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MANAGEMENT | REVIEW ARTICLE

Factors Influencing Crisis Management: A systematic review and synthesis for future research

Yahya Maresh H. Hazaa[1], Faozi A. Almaqtari[2]* and Abdullah Al-Swidi[3]

Abstract: The purpose of this study is to provide a comprehensive systematic literature review (SLR) of factors influencing crisis management (CM). The study attempts to assess the main areas that have been linked to and studied CM, and the research outlets that have been provided these research. The study adopts a qualitative approach and uses SLR method to collect relevant data. The study surveyed 223 studies from different research outlets, including the most reputed publishers; Emerald, Wiley, Elsevier, Springer, Taylor & Francis, SAGE, and Inderscience. The extracted articles are categorized into 8 areas based on their effect on CM. The most important factors are communication and social media, which have 66 studies with 4039 citations, leadership which have 40 studies with 2315 citations, followed by knowledge, governance, information technology, strategic planning, and professional entities, which have 38, 24, 23, 16, and 16 manuscripts with 2109, 1738, 301, 548, and 160 citations, respectively. The current study provides an open insight for academicians and researchers on the main areas of CM

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PUBLIC INTEREST STATEMENT

Crisis management has been gaining momentum and considerable attention from regulators, , and academicians especially, in the recent time. Fast, positive, and effective response to the crisis can not only control the situation but also lead to increased market share, improved employee relations, and better public image (Kothai, 2002). This study is an endeavor to summarize what has been done and what is left to be done in the factors that influence crisis management? The current study introduces a clear picture of the status of crisis management that will inform research institutions and academicians to concentrate on unhighlighted research areas ignored by prior studies. This study warns regulators and policy makers to pay attention to the several factors that influence crisis management such as information technology, strategic planning, communication, social media, knowledge management, governance, leadership, and the role of professional entities.

investigated by prior studies. It provides a novel contribution and comprehensive understating through highlighting what has been done and what is left to be done in respect to crisis management.

Subjects: Business, Management and Accounting; Strategic Management; Critical Management Studies

Keywords: Crisis management; information technology; strategic planning; communication and social media; governance; knowledge management; leadership; professional entities

1. Introduction

Different crises affect societies and take different forms; cyber-attacks, natural disasters such as floods, earthquakes, etc. Other forms are also such as political and conflict crises such as the world war I & II and epidemic diseases, which is one of the latest crises that the world is witnessing during the current time represented by Covid-19. Further, the depression in 1929–1933 and the financial crisis of 2007–2008 are some examples of economic and financial crises that affected the world. Accordingly, organizations confront a fast-changing environment with complex issues, difficulty in controlling the flow of messages, and managing various stakeholders (Strauβ & Jonkman, 2017). In this regard, Kothai (2002) state that every organization has to give due importance to the concept of crisis management (CM), training, planning, and communicating to survive and grow. Moreover, a fast, positive, and effective response to the crisis can not only control the situation but also lead to increased market share, improved employee relations, and better public image about the organization (Kothai, 2002). Then countries and institutions tried to manage their crises through containing and reducing their effects by using various factors such as information technology (IT), strategic planning (SP), communication (Comm.), social media (SM), knowledge management (KM), governance (Gov.), or leadership (Lead.), as well the role of professional entities (Prof.) on CM.

Several studies investigate different issues related to CM. These issues are spread over different areas, which made it difficult for practitioners and researchers to follow and learn lessons from prior experiences with regard to these crises. In spite of there are some past researchers have been studied crisis management with some factors as literature or systematic review such as (Alkandari & Al-Lozi, 2017; Apuke & Tunca, 2018; John-Eke & Eke, 2020; Nojoumi et al., 2015; Padhan & Prabheesh, 2019; Wybo et al., 2015), but all of them focused only on the area in which they study in, none of them tried to identify the factors as the study has done. Accordingly, the current study seeks to assess the state of the art of CM to have a glance and open an insight for professionals and academicians regarding what has been done and what is left to be done in CM. To do so, the study adopts a systematic literature review (SLR), which has been adopted by several researches (e.g., Azila-gbettor et al., 2018; Cucari, 2019; Nomran & Haron, 2020). Snyder (2019) states that SLR aims to identify state of the art in an area to answer a particular research question or hypothesis. Following these studies, the present study conducted SLR to investigate what are the main areas that have been linked and studied with CM? and what are the research outlets that have been provided these researches? We highlight how CM studies are fragmented across a range of disciplinary fields. To the best of our knowledge, the current study is the first comprehensive review of CM that offers a navigation window into the existing research related to CM. Our review offers multiple opportunities and benefits to researchers and practitioners by highlighting the focus of CM studies making a novel contribution to the strand literature of CM.

The present study is organized as follows: Section 2 introduces the literature review. Section 3 provides the methodology of the study. Section 4 presents a discussion, and section 5 concludes.

2. Literature review

Crisis is derived from the Greek word, which is usually written "Krisis" in Latin letters. Crisis is defined as an unstable situation in which a decisive change is impending with the distinct possibility of a highly undesirable outcome (Fink, 1986; Longman, 2009). Also, it knowns as an abnormal situation that occurs for each organization what causes threatening its viability (Al-Khashali & Al-Qutob, 2007; PAS 200; Publicly Available Specification, 2011). There are three types of crises, as Parsons (1996) mentioned: immediate; which occurs without warning, emerging; that no more predictable, and sustained crises which often last for weeks, months, or years. While Gundel (2005) classified the crises into crisis predictability and influence possibilities, such as conventional, unexpected, intractable, and fundamental crises. Moreover, the crisis has many characteristics that occur violent, complex, surprise, speed in the sequence of events and their results, lack of information, tension, anxiety, skepticism, confusion, fear of losing control, and rapid spread as a result of information technology (Al-Ajlouni, 2009; Al-Marri, 2014; Comfort, 1993; Shaluf & Said, 2003). There are many causes of crisis some of which are related to the human element, such as misunderstanding, miscalculation & evaluation, and wrong interpretation (Al-Khudhairi, 2003; Al-Marri, 2014). As well as, administrative reasons such as weak physical and human resources, ignore early warning signals, mismanagement, and randomness (Al-Ajlouni, 2009; Al-Marri, 2014). In addition, the reasons beyond the control of the organization like natural disasters, rumors, desire to blackmail, the pressure of external militarily, conflicts of interest, information sabotage, terrorist attack, and copyright infringement (Al-Khudhairi, 2003; Al-Marri, 2014; Pearson & Clair, 1998). Also, there is a rather surprising result that the global financial crisis is the result of the accumulation of errors in financial policies and rules of the capitalist system in the US, because of the irresponsible borrowing of individuals and institutions in US which created gaps in the asset markets and financial derivatives and occurred the global financial crisis 2007/2008. (Al-Manasir and Al-Ksasiba, 2009).

On the other hand, crisis management (CM) is known as the art of removing risks and uncertainty to allow institutions to achieve goals (Steven, 1986). It is taking decisions or finding solutions for crisis situations (Ulmer, 2001). Also, it is known as the design and implementation of plans, procedures, and mechanisms of crisis detection, prevention, containment, recovery, and learning from the crisis. (Kothai, 2002). In the words of (Al-Khashali & Al-Qutob, 2007) the CM refers to the method of management in dealing with crises in the light of preparedness, knowledge, awareness, available capabilities, skills, and prevailing management patterns. As well as, Ghannam (2010) and Al-Marri (2014) defined CM as a system used to plan and deal with crisis with monitoring internal and external variables that generate crises, deal with, and getting out with minimal losses. CM aims to avoid crises before happening, contain the repercussions of its negative effects, prevent them from spreading, control the extent of damage as a result of the crisis, and get out of it with the least possible losses (Al-Ammar, 2002; Al-Marri, 2014). Moreover, the most important study was by Pearson and Mitroff (1993), it provided a framework for CM, which was essential for a many studies and a wide use. The framework consists of five stages are: detection or early warning signal, preparation/prevention signal, damage containment or reduction signal, business recovery signal, and learning signal. As well as Mitroff (1994) discussed four major variables: Types, Phases—as mentioned by Pearson and Mitroff (1993) -, Systems, and Stakeholders. They possibly to spec more precisely the difference between Crisis Prepared versus Crisis Prone organizations. On the other hand, if the performance of organizations are poorly or merely do well on one or two of them, they may fail to CM. Also, a variety of methods are used to CM that Chong (2004) concluded six steps to better CM are: coping; rethinking; initiating; sensing; intervening; sandbagging. Moreover, he found that managers cannot prepare for all kinds of crises. However, their companies' likelihood will run into a crisis unless will be CM as part of their strategic management responsibility.

