The Cohesion of the Error Management Culture and Risk Management Maturity in Healthcare

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Abstract. Errors and mistakes are an inevitable part of organisational life and certainly life in general. However, errors result in adverse events. The consequences of them influence the safety of the staff and the health of patients. The focus is on the following fundamental question regarding the scientific problem at the theoretical level: How the error management culture relates to risk management maturity in healthcare? The aim of this study is to theoretically ground the importance of the link between the error management culture and risk management maturity in the field of healthcare. Methods of the research are literature review and the critical analysis of the latest scientific articles on the issue. In conclusion, the error management culture leads to the lowered occurrence of adverse events, improved error reporting, improved prevention of medical errors, improved quality and safety of the clinical services, and proactivity with regard to errors.
Keywords: *error management culture, errors in healthcare, risk management, risk management maturity, risk management in healthcare.*

Introduction

Relevance of the article

Medical errors cause serious public health problems around the world. The consequences of them are related to the lower quality of healthcare and patient safety threats (Karande et al., 2021). The phenomenon of error occurrence is widespread in all organisations (Au et al., 2014). Therefore errors and mistakes are an inevitable part of organisational life and, certainly life in general (Yan et al., 2014). However, service-oriented industries confront errors more often. It is due to their impact on service experiences and operation processes (Au et al., 2014). Patient safety is a matter of concern requiring a more forceful and global solution. Accordingly, setting it as a priority in government agendas to promote quality management systems and the culture of patient safety at the institutional level becomes the focus of efficient and safe service (Chirinos Muñoz et al., 2021). Focusing on the pursuit of perfection, a lot of companies practice negative, even hostile attitudes toward errors by enforcement of zero tolerance for them (Wang et al., 2018). Although this approach seems logical and desirable, it does not eliminate neither errors nor negative outcomes (Wang et al., 2020). Organisations have to continually consolidate and improve their risk management processes, sustaining good practices. This objective can be achieved through the integration of risk management and building an organisational culture in which everyone is a risk manager (Araújo, & Gomes, 2021).

The substantiation of the scientific and practical relevance of this conceptual topic is evidenced by the abundance of the latest scientific articles regarding those separate two concepts. Nevertheless, the relationship between error management culture and risk management maturity has not been studied sufficiently. The links between the concepts are still not firmly theoretically grounded in the scientific literature. Thus, there is a lack of confirmed empirical evidence to ground those links.

Level of problem investigation

The concept of error management culture distinguishes by its novelty and lack of adequate research background in this area (Sheikhaboumasoudi et al., 2019). Although there are various risk management maturity assessment models, from a scientific point of view, there are no studies empirically investigating the factors that influence risk management maturity.

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Scientific problem

The insufficiency of the conducted research and lack of empirical evidence has identified knowledge gaps regarding the cohesion of the error management culture and risk management maturity in healthcare. The focus is on the following fundamental question regarding the scientific problem at the theoretical level: How the error management culture is linked with risk management maturity in healthcare?

Object of the article – the cohesion of the error management culture and risk management maturity in healthcare.

Aim of the article – to theoretically substantiate the importance of the link between the error management culture and risk management maturity in the field of healthcare.

***Objectives of the article*:**

1. To theoretically investigate the concepts of error and error management culture;
2. To theoretically identify the concepts of risk, risk management, and risk management maturity;
3. To theoretically determine the link between the error management culture and risk management maturity in the field of healthcare.

Methods of the article

Literature review and the critical analysis of the latest scientific articles on the issue. The latest scientific articles published in two main international databases (i.e. *Web of Science* and *Scopus*) and other scientific sources were searched and analysed. A period of 15 years (2007–2022) was one of the inclusion criteria. The goal of the search was to select research conducted on the topic using keywords of error management culture, risk management maturity, and the link between both concepts.

1. The definition of the error management culture and risk management maturity concepts

1.1. The concept of error management culture

The definition of errors can be perceived twofold. They can be defined as "unintended deviations from plans, goals or feedback processing", or "incorrect actions resulting from lack of knowledge" (Frese, & Keith, 2015). An error is also conceptualised as an "unintended deviation from initial expectations" (Dimitrova et al., 2016; Frese, & Keith, 2015).

