009) 'Coordination in high-risk organizations: the need for flexible routines', *Cognition, Technology and Work*, Vol. 11, No. 1, pp.17–27. Doi: 10.1007/s10111-008-0119-y.

Hales, D.N. and Chakravorty, S.S. (2016) 'Creating high reliability organisations using mindfulness', *Journal of Business Research*, Vol. 69, No. 8, pp.2873–2881. Doi: 10.1016/j.jbusres.2015.12.056.

Halkos, G., Skouloudis, A., Malesios, C. and Evangelinos, K. (2018) 'Bouncing back from extreme weather events: some preliminary findings on resilience barriers facing small and medium-sized enterprises', *Business Strategy and the Environment*, Vol. 27, No. 4, pp.547–559. Doi: 10.1002/bse.2019.

Hartmann, S., Weiss, M., Hoegl, M. and Carmeli, A. (2021) 'How does an emotional culture of joy cultivate team resilience? A socio-cognitive perspective', *Journal of Organizational Behavior*, Vol. 42, No. 3, pp.313–331. Doi: 10.1002/job.2496.

Herbane, B. (2013) 'Exploring crisis management in UK small- and medium-sized enterprises', *Journal of Contingencies and Crisis Management*, Vol. 21, No. 2, pp.82–95. Doi: 10.1111/1468-5973.12006.

Hodgkinson, G.P. and Healey, M.P. (2008) 'Cognition in organizations', *Annual Review of Sociology*, Vol. 59, pp.387–417. Doi: 10.1146/annurev.psych.59.103006.093612.

Javed, B., Jalees, T., Herani, G. and Rolle, J.-A. (2020) 'Error management culture and its impact on organizational performance: a moderated mediation model', *Journal of Business and Retail Management Research*, Vol. 15, No. 1, pp.23–35. Doi: 10.24052/JBRMR/V15IS01/ART-03.

Jensen, A., Secchi, D. and Jensen, T.W. (2022) 'A distributed framework for the study of organizational cognition in meetings', *Frontiers in Psychology*, Vol. 18, No. 13. Doi: 10.3389/fpsyg.2022.769007.

Jha, A.P., Zanesco, A.P., Denkova, E., Rooks, J., Morrison, A.B. and Stanley, E.A. (2020) 'Comparing mindfulness and positivity trainings in high-demand cohorts', *Cognitive Therapy and Research*, Vol. 44, No. 2, pp.311–326. Doi: 10.1007/s10608-020-10076-6.

Khoshakhlagh, A.H., Khatooni, E., Akbarzadeh, I., Yazdanirad, S. and Sheidaei, A. (2019) 'Analysis of affecting factors on patient safety culture in public and private hospitals in Iran', *BMC Health Services Research*, Vol. 19, No. 1, pp.1–14. Doi: 10.1186/s12913-019-4863-x.

Kim, S., Vaiman, V. and Sanders, K. (2022) 'Strategic human resource management in the era of environmental disruptions', *Human Resource Management*, Vol. 61, No. 3, pp.283–293. Doi: 10.1002/hrm.22107.

Kinnunen, U., Feldt, T. and De Bloom, J. (2019) 'Testing cross-lagged relationships between work-related rumination and well-being at work in a three-wave longitudinal study across 1 and 2 years', *Journal of Occupational and Organizational Psychology*, Vol. 92, pp.645–670. Doi: 10.1111/joop.12256.

Kumar, S., Kumar, K.S.A., Kumar, S., Bharti, O.P., Varshney, L., Saket, R.K. and Vishwakarma, D.N. (2019) 'Probabilistic evaluation and design aspects for reliability enhancement of induction motor', *International Journal of Reliability and Safety*, Vol. 13, No. 4, pp.267–290. Doi: 10.1504/IJRS.2019.102879.

Labib, A. (2014) *Learning from Failures: Decision Analysis of Major Disasters*, Elsevier.

Labib, A. and Harris, M.J. (2015) 'Learning how to learn from failures: the Fukushima nuclear disaster', *Engineering Failure Analysis*, Vol. 47, pp.117–128. Doi: 10.1016/j.engfailanal.2014.10.002.

Labib, A. and Read, M. (2013) 'Not just rearranging the deckchairs on the Titanic: learning from failures through risk and reliability analysis', *Saftey Science*, Vol. 51, No. 1, pp.397–413. Doi: 10.1016/j.ssci.2012.08.014.

Labib, A. and Read, M. (2015) 'A hybrid model for learning from failures: the Hurricane Katrina disaster', *Expert Systems with Applications*, Vol. 42, No. 21, pp.7869–7881. Doi: 10.1016/j.eswa.2015.06.020.

