

Mortality risk factors in micro and small businesses: systematic literature review, conceptual framework, and research agenda

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Abstract: Most micro and small businesses (MSEs) are limited in organizational structure, financial resources, technology, and management strategies. Understanding the aspects that contribute to the mortality of MSEs is important to guide entrepreneurs in the development of strategic actions and to assist government officials. The elaboration of policies that support the creation of new ventures. For this, it is important to know the key factors that contribute to the risk of business mortality. The objective of this research was to understand what are the risk factors for mortality in MSE and how they are related to each other. From a systematic literature review, the state of the art on the topic of business mortality in MSEs was evidenced and risk factors were identified, 106 articles, published from January 2000 to February 2021, were analyzed. The results showed 38 mortality risk factors and highlighted the risks associated with innovative processes, business management and the characteristics of the entrepreneur. A new conceptual model was created based on the results showing the relationships between the dimensions of risk and its critical factors. This study contributes a theoretical basis on corporate mortality and an agenda for future research showing gaps to be explored. These findings also contribute to entrepreneurs prioritizing improvement and training initiatives.

Keywords: Business Mortality, Risk Factors, MSE, Systematic Review, Conceptual Framework, Research Agenda

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1. Introduction

Micro and small enterprises (MSEs) play significant roles in a country's economy as they contribute to the growth of the Gross Domestic Product (GDP), to the generation of jobs, income distribution and socioeconomic development [2,7,28,31,41,44,67]. Furthermore, they favor stability and social equity for the low-income population through entrepreneurship and business formalization [58].

MSEs represent the majority of the total number of companies in most countries [3,41,92] and because of their diversity, they are generally classified: number of employees, annual turnover, and amount of total annual assets [121]. Studies show that most MSEs

are limited in development, working capital, organizational structure, and management strategy [21,48,120]. MSEs are fragile in the initial years of their operation, a period in which entrepreneurs are learning to operate a new business [33]. The time variable impact business mortality rates, as newer ventures show greater chances of failure in the early years [81]. Furthermore, many of these companies are unregulated and need strategic and technological training to avoid business mortality [33,48,65].

Business mortality is defined as the extinction of production factors, with the condition that no other organization is involved in the process, such as in cases of mergers and company restructuring [81]. There is a consensus in the literature that there is no isolated factor that determines the risk of business mortality, but rather a dynamic relationship of internal and external difficulties [42,98].

Factors associated with mortality can be broadly classified into: (a) entrepreneur, which refers to the characteristics of the individual and the lack of previous experience; (b) company or business, which presents the problems in the management of the company, and (c) external environment, where there are difficulties related to the economic context and other factors of a cyclical nature [42,68]. Mahamid [70] presents another classification: (a) managerial factors, (b) financial factors and (c) external factors. The systemic understanding of risk factors is relevant so that other entrepreneurs can overcome similar problems, carrying out planning that reduces the risk of mortality [42]. Literature suggests that business mortality risk factors are related to non-incorporation in business networks [12,59]; the difficulty of accessing financing and loans [20,18,95] and the lack of technological tools [54,82,89,110]. Lack of management experience [49,54] and technical knowledge [14,69] also result in significant business mortality rates.

The importance of understanding the dynamic relationships that influence MSE mortality was based on the gaps observed in the literature. Despite the growth of studies in the area, there is a lack of generality of the findings and several research problems remain nuclear. Ferreira et al. [42] ensure that the level of integration between aspects related to risk is practically inseparable. Gupta and Tripathi [49] add that this topic has potential for future studies, as many factors that should be analyzed to improve the performance of the MSE and help the local economy.

Another important aspect of the theme was that entrepreneurship is a global trend and, in this scenario, MSEs appear, representing the majority of companies worldwide [3,41,92]. Understanding the problems and challenges of MSEs has gained importance at the social, governmental, business, and academic levels [8,49,92,104]. Furthermore, a nation's macroeconomic policies and government attitudes in this regard influence both the failure and success of any endeavor [17]. Roratto et al. [94] add the need to develop instruments that can reduce business mortality and create programs that incorporate accumulated theoretical and empirical knowledge.

Considering the above gaps, the following research questions emerged:

RQ1. What is the state of the art on the subject of business mortality in MSE?

Q1a. What are the factors that contribute to the risk of mortality in MSE?

RQ2. What is the relationship between the factors that contribute to the risk of mortality in MSE?

The main objective of this research was to analyze the determinants of mortality risk in MSE based on the state of the art on the subject. For the development of this study, the method by Confort et al. [34], carried out in ten steps. A conceptual model was developed to identify the relationships between the determinants and a future research agenda. This research brings theoretical and managerial contributions. First, it provides a theoretical basis for business mortality. The analysis revealed the growth of studies on the subject in recent years, highlighting the method of empirical statistics in most of the articles analyzed. It contributes to the identification of future research and gaps to be explored, in segments of interest, with methodologies that bring answers to the sector. Second, it was possible to understand the determinants of mortality risk in MSE and their relationships. A comprehensive analysis of the literature revealed thirty-eight risk factors, which were classified into five key dimensions. These findings contribute to entrepreneurs prioritizing improvement and training initiatives. The results showed a set of critical factors that lead to the risk of mortality, highlighting the risks associated with innovative processes, business management, and the characteristics of the entrepreneur. Third, this article helps policymakers and other stakeholders working in MSE to find knowledge to support the creation of new ventures and business growth.

This study was organized into seven sections. Section 2 described the methodological procedures and steps followed in this systematic review. Section 3 detailed the results of the state-of-the-art literature in the field. Section 4 presented the discussion and implications of the research results, in section 5 the dimensions and sub-dimensions that justified the proposed model, and in section 6 a conceptual model that structured the relationship between mortality risk factors in MSE. Section 7 detailed an agenda for future research and finally, section 8 summarized the findings and limitations of the research.

2. Materials and Methods

This session presented all the steps taken for the systematic literature review. A systematic literature review is a secondary study used to map, critically assess, consolidate and aggregate the results of relevant primary studies about a specific research question or topic [39]. In addition, it identifies gaps to be filled, resulting in a coherent report or synthesis. This study used the review method by Confort et al. [34] structured in 10 steps. In the presentation of the results, a synthesis was carried out, based on the thematic categories of corporate mortality risks, proposed by Ferreira et al. [42] and Machado and Espinha [68].

Step 1. Definition of the research problem: what are the factors that contribute to the risk of mortality in MSE. Step 2. Definition of the objective: to analyze the factors that contribute to the risk of mortality in MSE.

Step 3. Primary sources. The databases used were: Web of Science, Scopus, Science Direct and, Taylor and Francis. The Web of Science was chosen because it is considered the largest scientific database in the world and includes the most cited journals in their

respective areas, Scopus and Taylor and Francis for their academic-level and multidisciplinary information sources, and Science Direct for incorporating the areas of applied Engineering and Social Sciences. Initially, the terms 'business mortality' and 'micro and small business' were researched to verify the expressions cited in other publications. The words related to business mortality were: bankruptcy, business closure, business closure, early mortality, failure, business discontinuity and, failure. And for 'micro and small business' the associated words were: microenterprise, small enterprise, small businesses, small and medium enterprises, MSEs and, SMEs. All terms found were added to the search.

Step 4. Keywords. The combinations presented in step 3 were considered in the analysis of the abstract and title of the article. The keywords searched were: micro and small enterprise, MSE, SME, premature mortality of enterprise, the closing of business, and company bankruptcy. Example of a combination of keywords searched in the databases: ("micro and small enterprise*" OR "MSEs" OR "SMEs") AND ("premature* mortality* of enterprise*") AND ("closing* of business*") AND ("company* bankruptcy*"). Step 5. Definition of the survey period. The period covered is from January 2000 to February 2021. This review started in 2000 because it was found that studies on corporate mortality had more publications from this period onwards, that is, an average of 60 articles were published per year. It is added that from the 60s to the 90s, an average of 6 articles per year were published.

Step 6. Criteria for inclusion and exclusion of articles. After reading the title and abstract verified in step 4, the filters used for selection were: a) studies on critical mortality risk factors in MSE; b) type of document, for which only scientific articles were selected and c) the language of publication, considering articles in English. Duplicate articles and those that did not respond to the problem of this study were excluded. Step 7. Article qualification criteria. The introduction and conclusion of the articles selected in step 6 were read to verify the focus of the research. The number of citations of the article and descriptive and explanatory studies was considered.

Step 8. Methods and tools. The search method included the steps that facilitated learning and filters in the search process. A complete reading of the selected articles was carried out for a better understanding.

Complementing the previous steps, the Systematic Reviews and Meta-Analyses Protocol (PRISMA) was used (Figure 1), which aims to improve the reporting and evaluation of systematic reviews in a given area, making it complete and transparent [76]. This protocol was structured in four stages: identification, selection, eligibility and, inclusion. In the identification, relevant studies were sought, totaling 1,971 articles. In the selection, a double screening was performed. Duplicate articles were excluded (n = 107) and the analysis of titles and abstracts was performed, with articles that did not present a relationship between the search terms being eliminated (n = 949). On eligibility, the studies were read and analyzed in their entirety, and those that did not answer the research question were excluded (n = 838). In the last stage, 77 articles were included. In the end, the Snowball method was applied, capturing 29 articles. This technique was used to select

additional works from early work references [1]. Thus, 29 works were added to 77 articles, totaling 106 articles.