Overall, these studies highlight the need to study the literature and investigated in which effected factors that CM, some of which information technology and communication, strategic planning, governance, and social media, knowledge management, and other factors of regulatory

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policy and characteristics of the leaders of organizations, so the discussion in the below section will be for that factors. That what we will study in the discussion and results section.

3. Methodology

Strijker et al. (2020) indicate that a quantitative research is the study "when a mathematical model or advanced statistics are at the methodological heart of it. It is classified as Qualitative when primarily qualitative methods are used. An article which uses a qualitative method supported by simple descriptive statistics, is classified as Qualitative". On this basis, the present study uses the qualitative approach where it utilizes a review of the research published in the area of crisis management. Accordingly, for conducting this type of research, the study could use different approaches such as systematic review, Semi-systematic, and Integrative approaches literature review. Ahmad and Omar (2016) state that systematic review differs from meta-analysis as it does not utilize econometric and statistical procedures for data synthesis and analysis. The present study uses a systematic review to investigate the factors that influence crisis management. Snyder (2019) advocates that that systematic review focuses on specific research question and evaluates quantitative articles for informing policy and practice. This study uses a systematic review of prior studies related to factors of IT, SP, Comm. & SM, KM, Gov., Lead. and Prof. which influencing CM. The systematic review approach is widely used by researchers (e.g., Almaqtari, Al-Hattami et al., 2020; Petticrew & Roberts, 2006; Tranfield et al., 2003; Walker, 2010). Moreover, the study will follow the same steps that were done by (Walker, 2010) in which he studied five steps for the systematic review process; (1) keyword and term identification, (2) article identification, (3) quality assessment, (4) data extraction, (5) data synthesis (See Figure 1).

3.1. Keyword and term identification

At the initial stage, keyword and term identification are conducted to facilitate our extraction. This stage is based on key terms related to factors influencing CM surveyed from some studies. This stage also facilitates the next stage in which the articles are identified from different search engines. Then, the study was restricted to key terms only until articles related to key terms were reached, as an upper limit for the data published in databases. So Google Scholar was the platformer of database, as well as using the system of Harzing's Publish or Perish to find the articles alike.

3.2. Article identification

Figure 1. shows that this step is conducted using different search databases such as Google search, Harzing's Publish or Perish, and publishers' databases. Firstly, the Google Scholar database as a comprehensive research platform is used to identify the related articles to the research topic as well as to assess the quality of articles as it shows the citation for each article and reducing researchers' bias. (Walker, 2010). So, different Boolean search operators are used to facilitate the extraction of related articles to the research issues such as "AND, OR, "Truncation", Wildcards, Quotation marks, "adj", publication date, material type, and language. The results of this step yield 1838 research articles and some other documents related to the issue. These documents are found for a period from 1983 to 2020. Secondly, a search using Harzing's Publish or Perish database is conducted using different keywords and terms which results in 595 articles. Finally, reputed publishers' outlets such as Emerald, Wiley, Elsevier, Springer, Taylor & Francis, SAGE, Inderscience, and some other databases are accessed separately to make sure that articles related to the topic in these databases are not left.

3.3. Quality assessment

This step is to ensure the quality assessment of the sampled articles by the present study. The result of the proceeding step yielded a large number of articles. However, in order to ensure that the study has included quality published articles and some other articles that have large number of citations, a quality assessment is conducted to include only the most relevant articles that are directly related to the factors influencing CM.

3.4. Data extraction

In this step, the number of articles included in the present study is finalized. The articles extracted from Google Scholar and Harzing's system are reduced. Further, after consideration of all articles in publishers' databases, it is noticed that there are some articles that are not published by reputed and Scopus publishers are found and have some citations. The study has included these articles except for any article that has less than 5 citations. Finally, the total number of articles included in the current study are 223 studies. Different tools have been used in data extraction. Google Scholar, Harzing's, Mendeley, publishers' outlets with reference to the proceeding steps of article identification and quality assessment have been used as tools to extract the materials published in the area of crisis management. On the other hand, content analysis, Microsoft Excel, SPSS23, and manual extraction were opted to extract the information required for the present study.

3.5. Data synthesis

In his narrative analysis of the factors influencing CM literature, the next section will discuss and summarized the results and findings reached by studies, as well as concluded and reached to answer the research questions and implications for future research.

4. Discussion and results

This section discusses the retrieved studies to meet the research questions of the study. It provides a discussion of different outlets that have been extracted from the sampled studies.

4.1. Publishers' outlets

The final sample and retrieved articles included by the current study comprises 111 articles from Google Scholar and 112 from Harzing, which also have been checked to make sure that all studies from reputed publishers; Emerald, Wiley, Elsevier, Springer, Taylor & Francis, SAGE, Inderscience, and Allied are included. The extracted articles are categorized into 8 areas based on their effect on CM. (Table 1) shows that the most important factors are the Comm. & SM, which have 66 studies with 4039 citations, Lead. which has 40 articles with 2315 citations, followed by KM, Gov. IT, SP, and Prof., which have 38, 24, 23, 16, 16 manuscripts, respectively, with 2109, 1738, 301, 548, and 160 citations, respectively.

(Table 2) demonstrates studies by publishers. The results demonstrate the number of studies and the total number of citations for each publisher. The results also show the number of studies and citations based on each area. Overall, it is noteworthy to state that although Elsevier has 16

Figure 1. Steps of systematic review (source: Walker, 2010).

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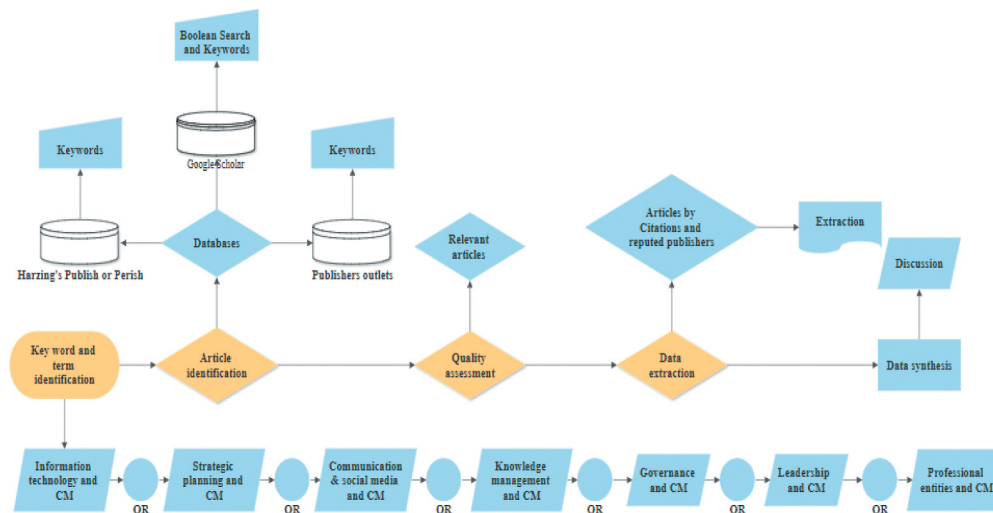
Table 1. Factors studied with CM by number of studies and citations

Factors	Harzing's		Harzing's (Net)		Google Scholar	Google Sch. (Net)		Total	
	No.	**Citations**	**No.**	**Citations**		**No.**	**Citations**	**No.**	**Citations**
IT	38	204	8	145	43	15	156	**23**	**301**
SP	15	63	4	15	113	13	551	**16**	**548**
Comm.	64	759	20	614	777	16	1752	**36**	**2366**
SM	83	1874	26	1648	306	4	25	**30**	**1673**
KM	89	336	17	198	27	21	1911	**38**	**2109**
Gov.	132	1668	15	1427	195	9	311	**24**	**1738**
Lead.	174	2492	22	2133	373	18	182	**40**	**2315**
Prof.	0	0	0	0	17	16	160	**16**	**160**
Total	**595**	**7396**	**112**	**6180**	**1851**	**111**	**5030**	**223**	**11,210**

