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Confirmation of a crisis leadership model and its effectiveness: Lessons from the COVID-19 pandemic

Sreejith Balasubramanian^{1*} and Cedwyn Fernandes²

Abstract: Despite the significance of crisis leadership for organizations, especially in the wake of COVID-19, empirical research in this area is still nascent. Therefore, “What attributes make an effective leader during a crisis?” is unclear. Using lessons learned from the COVID-19 pandemic, this study seeks to address this gap in the literature by i) developing and validating a robust multi-dimensional crisis leadership model and ii) measure its effectiveness in handling the crisis. A higher-order measurement model of crisis leadership comprising of seven constructs (compassion and care, openness and communication, resilience and courage, decisiveness, consultation and collaboration, and empowerment) and two structural models to measure its predictive validity (effectiveness in handling the crisis) were proposed based on the review of crisis leadership literature. Next, using data collected through a global survey, the validity of the proposed models, including the relevance/appropriateness of each construct and the predictive power of the crisis leadership model in explaining the organizations’ effectiveness in handling the crisis, were assessed. The second-order confirmatory factor analysis established the existence of a higher-order measurement model for crisis leadership, with each of the seven constructs contributing uniquely and strongly. The structural equation modeling results confirmed the strong predictive power of the crisis leadership model in explaining the organizations’ effectiveness in handling the crisis across its different (beginning, current, and future) phases. The findings show that crisis leadership is multifaceted and requires an all-encompassing effort and provides a road map for organizations looking to develop crisis leadership capabilities for senior managers and leaders.

Subjects: Technology; Leadership; Leadership Strategy

PUBLIC INTEREST STATEMENT

During the initial stages of COVID-19 crisis, many organizational leaders have faltered under pressure while others successfully navigated through the crisis. The heterogeneity in the success of firms during the COVID-19 highlighted the importance of having a strong leadership during a crisis, which enabled organizations to navigate the crisis or even seize the opportunities presented by the crisis. This study sheds light into the key actionable attributes and skills that a leader must possess during a crisis. The results show that crisis leadership is multifaceted and requires an all-encompassing effort focusing on *Compassion and Care; Openness and Communication; Adaptiveness; Resilience and Courage; Decisiveness; Consultation and Collaboration; and Employee Empowerment*. With organizational leaders again in crisis mode with the new wave of COVID-19 infections due to the Omicron variant, lessons learned from the COVID-19 pandemic so far have significant implications for organizations and leaders to take pre-emptive measures for effectively steering the organization through the remainder of the crisis as well to prepare for future crisis.

Keywords: Crisis leadership; conceptual model; COVID-19; theoretical framework; structural equation modeling; confirmatory factor analysis; empirical study; survey research

2. Introduction

At the time of writing this article, 18 months have passed since the beginning of the COVID-19 pandemic, which first appeared in China in December 2019. By now, most organizations have made adaptive changes to their operations and transitioned to the “new normal”, and business and leadership decisions have become a lot easier as the nature of the pandemic became clearer. However, this was not the case in the initial months, when little was known about the virus and its socio-economic impact. The pandemic, which started as a physical health crisis, had quickly turned into an economic crisis, with the virus affecting almost every country in the world (World Health Organization, 2020). Leaders were grappled with many new questions for which they did not have answers, even as their teams looked for direction. The COVID-19 pandemic presented an ultimate test for organizational leaders across the world (Dirani et al., 2020).

The role of organizational leaders and the impact of their decisions and actions are magnified during times of crisis, especially during its initial phases, wherein organization experiences shock, as the crisis could threaten their very existence (Fink et al., 1971). Leaders are also vulnerable to crisis shock which could leave them paralyzed (Fink et al., 1971). According to James and Wooten (2005, p. 141) “what differentiates those firms that thrive during and following a crisis from those that do not is the leadership displayed throughout the process. However, the COVID-19 is a rare, long-haul, health and economic crisis, which is global in nature, and no training or experience in previous crises could have prepared leaders for it. Still, organizations have relied on their leaders to lead them out of the COVID-19 crisis despite it kept generating new uncertainties. While many leaders successfully managed the crisis, others were not so successful in managing the crisis, and have faltered under pressure, resulting in temporary or permanent business closures. The heterogeneity in the success of firms during the COVID-19 has reemphasized the importance of having a strong leadership during a crisis, which enabled organizations to seize the opportunities presented by the crisis and stay ahead of the competition (McKinsey & Company, 2020). Looking back, the decisions made by leaders under heightened uncertainty (during the first 6–8 months of the pandemic), when little was known about the virus and its socio-economic impact, have played a significant factor in the success or failure of organizations. This obviously makes us examine that fundamental question—“What attributes make an effective leader during a crisis such as a pandemic?”.