Organisational culture, known as organisational values and personality, plays a significant role in managerial performance and development (Mohamed, 2020). Moreover, it creates conditions for sharing similar values, goals, beliefs, attitudes, knowledge, and understanding among members of the organisation (Baharuddin, & Yusof, 2018). Error management culture, as one certain facet of organisational culture, reflects employees' perceptions of their organisations' shared beliefs and practices with regard to error analysis, error communication, assistance in error situations, error competence and learning (Gronewold et al., 2013). Accordingly, error management culture is an important element of organisational culture (Jung, & Yoon, 2017), related closely to other elements of it. Organisations need to ensure that error management practices step by step become the shared norms and an integrated part of the organisational culture (Wang et al., 2018). Therefore, it is essential to acknowledge the culture of safety which differs according to a certain understanding of the values, beliefs, and norms. They indicate, accordingly, what is significant in an organisation and what attitudes and behaviours with regard to patient safety are important and applicable (Lawati et al., 2018; Mohamed, 2020). While facing an error, two opposing choices and opportunities emerge. The first is covering up the error, and the second one is accepting it and asking for help. Error management culture contributes to more efficient error management through a common conception of error occurrence. In such a culture members are guided to anticipate errors without bias, focusing on problem-solving and learning (Schneider et al., 2012), which are fundamental components of a high error management culture (Guchait et al., 2018). Therefore, cultural factors play a relevant role (Fischer et al., 2018).

Organisations adopting the error management approach place emphasis not only on the minimisation of negative consequences of errors by quick detection, reporting, and error correction.

Focus is also put on preventing errors of a similar nature from reoccurrence by investigating causal sources of errors and subsequently learning from them (Jang et al., 2021). Therefore, the patient safety culture should be identified as a "learning culture" (Cheng et al., 2021). An effective error management culture not only prevents future errors but additionally is employed as a measure of restraint of their negative impacts (van Steenbergen et al., 2020). In error management culture the focus is on attitudinal changes of the management toward error, an effort to frame a systemic vision for error management, well-balanced learning at all levels of the organisation, the integrity of the actions, and the principal development in the human resources system (Sheikhaboumasoudi et al., 2019). The "error-tolerance" policy encourages employees to discuss their mistakes more openly with their managers making them feel safe enough to offer new ideas for improvement (Cusin, & Goujon-Belghit, 2019), as well as sharing of critical information, personal perceptions and feelings, even at the risk of "losing face" (Alavi, & Gill, 2017).

Summarizing, the concept of error management culture defines cultural aspects of dealing effectively with errors (Porto et al., 2020). Error management culture can be described as a learning and innovation-driven orientation, which manifests through shared beliefs, rules, values, norms, positive active attitude toward error management practices, systemic integrity of the actions in an organisation. This "error-tolerance" policy operates as a preventive measure within a psychologically safe work environment being a restriction of negative error impacts. The main goal of promoting an error management culture is problem-solving and learning through the prism of cause and effect, not underlining "self-image".

1.2. The concept of risk management maturity

The concept of risk is connected to many areas and is characteristic of human activity (Mouras, & Badri, 2020). In the scope of the ISO 9000 standard risk is defined as an "effect of uncertainty". In addition, the risk is often defined with regard to potential events and consequences, or a combination of both. Risk can be comprehended in terms of a combination of the consequences of an event and the associated probability of occurrence (ISO, 2015). Additionally, the term 'risk' is specified as an "effect of uncertainty on objectives". 'An effect' here is perceived as a deviation from the expected, resulting in opportunities and threats (ISO, 2018). Similarly, business risk is described as the sequence of potentially negative as well as positive effects (Proença et al., 2017), that can be caused by an unexpected event of technological, economic, financial, asset, or reputation type (Settembre-Blundo et al., 2021). The definition of risk, focusing on the safety of patients and other persons, is explained as a "combination of the probability of occurrence of harm and severity of that harm" (ISO, 2020). From an academic perspective, neither a coherent theory of risk has been developed, nor a unitary definition of risk has been established (Crovini, 2019). To sum up, the risk is related to uncertainty arising from unexpectedness.