Labib, A., Hadleigh-Dunn, S., Mahfouz, A. and Gentile, M. (2019) 'Operationalizing learning from rare events: framework for middle humanitarian operations managers', *Production and Operations Management*, Vol. 28, No. 9, pp.2323–2337. Doi: doi:10.1111/poms.13054.

LaPorte, T.R. and Consolini, P. (1991) 'Working in practice but not in theory: theoretical challenges of high reliability organizations', *Journal of Public Administration Research and Theory*, Vol. 1, No. 1, pp.19–47. Available online at: https://www.jstor.org/stable/1181764

Lekka, C. (2011) *High Reliability Organisations: A Review of the Literature*, *Health and Safety Laboratory for Health and Safety Executives*, RR 899.

Lewis, P.J., Ashcroft, D.M., Dornan, T., Taylor, D., Wass, V. and Tully, M.P. (2014) 'Exploring the causes of junior doctors' prescribing mistakes: a qualitative study', *British Journal of Clinical Pharmacology*, Vol. 78, No. 2, pp.310–319. Doi: 10.1111/bcp.12332.

Lindblad, M., Flink, M. and Ekstedt, M. (2017) 'Safe medication management in specialized home healthcare – an observational study', *BMC Health Services Research*, Vol. 17, No. 1, pp.1–8. Doi: 10.1186/s12913-017-2556-x.

Linnenluecke, M. (2017) 'Resilience in business and management research: a review of influential publications and research agenda', *International Journal of Management Reviews*, Vol. 19, No. 1, pp.4–30. Doi: 10.1111/ijmr.12076.

Mcdonald, G., Jackson, D., Vickers, M.H. and Wilkes, L. (2016) 'Surviving workplace adversity: a qualitative study of nurses and midwives and their strategies to increase personal resilience', *Journal of Nursing Management*, Vol. 24, No. 1, pp.123–131. Doi: 10.1111/jonm.12293.

Mendonça, D. and Wallace, W.A. (2015) 'Factors underlying organizational resilience: the case of electric power restoration in New York City after 11 September 2001', *Reliability Engineering and System Safety*, Vol. 141, pp.83–91. Doi: 10.1016/j.ress.2015.03.017.

Mendonça, D., Webb, G., Butts, C. and Brooks, J. (2014) 'Cognitive correlates of improvised behaviour in disaster response: the cases of the Murrah building and the world trade center', *Journal of Contingencies and Crisis Management*, Vol. 22, No. 4, pp.185–195. Doi: 10.1111/1468-5973.12057.

Mengolini, A. and Debarberis, L. (2007) 'Safety culture enhancement through the implementation of IAEA guidelines', *Reliability Engineering and System Safety*, Vol. 92, No. 4, pp.520–529. Doi: 10.1016/j.ress.2006.01.003.

Moura, R., Beer, M., Patelli, E., Lewis, J., Knoll, F. (2016) 'Learning from major accidents to improve system design', *Saftey Science*, Vol. 84, pp.37–45. Doi: 10.1016/j.ssci.2015.11.022.

Ndubisi, N.O. and Al-Shuridah, O. (2019) 'Organizational mindfulness, mindful organizing, and environmental and resource sustainability', *Business Strategy and the Environment*, Vol. 28, No. 3, pp.436–446. Doi: 10.1002/bse.2219.

Nevill, R.E. and Havercamp, S.M. (2019) 'Effects of mindfulness, coping styles and resilience on job retention and burnout in caregivers supporting aggressive adults with developmental disabilities', *Journal of Intellectual Disability Research*, Vol. 63, No. 5, pp.441–453. Doi: 10.1111/jir.12594.

Nowell, B., Bodkin, C.P. and Bayoumi, D. (2017) 'Redundancy as a strategy in disaster response systems: a pathway to resilience or a recipe for disaster?', *Journal of Contingencies and Crisis Management*, Vol. 25, No. 3, pp.123–135. Doi: 10.1111/1468-5973.12178.

Orellana-Rios, C.L., Radbruch, L., Kern, M., Regel, Y.U., Anton, A., Sinclair, S. and Schmidt, S. (2018) 'Mindfulness and compassion-oriented practices at work reduce distress and enhance self-care of palliative care teams: a mixed-method evaluation of an 'on the job' program', *BMC Palliative Care*, Vol. 17, No. 1, pp.1–15. Doi: 10.1186/s12904-017-0219-7.

Provera, B., Montefusco, A. and Canato, A. (2010) 'A 'no blame' approach to organizational learning', *British Journal of Management*, Vol. 21, No. 4, pp.1057–1074. Doi: 10.1111/j.1467-8551.2008.00599.x.

Rampa, R. and Agogué, M. (2021) 'Developing radical innovation capabilities: exploring the effects of training employees for creativity and innovation', *Creativity and Innovation Management*, Vol. 30, No. 1, pp.211–227. Doi: 10.1111/caim.12423.