Although generalizable statements about the effective leadership attribute that works for any crisis would be problematic, the leadership lessons learned from the COVID-19 pandemic could shed light on some key actionable attributes and skills that future leaders need to develop to sustain through (at least in the initial phases) any future crisis, especially when there exists no tried and tested methods and little information for confronting a live crisis. The significance of creating collective wisdom to prepare for future crises is even more critical given that we are awaiting several crises to unfold (the “next pandemic” or the “next global recession” features on everyone’s future crisis list) due to the increasing uncertainty that the world faces as a result of climate change, political conflicts, war, and cyber-terrorism (Soete, 2021). Moreover, given the uncertainty over how long this COVID-19 pandemic will last with several countries experiencing or likely to experience a second or third wave of infection, leaders may find the valuable leadership lessons learned from the COVID-19 pandemic so far to be helpful and actionable to navigate through the remainder of the crisis (McKinsey & Company, 2021). Overall, taking stock of leadership lessons learned from the COVID-19 pandemic deserve prioritization on the research agenda.

Unfortunately, despite the crucial role of leadership in the context of crisis, research in this field remains limited and fragmented (Bundy et al., 2017). Most studies adopt a descriptive and subjective approach based on anecdotal evidence, personal reflections, and assumptions. Crisis leadership during the pandemic, in particular, is arguably in its early development phases, both academically and practically, despite our past experiences with epidemics such as SARS, Ebola, bird flu, H1N1, and MERS. For example, health or pandemic-induced crisis did not feature in the review study by Pearson and Clair (1998) which identified several large-scale organizational crises situations. To date, no available and widely recognized theoretical frameworks and measurement models of crisis leadership exists, let alone for the pandemic. Any efforts to conceptualize the critical dimensions of crisis leadership and develop a scientific scale-based instrument to understand and measure them are still in the nascent stage. Since construct development and validation are essential for establishing a common conceptual base (Venkatraman, 1989), these limitations make it difficult for researchers and practitioners to appreciate the progress made in the crisis leadership literature, derive comprehensive and objective insights, and forge a path ahead for theoretical and empirical advancement, and a practitioners' guide.

The aforementioned gaps in the literature formed the motivation of this research, which aims to develop and empirically validate a robust multi-dimensional crisis leadership model and measure its effectiveness in handling the crisis using the lessons learned from the ongoing COVID-19 pandemic.

In realizing this aim, the following research question (RQ) is answered:

RQ: What are the critical crisis leadership attributes that would contribute to its effective handling?

The specific objectives of this study are as follows:

- To develop the relevant crisis leadership constructs and their underlying items;
- To empirically test and validate the multi-dimensional measurement model of crisis leadership;
- To assess the predictive power of the crisis leadership model in the effective handling of the crisis

This study, which was conducted during August–September 2020, includes several key leadership attributes that seemed to have played a role in the successful handling of the initial but critical phases of the COVID-19 crisis when organizations grappled with often limited and conflicting pieces of information and heightened uncertainty regarding the nature of the virus and its socio-economic impact. The results will provide organizational leaders with numerous valuable and actionable insights for future pandemics or disasters. Integrating existing knowledge into a comprehensive model allows investigation of multiple theoretical perspectives simultaneously, helps define the boundaries of the field more rigorously, and allows knowledge to grow in a consistent manner in the field.

The employees' perceptions of the crisis leadership behavior demonstrated by their leaders during the COVID-19 pandemic were used in this study. Previous studies have asserted the importance of considering employees' (followers) experiences of being led during periods of crises in gaining a deeper understanding of crisis leadership (Caringal-Go et al., 2021; Eichenauer et al., 2021). A survey-based research method was undertaken in this study since surveys are an effective tool to capture individual (employees) perceptions, test and validate conceptual models, and investigate cause and effect relationships. In terms of theoretical background, the study takes inspiration from two main theories, namely the situational leadership theory and implicit leadership theory.