Risk management conception refers to "coordinated activities to direct and control an organisation with regard to risk" (ISO, 2018). A more detailed definition of the term "risk management" would be: "the systematic application of management policies, procedures, and practices to the tasks of analysing, evaluating, controlling and monitoring risk" (ISO, 2020). Therefore, a systematic and methodical process operates as a foundation of risk management. The essence of its functionality regarding the achievement of the organisation's goals refers to analysing, assessing, and addressing risks (Araújo, & Gomes, 2021). Risk Management is a maturing discipline. It aims at assisting organisations in proactive and effective coping with the constantly changing risk exposures and resulting strategic planning requirements (Farrell, & Gallagher, 2018). The literature thus covers various definitions of the risk management process (Araujo et al., 2017).

The risk management system structure is composed of processes and systems developed by management to ensure its risk philosophy is an integral part of the daily activities of the organisation (Araújo, & Gomes, 2021). Risk management should involve all processes of the organisation, enabling an organisation to respond appropriately to change (Buckė et al., 2022), hence focusing on a holistic approach to risk management (Farrell, & Gallagher, 2014). Existing

risk maturity models cover diverse sets of attributes comprising different dimensions of risk management. Despite each standard applying a different terminology to describe risk management processes, those are generally distinguished into six process steps, i.e. risk management planning, risk identification, risk analysis, risk response planning, implementation of risk responses, and risk monitoring (Roghabadi, & Moselhi, 2020).

Maturity in terms of risk management manifests through the progress gained against full development and application of the risk management process (Proença et al., 2017). Risk management maturity is based on the sophistication of risk management implementation (Farrell, & Gallagher, 2014; Zhao et al., 2014). The growing awareness of the potential benefits of effective risk management determines the goal to progress in risk management maturity (Wieczorek-Kosmala, 2014).Therefore, risk management maturity, outlining close linkage with continuous improvement, depicts the degree of formality and application of risk management activities (Hoseini et al., 2019). The higher anticipated benefits of risk management are conditioned by the higher level of maturity (Wieczorek-Kosmala, 2014). All in all, a logical rule follows from the arguments above. The higher the level of implementation of risk management practices, the higher the level of risk management maturity.

The main goal of evaluating the maturity level of the risk management process is to determine the current situation (Araujo et al., 2017; Proença et al., 2017) since maturity level is equivalent to the degree to which this process is implemented in a given organisation (Cavalcante de Souza Feitosa et al., 2021). More importantly, risk management maturity evaluation allows the identification of potential strengths and weaknesses of the organisation regarding risk management processes (Cavalcante de Souza Feitosa et al., 2021; Hoseini et al., 2019; Proença et al., 2017; Roghabadi, & Moselhi, 2020; Zhao et al., 2013; Zhao et al., 2014). Different maturity levels possess their characteristics defining the level of progress (Tubis, & Werbińska-Wojciechowska, 2021). Models described in the scientific sources designed to measure risk management maturity most often comprise 4 or 5 maturity levels (Tubis, & Werbińska-Wojciechowska, 2021).

In conclusion, despite different nonunitary terminology applied to label risk management maturity levels, the possibility of progressing between those levels depends on the ability to improve risk management capabilities through the implementation of risk management practices.

2. The effect of error management culture on risk management maturity

Although the occurrence of medical errors is inevitable, decisive actions can be taken to significantly reduce them and strengthen patient safety. To succeed in this, a durable culture to decrease medical errors needs to be promoted at regional, national, and international levels. Ensuring patient safety is not only an integral mission ahead but generally is a commitment to an equitable healthcare system (Karande et al., 2021). There is a growing need to integrate risk management into organisational culture (Farrell, & Gallagher, 2014; ISO, 2018). A change in perception of the frontline healthcare professionals in relation to patient safety was proven to be the most reliable and effective strategy to improve the quality of care. It results in reduced adverse events and communication failure (Sorra et al., 2012). Raising awareness regarding risk in organisational culture is of great importance (Tegeltija et al., 2018). Studies affirmed culture being the driving element for the implementation of risk management (Wibowo, & Taufik, 2017). Accordingly, a significant relationship between organisations' philosophy with regard to risk management and risk management maturity was identified (Alashwal et al., 2017). The assumption of all measures taken to diminish the consequences of human error is high transparency. Within the past decade, a culture assisting the reporting of data gaps, which is the basic precondition for effective risk and error management, has been consensually developed in healthcare (Bienzeisler et al., 2020). A higher level of perception of patient safety culture is linked to the lowered occurrence of adverse events (Kakemam et al., 2021; Owusu et al., 2021). Consequently, non-punitive culture is crucial to positively impact the practice of error reporting (Aljaffary et al., 2021). The development of a safety culture in healthcare is a meaningful part of the prevention or reduction of medical errors (Kucuk Alemdar, & Yilmaz, 2020). In spite of that, assessment and improvement of