Rankin, A., Dahlbäck, N. and Lundberg, J. (2011) 'A case study of factor influencing role improvisation in crisis response teams', *Cognition, Technology and Work*, Vol. 15, No. 1, pp.79–93. Doi: 10.1007/s10111-011-0186-3.

Rauter, S., Weiss, M. and Hoegl, M. (2018) 'Team learning from setbacks: a study in the context of start-up teams', *Journal of Organizational Behavior*, Vol. 39, No. 6, pp.783–795. Doi: 10.1002/job.2278.

Reader, T.W., Noort, M.C., Shorrock, S. and Kirwan, B. (2015) 'Safety sans frontières: an international safety culture model', *Risk Analysis*, Vol. 35, No. 5, pp.770–789. Doi: 10.1111/risa.12327.

Richtnér, A. and Löfsten, H. (2014) 'Managing in turbulence: how the capacity for resilience influences creativity', *R&D Management*, Vol. 44, No. 2, pp.137–151. Doi: 10.1111/radm.12050.

Riley, W., Lownik, E., Parrotta, C., Miller, K. and Davis, S. (2011) 'Creating high reliability teams in healthcare through in situ simulation training', *Administrative Sciences*, Vol. 1, No. 1, pp.14-31. Doi: 10.3390/admsci1010014.

Roberts, K.H. and Rousseau, D.M. (1989) 'Research in nearly failure-free, high-reliability organizations: having the bubble', *IEEE Transactions on Engineering Management*, Vol. 36, No. 2, pp.132–139. Doi: 10.1109/17.18830.

Roberts, K.H., Yu, K. and Van Stralen, D. (2004) '*Patient safety as an organizational system issue: lessons from a variety of industries*', in Youngberg, B.J. and Hatlie, M. (Eds): *Patients Safety Handbook*, Jones and Bartlett Publishers, Sundbury, MA.

Roe, E. and Schulman, P. (2008) *High Reliability Management – Operating on the Edge*. Stanford University Press, Stanford, California.

Rougier, J., Sparks, S., Aspinall, W., Cornell, S., Crosweller, S., Edwards, T., Freer, J., Hill, L. and Hincks, T. (2010) *SAPPUR: NERC Scoping Study on Uncertainty and Risk in Natural Hazards*, Report to NERC, University of Bristol.

Sessions, L.C., Nemeth, L.S., Catchpole, K. and Kelechi, T.J. (2019) 'Nurses' perceptions of high-alert medication administration safety: a qualitative descriptive study', *Journal of Advanced Nursing*, Vol. 75, No. 12, pp.3654–3667. Doi:10.1111/jan.14173.

Shrivastava, S., Sonpar, K. and Pazzaglia, F. (2009) 'Normal accident theory versus high reliability theory: a resolution and call for an open systems view of accidents', *Human Relations*, Vol. 62, No. 9, pp.1357–1390. Doi: 10.1177/0018726709339117.

Sindhu, S., Nehra, V. and Malik, S.C. (2017) 'Reliability estimation of photovoltaic system using Markov process and dynamic programming approach', *International Journal of Reliability and Safety*, Vol. 11, Nos. 1/2, pp.132–151. Doi: 10.1504/IJRS.2017.088554.

Singh, S.K., Vrontis, D. and Christofi, M. (2021) 'What makes mindful self-initiated expatriates bounce back, improvise and perform: empirical evidence from the emerging markets', *European Management Review*. Doi: 10.1111/emre.12456.

Slonosky, V. and Mayer-Jouanjean, I. (2020) 'Climate observing during Canada's empires, 1742–1871: people, places and motivations', *London Journal of Canadian Studies*, Vol. 35, No. 1, pp.1–28. Doi: 10.14324/111.444.ljcs.2020v35.002.

Stewart, D.M. and Chase, R.B. (2009) 'The impact of human error on delivering service quality', *Production and Operations Management*, Vol. 8, No. 3, pp.240–263. Doi: 10.1111/j.1937-5956.1999.tb00307.x.

Su, H.C. and Linderman, K. (2016) 'An empirical investigation in sustaining high-quality performance', *Decision Sciences*, Vol. 47, No. 5, pp.787–819. Doi: 10.1111/deci.12210.

Su, H.C., Linderman, K.W., Schroeder, R.G. and Van De Ven, A H. (2014) 'A comparative case study of sustaining quality as a competitive advantage', *Journal of Operations Management*, Vol. 32, Nos. 7/8, pp.429–445. Doi: 10.1016/j.jom.2014.09.003.

Sutton, E., Bion, J., Aldridge, C., Boyal, A., Willars, J. and Tarrant, C. (2018) 'Quality and safety of in-hospital care for acute medical patients at weekends: a qualitative study', *BMC Health Services Research*, Vol. 18, No. 1, pp.1–9. Doi: 10.1186/s12913-018-3833-z.