Table 2. Publishers' outlets

Area		Emerald	Wiley	Elsevier	Springer	Taylor &.	SAGE	Inder science	Allied	Other	Total
Overall	No.	32	24	16	12	12	7	4	1	115	223
	Cit.	1546	1441	2816	485	485	1385	26	2	3024	11,210
IT	No.	4	3	1	1	1				13	23
	Cit.	163	84	11	5	3				35	301
SP	No.	5	1						1	9	16
	Cit.	530	0						2	16	548
Comm.	No.	7	4	3		4	2	1		15	36
	Cit.	95	479	303		91	607	13		778	2366
SM	No.	3	1	3	5	2	1	1		14	30
	Cit.	2	7	198	393	315	406	7		345	1673
KM	No.	5	3	3	2	1	1			23	38
	Cit.	478	148	1096	4	40	85			258	2109
Gove.	No.		5	2	1	2				14	24
	Cit.		510	939	4	14				271	1738
Lead.	No.	6	3	4	3	1	3	2		18	40
	Cit.	156	180	269	79	18	287	6		1320	2315
Prof.	No.	2	4			1				9	16
	Cit.	122	33			4				1	160

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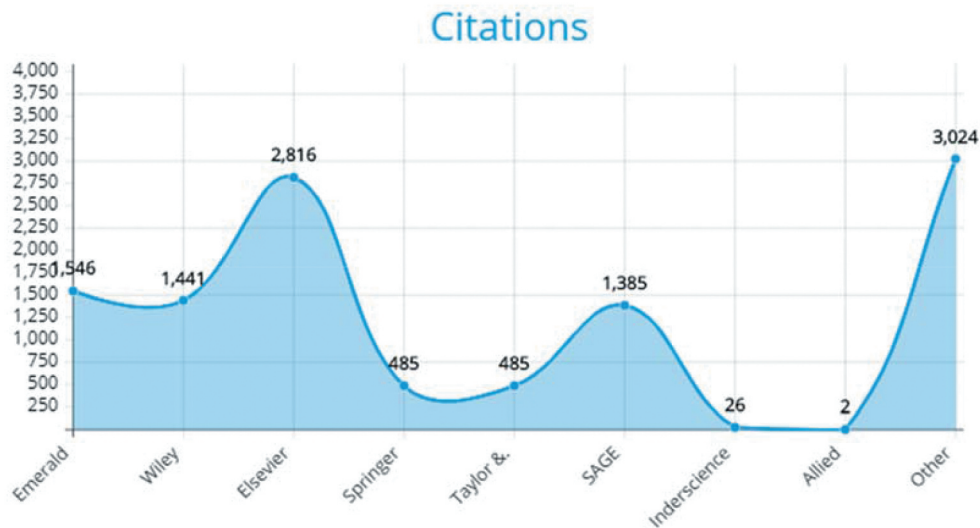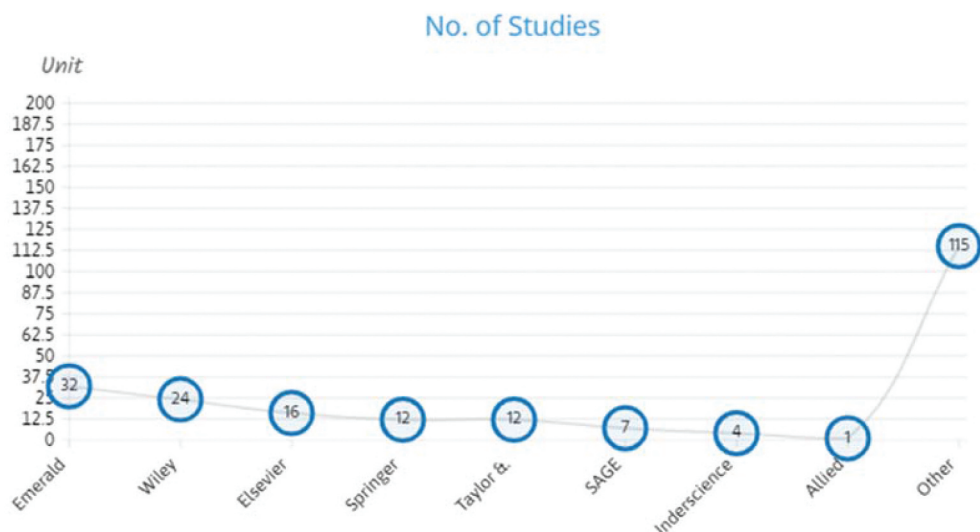
Figure 2. Total citations.

Figure 3. Total studies.

articles as compared to Emerald (32) and Wiley (24), however, Elsevier articles have the highest number of citations (2816) (See also Figures 2 and Figures 3).

4.2. Factors affecting CM
Based on the factors and areas that are extracted from the sampled studies, there are 8 factors and areas that have been linked with crisis management, which are illustrated in (Table 2) above. Following is a discussion of the main findings of these studies.

4.2.1. Information technology (IT) and CM
The results in (Table 2) show that there are 23 studies with 301 citations that discuss the role of IT in CM during the period of 1993–2020. As shown in (Table 3), these studies concluded that there is a positive role of IT on CM. The Majority of the studies state that IT is an important factor for CM and even contributes to reducing crisis threats. Further, the institutions should adopt and implement appropriate, modern, and secure IT to obtain accurate, efficient, and timely information for decision-making.

Table 3. Studies related to information technology (IT) and CM		
No.	**Studies**	**Results**
1	Mitroff (1994)	Undue over-reliance on IT for CM can be the cause of, crises.
2	Pheng et al. (1999)	Lack of alternative sites, critical operations, and backups hampered the ability of developers to recover from crisis situations.
3	Nojoumi et al. (2015)	IT could be useful, can be dangerous to human life and organizations, due to every organization is facing multiple crises in his life.
4	Al-Ammar (2002)	There is a positive role for IT in managing crises and various, and there are obstacles facing the use of IT.
5	Ghannam (2010)	IT does not significantly affect CM.
6	Appelbaum et al. (2012)	Organizations with early crisis detection methods and CM plans were significantly better prepared to manage and survive a crisis event.
7	Vyas & Desai, 2007	IT can reduce hazards, as well as provide early warning of impending disasters, and communication for emergencies as measures of timely relief.
8	Ajami and Fattahi (2009)	Found that IT has a role in reducing destruction, through CM.
9	Malawi (2014)	The weakness of IT and the lack of a plan for CM could cause significant material and moral losses.
10	Verma and Sehgal (2016)	IT in CM by using modeling and simulation became an unbeatable instrument in CM if utilized efficiently.
11	Al-Khashali and Al-Qutob (2007)	There is an impact of the effectiveness of management information systems in the management of industrial crises.
12	Abu-Omar (2009)	Management information systems (MIS) affects CM by 66.6%.
13	Bouasha and Bouchoucha (2009)	The quality of accounting information contributes to the ability to save effort, time, and good performance in a timely manner during the global financial crisis.
14	Easton (2016)	There is a positive impact on the shaping of the work undertaken, placing privacy at the heart of design and planning.
15	Al-Suqri et al. (2010)	Unless information professionals play a more proactive role in making good economic and financial information readily accessible, the risk of recurrent economic crises will be increased.

(*Continued*)

Table 3. (*Continued*)		
No.	**Studies**	**Results**
16	Comfort (1993)	IT can reduce the incidence of death and injury from earthquakes and improve capacity and reduce seismic risk of organizations.
17	Jefferson (2006)	The role of IT is not large in the development of new types of systems and technologies but in improving the current systems' robustness and interoperability.
18	Wojciechowicz et al. (2012)	The challenges and opportunities of information and communication technology focus on a number of innovations that can be adopted in the area of CM
19	Collin (1995)	Users do not feel they are getting value for money from IT investment.
20	De Silva et al. (2005)	Discussed issues related to logistics, IT, and crisis communication pertaining to the responses to the damage created by the Tsunami Disaster in Asia, convened by the World Health Organization in Phuket, Thailand, 04–6 May 2005.
21	Coletta (2003)	CM has its own dynamics apart from warfighting.
22	Mendonça and Bouwman (2011)	Contributions to ICT research in crisis management therefore bear directly upon questions of how to analyze, design, and manage critical infrastructure systems.
23	Spraakman (2011)	The professional management accounting associations placed little importance on the inclusion of IS/IT in management accounting curricula.