patient safety culture is effective with the condition that healthcare institution strives to improve the quality and safety of the clinical services (ALFadhalah et al., 2021). Systematic management of errors, as part of an organisation's culture, through the appropriate use of error management culture features is a top priority (Farrell, & Gallagher, 2014; Jung, & Yoon, 2017). Organisational error processes are a reflection of both organisational and national cultures (Reis et al., 2018). The typical culture of blaming or punishing healthcare professionals for adverse events could be replaced with a non-punitive culture, encouraging healthcare personnel initiatives for voluntary reporting of adverse events (Kakemam et al., 2021). Basic assumptions and core beliefs, rooted in organisational or national culture, are crucial for the implementation of effective error management (Göktürk et al., 2017). In summary, a higher level of risk management maturity is influenced by the integration of error management into organisational culture. Moreover, the goal of high-quality healthcare can be addressed by attaining a higher level of risk management maturity. However, creating an error management culture should not be limited to separate healthcare institutional responsibility.

Error management culture has been determined as a conditioning factor of organisational and management-team effectiveness (Guchait et al., 2020). Generally, an error management culture fosters employees' proactive attitudes and behaviours with respect to errors. This includes accountability, controlling work processes, taking responsibility, and the readiness to report errors (Farnese et al., 2019). Hence, attitude toward risk comes as one of the critical attributes of a mature risk management organisation (Crispim et al., 2019). It was determined that just culture is one of the factors affecting patient safety activities. The results disclosed that the higher the nurses' perceived level of just culture, the better the performance in patient safety activities (Kim, & Yu, 2021). Promoting a Just Culture enables an organisation to shift its focus from judging errors and outcomes, and focus attention on their origins. In addition, this approach allows more productive discussions about system design and action choices instead of looking for guilty (Marx, 2019). A study revealed that organisational safety culture is significantly related to nurse-assessed patient safety (Lee, & Dahinten, 2021). A high error management culture in organisations contributes to a shared understanding of errors and error management among employees (Guchait et al., 2015). Consequently, lack of appropriate support from colleagues and managers has been discerned as a barrier to reporting errors (Murray et al., 2020). Fostering of safety culture should involve all hospitals. The total involvement would enable all healthcare providers to gain insight into promoting patient safety in a clinical setting (Krishnasamy et al., 2021). In addition, it is assumed that promoting patient safety culture has a potential role in reducing medication failures, and protecting patients from preventable harm (Owusu et al., 2021). Strong error management culture allocates resources to organisational members to minimise negative error consequences and establish more acceptable strategies for handling future errors (Guchait et al., 2018).

Summarising, an error management culture needs to be developed as a strategy for the whole healthcare system at the international level. The main benefits of the error management approach related to risk management maturity are strengthened patient safety, reduced adverse events, and communication failure, voluntary error reporting, improved prevention of medical errors, enhanced focus on error causes, protection from preventable harm, minimisation of negative error consequences and proactivity with regard to errors.

Conclusions

1. Error management culture can be described as a learning and innovation-driven orientation, which manifests through shared beliefs, rules, values, norms, positive active attitude toward error management practices, systemic integrity of the actions in an organisation. "Error-tolerance" policy operates as a preventive measure within a psychologically safe work environment being a restriction of negative error impacts.
2. The higher the level of implementation of risk management practices, the higher the level of risk management maturity. Notwithstanding the different nonunitary terminology applied to label risk management maturity levels, the possibility of progressing between those levels depends on the ability to improve risk management capabilities through the implementation of risk

management practices.

3. The main benefits of the error management approach related to risk management maturity are strengthened patient safety, reduced adverse events, and communication failure, voluntary error reporting, improved prevention of medical errors, enhanced focus on error causes, protection from preventable harm, minimisation of negative error consequences and proactivity with regard to errors.

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