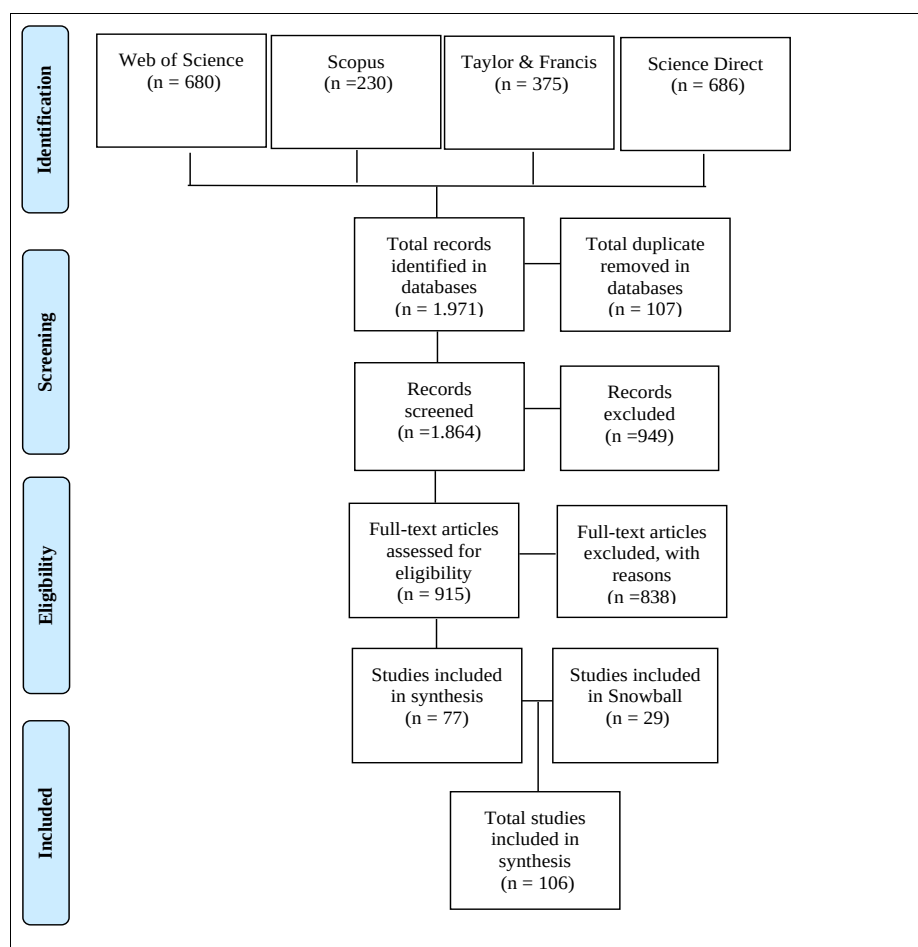


Figure 1. Steps of the PRISMA protocol for systematic literature review

Steps 9 and 10. Processing and output. A spreadsheet with the 106 selected articles was created (Appendix A). In the final step, based on the findings in the literature, a conceptual model was proposed [52,56,66] that organized the existing relationships between the risk determinants found.

3. Results

This session presents the results identified in the 106 studies analyzed.

3.1 Descriptive analysis

The final selection of articles was presented in terms of stratification, publications by year and, by countries.

With the use of keywords, the database with the highest number of relevant studies was Science Direct (n = 686) (Figure 2). After the first and second filtering process, Web of Science stood out for the largest number of selected articles (37 articles). In Filter 1, duplicated articles in the databases were excluded and in Filter 2, the articles were read and analyzed (Figure 2).

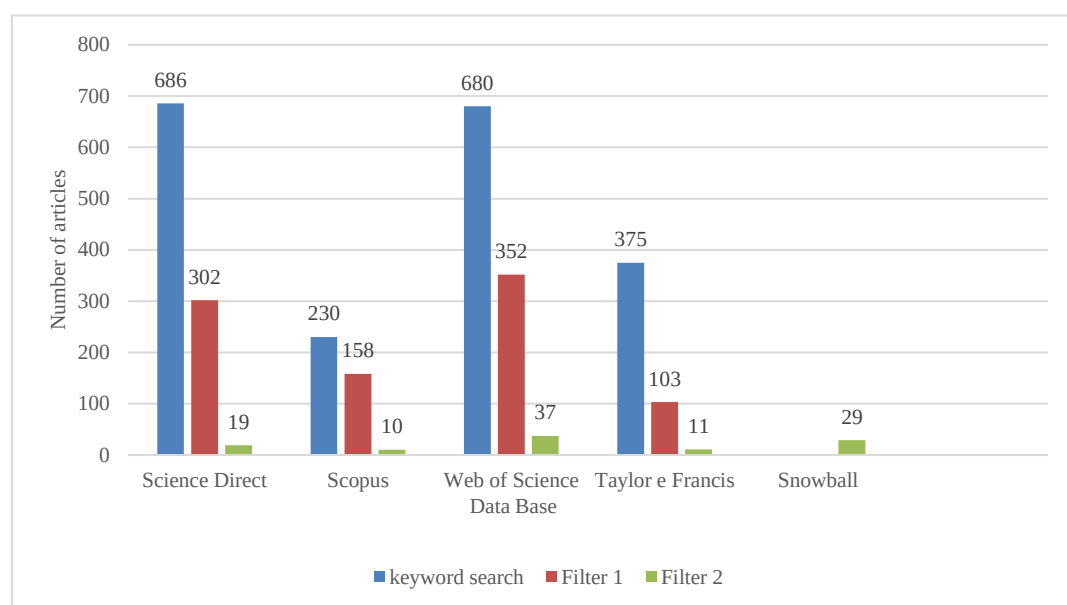


Figure 2. Number of publications by databases and Snowball

In the last ten years (2010–2020) the number of articles published increased that is, from 106 articles, 92 were published in this period (Figure 3). The years with the highest number of articles analyzed were 2019 and 2020, with 16 and 18, respectively.

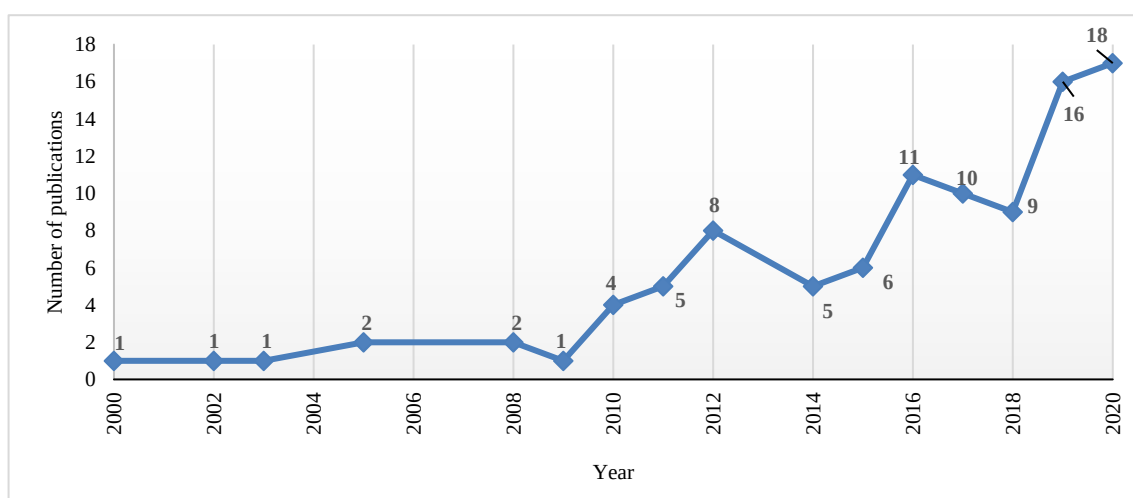


Figure 3. Number of publications per year selected

The articles were published in 19 different countries. The countries that had the highest number of publications were the United Kingdom, Brazil and, the Netherlands, with 39, 18, and 12, respectively. Next was the United States, with eight articles, and India, with seven articles. Despite its relevance, the topic has not been studied in most countries.

The selection of articles was presented in terms of general characteristics, the most productive journals and authors, and the most relevant keywords.

Table 1. General and annual characteristics of selected articles

Year	TP	AU	PG	AU/TP	PG/TP
2000	1	3	9	3.0	9.0

2002	1	3	18	3.0	18.0
2003	1	1	11	1.0	11.0
2005	2	3	27	1.5	13.5
2008	2	3	18	1.5	9.0
2009	1	1	12	1.0	12.0
2010	4	9	64	2.3	16.0
2011	5	14	72	2.8	14.4
2012	8	21	84	2.6	10.5
2014	5	10	43	2.0	8.6
2015	6	20	85	3.3	14.2
2016	11	27	144	2.5	13.1
2017	10	25	147	2.5	14.7
2018	9	29	169	3.2	18.8
2019	14	35	183	2.5	13.1
2020	19	55	289	2.9	15.2

Adapted from Sabour et al. [97]

TP total number of publications; *AU* total number of authors; *PG* page count

Considering Table 1, the total number of publications (TP) increased from one in 2000 to nineteen in 2020. In 2021, the six publications were from January and February, the period of the end of data collection. There was also an increase in the total number of authors (AU) from three in 2000 to fifty five in 2020. The page count in each journal (PG) grew in the period 2016-2020, which justified the concern with the research problem.