The remainder of the paper is structured as follows. In the next section (Section 2), we conduct a review of literature on crisis leadership during the COVID-19 pandemic to develop the relevant crisis leadership constructs and underlying measurement items. In Section 3, conceptual models to measure crisis leadership and its effectiveness in handling the crisis are proposed. Section 4 explains the research methodology undertaken in this study. The analysis and findings of the study, including validation of the constructs and framework, and testing of hypotheses, are presented in Section 5. We conclude in Section 6 with discussions of the study, along with implications, limitations and recommendations for future research.

3. Developing the crisis leadership constructs and items in the context of COVID-19

In line with the research objectives, literature review was initiated to obtain knowledge about the effective leadership attributes during the COVID-19 pandemic in order to learn from such experiences and propose attributes that leaders need to take on board if they were to survive and thrive in future crises. The current studies on crisis leadership during pandemic are not only limited but also fragmented and scattered across the literature. A lack of comprehensive research in crisis leadership during pandemic appear missing. As a result, organizational leaders had limited understanding of how to deal with COVID-19 pandemic situation, and have naturally been caught unawares.

In the first stage of the review, a careful synthesis of the scattered studies in crisis leadership during COVID-19 pandemic was undertaken. Although fragmented, the limited studies on crisis leadership during pandemic provided a good starting point for the development of the conceptual base for this study. The review included academic articles and a range of industry sources. The scholarly review of articles included empirical studies (e.g., Caringal-Go et al., 2021), reflections (e.g., Stoller, 2020), short commentaries (e.g., Ahern & Loh, 2020), viewpoints (e.g., Sadiq et al., 2021), and editorials (e.g., Lagowska et al., 2020), while the review of industry sources included websites (e.g., Forbes, United nations), magazines (e.g., Harvard Business Review), reports (e.g., McKinsey & Company, Deloitte), and news articles among others. The approach of combining academic and industry sources is justified, given that practical and realistic solutions are needed to inform practice, especially considering that COVID-19 is a relatively new and unique event (Balasubramanian et al., 2021).

In the next phase, much broader generic crisis management literature across sectors such as crisis leadership competencies in the facility management sector in Thailand (Wisittigars and Siengthai, 2019), construction industry (Loosemore & Hughes, 1998), healthcare crisis (Allen, 1991) was undertaken to extend the conceptual base of crisis leadership literature developed for the COVID-19 pandemic. In addition, several seminal works on crisis management literature was reviewed to strengthen the conceptual based of this study (e.g., Fink et al., 1971; Hersey et al., 1979; Hershey et al., 1977). Finally, several leadership studies and leadership theories were reviewed to support the crisis leadership literature and to select the appropriate theoretical lenses for this study. They are discussed in the following sections.

3.1. Theoretical background

A crisis is a low-probability, high-impact event that causes significant disruption. From an organizations' perspective, a crisis is an "unexpected abnormal situation which presents some extraordinary, high risk to business and which will develop into a disaster unless carefully managed" (Shaluf et al., 2003, p. 29). This study explores crisis leadership through the lens of "situational leadership theory" and "implicit leadership theory".

3.1.1. Situational leadership theory

The significant uncertainty of a global crisis exacerbates the challenges associated with leadership compared to more 'business-as-usual times (Ahern & Loh, 2020). However, each leadership style has its own issues in managing crises. For example, transformational leadership may not be the most appropriate in the case of an extreme time crunch since it takes time to build consensus. Similarly, a transactional leader is bound by rules and regulations, making him/her ill-suited to

manage the dynamics of most emerging crises. Likewise, charismatic leadership could backfire in a crisis, as they tend to satisfy their own needs, such as positioning themselves as the center of attention and ignoring the viewpoints of other organizational members. A directive leadership will also have issues in crises that require organizational flexibility or innovative action. At the same time, a cognitive leader could lack sufficient empathy and interpersonal skills to manage a crisis successfully. Holding on to one leadership style or selecting the wrong leadership style during a crisis could lead to ineffective leadership (Vera & Crossan, 2004). Given the ever-changing and evolving nature of the COVID-19 pandemic, it can be said that no one leadership approach or style will work (Ahern & Loh, 2020; Francisco & Nuqui, 2020). This is evident from the leadership literature on COVID-19, which has discussed several leadership styles in handling the crisis. For instance, studies have discussed identity leadership (Haslam et al., 2021), supervisory leadership (Eichenauer et al., 2021), authentic leadership (Ahern & Loh, 2020), decisive leadership (Al Saidi et al., 2020), and charismatic, ideological, and pragmatic leadership (Crayne & Medeiros, 2020). Therefore, it can be assumed that a combination of different leadership styles will be needed as the crisis progresses through its various stages (Vera & Crossan, 2004; Korn Ferry, 2020). An effective leader during a crisis should be able to display multiple competencies and styles as a coherent ensemble. Therefore, the relevance of situational leadership is even more significant during a crisis.