4.2.2. The role of strategic planning (SP) on CM

There are 16 studies related to SP and CM with 548 citations during the period of 1995–2020. It concluded that SP is depended on the desire of management, qualified managers, and employees. Moreover, taking the early warning system of crises, the behavior of macroeconomic indicators, as well as the culture of institutions to succeed in preparation, prevention, intervention, and overcome crises. However, because of the variability of crises and the limits of the capacity of statistical tools to derive information, it is hard to predict crises, unless being attention for SP and update SP continuously. Following is (Table 4) that demonstrates studies related to factors of SP and CM:

4.2.3. The role of communications (Comm.) and social media (SM) on CM

There are 66 studies that discuss Comm. and social media (SM), which play a role on CM. 36 studies are for Comm. and 30 studies are for SM spanning over the period from 1983 to 2020 with 2366 and 1673 citations, respectively. Researches have demonstrated that mediated communication offers opportunities and challenges for institutions (Lipnack & Stamps, 1997). However, Ray (1999) argued that communication might reduce uncertainty, threat, and help to resolve a crisis. Moreover, it may contribute to rumors and confusion, which serving to

Table 4. Studies related to factors of SP and CM		
No.	**Studies**	**Results**
1	Heath (1995)	Strategic preparedness depends on the response of mangers to translate meta-strategic missions and objectives into realistic operational strategies.
2	Chong and Escarraz (1998)	Managers who could not plan for the crisis will fail to recognize the threats.
3	Kash and Darling (1998)	The art of SP and contingency forecasting, and getting the early warning were helpful for companies in their preparations for crisis events.
4	Pollard and Hotho (2006)	Attention should be given to the roles and responses of media and agencies which acting on behalf of the company.
5	Jemović and Marinković (2019)	Concluded that the system of deposit insurance is the most significant predictor factor of the crises in the better performing model. Then then international reserves, M2-to-international reserves ratio, M2 multiplier, bank deposits, and bank reserves ratio respectively.
6	Al-Azawi (2009)	Studied the impact of SP on CM and argued that there is no environmental analysis with the activities of the executive leaders in charge of managing banks and lending institutions, as a result of granting large high-risk loans without adequate guarantees, this is a repetition of the crisis happened in 1929–1931.
7	Al-Zwyalif (2009)	Dimensions of the internal environment were contributing more than external environment.
8	Al-Marri (2014)	There is ambiguity in the concept of SP among employees of banks. Despite respondents considered that SP is a very costly process.
9	Jaafar (2017)	The lack of scientific qualifications and experienced staff in the field of strategic planning reduces the effectiveness of CM.
10	Darbonnens and Zurawska (2017)	The behavioral factors insufficient to deal with the uncertainty that characterizes global business today where firms must be.
11	Padhan and Prabheesh (2019)	The accurate measurement of a financial crisis, implementation of a fourth-generation crisis model, and the inclusion of contagion variables are affecting financial crisis
12	John-Eke and Eke (2020)	SP enhances crisis management, and determine if the destruction will be a minor or major disaster.

(Continued)

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Table 4. (*Continued*)		
No.	**Studies**	**Results**
13	Christensen (2017)	Industry drivers and performance indicators influence and improve competitive market advantage.
14	Al-Khrabsheh (2018)	Strategic planning will enable institutions to evolve their own practice for ending crises or minimize their influences.
15	Norouzi and Farhadi (2017)	Socio-economic vulnerability is higher during the crises, and the spatial-external vulnerability is less than medium. Therefore, revision strategy was determined as the appropriate strategy for planning.
16	Burns (2012)	When crises occur, challenge goes beyond most emergency response plans previously deployed by automotive suppliers and their supply chain partners.

Table 5. Studies related to comm. & social media (SM) with their relation to CM		
PANEL A: Studies related to Comm. with its relation to CM		
No.	**Studies**	**Results**
1	Lipnack and Stamps (1997)	Concluded that the demonstrated that mediated communication offers opportunities and challenges for institutions.
2	Ray (1999)	Communication may reduce uncertainty, threat, and help to resolve a crisis. Moreover, it may contribute to rumors and confusion, which serving to compound the crisis and prolong its resolution
3	Netten and van Someren (2011)	Concluded that information overload and missing information are the important factors that determine the success of CM.
4	Williams and Olaniran (1998)	They studied the crisis communication practice and suggested that the using of elements of risk communication will face an increasing industrial depend on new technology associated with potential health and environmental harm.
5	Perry et al. (2003)	Crisis type did not appear to be a factor in an organization's decision to use the internet in its immediate crisis response.
6	Zhong and Pheng Low (2009)	Models of conventional crisis response communication are limited in describing the flexible response to the changing circumstances and complex crisis situations.

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PANEL A: Studies related to Comm. with its relation to CM		
No.	**Studies**	**Results**
7	Palttala and Vos (2011)	The tests of measurement, and possible to use the instrument period before, during, and after a crisis, should be offered.
8	Palttala and Vos (2012)	The quality indicators by scorecard showed good potential and instrument was useful in setting standards for crisis communication.
9	Reddy et al. (2009)	The ineffectiveness of information and communication are challenges to coordination between emergency department and emergency medical services teams
10	Alfonso and Suzanne (2008)	Companies should use all available online tools, and establish appropriate internet-based procedures when the crisis dies down.
11	Strauβ and Jonkman (2017)	Monitoring of competitors, stakeholder mapping, and monitoring times are essential for issue management.
12	Yu et al. (2017)	Policy of crisis information be against publishing false news. Public panic will go out of control if the government releases no crisis information.
13	Lu et al. (2018)	Released of crisis information quantity and diffusion speed are positively correlated with coverage ratio.
14	Ulmer (2001)	Strong communication channels with stakeholders before crises erupt should be established.
15	David and Carignan (2017)	Crisis management in an unforeseen context could lead to difficulties in understanding the messages.
16	Barbe and Pennington-Gray (2018)	Majority of the hotels did not use Twitter as a form of crisis communication, the situational crisis communication theory bolster strategy was used throughout the crisis-related message.
17	National Research Council & Steering Committee (1996)	Computing and communications can support emergency management officials who deal with natural and man-made hazards.
18	Simons (2005)	Discussed the mass media which has an established tradition in the former Soviet Union, as well with contemporary setting in Soviet Union.

(*Continued*)

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Table 5. (*Continued*)

PANEL A: Studies related to Comm. with its relation to CM

No.	Studies	Results
19	Lewis (2016)	PIOs will gain an invaluable public relations tool by which to address the media and public in crisis situations.
20	Lok and Powell (2000)	Government's major error in Belgian crisis was that it did not promptly go public with the knowledge of the crisis, resulting in accusations of a self-serving cover-up.
21	Bowman et al. (2007)	Concluded that mobile communications and other systems are essential for organizing and executing emergency management and crisis response.
22	Coombs (2007)	Confirmed that the public relations practitioners are an integral part of crisis management teams.
23	Seeck et al. (2008)	Found that there were problems with all three phases of crisis management; crisis preparation, crisis response and post-crisis activities.
24	Bowman (2008)	Described only the requirements for mobile communications for emergency management.
25	Lucas et al. (2015)	Focused on how the various university officials handled the communication efforts in the weeks leading up to the grand jury decision.
26	Williams (1983)	Examined the various ways in which command, control and communication systems, or C3, may contribute to this process.
27	Dolphin and Fan (2000)	Found that internal publics, financial PR, and opinion formers are viewed as the three most important audiences.
28	Fearn-Banks and Hooper (2006)	Crisis communication found itself a home in the profession of public relations and includes campaigns for crisis prevention and preparation.
29	Shaia and Gonzenbach (2007)	Spiral of silence theory was considerable potential with regard to explaining and predicting how individuals communicate in such settings, as well the role silence plays in an organizational context was a primary focus.
30	Mendonça and Bouwman (2008)	There are significant gaps in scientific understanding concerning how ICT should be designed, used and evaluated.

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PANEL A: Studies related to Comm. with its relation to CM		
No.	**Studies**	**Results**
31	Carlsen and Liburd (2008)	Focuses on the need to develop a comprehensive research agenda for crisis management and market recovery in tourism.
32	Țigănuș (2011)	Planning and implementation process are extremely complex especially, in the context of the new security environment and requires national participation and adaptation of the national and institutional development programs in the CIS field.
33	Gryzunova (2013)	Crises require participative model, and the author substantiates traditional model of crisis communications and information management for solving conflict crises.
34	Seba et al. (2019)	Studied the disaster management security needs and provided a security analysis of theses architectures and open issues to be tackled.
35	Jonker (2019)	There are gaps or anomalies between recommendations in scholarly literature that related to crisis communication management, and practitioner recounts of practice.
36	Lukaszewski (1999)	Studied the dimensions of a crisis, let the executives clearly recognized on the crisis, as well help the public relations counselor provide truly meaningful, and strategic advice.
PANEL B: Table 5. Studies related to social media with its relation to CM		
No.	Studies	Results
1	Civelek et al. (2016)	Web has an influence on consumer behavior, and it is more flexible and sensitive communication.
2	Watson and Rodrigues (2017)	There are many inherent privacy-related challenges which may result in harm to individuals and society, lose the reputation and trust of institutions.
3	Maal and Wilson-North (2019)	'Do's' and 'don'ts' are useful and can help crisis managers during attempting to use social media as a tool of crisis communication.
4	Li et al. (2019)	Apology after-crisis has a positive effect on the user attitude toward the firm, whereas the positive effect of the reputation of the firm becomes weaker.
5	Lachlan et al. (2016)	There is a growing knowledge concerning the use of Twitter during crises.