We found that the research on the mortality risk of MSE is increasing because entrepreneurship has been a global trend as it is considered a driver for economic growth [2,6,31,57] and a contributor to the creation of jobs and innovations [96]. Therefore, the management of MSE has gained importance at the social, governmental, business and, academic levels [92].

The most productive periodicals were *Procedia – Economics, and Finance*, with seven publications, and *Procedia - Social and Behavioral Sciences*, with four publications, representing 6.6% and 3.7% of the total, respectively (Table 2). Of the ten most productive journals, six were from the United Kingdom (18 publications) and two were from Brazil (4 publications).

Table 2. The ten most productive journals on the topic of this review

Top 10	Journals	TP	Country	%
1	Procedia Economics and Finance	7	Netherlands	6,6
			United	3,7
2	Procedia-Social and Behavioral Sciences	4	Kingdom	
			United	2,8
3	Cogent Business & Management	3	Kingdom	

	United	2,8
4 Journal of Small Business & Entrepreneurship	3 Kingdom	
	United	2,8
5 Journal of Small Business and Enterprise Development	3 Kingdom	
	United	2,8
6 World Development	3 Kingdom	
7 African Journal of Business Management	2 South Africa	1,8
Brazilian Journal of Operations & Production		1,8
8 Management	2 Brazil	
	United	1,8
9 Information Technology for Development	2 Kingdom	
10 Innovation & Management Review	2 Brazil	1,8

TP total number of publications, % percentage of publications in the dataset 217

To present the type of research, the following classification was used: analytical and empirical [112]. Analytical research is divided into three categories: conceptual (theoretical concepts and models); mathematics (mathematical relationships between variables and the behavior of models) and statistics (integration of mathematical and statistical models into a theory). Empirical research was classified into: experimental (examines and controls the relationship between variables to determine their dependency effect), case study (carried out within a limited number of companies with in-depth surveys), and statistics (quantitative studies with empirical data, analyzed from a large number of companies). 218
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Table 3. The evolution of research on business mortality by type of research method 227

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
empirical	experimental												1									
	case study										1		1		1	1	1		1	4	4	2
	statistical			1					2	1	1	4	5			5	9	8	8	9	11	2
analytical	statistical																1	1			1	
	mathematical																					
	conceptual	1		1		2					2	1	1		4			1	1	1	3	2

The results in Table 3 showed that the type of method highlighted was empirical statistical research, revealed in 66 articles (62.3%). The most used methods were the analytical conceptual research, described in twenty articles (18.8%), and the empirical case study, portrayed in sixteen articles (15.1%). The methods that had the least applicability were analytical statistical research (three articles) and empirical experimental research (one article), representing 2.8% and 0.9%, respectively. The empirical research totaled eighty-three articles (78.3%), and sixty-six of these eighty-three studies were of a statistical approach. The analytical research resulted in twenty- 228
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three articles (21.6%), with twenty of these twenty-three studies having a conceptual approach. No article used analytical mathematical research.

The analytical conceptual research was dedicated to exploring aspects related to entrepreneurship [115], characteristics and skills of the entrepreneur [58,71,91,121], company characteristics, management strategies [23,71] and the influence of the external environment on MSEs [121]. The use of technologies such as the Internet of Things and e-business was cited to improve processes [35,84,91]. Marketing practices [24], public policies [69,121], and innovation in products and processes [43] helped in the growth of MSEs.

Machado and Espinha [68] made reflections to understand why MSEs fail and suggested 3 risk categories: entrepreneur, company, and external environment. Abor and Quartey [2] described the characteristics, contributions, and restrictions that exist for MSEs.

Recent research has presented the challenges and impact that were generated in MSEs during the Covid-19 pandemic [8,9,47,51,78]. Nogueira [78] in his study elaborated a proposal for emergency government assistance for the MSE segment, in addition to making a brief analysis of the measures adopted by the government. Akuoko et al. [8] discussed the need for regulations for informal MSEs. The results also showed systematic review studies [31,38]. Chikweche and Bressan [31] addressed the implementation of organizational learning, which addressed the complexities and dynamism of the operating environment. Donner and Escobari [38] reviewed the use of mobile technology in MSE, detailing discoveries and changes in internal and external processes.

In the analytical statistical research, three studies were found. Khan and Shah [60] made a comparison between trained and untrained entrepreneurs to assess the effectiveness of an entrepreneurship development program and the effect on the entrepreneur's performance. Nosratabadi [80] analyzed the effect of a loan program to Iranian companies, between the years 2005 and 2010, on unemployment, based on two different methods of assessing the causal effects. Duda et al. [40] identified the existing barriers to innovation for Polish MSEs.

In the empirical case study, research was presented on the factors that determined the decisions of German MSEs on the adoption of renewable sources [90], obstacles to accessing finance [95], problems faced in management in small businesses in the Philippines [110] and the civil construction sector in the city of Jundiaí [16]. Ratnaningtyas et al. [93] evaluated the entrepreneurial capacity, in the fish industry, in Indonesia, under three dimensions: entrepreneurial, technical, and management skills. Alshami et al. [13] verified what affects sustainability in companies managed by women. Alonso and Kok [12] examined how European MSE owners and managers perceive the success and future of their businesses through semi-structured interviews. Lukiyanto and Wijayaningtyas [67] analyzed the perception of sporting event owners regarding the difficulty of capital in the business and Galvão et al. [44] mapped the process of time and resources to understand the constraints and bottlenecks of a PET broom micro companies. Liberman-Yaconi et al. [65] investigated how Australian micro companies in the IT field make strategic decisions and Pozo et al. [86] analyzed the innovation and applied technology in the context of a sustainable production chain of SME manufacturing metal frames. Rascón and Velázquez [92] investigated the factors that put the continuity of Mexican and

Colombian microenterprises at risk. Bressan and Pedrini [27] examined sustainability-oriented innovation practices among MSEs operating in the tourism and hospitality sector.

Other investigations verified the performance of organizations during and after the pandemic. The study of Amankwah-Amoah [15] was conducted on two Asian airlines and proposed a four-stage approach to renew underperforming organizations. Smart et al. [104] investigated two hotels in Oklahoma and Bartik et al. [21] analyzed how small businesses faced major challenges during the pandemic.

Empirical experimental research was evidenced in the study by Mano et al. [73] who examined the performance of African MSE clusters. The randomized experimental study was carried out in Ghana and showed that external factors and little commercial practice were barriers found in this segment.

Empirical statistical surveys were carried out in private companies and investigated the characteristics of companies and entrepreneurs [32,48,61,88,108,120], customer relations [105], success factors [10,17,75], determinants of business survival [11,33,54,89,101], factors that contributed to the failure [25,42,50,70,98,107] and factors related to the performance of MSEs [19,36,49,55,59,74]. Organizational difficulties in management involving finance were identified [4,18,26,100,102,106,118], environmental sector [5,29,41,64], quality systems [37], supply chain [119], innovation [7,22,28,30,62,63,84,99,109,113,114] and competitive strategies [3,5,20,45,46,72,77,82,87,103,111,116]. Some studies have verified measures of resilience and status of MSEs during the Covid-19 pandemic [79,83].

The techniques for data analysis were: multiple linear regression [3,6,7,18,37,49,55,102,109,119], factor analysis [5,28,72,75,82,83,87,99,108,119], t test [11,59,63,99,119], correlation [49,119,102], analysis of main components [41], analysis of variance [119], descriptive statistics [22,98,102,113], SWOT Analysis [12], logistic regression [4,29,63], cluster analysis [28], structural equation modeling [19,72,99] and survival analysis [30,33].

3.2 Authors, highlighted publications and keywords

Authors who contributed scientifically to the area were from Australia, Ghana, India, and Indonesia (Table 4). The authors with the highest h-indexes were two researchers from Australia and one from India. They quantified the productivity and impact of scholars, based on the most cited articles. In this paper, the h-index from Scopus (update in November/2021) was presented.

Of the total number of authors who published on the topic, eighty-seven authors had two publications and one hundred seventy-nine researchers had 1 publication.

Table 4. The ten main authors and the most published articles on the topic

Top 10	Author	TP	Country	h-index
1	Alessandro Bressan	7	Australia	10
2	Ahmed Agyapong	5	Ghana	7
3	Matthijs Den Besten	4	France	8
4	Abel Duarte Alonso	3	Australia	21
5	Abhishek Tripathi	2	Índia	11

6	Acip Sutardi	2	Indonésia	2
7	Aleksandra Gasior	2	Poland	2
8	Alhassan Iddrisu	2	Ghana	2
9	Anton Mulyono Azis	2	Indonésia	2
10	Bhausahab R. Londhe	2	Índia	3

TP total number of publications

The top ten most-cited authors, according to Scopus data in November/2021, the title of their publication, and the research method used are presented in Table 5. Of the ten most cited publications, four used the conceptual research method and stood out the authors Abor and Quarter [2] and He and Harris [51] for having the highest number of citations in the literature. Of the most cited authors, three published empirical statistical studies, two published empirical case studies, and one author published an empirical experimental article (Table 5).