The situational leadership theory is centered around the approach that a situational leader should hold to no single leadership style but adapts as needed, as the situation requires (Sims et al., 2009; Vera & Crossan, 2004). The seminal works on situational leadership theory underlines the selection of leadership style for a given situation that has the highest probability of success (Hersey et al., 1979; Hershey et al., 1977). For instance, depending on the followers' maturity to handle a task situation, leader may have to engage in telling, selling, participating and delegating style of leadership (Hersey et al., 1979). It acknowledges that there is no one-size-fits-all approach to solving a crisis and advocates leaders to take an all-encompassing effort rather than being oriented toward one or two specific behavior or style. Moreover, it is built on the assumption that different sets of responses will be required to manage and plan the different stages of the crisis (e.g., beginning, ongoing/current, and future phases; Dirani et al., 2020). Earlier studies have also mentioned situational leadership to be best suited for crisis management, during the crisis, and in the post-crisis stages (Hersey & Chevalier, 2000; Wisittigars and Siengthai, 2019).

Situational leadership strategy encourages leaders to take stock of their team members, weigh the many variables in their workplace and choose the leadership styles that best fit their goals and circumstances. Leaders must be able to move from one leadership style to another or demonstrate multiple-leadership styles simultaneously to meet the changing needs of an organization and its employees. During crisis, employees are likely to demonstrate different readiness to handle situation. Situational leader could choose the appropriate leadership style to match with the followers' level of readiness to enhance their productivity and competitiveness (Mujtaba & Sungkhawan, 2009). Situational leaders, therefore, must demonstrate a high level of different leadership competencies during the crisis. In our review of leadership during the ongoing COVID-19 pandemic, we have identified several leadership behaviors and styles that a situational leader must possess to handle the crisis effectively. They are discussed in the following section.

3.1.2. *Implicit leadership theory*

While leadership is often seen as what leaders do, research in this area acknowledges that leadership is a process of interaction between different leaders and followers and the environment (Schyns & Riggio, 2016). Employees (followers) are key stakeholders for leaders, and during a crisis, employees expect the leader to successfully manage it. They want to be supported by him, they demand support from him, they want to feel his interest and empathy, and subsequently, they want to help him through the crisis (Joniaková et al., 2021). The followers' preferred behaviors from their leaders during times of crisis may differ from those expected of them during the normal time

or at different stages of the crisis. It is likely that employees' perception of their current leaders during the COVID-19 pandemic will shape their (leaders) crisis leadership behaviors.

Implicit leadership theory is centered around employee's (followers) perception of leadership characteristics (Caringal-Go et al., 2021). According to theory, followers' perception of leadership based on their knowledge, cognition, and beliefs could be used to identify the attributes and behaviours that distinguish leaders from non-leaders, good from bad leaders, and effective from ineffective leaders (Holmberg & Åkerblom, 2006). Also, the theory states that the followers' mental representations of leaders will influence how they acts toward leaders and how they behave in their workplace (Schyns & Riggio, 2016). Therefore, the follower-centered approach to crisis leadership is important, especially during the ongoing COVID-19 crisis, since discrepancies are often found between leaders' self-perception and followers' perception of leadership (Seghal et al., 2021). Understanding followers' perception of leadership is critical for narrowing the leader-follower perception gap and achieving congruence between leaders and followers (Seghal et al., 2021), which in turn could lead to engaged employees going that extra mile at their jobs, especially during crisis.

On the other hand, a greater discrepancy in the leader-follower perception could lead to surprise, consternation, disbelief, or emotional distress among employees, which could lead to a poor organizational culture and employee productivity (Aarons et al., 2017). When large sample of employees from diverse organizations share the idea of what constitutes the major attributes and behaviours that distinguish desirable and effective crisis leaders from others, this represents a culturally endorsed implicit theory of crisis leadership (Holmberg & Åkerblom, 2006). Therefore, this study focuses on capturing employees' inference-based perceptual process, to draw conclusions on how their organizational leaders responded to the COVID-19 crisis.