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Table 5. (*Continued*)		
PANEL A: Studies related to Comm. with its relation to CM		
No.	**Studies**	**Results**
6	Zhu et al. (2017)	Social media strategies of crisis response should be on cultural insiders' assessment of attribution of blame; perception and use response e.g., the apologies; and determine the role of influential social media users.
7	Harrison and Johnson (2019)	Organizational factors, policies, and federal legislation in Canada present barriers to crisis crowdsourcing adoption within various government levels.
8	Hornmoen and Måseide (2018)	There is a significant effect of social media and its strengths and weaknesses in CM.
9	Alexander (2014)	The widespread use of social media globally heralds a new age in which it is imperative that emergency managers adapt their working practices to the challenge and potential of this development.
10	Bunker et al. (2019)	Developed approaches and methods for analysing social media data to assure of social cohesion during crisis.
11	Stern (2017)	The use of a variety of modalities as well as digital and non-digital means may have their place in crisis communication strategies.
12	Andrews et al. (2017)	The risks and challenges of using social media and unregulated material cannot be ignored
13	Felka et al. (2018)	Matching event-related user-generated content leads to improvements of the estimations.
14	Reuter et al. (2018)	Social media was a cause of achievements from a human–computer interaction through evaluation and analyzing crisis informatics research in studies of social media using in emergencies, etc.
15	Haataja et al. (2016)	The lack of knowledge and the inflexible and old-fashioned organizational culture were the main barriers for not utilizing social media. etc.
16	Jin et al. (2014)	Social-mediated crisis communication model affects publics' preferred information.
17	White (2011)	Provided a set of guidelines and safe practices for using social media effectively during crisis by using leveraging web 2.0 technologies.

(*Continued*)

PANEL A: Studies related to Comm. with its relation to CM

No.	Studies	Results
18	Hiltz et al. (2011)	The convergence of social media, information and communication technologies, and internet to enhance ability to collaborate over great distance for crisis management both synchronously and asynchronously.
19	Sigala (2011)	Discussed the practical and research implications of social media in CM.
20	Zielinski et al. (2013)	Developed the TweetComp1 application model, by description the trustworthiness analysis, geoparsing, and multilingual tweet classification in the context of how they could be used for monitoring crises.
21	Stieglitz et al. (2018)	There are opportunities for the continuous collaboration of both information systems research and emergency management agencies, through using social media data.
22	Bunker et al. (2013)	Concluded that the ideas of autopoiesis may assist to better understand the appropriate blending of open social media and closed commercial systems for social sustainability during a crisis.
23	Flew et al. (2014)	Social media made a value for disaster and emergency management authorities with wider population during period of crisis.
24	Liu et al. (2019)	Found that the PSPO model is suitable for identifying populations that are at risk of suicide.
25	Kotsiopoulos (2014)	There is a role of social media during crises, due the conjunction and interaction among societal dynamics, officials and responders and public.
26	Wybo et al. (2015)	There is ability to use social media during emergencies and crises in order to support fighting against cybercrime.
27	Apuke and Tunca (2018)	Social media could be catalysed a crisis through rumors or just to show the fact.
28	Chaturvedi et al. (2015)	Social media tools have the capability of diffusing the information more than perspective of the sources and the available functionalities.

(*Continued*)

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Table 5. (*Continued*)		
PANEL A: Studies related to Comm. with its relation to CM		
No.	**Studies**	**Results**
29	Temnikova et al. (2014)	The collecting a crisis management terminological resource for social media reflecting the language used in Twitter based on the a novel importance- and actionability- based classification of terms.
30	Kreiner and Neubauer (2012)	Social media platforms are heavily used in emergency events, these require advanced text and data mining techniques in order to support crisis mangers.

compound the crisis and prolong its resolution. Then, efficient communication is a major challenge for emergency responders during CM (Netten & van Someren, 2011). It is clear that Comm. & SM may reduce uncertainty, threat, and help to resolve a crisis, as well as contribute to rumors and confusion, which increase the influence of crisis. Following is (Table 5) that shows studies related to Comm. & social media (SM) with their relation to CM:

4.2.4. The role of knowledge management (KM) on CM

There are 38 studies that discuss KM with its relation to CM, which has 2109 citations during the period from 2001 to 2020. The studies show that KM has a role in CM, which contributed to

Table 6. Studies of KM and CM		
No.	**Studies**	**Results**
1	Moffett et al. (2003)	Strong relationship exists between KM and both organizational culture and internal technical culture.
2	Raman et al. (2006)	To support emergency preparedness activities, fit between task and technology, a knowledge sharing culture between entities should be involved.
3	Elsubbaugh et al. (2004)	Suggested a model for the preparation of CM, depend on research in US or Western business, and Egyptian industry until the 1990s.
4	Wang and Belardo (2005)	KM contributed to designing policies that can lead to better CM.
5	Cania and Korsita (2015)	KM in the organization enables to identify the critical information of a crisis managing a crisis to achieve organization's goals and become competitive.
6	Shaw et al. (2007)	KM is essential to recognize the importance of the people, their knowledge to the organization, as well as to build strategic planning and communication.

(Continued)

No.	Studies	Results
7	Wang (2009)	KM plays an important role in CM, there is a need for the application of different KM strategies at different phases of a business crisis.
8	Kyobe (2010)	The lack of KM and sharing is one main contributor to the crises in IS.
9	Blackman et al. (2011)	Addressed synthesizing KM and tourism CM literature, to outline the potential role of DMOs in KM across boundaries during crises.
10	Yates and Paquette (2011)	The US employed social media technologies, as the first time, such as wikis and collaborative workspaces as the main knowledge sharing mechanisms.
11	Awamleh and Razoqi (2009)	There is a correlation and effect of KM on CM at a rate of 41% in Jordanian government departments.
12	Al-Qatawneh (2012)	There is an impact of CM system on the organizational climate in Jordanian commercial banks, and the recovery and learning from crisis were affected more than preparedness and prevention for crises.
13	Ndlela (2012)	The horizontal relationship between organizations is vital in CM at the local level.
14	Şuşnea (2013)	As a tool of KM, each person must be encouraged and trained to make a creative decision.
15	Al-Sahli (2014)	KNG interested in the human element, commitment to the policies and procedures of work in KNG.
16	Li and Wang (2009)	Analyzed the knowledge required for model architecture which put on knowledge resources, management process, and organizing layers, to provide a new management mechanism for enterprise in dealing with crisis effectively.
17	Jia et al. (2012)	Suggested a framework of knowledge management systems for tourism CM, which contains knowledge (extractor, server, and manager).
18	Hosseini et al. (2014)	The overall status of KM regarding Eiral model through six categories (systemic, way mapping, processing, economical, organizational, and locational), was under the average mean index.

(*Continued*)

Table 6. (*Continued*)		
No.	**Studies**	**Results**
19	Bénaben et al. (2016)	Discussed a meta-model for knowledge management in CM through studied characteristics of the crisis, context, actors involved, etc.
20	Taleghani et al. (2019)	KM system has an impact on CM for Leveraging Public Affair, in Iran.
21	Thongpracum and Silpjaru (2020)	KM has an influence on policy, innovation, technology, and resource management and accordingly on CM.
22	Rousseaux and Lhoste (2008)	Presented the use of collection-based knowledge representation to improve geopolitical risks and CM system.
23	Racherla and Hu (2009)	Cooperative KM systems can improve preparedness for confronting crises in hospitality management and industrial tourism, and also results in stimulating planning for strong crises through active preparation, training, and exercises.
24	Rezaei et al. (2013)	Organizational culture affected knowledge sharing especially, the control and agility in CM.
25	Alkandari and Al-Lozi (2017)	Illustrated previous studies and they found there is a role of KM on organizational CM.
26	De Groeve (2020)	Feedback between scientific developments and their application; providing right information in a timely manner; communication with maps; trust and trustworthiness between practitioners and decision-makers; and networking and partnerships are important for knowledge-based crisis and emergency management
27	Bandrova et al. (2010)	Cartographers should use the students' ideas in map design.
28	Laugé et al. (2012)	Presented Group Model Building collaborative methodology and its use on a crisis management.
29	Olaniran and Scholl (2020)	Discussed the CCC's role in transferring new knowledge from research into resources and best practices, and the importance of assessing their impact on how communities prepare for crisis.
30	Campanella et al. (2019)	Concluded that Nonaka and Takeushi's spiral of knowledge has a positive influence on value creation in the banking system.
31	Ji et al. (2007)	Organizational learning and the supply of knowledge are the important factors in success.