Table 5. Highlighted publications and citations

Year	Author(s)	Publication Title	Research Method	Citations
2010	Abor and Quartey	Issues in SME development in Ghana and South Africa.	Analytical Conceptual	326
2020	He and Harris	The impact of Covid-19 pandemic on corporate social responsibility and marketing philosophy.	Analytical Conceptual	213
2012	Cruz et al.	Does family employment enhance MSEs performance?: Integrating socioemotional wealth and family embeddedness perspectives.	Empirical Statistical	178
2020	Bartik et al.	The impact of COVID-19 on small business outcomes and expectations	Empirical Case study	168
2011	Gunasekaran et al.	Resilience and competitiveness of small and medium size enterprises: an empirical research	Empirical Statistical	156
2010	Donner and Escobari	A review of evidence on mobile use by micro and small enterprises in developing countries.	Analytical Conceptual	108
2012	Mano et al.	How can micro and small enterprises in Sub-Saharan Africa become more productive? The impacts of experimental basic managerial training	Empirical Experimental	86
2015	Rahayu and Day	Determinant factors of e-commerce adoption by SMEs in developing country: evidence from Indonesia	Empirical Statistical	76

to determination, objectivity, commitment, creativity [14,42,98], and the entrepreneur's profile, includes age, education, income, gender, and so on [3,14,42,49].

Risk Category	Definition	Risk factors	Source
Entrepreneur characteristics risks	It refers to the entrepreneur's profile, technical knowledge, skills, abilities, and experiences.	Profile	[3,14,17,42,49,115,121]
		Personal characteristics	[14,23,42,74,93,98]
		Lack of capacity building and training	[16,49,60,70,73,92,108]
		Lack of technical knowledge	[14,25,26,49,69]
		Management skills and competences	[14,16,24,42,49,69,70,71,74,93,98,110,115]
		Lack of experience in business management	[14,42,49,54,58,98]
		Gender of the entrepreneur	[32,36,88,101]

Table 6. Mortality risk factors related to the entrepreneur

Some authors highlighted the importance of training [49,60,73,108], capacity building [16], and technical knowledge [14,49,60,69]. The increase in qualification, both academic and professional, reduces the possibility of company bankruptcy, as well as is a resource that creates competitive advantages for MSEs [14,69].

The importance of the entrepreneur having previous experience in business management was also mentioned [14,49,54,58].

Another important factor was the development of managerial skills and abilities [14,42,60,69,70,71,98,110,115]. Indicators of entrepreneurial skills include persistence, proactivity, entrepreneurial behavior [49], ability to take risks, orientation to change, commitment, leadership, motivation [14], good communication, critical capacity, and perception of the internal and external environment [93].

Ratnaningtyas et al. [93] pointed out the communication problem. These problems refer to the relationship with customers, suppliers and, employees [16,24,74]. Another factor was that the gender of the leader influences the growth of companies, and it is found that there is a positive relationship in companies led by women [32,36,88,101].

3.3.2 Business management risks.

This category pointed out the company's management problems in everyday actions (Table 7). Among the factors listed were the difficulties in economic and financial management, such as the lack of cash flow control, the lack of financial results analysis, the difficulty in separating the assets, rights, and obligations of the individuals and legal entities, high operating costs and lack of investment [6,11,16,25,26,43,55,67,70,118]. The problems of working capital for operationalization [14,98], debts and insufficient income [25,26,92].

Risk category	Definition	Risk factors	Source
Business management risks	It represents the company's management problems in everyday actions.	Problems in economic and financial management	[2,6,11,14,16,25,26,31,41,43,48,55,67,70,92,98,118,120,121]
		Problems in accounting management	[6,10,14,26,49]
		Lack of legal guidance	[14]
		Sales management issues	[16,17,70,88,121]
		Inventory management problems	[16,19]
		Problems in logistics management	[16]
		Quality management problems	[6,7,50,65,110]
		Problems in purchasing management	[16]
		Problems in strategic management	[6,7,16,45,65]
		Operations management problems	[6,110]
		Problems in personnel management	[6,7,16,74]
		Problems in marketing management	[6,7,50,54,110]
		Lack of strategic planning	[7,14,17,42,44,46,93]
		Difficulty in obtaining credit	[20,49,80,18,61,100,14,63,106,23,58,71,95,54,110,4,102,43]
		High competition	[42,58]
		Failures, underutilization, and lack of information	[49,55,77,91,110,116,119]
		Lack of strategic alliances and cooperation networks	[11,12,54,58,59,62]
		Lack of advertising	[16,43]

Table 7. Mortality risk factors related to the management

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The problems of the lack of accounting management were cited [6,10,14,26,49] and lack of legal guidance [14]. Problems with inventory management, which are related to the discrepancy between the real and theoretical [16] and the purchase of lots, optimize the gains resulting from the volumes

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purchased without causing an imbalance in the finance [19]. In logistics, the problems of contracts with customers for deliveries were pointed out, followed by the definition of more economical routes and the difficulty to guarantee the quality and balance of products during transport [16].

In purchasing management, the difficulty was related to minimum purchase lots, as large suppliers often impose this condition [16]. In strategic management, the volatility of the sector proved to be a difficulty due to economic changes [5,6,16,45,65]. It is important to pay attention to differentiation strategies, with an emphasis on management quality, innovation, business marketing, and cost leadership [7,50,65,110].

The problems with operations management proved to be a challenge, as it is with quality management [6,110], human resources [6,7,16,74] and marketing [6,7,50,54,110]. Anholon et al. [16] added the problems with sales where difficulties are found in setting goals, managing and monitoring the activities of sales teams, and achieving customer loyalty.

The absence of strategic planning and the existence of failures were incorporated into management problems as elements of mortality risk [7,14,42,44,46,93].

Another factor was the difficulty in accessing financial services, for loans and financing [14,18,20,23,49,54,61,63,71,100,110]. Another problem encountered by Fielden et al. [43] was obtaining credit from suppliers.

The difficulty in obtaining credit, which occurs due to the lack of working capital for the development of operations, was another mentioned problem. One of the barriers to accessing credit is the appearance of restrictions, such as the company's owner and the characteristics of the company (lack of guarantees and arrears) [4]. Other obstacles were the financial cost of using these services, with high-interest rates in operations and bureaucracy that impact the growth, job creation, and development of MSEs [18,80,95,102,106]. In this regard, some countries have special credit lines for SMEs because they understand the importance of this segment for economic development. These credit lines have lower interest rates and fees, longer grace periods, and quick analysis, and can be used for investments or working capital.

Competition must be constantly observed by the entrepreneur [42,58]. Knowing the strengths and weaknesses of competitors is important for strategic planning [58].

The flaws and the lack of information are other problems with informal and personal sources being the most used [49,110], and not those based on the market [77]. According to Vera [110], this results in structural and institutional barriers and demonstrates the limited ability of entrepreneurs to evaluate the environment and access specific information. Woida [116] adds that information is also underutilized, and many customer and external reports are not used to improve or innovate products, services, and processes. Besides if companies had information on what, when, and to whom sell their products/services, it would help not only in the survival of the business but also in their performance [91,119].

It was identified that the lack of commercial networks between entrepreneurs, the government, financial institutions, and other commercial associations has a negative influence on the survival of companies [54,58]. Cooperation and the formation of strategic alliances are essential, becoming a determining factor between success and failure [11,12,59]. Companies involved in inter-organizational cooperation present an exchange of knowledge between agents (suppliers, producers, consumers,

industry associations, cooperatives, event organizers, festivals, fairs, and tourism), the community and private information to expand learning [11,62].

The lack of advertising (when and how it should be done) was also seen as a problem since the unavailability of financial resources for this purpose affects business continuity [16,43].

It is common for entrepreneurs not to view advertising and advertising expenditures as an investment and therefore place it as a low priority. Anholon et al. [16] added that companies often have difficulty in defining the exact customer to be reached by the advertising.

3.3.3 Risks linked to lack of innovation in the business.

The factors in this category were related to the lack of investment in innovation for the development of products, services, and processes in MSEs (Table 8).

Risk category	Definition	Risk factors	Source
Risks linked to lack of innovation in the business	It refers to the lack of investment in innovation for the development of products, services, and processes in companies.	Lack of innovation in the development of products, services, and processes	[6,7,14,22,28,30,37,40,42,75,86,90,93,99,105,109,111,113]
		Lack of technologies	[17,24,35,38,54,72,75,82,84,85,87;89,110]
		Lack of sustainable environmental policies and practices	[13,27,29,64]
		Absence of corporate social responsibility	[103]

Table 8. Mortality risk factors related to the Innovation

The lack of investment in innovation was considered a relevant factor to the risk of mortality in MSE [6,7,14,28,42,75,90,93,105]. Pozo et al. [86] was found that one of the requirements to obtain results was to optimize available resources, in this way, there will be more investments in innovation for the production of goods and provision of services. The productivity improvement comes from investment in technology, incorporated into the production structure and the employee training and education process [86].

Innovative organizations have a higher survival rate when they present a diversified portfolio [30,99,114]. De Paulla and Hamza [37] pointed out that any organization that seeks to innovate must be proactive, overcome market demands, and manage the quality of products and services. The company's ability to incorporate external and internal knowledge, tacit or explicit, is an asset for a successful strategy [22,40,109,113]. For Vorkapić et al. [111], the sources of ideas for the development of new products and services can come from competitors, customers, employees, participation in fairs or exhibitions.