Tamuz, M. and Thomas, E.J. (2006) 'Classifying and interpreting threats to patient safety in hospitals: insights from aviation', *Journal of Organizational Behavior*, Vol. 27, No. 7, pp.919–940. Doi: 10.1002/job.419.

Tenhiälä, A. and Salvador, F. (2014) 'Looking inside glitch mitigation capability: the effect of intraorganizational communication channels', *Decision Sciences*, Vol. 45, No. 3, pp.437–466. Doi: 10.1111/deci.12076.

Teo, W.L., Lee, M. and Lim, W.S. (2017) 'The relational activation of resilience model: how leadership activates resilience in an organizational crisis', *Journal of Contingencies and Crisis Management*, Vol. 25, No. 3, pp.136–147. Doi: 10.1111/1468-5973.12179.

Tricco, A.C., Lillie, E., Zarin, W., O'Brien, K.K., Colquhoun, H., Levac, D. and Straus, S.E. (2018) 'PRISMA extension for scoping reviews (PRISMA-ScR): checklist and explanation', *Annals of Internal Medicine*, Vol. 169, No. 7, pp.467–473. Doi: 10.7326/M18-0850.

Varuvel, A.G. and Pruno, P.X. (2019) 'Reliability allocation technique for complex system of systems', *International Journal of Reliability and Safety*, Vol. 13, Nos. 1/2, pp.61–82. Doi: 10.1504/ IJRS.2019.097017.

Vendelø, M.T. and Rerup, C. (2020) 'Collective mindfulness in a regenerating organization: ethnographic evidence from Roskilde festival', *Safety Science*, Vol. 123. Doi: 10.1016/j.ssci.2019.104537.

Villemain, A. and Godon, P. (2017) 'Toward a resilient organization: the management of unexpected hazard on the polar traverse', *Safety Science*, Vol. 95, pp.210–218. 10.1016/j.ssci.2016.03.008.

Wang, J., Zhang, X. and Zeng, J. (2020) 'A novel hybrid failure rate update model for imperfect maintenance', *International Journal of Reliability and Safety*, Vol. 14, Nos. 2/3, pp.137–167. Doi: 10.1504/IJRS.2020.113313.

Weick, K.E. (1987) 'Organizational culture as a source of high reliability', *California Management Review*, Vol. 29, No. 2, pp.112–127. Doi: 10.2307/41165243.

Weick, K.E. and Sutcliffe, K.M. (2015) *Managing the Unexpected: Sustained Performance in a Complex World*, John Wiley & Sons.

Weick, K.E., Sutcliffe, K.M. and Obstfeld, D. (1999) 'Organizing for high reliability: processes of collective mindfulness', in Sutton, R.I. and Staw, B.M. (Eds): Research in Organizational Behavior, Elsevier Science/JAI Press, Vol. 21, pp.81–123.

Weick, K.E., Sutcliffe, K.M. and Obstfeld, D. (2005) 'Organizing and the process of sensemaking', *Organization Science*, Vol. 16, No. 4, pp.409–421. Doi: 10.1287/orsc.1050.0133.

Winkel, A.F., Robinson, A., Jones, A.A. and Squires, A.P. (2019) 'Physician resilience: a grounded theory study of obstetrics and gynaecology residents', *Medical Education*, Vol. 53, No. 2, pp.184–194. Doi: 10.1111/medu.13737.

Wong, S.I., Kost, D. and Fieseler, C. (2021) 'From crafting what you do to building resilience for career commitment in the gig economy', *Human Resource Management Journal*, pp.1–18. Doi: 10.1111/1748-8583.12342.

Wu, T.C., Liu, C.W. and Lu, M.C. (2007) 'Safety climate in university and college laboratories: impact of organizational and individual factors', *Journal of Safety Research*, Vol. 38, No. 1, pp.91–102. Doi: 10.1016/j.jsr.2007.01.003.

Youngberg, B.J. (2004) 'Assessing your organization's potential to become a high reliability organization', *Journal of Healthcare Risk Management*, Vol. 24, No. 3, pp.13–20. Doi: 10.1002/jhrm.5600240304.

Zipperer, L. and Sykes, I. (2004) 'The role of librarians in patient safety: gaps and strengths in the current culture', *Journal of the Medical Library Association*, Vol. 92, No. 4, pp.498–500.

Zotzmann, Y., Van der Linden, D. and Wyrwa, K. (2019) 'The relation between country differences, cultural values, personality dimensions, and error orientation: an approach across three continents – Asia, Europe, and North America', *Safety Science*, Vol. 120, pp.185–193. Doi: 10.1016/j.ssci.2019.06.013.