(*Continued*)

No.	Studies	Results
32	Jin and Hui-li (2009)	Discussed the significance of flow management and risk under the impact of the financial crisis, as well as how enterprises timely adjust and improve the turnover management of knowledge-type staff.
33	Ningbo (2013)	Proposed a knowledge management model with a knowledge base as the core and oriented to crisis early warning.
34	Fodor and Poór (2009)	Comprehensive, strategic-level management of knowledge leads to faster growth and to recovery.
35	Ponis and Koronis (2012)	Proposed methodological approach is applied in a knowledge-intensive Greek small and medium enterprise from the pharmaceutical industry.
36	Lennon and Maurer (2001)	KM has a big role to play in crisis situations.
37	Pourbabaei et al. (2015)	Creating and transferring knowledge play a significant role in CM.
38	Kamruzzaman (2020)	Preparing for all threats is virtually impossible, but facing the challenge, should encourage organizations to participate in common platforms of knowledge by contributing best practice experiences and to share distributed knowledge for better crisis preparedness and responses.

design policies that lead to better CM, achieve goals, and become competitive. Further, considering the learning and experience which learning initiatives, sharing, facilitate knowledge acquisition, and institutionalization. In addition, the models proposed by some researchers illustrated how the KM might influence and contribute to CM. (Table 6) shows the findings of these studies.

4.2.5. The role of governance (Gov.) on CM
Different studies have been conducted in the area of corporate overnance (e.g., Almaqtari, Hashed et al., 2020; Almaqtari, Shamim et al., 2020; Al Maqtari et al., 2020) however, few studies the relationship between crisis management and corporate governance. Prior research shows that governance plays a crucial role in CM. Surveying prior studies in this respect, it is found that 24 studies discuss governance with its relation to CM with 1738 citations during the period of 2001–2020. (Table 7) illustrates these studies. The majority of the surveyed studies advocate the role of corporate governance in crisis management. Al-Kholy (2009) indicate that there is a need to apply governance, promoting transparency, responsibility, and promoting the integrity of financial markets.

4.2.6. The role of leadership (Lead.) on CM
This section discusses the role of leadership on CM. 40 research studies have been found during the period from 1986 to 2020 that outlines the relationship between leadership and CM with 2315 citations. The majority of the surveyed studies agree on the role of different leadership styles in

Table 7. Studies related to corporate governance and CM		
No.	**Studies**	**Results**
1	Abdul-Qadir (2008)	The causes of the Asian financial crises are the lack of transparency and disclosure and the weakness of the systems of supervision and supervision.
2	Makhlouf (2009)	Business organizations that apply corporate governance can avoid financial crises.
3	Al-Kholy (2009)	There is a need to apply governance, promoting transparency, responsibility, and promoting the integrity of financial markets.
4	Gevurtz (2010)	There is a relationship between risk prevention and weakness in the state's corporate law, weakness in the bank's laws and regulations
5	Chen (2014)	Board and executives' remunerations, the board power, transparency of information, related parties affect the company's operational performance.
6	Berger et al. (2016)	Financial failure is greatly influenced by the ownership structure of the bank.
7	Omry (2017)	There is a weakness of supervision accordingly, banking governance is necessary to avoid collapses and financial crises.
8	Demiroz (2017)	Governance has important implications for CM.
9	Al-Alwani (2019)	There are obstacles limited the effectiveness of governance and its role in financial crises in banks.
10	Finell (2002)	Restoring and rebuilding the rule of law, functioning judiciary and law enforcement structures, are essential for the future of a post-conflict society.
11	Narayanan (2012)	Addressed how China has taken a place of the processes driving global governance, tackling a host of trans-sovereign problems, and create a stable and responsive political order.
12	Larsson (2017)	Meta-governance may be weak due to competing rationality and combining different types of governance (sovereignty, markets, or network management).
13	Omodan et al. (2018)	Collaborative governance was moderate in CM, and there is a relationship between collaborative governance and CM.

(Continued)

No.	Studies	Results
14	Oord et al. (2020)	Public policy planners and practitioners engage in CM and revisit current design and governance of organizational networks that have been hit by the Covid-19.
15	Aebi et al. (2012)	Banks in which the chief risk officer directly reports to the board, exhibit significantly higher stock returns and ROE during the crisis.
16	Bhatta (2001)	Corporate governance has obvious utility helps to improve public sector management.
17	Angelis (2017)	Proposed ad model of democratic governance for the economic and monetary union in Europe, in order to understand what is necessary and enquire into the conditions of fairness that might allow for legitimate crisis management.
18	Pirson and Turnbull (2011)	Board access and ability to process the risk-related information are some reasons for boards failing to manage risk well during financial crisis
19	Christensen et al. (2016)	There is no optimal formula for harmonizing competing interests, tensions for overcoming uncertainty, and ambiguous government structures.
20	Das and Quintyn (2002)	Regulators still have a long way to apply of practicing good governance.
21	Bonet and Donato (2011)	Financial crisis could be a great opportunity for a structural change of the cultural sector in Europe.
22	Stanton (2012)	Critical difference between successful and unsuccessful firms is a culture that encourages respectful challenge "constructive dialogue".
23	Faghfouri (2012)	Non-family businesses are more likely to prepare for crisis when compared to family businesses.
24	Brown (2014)	There are useful lessons to be drawn from international comparative experience that can benefit planning and response capabilities for crisis both within countries and internationally.

crisis management. Alkhawlani (2016) indicates that transformational, transactional, and charismatic leadership styles have a significant positive impact on CM. In the same context, Abu-Rumman (2016) states that the practice of transformational leadership affects preparedness for CM. Further, Hasan and Rjoub (2017) advocate that charismatic leadership was strict in recent decades and that the growth tactics of companies usually require modification during times of crisis. Following is (Table 8), which provides the results of these studies:

Table 8. Studies of CM and Leadership		
No.	**Studies**	**Results**
1	Alkhawlani (2016)	The transformational, transactional, and charisma leadership styles have a significant positive impact on CM.
2	Abu-Rumman (2016)	The practice of transformational leadership affects preparedness for CM.
3	Hasan and Rjoub (2017)	Charismatic leadership was strict in recent decades and that the growth tactics of companies usually require modification during times of crisis.
4	Hanslik (2018)	There is a positive correlation between charismatic leadership traits and preferred leadership traits in CM.
5	Guo et al. (2018)	Support of the information and emotions are significant determinants of NPB, and increasing enthusiasm for becoming civil journalist.
6	Jassim (2019)	That there is a positive relationship and impact of transformational leadership on CM.
7	Al Thani and Obeidat (2020)	There is a significant effect of strategic leadership practices on the stages of CM
8	Al Remeithi (2010)	The leaders have an important responsibility in terms of eliminating crises. Leaders should know what implement and avoid indicate areas of CM.
9	Fener and Cevik (2015)	If the organization does not control or manage crisis, this will create chain crisis.
10	Pillai et al. (2015)	There is a relationship between inner powers and innate values, and proactivity.
11	Suhimat (2017)	Human capital management directly influences the efficiency of CM.
12	Porto Bellini et al. (2019)	There is a negative influence of professional self-efficacy on job insecurity.
13	Smits and Ezzat Ally (2003)	If behavioral readiness is absent the CM effectiveness is a matter of chance.
14	Fragouli and Ankunda (2016)	There is a need to create effective efforts to avoid crisis situations.
15	Kryzysowym and Samorządowym (2018)	The leadership requires constant development among managers/heads of CM units. It requires also a change in the approach of CM staff training.
16	Wisittigars and Siengthai (2019)	Among five competencies, emergency preparedness, crisis communication and emotional intelligence are the most important competencies.