It was identified that the use of technology and e-commerce strategies were an advantage for MSE [89,54,110,85]. For Corner et al. [35] the use of an electronic website and its resources, such as product information, company data, sales, payments, and online purchases, add value to products and services.

The use of telephony, mobile applications, and social networks, strongly influence the ability to seek new business opportunities, in addition to expanding the communication, marketing, and search processes for existing information [24,82,84]. Donner and Escobari [38] mentioned that MSEs become competitive to serve a society that is increasingly demanding and operating in different virtual channels, but for this to happen, barriers of lack of knowledge, trust, and credibility must be broken by organizations.

Another point that had a positive relationship with an organization's survival was the investment in information technology (IT) [72,75]. Quelhas [87] added that a large number of micro and small entrepreneurs are not familiar with the potential of IT and therefore have doubts about how beneficial IT investments are for an enterprise.

Another important element was the lack of incentives for sustainable environmental policies and practices of MSEs. Due to the demands of the community and the market, the adoption of these practices, combined with innovation and applied in strategic actions, result in benefits for the company as they seek to minimize the socio-environmental impact that were generated [27,29,64]. Alshami et al. [13] added that the lack of product diversity and little flexibility in the implementation process are causes that affect the practice of sustainability.

With the adoption of environmental practices, companies revealed their commitment and corporate social responsibility (CSR) to society, causing a positive impact in the field of their activity [103].

3.3.4 Risks associated with customers difficulties.

Difficulty in attracting and retaining customers was found [16,42,43,98] (Table 9).

Customers are the key to the success of any business. Every enterprise, before opening, should know its target audience, discover their needs, preferences, and perceptions. Also, retaining existing customers is as important as winning new customers. This retention is linked to covering the competition's values and exceeding customers' expectations with a regard to the quality of products and services offered [16].

Risk category	Definition	Risk factors	Source
Risks associated with customers difficulties	It represents the difficulty of MSEs to win new customers and retain existing ones.	Difficulty in winning customers	[42,98]
		Difficulties in retaining customers	[16,42,43]
		Inadequate location	[4,16,49,98]
		Lack of adequacy and accessibility in the infrastructure	[4,49,107]

Table 9. Mortality risk factors related to the customers

Another element was the location of the company, which must be accessible for the flow of customers [4,49,98]. Anholon et al. [16] highlighted two points that must be observed before defining the location of a business, which are: the target audience, which are potential consumers and their preferences, and the competition, to see what can be improved or updated. The

adequacy and accessibility of infrastructure at the commercial point of the establishment are of paramount importance [4,49,107].

3.3.5 Risks by the influence of external factors.

External aspects were the problems that the entrepreneur has no control over (Table 10), such as the economic and financial crises of a country [16,17,25,33,55,70,98], the high tax burden [25,16,55,70,98], environmental disasters [70], the lack of public policies to support specific sectors [17,58,121], and the Covid-19 pandemic [8,15,21,47,78,79,83,104].

Risk category	Definition	Risk factors	Source
Risks by the influence of external factors	It refers to externalities, that is, problems over which the entrepreneur has no control.	Economic and financial crises	[25,33,16,98,70,55,17]
		High tax burden	[25,16,98,70,55]
		Environmental disasters	[70]
		Lack of public policies	[17,58,121]
		Covid-19 Pandemic	[8,9,15,21,47,51,78,79,83,104]

Table 10. Mortality risk factors related to the External Factors

The Covid-19 pandemic was the most prominent external factor and it is a new situation, with an unknown time duration [51]. It appeared in December 2019 and, as a result of this scenario, some countries had to close their borders and many companies were forced to suspend their activities. This context resulted in a worldwide economic crisis and, consequently, individuals and organizations were affected, mainly micro and small entrepreneurs.

World Health Organization [WHO] [117] pointed out that with the emergence of this crisis, it becomes difficult to plan for the future due to the uncertainties and concerns that originated both in health and the economy. However, depending on the type of sector, this crisis represents an opportunity in business [9,104].

Regarding urgent governmental measures to combat the pandemic crisis, emergency funds were mentioned, which were established to serve small businesses, such as longer grace periods and reduced interest rates to help companies preserve jobs, supporting families against income reductions [53]. It was found that MSEs are seeking strategic actions to contain the risk of mortality through training, innovation, the development of new products or services, and the implementation of new technologies. Strategic positioning was important in this period for the company to continue competing in the market and to be able to benefit's customers.

4 Discussion

This article aimed to understand what are the risk factors for mortality in MSE and how they are related to each other. In summary, it was found that studies on business mortality expanded from 2016 onwards (Figure 3). The articles published also explored the themes of survival, failure, and growth of MSE. In the years 2019 and 2020 the number of publications grew and this is explained by the fact that entrepreneurship is a global trend, a driver of economic

growth [2,6,31,57] and a contributor to job creation and innovation [96]. Thus, the management of MSEs gained importance at the social, governmental, business, and academic levels [92]. The increase in 2020 is also explained by the impact that the Covid-19 pandemic had on MSEs and with that, most of the work developed was based on the effect that this crisis had on this segment.

Findings in the existing literature show that there is still much to be explored about mortality in MSE and, given this, Gupta and Tripathi [49] add that this topic has potential for future studies, as there are many factors that should be analyzed to improve performance. MSEs and help the local economy, generating sufficient income.

In publications by type of research, and evolution was observed over the last few years in empirical statistical research (Table 3). For the development of these surveys, questionnaires and statistical techniques were applied. The most used techniques were linear regression and factor analysis. Păunescu and Mátyus [83] explain that the use of factor analysis allows the identification of factors that explain the correlation within a set of observed mortality risk factors and linear regression determines which variable has the greatest impact on mortality risk.

The case study methodology was evaluated in private companies (Table 3). The studies analyzed barriers and challenges in different industries and business sectors. Works were also carried out investigating the survival and success of these companies.

Analytical conceptual studies continue to progress in publications (Table 3). Discussions about the importance of MSEs for economic development where it operates were highlighted and brought reflections on what contributes to the non-closure of these organizations. Roratto et al. [94] added the need to develop instruments that can reduce corporate mortality and create programs that incorporate accumulated theoretical and empirical knowledge. The results regarding the relationship between the dimensions and sub-dimensions that contribute to the mortality risk of MSEs were discussed in detail in the next sections.

5 Relationship between dimensions and subdimensions of mortality risks in MSEs

The first dimension emphasized the risks linked to the entrepreneur, presented in section 3.3.1. In this category, it was evidenced that training and qualification must be constant, as they allow the entrepreneur to be updated in their area of expertise, implementing new techniques in the company's operations to solve problems and make internal processes efficient. Training leads to technical knowledge, which helps the entrepreneur in decision-making based on knowledge and not on intuition. Entrepreneurship involves many challenges, knowledge helps entrepreneurs face daily difficulties and develop their tasks with quality and efficiency.

Managerial practices are linked to experience in business management, which allows the entrepreneur to know and have control over what happens in the company, making it possible to detect bottlenecks, failures, and opportunities for improvement. The skills and abilities of entrepreneur must be improved and expanded. These skills refer to your characteristics and attitudes, your strengths and weaknesses, which will interfere with the company's performance. Skill development allows the entrepreneur to reach their goals and smartly finish their projects.

The second dimension was associated with managing risks in the company, presented in section 3.3.2. Many articles focused on identifying and analyzing problems related to the

company's day-to-day activities and because of this, every entrepreneur before opening a company should research the market, the target audience, and the competition to make good decisions. It is important to prepare a business plan for the company to develop and succeed. The business plan identifies the strengths, weaknesses, opportunities, and threats of a company, in addition to presenting and achieving its previous activities, objectives, and goals. Management covers all areas of the company and seeks to analyze and solve problems, organize finances, motivate employees, and control the internal environment. Many entrepreneurs close their establishments because they manage their companies based on the excitement of having a business, without knowing the environment in which they operate, and for not knowing about management, marketing, sales, strategy, operations, and so on.

Another important point is the difficulty in obtaining credit, which occurs due to the lack of working capital that MSEs do not have for the development of operations. This results in the search for credit in financial institutions that charge high interest and fees. In obtaining credit, the evaluation barrier for its release appears, as the process is bureaucratic and often results in denial of credit due to the restrictions of the system (insufficient income, debt in arrears, lack of documents and guarantees, personal and business documents with restrictions, etc.). Some countries have special credit lines for MSEs because they understand the importance of this segment for economic development. These credit lines have lower interest rates and fees, longer grace periods and quick analysis, and can be used for investments or working capital.

The third dimension was innovation, presented in section 3.3.3. The innovation, in many cases, is not applied in the organization due to the lack of tools for its implementation. Innovation adds value to the company's products/services, making them a competitive advantage. The use of technology results in benefits for the company and the customer. The companies that do not change in the face of technological advances will not be able to continue their activities. Environmental practices improve the company's image, in addition to minimizing the business impact on the environment.

The fourth dimension consisted of the customer, shown in section 3.3.4. Findings show that in a globalized and competitive market, it is important that companies know their consumers to create bonds, interacting and satisfying their needs. Competition is presented not only by physical stores but also by virtual ones and that is why it is essential to please the customer with differentiated products and/or services that fit their wishes. The customer is the bedrock to a company's growth. A dissatisfied customer can propagate negative comments about the company, which are disseminated on social networks, by the media, and by direct contact, harming the company's image. To win and retain customers is important to exceed their expectations, announcing a better price than the competition, offering innovative and quality products and/or services, providing good service, offering training for sales staff to better know their customers, products, and/or services that are being commercialized, solve customer problems quickly, and value old customers via discounts, loyalty programs, bonuses, etc.