(Continued)

No.	Studies	Results
17	Savelides et al. (2015)	CM practices are in place generally, even although they are not formally defined via legislation.
18	Coldwell (2017)	Outlined a model of CM derived from recent case studies of best practice of leadership and how reduce financial losses for organizations.
19	Burckhardt (2012)	There is a need to integrate both core and enabling technologies with a leadership approach in order to become competitive, as well continuous adjustment, development, integrating vision and objectives with organization's strategy and structure to avoid crisis, etc.
20	Azadehdel et al. (2012)	Proposed a model based on the role of leadership structure and information system in the field of CM.
21	Afani and Khalkani (2018)	Giving freedom has the greatest impact on CM. Trust-based relationships, helping people, and achievement of objectives have impact on CM.
22	Abdullrazak and Alyamani (2019)	There is a significant and positive compatibility between the innovative leadership and stages of CM.
23	Kayes et al. (2013)	Explained how examples and cases from military combat provide tools to teach crisis leadership.
24	Weisæth et al. (2002)	Stress had a negative effect on decision making in the level of CM.
25	Gruber et al. (2015)	Provided a set of recommendations for leadership and crisis management in the contemporary business environment.
26	Bowers et al. (2017)	Provided three crisis response leadership principles to help organizations successfully prepare for and manage a crisis.
27	Bhaduri (2019)	Five research propositions have been proposed based on the stages of crisis management
28	Taneja et al. (2010)	Proposed a seven-step crisis management process which aligns well with the classical/traditional strategic management process.
29	Bekdash (2019)	Observed that behavior of leaders in the aviation sector make decisions at airliner out of MENA region.

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Table 8. (*Continued*)		
No.	**Studies**	**Results**
30	Wooten and James (2008)	Examined leadership competencies during each phases of a crisis building organizational capabilities through crisis management activities.
31	Farazmand (2009)	Surprise management is the best approach to managing or coping with crises and crisis driven emergencies.
32	Hübner (2012)	German crisis management with regards to the Eurozone is very much driven by ideas that preserve norms but do not live up to the challenges of the crisis.
33	Varma (2020)	Actions taken as part of responsible leadership compass explained the variations in the share prices.
34	Kapucu and Ustun (2018)	There is a positive impact of the core leadership competencies on the effectiveness of CM.
35	Boin et al. (2010)	The integrating of theoretical and empirical findings on CM and political leadership styles emphasizing the crucial role of their leadership style on the political management of inquiries.
36	Dückers et al. (2017)	Proposed a model of psychosocial crisis management by integrating psychosocial principles with a model of strategic CM, in order to help public leaders, to understand typical psychosocial dynamics and obstacles as the crisis life cycle evolves.
37	Janis (1989)	Discussed the crucial decisions: Leadership in policymaking and crisis management
38	Harwati (2013)	Effectiveness of CM in organization should be able to determine the role of the stakeholders and choose appropriate strategies and leadership style.
39	Peltz et al. (2006)	Focused on three elements for effective disaster management: flow information, overall coordination, and leadership.
40	Genovese (1986)	There are a variety of skills which can be brought to bear on a crisis which are designed to reduce the likelihood that crises will lead to open warfare.

4.2.7. The role of professional entities (Prof.) on CM

There are many professional entities that provided guides and regulations to improve business and managed threats, risks, and crises. So, this section is limited to some professional entities such as the International Federation of Accountants (IFAC); the International Accounting Standard Board (IASB); Committee of Sponsoring Organizations (COSO); Basel Committee on Banking Supervision,

Table 9. Studies of CM with its relation to professional entities		
No.	**Studies**	**Results**
1	Al-Kubaisi (2010)	Absence of IFRS and transparency had a significant impact on the occurrence of the crisis, followed by weak control of companies.
2	Bosena (2013)	Basel Committee embodied the international will to standardize controls on banks operating in the banking industry in various countries, as well as to promote fair competition among these banks through the development of Basel I & II.
3	Abu-Zaid (2015)	Suggested a model for linking organizations risks management and internal control systems according to COSO framework.
4	Bukhoriev (2018)	CM is dependent on strategic management accounting information to make timely decisions.
5	Max (2020) is is good article Wiley publisher	The recognize the importance and necessity to open up organizational structures for the coordination and collaboration of unaffiliated volunteers.
6	Al-Aqoon (2013)	The economic globalization is one of the causes of financial crises, due to the internationalization and contagion of financial crises 2007/2008.
7	Paraskevas (2006)	The analysis of weaknesses as a response to the chain's crisis and complexity theory provided a theoretical foundation to overcome the crises.
8	Al-Ajlouni (2009)	There is a significant relationship between the administrative process and CM system.
9	Lo (2009)	In light of the financial crisis of 2007-2008, there is a need for greater transparency, improved measures of systemic risk, adaptive regulations.
10	Labaal (2017)	The most important reasons of financial crisis 2007/2008 were the low level of supervision over financial and banking institutions.
11	Mahdawi (2016)	Islamic banks are less affected by the mortgage crisis 2007/2008 compared to their conventional counterparts.
12	Watson et al. (2016)	Big data is able to positively inform preparation and pre-crisis efforts.
13	Rizza et al. (2017) ///Wiley///	Ethical legal and social considerations which built on contributions from the 2015 annual information system and CM that working with data.

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No.	Studies	Results
Table 9. (*Continued*)		
14	Dückers (2017)	Effective CM is strengthening utilizing capacities of psychosocial resilience.
15	Peihani (2015)	Investigated BCBS governance and policies in the context of the recent global financial crisis through the transparency.
16	Peihani (2014)	There are inadequate disclosure on the BCBS's deliberations, inadequacy and dilution of the post-crisis regulatory reforms.

and some others. In this regard, there are 16 studies that discuss CM with respect to professional entities with 160 citations during the period of 2006–2020. (Table 9) demonstrates these studies.

4.3. Geographical outlets

Different studies have been conducted in several countries across different regions. With regards to the studies at the regional level, the majority of the studies conducted are observed in case of the USA (57 studies; 25.56% with 6628 citations; 59.13%) and UK & Europe (71 studies; 31.84% with 3645 citations; 32,52%). MENA countries have 50 articles; 22.42% with 170 citations; 1.52% as compared to pacific & East Asia countries, which have 23 studies; 10.31% with 603 citations; 5.38% (See Table 10). Further, studies in the USA have covered all the areas of factors that influence CM, then the UK in which all the factors have been covered except for Gov. Similarly, 6 factors influence CM which have been covered in Canada. This comparison reveals that the majority of studies in this regard are conducted in the context of developed countries, which contribute to critical management study. Critical management studies in emerging and less developed countries may benefit from the studies that are conducted in developed countries in this regard.

Concerning the country–level studies (Table 11) shows that 57 articles have been conducted in the USA (25.56%), followed by 27 studies that have been conducted in the UK (12.11%), and 11 studies are found in case of China (4.93%). Similarly, there are 10 studies in Jordan (4.48%), 9 studies in Algeria (4.04%), and 8 (3.59%) studies in Iran and Canada each. All other countries each have studies ranging between 5 and 1 study.

5. Conclusion

This study aimed to provide a comprehensive SLR about the factors influencing CM and the research outlets that have been provided for CM researches. The systematic review approach was followed to address the research questions outlined for the current study. To this end, five steps of the systematic review process were followed, which include: (1) keyword and term identification, (2) article identification, (3) quality assessment, (4) data extraction, (5) data synthesis. Key word and term identification were conducted to extract related articles from different databases. In this regard, Google Scholar and the system of Harzing's Publish or Perish were used to search the articles. To do so, different Boolean search operators were used to facilitate the extraction of related articles. Further, reputed publishers' outlets such as Emerald, Wiley, Elsevier, Springer, Taylor & Francis, SAGE, Inderscience, and some other databases are accessed separately to make sure that articles related to the topic in these databases are not left and also to ensure quality assessment of the sampled articles by the present study. Finally, the total number of articles included in the current study were 223 studies.

Table 10. Area locations of studies

Country		IT	SP	Comm.	SM	KM	Gov.	Lead.	Prof.	Total	%
USA	No.	2	4	16	9	6	6	13	1	57	25.56%
	Cit.	84	303	1386	984	1250	554	1949	118	6628	59.13%
UK	No.	7	2	3	6	3	0	2	4	27	12.11%
	Cit.	86	229	285	430	519	0	150	25	1724	15.38%
Europe	No.	2	2	8	5	11	9	5	2	44	19.73%
	Cit.	10	9	516	37	112	1130	95	12	1921	17.14%
Canada	No.	1	0	2	2	0	1	1	1	8	3.59%
	Cit.	4	0	38	25	0	4	28	4	103	0.92%
MENA	No.	8	7	1	2	8	5	12	7	50	22.42%
	Cit.	36	7	15	20	40	0	52	0	170	1.52%
Pacific & East Asia	No.	1	0	4	4	9	2	3	0	23	10.31%
	Cit.	68	0	123	167	169	46	30	0	603	5.38%
Africa	No.	0	1	1	1	1	1	2	0	7	3.14%
	Cit.	0	0	0	5	19	4	1	0	29	0.26%
India	No.	2	0	0	1	0	0	1	0	4	1.79%
	Cit.	13	0	0	5	0	0	4	0	22	0.20%
Russia	No.	0	0	1	0	0	0	0	1	2	0.90%
	Cit.	0	0	3	0	0	0	0	1	4	0.04%
Brazil	No.	0	0	0	0	0	0	1	0	1	0.45%
	Cit.	0	0	0	0	0	0	6	0	6	0.05%
Total	No.	23	16	36	30	38	24	40	16	223	
	Cit.	301	548	2366	1673	2109	1738	2315	160	11,210	