The fifth dimension was external factors, presented in section 3.3.5. Findings show the external factors influence the operations of the company. These factors demand changes in processes and quick and intelligent decision-making to minimize the effects of a crisis. External elements that interfere are high-interest rates, which end up making it difficult to repay loans

and financing, inflation, which increases the value of production inputs, and unemployment, which affects consumer demand for products and services. The importance of public policies to support small businesses and support the creation of ventures for socioeconomic development is highlighted.

The Covid-19 pandemic revealed an unexpected and unknown situation, making difficult future planning due to the uncertainties that arose. However, these uncertainties and threats must be considered by managers to take advantage of business opportunities and, for that, strategic positioning is necessary, both for micro and small, as well as for medium and large enterprises. In sum, the classification of these dimensions allowed the development of a conceptual model, aimed at the risk of mortality in MSEs. The model consolidated the results obtained and allows for an understanding of the interdependence between the factors.

5.1 Main dimensions and subdimensions

The dimensions that stood out by the number of sub-dimensions (risk factors) were: Management, Entrepreneur, and Innovation (Appendix B).

In the Entrepreneur dimension, the sub-dimension with the highest frequency of citations was 'management skills and abilities, in Management it was 'problems in economic and financial management', in Innovation, 'the lack of innovation in the development of products, services, and processes, in Clients, 'inadequate location' and, finally, in External factors, the 'Covid-19 pandemic' (Table 10).

Table 10. Classification and citation frequency of mortality risk factors in MSE

Dimensions	Subdimensions	Frequency
Entrepreneur	Management skills and competences	5.4%
Entrepreneur	Lack of capacity building and training	3.1%
Management	Problems in economic and financial management	8.6%
Management	Difficulty in obtaining credit	8.2%
Innovation	Lack of innovation in the development of products, services, and processes	8.2%
Innovation	Lack of Technologies	5.9%
Customers	Inadequate location	1.8%
Customers	Difficulties in retaining customers	1.3%
Customers	Lack of adequacy and accessibility in the infrastructure	1.3%
External Factors	Covid-19 Pandemic	4.5%
External Factors	Economic and financial crises	3.1%

It was found that MSE managers should consider all identified sub-dimensions, but it is essential to pay attention to the sub-dimensions classified in the entrepreneur, management, and innovation dimensions (Table 10). In the entrepreneurial dimension, the importance of improving skills and competencies was observed, which will reflect on the company's productivity. In the management dimension, it is essential that the entrepreneur must know all the necessary and available tools for good business performance. In the innovation dimension,

it was found that many companies do not innovate in technology, products, services, and processes due to a lack of knowledge about the available tools and also because they are not open to change.

The sub-dimensions that appeared most frequently, in general, were: 'problems in economic-financial management', 'difficulty in obtaining credit', and 'lack of innovation in the development of products, services and, processes' (Table 10). These factors fall into two categories that stand out, namely: Innovation and Management.

The high percentage in the sub-dimension associated with innovation showed that entrepreneurs should invest in their business, in tools that help them to implement technologies and create new products, services, and organizational processes that add value. Innovation is a differential against the competition, and as a result, MSEs increase revenues, profits, conquer new markets, and reduce production costs.

The management-related sub-dimensions confirmed the lack of public policy incentives and support for MSEs, making the process of obtaining credit for working capital difficult. Entrepreneurs should better control their financial operations, using mechanisms that help them in decision-making, such as financial planning, spreadsheets to monitor daily expenses, cash flow monitoring, cost and expense control, separation of the person's expenses individual (entrepreneur) and legal entity (company), advising an accountant to solve economic-financial and accounting doubts, analysis of accounting reports, among others.

6 Conceptual model of mortality risk in MSE

Findings from thematic areas found in the literature review allowed to elaborate a conceptual model for mortality risk analysis in MSE (Figure 5). The functions of the model are a) to contribute as a qualitative synthesis of the results obtained in the last 20 years of research on mortality risk in MSE and b) to help entrepreneurs, governments, and educational institutions to develop support and development strategies. The model was presented in its dimensions, sub-dimensions, and their interrelationships.

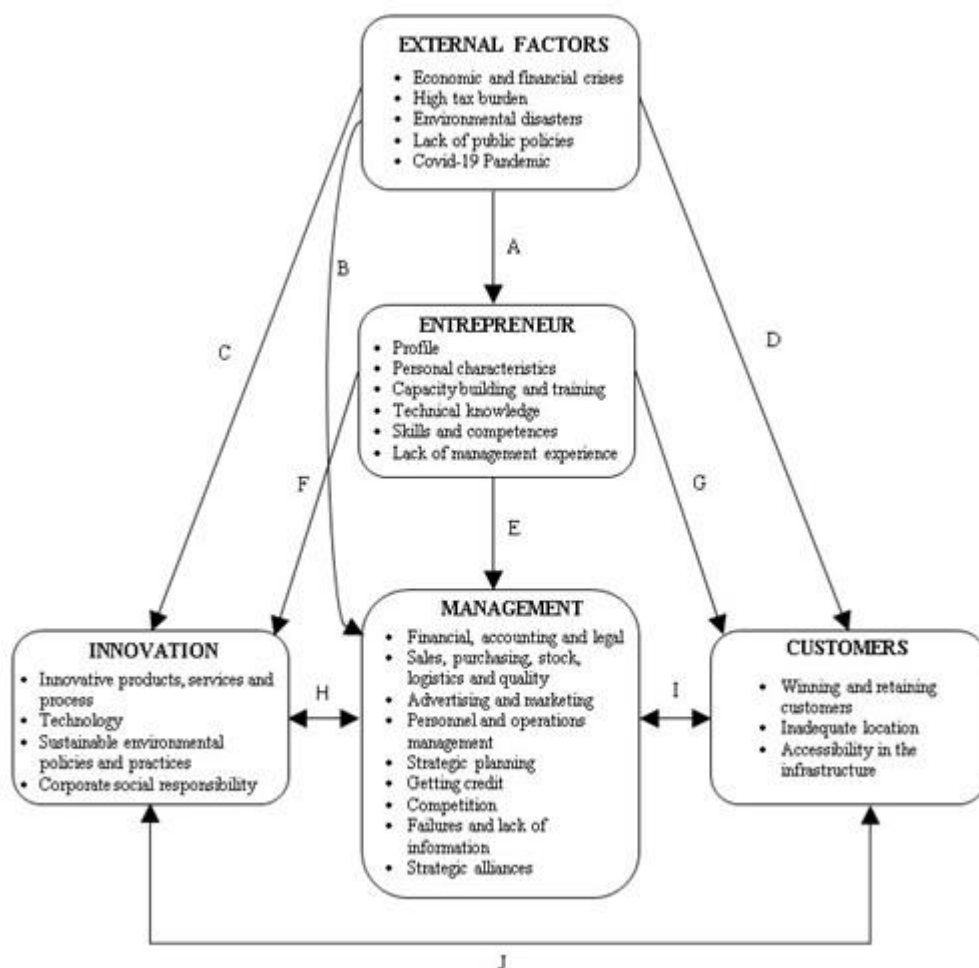


Figure 5. Conceptual model of mortality risk in MSE

The determining relationships were classified into five dimensions: External factors, Entrepreneur, Management, Innovation, and Customers (Figure 5). The analysis of these relationships between dimensions, and their determinants allowed for in-depth knowledge about the mechanisms that contribute to the risk of mortality in MSEs. The model pointed out the direction of influence between dimensions. The direction of the arrows represented unidirectional (one way) or multidirectional (multiple directions) relationships. It was identified that external factors have a unidirectional causal relationship with the other dimensions (A, B, C, D) due to their impact on the activities and sectors of MSEs. Entrepreneurs are influenced by external factors and their decisions affect management activities (E), investment in innovation (F) and customer behavior (G), thus presenting a unidirectional relationship. Considering the perspectives of management, innovation and customers, a multidirectional relationship was found. In-depth discussions of the model are presented in the next section.

6.1. Multidimensional relationship

The conceptual model presented the interrelationships between the five main dimensions. A change in one dimension may impact other dimensions. Presenting these relationships by, it is expected that researchers, students, industry professionals and

entrepreneurs can have a broader view of the risk of mortality in MSE. First, there is the dimension of external forces that affect the entrepreneur in his actions and decisions in MSE (A). Business management is influenced by external factors in its daily operations and organizational processes (B).

In the relationship of external factors with innovation, it was found that to invest in innovative products and/or services the company must have available resources [86], and for that, government support is essential (C). There are other types of investments that need resources, such as technology, acquisition of machinery and equipment, and modernization of the company [35,54,85,89,110]. The government supports the enterprises through lines of credit from financial institutions, offering reduced interest rates and a grace period for payment. Therefore, micro and small entrepreneurs need to know the sources of fundraising and existing economic subsidy projects. Public policies to support the sector and emergency measures in times of crisis help in the creation and development of projects.

The relationship of external factors with customers occurs when their purchasing power is affected, for example, unemployment and inflation cause a reduction in demand for products and services (D).