Table 11. Country-wise studies

Country		IT	SP	Comm.	SM	KM	Gov.	Lead.	Prof.	Total	%
USA	No.	2	4	16	9	6	6	13	1	57	25.56%
	Cit.	84	303	1386	984	1250	554	1949	118	6628	59.13%
UK	No.	7	2	3	6	3	0	2	4	27	12.11%
	Cit.	86	229	285	430	519		150	25	1724	15.38%
Europe											
Nether lands	No.	1		2				1	1	5	2.24%
	Cit.	5		70				18	12	105	0.94%
Norway	No.				1	1	1	1		4	1.79%
	Cit.				0	6	141	75		222	1.98%
Greece	No.				1	1		1		3	1.35%
	Cit.				9	26		1		36	0.32%
Italy	No.					2		1		3	1.35%
	Cit.					11		0		11	0.10%
Portugal	No.						1			1	0.45%
	Cit.						3			3	0.03%
Belgium	No.					1	1			2	0.90%
	Cit.					0	0			0	
Sweden	No.			1			1	1		3	1.35%
	Cit.			15			9	1		25	0.22%
Finland	No.			3			1			4	1.79%
	Cit.			109			0			109	0.97%
Switzer land	No.						1			1	0.45%
	Cit.						894			894	7.98%
New Zealand	No.					1	1			2	0.90%
	Cit.						11			11	0.10%

(Continued)

Table 11. (Continued)

Country		IT	SP	Comm.	SM	KM	Gov.	Lead.	Prof.	Total	%
Spain	No.			1		1	1			**3**	1.35%
	Cit.			321		1	68			**390**	3.48%
Germany	No.				2		1		1	**4**	1.79%
	Cit.				21		4		0	**25**	0.22%
Romania	No.			1		1				**2**	0.90%
	Cit.			1		4				**5**	0.04%
France	No.					1				**1**	0.45%
	Cit.					39				**39**	0.35%
Bulgaria	No.					1				**1**	0.45%
	Cit.					3				**3**	0.03%
Hungary	No.					1				**1**	0.45%
	Cit.					22				**22**	0.20%
Cyprus	No.				1					**1**	0.45%
	Cit.				7					**7**	0.06%
Serbia	No.		1							**1**	0.45%
	Cit.		0							**0**	
Denmark	No.		1							**1**	0.45%
	Cit.		9							**9**	0.08%
Poland	No.	1								**1**	0.45%
	Cit.	5								**5**	0.04%
Sub Total	No.	2	2	8	5	11	9	5	2	**44**	
	Cit.	10	9	516	37	112	1130	95	12	**1921**	
Canada	No.	1		2	2		1	1	1	**8**	3.59%
	Cit.	4		38	25		4	28	4	**103**	0.92%
MENA											

(Continued)

Table 11. (Continued)

Country		IT	SP	Comm.	SM	KM	Gov.	Lead.	Prof.	Total	%
Turkey	No.				1			2		**3**	1.35%
	Cit.				16			43		**59**	0.53%
Iran	No.	1	2			4		1		**8**	3.59%
	Cit.	35	5			13		0		**53**	0.47%
Jordan	No.	2	3			3		2		**10**	4.48%
	Cit.	0	2			27		4		**33**	0.29%
Algeria	No.	1		1			3		4	**9**	4.04%
	Cit.	0		15			0		0	**15**	0.13%
Qatar	No.		1		1			1		**3**	1.35%
	Cit.		0		4			1		**5**	0.04%
Iraq	No.							3	2	**5**	2.24%
	Cit.							4	0	**4**	0.04%
Yemen	No.						1	1		**2**	0.90%
	Cit.						0	0		**0**	
EAU	No.							1		**1**	0.45%
	Cit.							0		**0**	
Lebanon	No.							1		**1**	0.45%
	Cit.							0		**0**	
KSA	No.	1					1			**2**	0.90%
	Cit.	0					0			**0**	
Kuwait	No.					1				**1**	0.45%
	Cit.					0				**0**	
Palestine	No.	2	1							**3**	1.35%
	Cit.	0	0							**0**	

(Continued)

Table 11. (Continued)

Country		IT	SP	Comm.	SM	KM	Gov.	Lead.	Prof.	Total	%
Morocco	No.	1								1	0.45%
	Cit.	1								1	0.01%
Egypt	No.								1	1	0.45%
	Cit.								0	0	
Sub Total	No.	8	7	1	2	8	5	12	7	50	
	Cit.	36	7	15	20	40	0	52	0	170	
Pacific & East Asia											
China	No.			2	1	6	1	1		11	4.93%
	Cit.			8	61	75	1	1		146	1.30%
Thailand	No.					1		1		2	0.90%
	Cit.					0		7		7	0.06%
Indonesia	No.							1		1	0.45%
	Cit.							22		22	0.20%
Taiwan	No.					1	1			2	0.90%
	Cit.					54	45			99	0.88%
Australia	No.			1	3	1				5	2.24%
	Cit.			79	106	40				225	2.01%
Singapore	No.	1		1						2	0.90%
	Cit.	68		36						104	0.93%
Sub Total	No.	1	0	4	4	9	2	3	0	23	
	Cit.	68	0	123	167	169	46	30	0	603	
Africa											
Uganda	No.							1		1	0.45%
	Cit.							0		0	

(Continued)

Table 11. (Continued)

Country		IT	SP	Comm.	SM	KM	Gov.	Lead.	Prof.	Total	%
South Africa	No.			1		1	1	1		4	1.79%
	Cit.			0		19	4	1		24	0.21%
Nigeria	No.		1		1					2	0.90%
	Cit.		0		5					5	0.04%
Sub Total	No.	0	1	1	1	1	1	2	0	7	
	Cit.	0	0	0	5	19	4	1	0	29	
India	No.	2			1			1		4	1.79%
	Cit.	13			5			4		22	0.20%
Russia	No.			1					1	2	0.90%
	Cit.			3					1	4	0.04%
Brazil	No.							1		1	0.45%
	Cit.							6		6	0.05%
Total	**No.**	**23**	**16**	**36**	**30**	**38**	**24**	**40**	**16**	**223**	
	Cit.	**301**	**548**	**2366**	**1673**	**2109**	**1738**	**2315**	**160**	**11,210**	

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The extracted articles are categorized into 8 factors and areas based on their effect on CM; these factors are Comm., SM, Lead., KM, Gov., SP, IT, and Prof. The retrieved articles comprised 111 articles from Google Scholar and 112 from Harzing which also have been checked to make sure that all studies were from reputed publishers. The extracted articles were distributed among 8 important factors that affect CM; Comm. & SM, which have 66 studies with 4039 citations, Lead. which has 40 articles with 2315 citations, followed by KM, Gov. IT, SP and Prof., which have 38, 24, 23, 16, 16 manuscripts, respectively, with 2109, 1738, 301, 548, and 160 citations, respectively. The majority of the studies conducted were observed in the case of the USA (57 studies; 25.56% with 6628 citations;59.13%) and UK & Europe (71 studies; 31.84% with 3645 citations; 32,52%). 57 articles that have been conducted in the USA, followed by 27 studies that have been conducted in the UK (12.11%), and 11 studies were found in the case of China (4.93%).

Despite of the existence of several studies that investigate different issues related to CM, the current study is the first comprehensive review of CM that offers a navigation window into the existing research related to CM. The current study offers multiple opportunities and implications to researchers and practitioners by highlighting the focus of CM studies making a novel contribution to the strand literature of CM. The present study highlighted the areas of crisis management studied by prior research. The findings of the study mag guide future researchers in this regard. However, the study is limited to SLR. Meta-analysis could be conducted; however, the fragmentation among the surveyed studies made it difficult to conduct meta-analysis research in this issue. Future research is recommended to bring more insights and focus into a different area that is related to CM such as big data, IT-related issues, IT governance, accounting information system AIS, internal control procedures of AIS, internal control by using COSO framework, and cybersecurity. Another possible stream for future research is focusing on the factors that affect CM in developing countries. Further, future research could conduct a systematic or semi systematic review taking into consideration the methodology used by the surveyed studies. Several factors that could be taken by future research such as; quantitative, qualitative, or mixed, the research instrument, the time period of secondary data, and the statistical tools used for estimating the results.

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