In second place comes the entrepreneurial dimension, which is related to the dimensions of management, innovation, and customers. Entrepreneurs are responsible for the company and all their decisions are based on their entrepreneurial characteristics [92], skills, and abilities (E). The MSE depends on the entrepreneur's performance, its performance influences performance, survival, or mortality [42]. Among the skills, the following stand out: persistence, proactivity [49], leadership, motivation, communication, critical capacity, perception [14,93], resilience, and flexibility. Developing skills and competencies means discovering qualities and potential that will help achieve the planned goals. The entrepreneur needs to be aware of changes in the market to identify business opportunities [9]. The development of strategic planning, process mapping, cost and expense control, resource and working capital optimization can collaborate to reduce failures and improve management [7,14,42,44,46,93]. The lack of entrepreneurial characteristics, management experience, and technical knowledge of the entrepreneur end up negatively affecting the management of MSEs.

The entrepreneur's actions regarding innovation are essential for the company to be able to position itself in the market (F). Investing in innovative products and services and technology is a competitive advantage [35,38,54,85,89,110]. Many entrepreneurs do not innovate because they do not know the existing tools and for fear of change. Therefore, the entrepreneur needs to be up to date in his field of activity, participating in qualification and training that will result in technical knowledge. The existing dynamic relationship of the entrepreneur with customers, on the other hand, concerns the development of strategies to attract and retain consumers (G) [16,42,43,98]. The entrepreneur must know his consumer, seeking to meet their needs and satisfy their desires. The tools used to conquer this target audience are training with sales personnel, so that salespeople get to know the company's product, excellence in customer service, dissemination of products

and services over the internet, through applications, networks social and advertising campaigns, adequate planning to achieve goals and objectives, a good relationship with the supplier so that there is no shortage of products in stock, and the launch of products with quality, prices, and attractive payment terms.

In third place are the interrelated dimensions, which are: innovation, management, and customers. Innovation is interrelated with management, as innovation in products, services, and processes is the result of a set of strategic actions by managers to improve competitiveness (H). Innovation interrelates with customers as it represents a differential when choosing a product (J). Customers are more demanding in the quality of products and/or services, in quick solutions, and the use of digital tools, such as websites, applications, internet sales, and social networks. In the interrelationship of management with customers, the important thing is to seek information about customer needs to retain them, as well as to win new customers (I) [16]. It is essential to invest in points of sale that are used by consumers and that are bringing revenue to the company. The satisfied customer discloses this information and this results in new consumers.

7 Future Research Agenda

The research gaps mentioned in the analyzed studies were organized into themes and sub-themes, with research questions that need further investigation in the area. Thus, the agenda is current and offers suggestions for future work (Table 11).

Table 11. Agenda and suggestions for future research on the risk of mortality in MSE

Topic	Subtopic	Relevant future research questions
Entrepreneur Profile	Entrepreneur profile and continuity of MSEs	How the profile of the entrepreneur can affect the continuity of MSEs? (Rascón and Velázquez, 2019)
Sustainability	Challenges of women microentrepreneurs	What are the critical factors that impede and consolidate the sustainability of MSEs led by women entrepreneurs? (Alshami et al., 2019)
	Sustainable business models	What are the appropriate and viable methods for designing sustainable business models in MSE? (Gregurec et al., 2021)
	MSE Performance	How the performance of MSEs located in developed countries and MSEs located in developing countries is presented and what are the existing gaps for business survival? (Gupta e Tripathi, 2020)
	Implementation of new technologies	How the sectors in which MSEs operate in the implementation of new technologies? (Gregurec et al., 2021)

Innovation	Innovation and geographic location	What are the factors that determine innovation in MSE based on geographic location? (Walter et al., 2019)
	Barriers to innovation in MSEs	What are the crucial impediments to innovation in MSEs belonging to developing countries, with regard to the bureaucratic barriers of Doruk and Söylemezoglu (2014)? (Walter et al., 2019)
	Benefits of information technology for MSEs	How MSEs behave before and after IT investments, from the point of view of evolution in organizational performance? (Quelhas, 2019)
Covid-19 pandemic	Impact of the pandemic on informal MSEs	What is the impact of the pandemic on informal MSEs and government plans for support during the crisis period? (Akuoko et al., 2020)
	CRS in the post-coronavirus period	What are the opportunities and challenges for corporate social responsibility (CSR) in the long term post-coronavirus? (He e Harris, 2020)
	Employees' perspectives in facing the crisis	What are the perspectives of employees at MSEs, with regard to operations and strategies to face the Coronavirus crisis? (Smart et al., 2021)

The first theme was related to the entrepreneur, where it was suggested to analyze how the entrepreneur's profile can affect the continuity of the company. The profile is the entrepreneur's characteristics, such as gender, age, education, marital status, among others. The second theme was linked to sustainability, which recommended a study with women entrepreneurs to explore the critical factors that impede the sustainability of MSEs. Entrepreneurship activities have been recognized as a channel to unite gender, showing a gap for inequality [13]. Another research mentioned was on the redefinition of sustainable business models. With the impact of the pandemic, it is essential to develop skills, improve professionals, seek business opportunities and implement technologies within business models [47]. The other proposal was to verify the performance of MSEs inserted in developed and developing countries. The idea is to compare the MSEs in the two scenarios and find gaps that can be used to avoid business mortality.

The third theme was about innovation. Walter et al. [113] visualized the need to identify the factors that determine innovation, taking into account the geographic location of MSEs. The purpose is to verify if there are differences in factors when considering Local Innovation Systems. Another study pointed out was to investigate the bureaucratic side of innovative policies (costs and startup procedures), as the main impediments to innovation [114]. Bureaucratic barriers were proposed by Doruk and Söylemezoglu (2014), in their study of restrictions on innovation in developing countries. Another recommendation was to evaluate the performance of MSEs before and after IT investments, verifying the benefits of IT to avoid the risk of business mortality.

The fourth theme was linked to the pandemic to gain a better understanding of the effects of this crisis on formal and informal companies. Informal workers refer, for example, to

street vendors and traders in open spaces, which were some of the most affected in the informal sector [8]. The concern to investigate the employees perspective was verified, and not only the entrepreneur's vision to face the pandemic. Employees have a lot to contribute in terms of operations and strategies, as they are on the front lines, in contact with the customer, in organizations. CSR represents the cooperation of companies for sustainable development, so it is important to identify the challenges and opportunities in the long term post-pandemic.

The most urgent research questions were related to the pandemic. The theme is current and contributes to the literature on coping strategies, where business survival is fundamental. The topic involving informal MSEs was proposed by Akuoko et al. [8] on the argument that 'informality is an integral part of urban life and, therefore, the informal economic sector needs to be integrated and managed to reduce the socioeconomic impact of the pandemic'. For the authors, the pandemic showed the abandonment of the informal economy by the public sector. If these workers were informality, they would have social security and would not resist distancing and lockdown. Another highlighted future study was proposed by Smart et al. [104] 'to include in the discussion of strategies to fight the pandemic, not only senior management but also employees and intermediate management, thus offering a comprehensive view of operations.

8 Conclusions

This study aimed to analyze the factors that determine the risk of mortality in MSE and to verify the state of the art on the topic of business mortality. From a systematic literature review, a list of determinants of mortality risk was drawn up, and a conceptual model was drawn up showing the relationships between the dimensions of risk and its critical determinants. 106 published articles were analyzed and the results showed 38 risk factors for mortality. The identified risk dimensions were: Entrepreneur, Management, Innovation, Customers, and External Factors. In the Entrepreneur dimension, the most frequently cited factor was 'management skills and abilities'; in Management, 'problems in economic and financial management'; in Innovation, 'the lack of innovation in the development of products, services, and processes'; in Customers, 'inadequate location' and in External Factors, 'Covid-19 pandemic crisis'.

The dimensions that stood out the most by the number of risk determinants were: Management, Entrepreneur, and Innovation. In 'Entrepreneur' is important of improving skills and competencies which, will reflect on the organization's productivity. In management, the entrepreneur must know all the necessary and available tools for good business performance and reduction of failures while improving management. Through innovation, products and services are created to serve consumers, and organizational processes are streamlined to improve business productivity.

The Covid-19 pandemic was the most frequently mentioned external factor and represents an unexpected situation with an unknown duration for businesses. However, these uncertainties and threats must be considered by the managers to take advantage of new business opportunities, and, for that, strategic positioning is necessary, both for micro and small as well as for medium and large enterprises.

This research helps entrepreneurs to identify their weaknesses and look for mechanisms to help in the elaboration of strategic actions and in directing investments for the company. Also, our findings can guide government officials in the elaboration of public policies that support MSEs in innovative projects, in facilitating access to credit for working capital and investments, in reducing informality, and in providing support in creating new ventures. At the academic level, this investigation will help in the formation of entrepreneurs, identifying their difficulties, thus offering assistance for personal and business training. It is also academically relevant in the development of scientific research in specific segments using methodologies that bring answers to the sector.

Finally, it stands out that successful entrepreneurs are those who have their skills developed and who make their decisions based on knowledge and not intuition, who are always attentive to the operations of the internal environment and the trends and changes in the external environment, seeking to detect and transform problems into possible business opportunities.

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APPENDIX A. Works selected for systematic review

ID	Journal	Source
1	Africa Journal of Management	Acquaah and Agyapong (2015)
2	African Development Review	Ishengoma and. Kappel. (2011)
3	African Journal of Business Management	Fatoki and Garwe (2010)

4	African Journal of Business Management	Simeyo et al. (2011)
5	African Journal of Information Systems	Perekwa et al. (2016)
6	Applied Economics	Laguir and Den Besten (2016)
7	Asian Economic Policy Review	Kurosaki (2019)
8	Brazilian Journal of Operations and Production Management	Anholon et al. (2015)
9	Brazilian Journal of Operations and Production Management	Braga (2018)
10	Brazilian Journal of Public Administration	Nogueira et al. (2020)
11	Cogent Business and Management	Agyapong et al. (2017)
12	Cogent Business and Management	Atnafu and Balda (2018)
13	Cogent Business and Management	Pozo et al. (2019)
14	Cuadernos de Administración	Marques et al. (2019)
15	Development Southern Africa	Chirwa (2008)
16	Economia	Conceição et al. (2018)
17	Economic Journal of Emerging Markets	Sulistya and Darwanto (2016)
18	Economics Bulletin	Laguir et al. (2017)
19	Engineering, Construction and Architectural Management	Mahamid (2012)
20	European Business Review	Alonso and Kok. (2020)
21	Evaluation and Program Planning	Cardoso et al. (2020)
22	FIIB Business Review	Alon et al. (2020)
23	Gestão e Desenvolvimento	De Paulla and Hamza (2015)
24	Gestão e Produção	Ferreira et al. (2012).
25	Global Business Review	Kazungu (2020)
26	Heliyon	Lukiyanto and Wijyaningtyas (2020)
27	Holos	Walter et al. (2019)
28	Ieee Latin America Transactions	Willerdig et al. (2012)
29	Independent Journal of Management and Production - IJM&P	Galvão et al. (2020)
30	Information Development	Malaquias and Hwang (2016)
31	Information Technology for Development	Moyi (2003)
32	Information Technology for Development	Owoseni and Twinomurinzi (2020)
35	Innovation and Development	Quiroz-Rojas and Teruel (2020)

33	Innovation and Management Review	Berne et al. (2019)
34	Innovation and Management Review	Vasconcelo and Oliveira (2018)
36	International Business Review	Pezderka and Sinkovic (2011)
37	International Business Review	Amankwah-Amoah et al.(2021)
38	International Journal of Business and Society	Ya'kob and Jusoh (2016)
39	International Journal of Engineering and Technology	Ratnaningtyas et al. (2018)
40	International Journal of Entrepreneurial Behavior and Research	Atiase et al. (2019)
41	International Journal of Hospitality Management	Smart et al. (2021)
42	International Journal of Innovation	Alvarenga (2016)
43	International Journal of Innovative Technology and Exploring Engineering	Ramgir (2019)
44	International Journal of Production Research	Gunasekaran et al. (2011)
45	International Journal of Recent Technology and Engineering	Alshami et al. (2019)
46	International Journal of Scientific and Technology Research	Hadiyati. and Lukiyanto,(2019)
47	International Journal of Technology and Human Interaction	Chege et al. (2020)
48	International Journal of Wine Business Research	Alonso and Bressan (2016)
49	International Research Journal of Finance and Economics	Abor and Quartey (2010)
50	International Review of Applied Economics	Aga and Reilly (2011)
51	Journal of African Business	Agyapong et al. (2019)
52	Journal of Business Management Studies	Gupta and Tripathi (2020)
53	Journal of Business Research	He and Harris (2020)
54	Journal of Business Research	Xu et al. (2020)
55	Journal of Business Venturing	Cruz et al. (2012)
56	Journal of Cleaner Production	Rahbauer et al. (2016)
57	Journal of Education and Work	McGrath (2005)
58	Journal of International Development	Donner and Escobari (2010)
59	Journal of Macromarketing	Blankson. et al. (2018)
60	Journal of Management and Technology.	Quelhas (2019)

61	Journal of Small Business and Enterprise Development	Cassells and Lewis (2017)
62	Journal of Small Business and Enterprise Development	Fielden et al. (2000)
63	Journal of Small Business and Enterprise Development	Shibia and Barako (2017)
64	Journal of Small Business and Entrepreneurship	Agyapong et al. (2020)
65	Journal of Small Business and Entrepreneurship	Alonso and Bressan (2017)
66	Journal of Small Business and Entrepreneurship	Chikweche and Bressan (2017)
67	Journal of Small Business Management	Liberman-Yaconi et al. (2010)
68	Management and Marketing	Gavurova et al (2021)
69	Management and Marketing	Păunescu and Mátyus (2020)
70	Organizations and Markets in Emerging Economies	Rascón and Velazquez (2019)
71	Pacific Business Review International	Khan and Shah (2016)
72	Pertanika Journal of Social Science and Humanities	Manor and Desiana (2018)
73	Prague Economic Papers	Skýpalová et al. (2016)
74	Procedia - Social and Behavioral Sciences	Jamak et al. (2014)
75	Procedia - Social and Behavioral Sciences	Mahzan and Yan (2014)
76	Procedia - Social and Behavioral Sciences	Rahayu and Day (2015)
77	Procedia - Social and Behavioral Sciences	Zaridis and Mousiolis (2014)
78	Procedia Economics and Finance	Bhattacharya and Londheb (2014)
79	Procedia Economics and Finance	Gică and Balinta (2012)
80	Procedia Economics and Finance	Irjayanti and Azis (2012)
81	Procedia Economics and Finance	Rupeika-Apoga (2014)
82	Procedia Economics and Finance	Stacho et al. (2015)
83	Procedia Economics and Finance	Vera (2012)
84	Procedia Economics and Finance	Zager et al. (2016)
85	Proceedings of the National Academy of Sciences of the United States of America	Bartik et al. (2020)
86	Production Planning and Control	Severo et al. (2019)
87	Quality	Walter et al. (2019)
88	Revista Brasileira de Marketing	Tunes and Monteiro (2017)
89	Revista Capital Científico	Machado and Espinha (2005)
90	Revista de Gestão	Leoneti et al. (2016)

91	Revista de Gestão e Tecnologia	Bohn et al. (2018)
92	Revista de Sistemas de Información Y Documentación	Woida (2019)
93	Revista Eletrônica de Estratégia e Negócios	Santini et al. (2015)
94	Revista Eletrônica de Estratégia e Negócios	Tavares and Mario (2018)
95	Small Enterprise Research	Corner et al. (2002)
96	Small Enterprise Research	Nosratabadi (2020)
97	Social Sciences and Humanities Open	Akuoko et al. (2021)
98	Sustainability	Baig et al. (2020)
99	Sustainability	Gregurec et al. (2021)
100	Technical Gazette	Vorkapić et al. (2017)
101	Tourism Planning and Development	Bressan and Pedrini (2019)
102	Transformations in Business and Economics	Duda et al. (2017)
103	World Academy of Science, Engineering and Technology	Arslan and Kivrak (2008)
104	World Development	Mano et al. (2012)
105	World Development	Shiferaw (2009)
106	World Development	Nordhagen et al. (2021)

APPENDIX B. Frequency of mortality risk dimensions and sub-dimensions in the analyzed articles

Dimensions	Subdimensions	Absolute frequency	Relative frequency in the dimension (%)	Relative frequency in total (%)
Entrepreneur	Management skills and competences	12	25	5.4
	Lack of capacity building and training	07	14.6	3.1
	Lack of experience in business management	06	12.5	2.7
	Personal characteristics	06	12.5	2.7
	Profile	07	14.6	3.1

	Lack of technical knowledge	06	12.5	2.7
	Gender of the Entrepreneur	04	8.3	1.8
	Subtotal	48	100	21.9
Management	Problems in economic and financial management	19	19.5	8.6
	Difficulty in obtaining credit	18	18.5	8.2
	Lack of strategic planning	07	7.2	3.1
	Failures, underutilization, and lack of information	07	7.2	3.1
	Lack of strategic alliances and cooperation networks	06	6.1	2.7
	Problems in accounting management	05	5.1	2.2
	Quality management problems	05	5.1	2.2
	Problems in Strategic Management	05	5.1	2.2
	Sales management issues	05	5.1	2.2
	Problems in marketing management	05	5.1	2.2
	Problems in personnel management	04	4.1	1.8
	Operations management problems	02	2	0.9
	Inventory management problems	02	2	0.9
	High competition	02	2	0.9
	Lack of advertising	02	2	0.9
	Lack of legal guidance	01	1	0.4
	Problems in logistics management	01	1	0.4
	Problems in purchasing management	01	1	0.4
	Subtotal	97	100	44.2
Innovation	Lack of innovation in the development of products, services, and processes	18	51	8.2
	Lack of technologies	13	29.7	5.9
	Lack of sustainable environmental policies and practices	04	10.6	1.8
	Absence of corporate social responsibility	01	8.5	0.4

	Subtotal	36	100	18.3
Customers	Inadequate location	04	33.3	1.8
	Difficulties in retaining customers	03	25	1.3
	Lack of adequacy and accessibility in the infrastructure	03	25	1.3
	Difficulties in winning customers	02	16.6	0.8
	Subtotal	12	100	5.4
External Factors	Covid-19 Pandemic	10	38.4	4.5
	Economic and financial crises	07	26.9	3.1
	High tax burden	05	19.2	2.1
	Lack of public policies	03	11.5	1.3
	Environmental disasters	01	3.8	0.4
	Subtotal	26	100	11.8
	Total	219		100

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