3.2. Conceptualization of crisis leadership during COVID-19

Construct development and validation are essential for the establishment of a common conceptual base, especially when the existing body of knowledge on crisis leadership during COVID-19 is limited and scattered across the literature. However, fragmented contributions of these various COVID-19 focused studies and secondary sources, when considered together in conjunction with a larger body of crisis literature, have provided many critical aspects necessary for the development of crisis leadership constructs and underlying items. The seven key dimensions (constructs) of crisis leadership derived from the literature are discussed in the following sections.

3.2.1. Compassion and care

Leadership during the crisis is not only about securing the support of employees but also about giving support to them and show that the organization cares about their well-being (Eichenauer et al., 2021; Haslam et al., 2021). During a crisis, employee-centric leaders put the employee first and are sensitive to their differing circumstances (Dirani et al., 2020; Haslam et al., 2021). A crisis is not the time to dwell on employee mistakes but rather to instill confidence in them through empathy, support, and reassurance (Kaul et al., 2020). Compassion and care create a sense of togetherness during the crisis. Haslam et al. (2021) argued that leaders' ability to develop and embed a sense of "us-ness" among followers is essential during the COVID-19 pandemic. The emphasis during a crisis should be on making a connection rather than correction (Kaul et al., 2020). Leaders must have the humility to listen to the wide range of employee concerns during a crisis. It shows that leaders genuinely care about them and their well-being, including mental, emotional, and physical, while making decisions (Dirani et al., 2020; Kaul et al., 2020).

The demonstration of empathy and walking compassionately in the shoes of employees is critical during COVID-19 pandemic in which human tragedy is frequent (Deloitte, 2020a; Forster et al., 2020). Leaders will be more effective if their policies and decisions are seen to be informed by empathy with others and their plight (Haslam et al., 2021). Although employee needs may be many and varied during the crisis, leaders need to understand individual employees' problems separately and guide them to overcome them (Dirani et al., 2020; Haslam et al., 2021). The acts of

leaders conveying concern and interest in the personal circumstances of employees were a major source of consolation. This includes expressions of empathy, concern, and understanding of what employees are going through during the pandemic, and the assurance that they are available whenever employees need to talk (Caringal-Go et al., 2021). Dirani et al. (2020) stressed the need for leaders to listen to employees' concerns during the COVID-19 pandemic and provide necessary psychological and supervisory support, especially to those who most need it. The study also highlighted that leaders must be more empathetic and genuinely caring in their response to the needs of their employees. Employees should be given the opportunity to speak up, express their concerns, to which leaders have to respond (Ahern & Loh, 2020).

3.2.2. *Openness and communication*

Crisis communication can be defined broadly as the collection, processing, and dissemination of information required to address a crisis situation (Coombs & Holladay, 2010). Several studies highlighted "communication" as one of the core leadership principles during a crisis as it "inspire a shared vision" (Kaul et al., 2020; Stoller, 2020). Dirani et al. (2020) stressed that frequent communications with employees about the current state of the business is an integral part of crisis management and is one of the core responsibilities of the leaders at the time of crisis. It provides comfort for employees in otherwise uncomfortable times. Such communication during a crisis must be honest and transparent, being factual, frequent, iterative, clear and direct, and must use multiple-dissemination media (Dirani et al., 2020; Stoller, 2020). Employees respond so much better to the known (even if the news isn't great) than the unknown (which tends to fuel more anxiety) or, even worse, misleading half-truths or irresponsible optimism (Forbes, 2020).

Leaders, therefore, need to seize the narrative at the outset, being transparent about current realities (what is happening), including what they do not know. Such communication needs to be clear and consistent but also adaptive (Kaul et al., 2020). Caringal-Go et al. (2021) found constant and open communications from their leaders helped alleviate the negative feelings brought about by the COVID-19 pandemic. Forster et al. (2020) stressed the importance of leaders ensuring transparency in their communication during the crisis. Deloitte's (2020b) study on COVID-19 leadership also stressed the importance of communicating transparently and openly during a crisis.

3.2.3. *Adaptiveness*

Responding to a rapidly evolving crisis such as COVID-19 requires adaptive leadership because the crisis is characterized by uncertainty and turbulence. Therefore, continuous learning and the adjustment of responses are necessary (Dirani et al., 2020; Ramalingam et al., 2020). The leaders must adapt to the situation as the conditions change (Ahern & Loh, 2020; Forster et al., 2020). During a crisis, leaders should make sure to incorporate an agile and adaptive mindset into their decision-making and operational thinking, such as the need to think critically while engaging in the situation to discover new processes, restructure strategies of action and understand the phenomena (Dirani et al., 2020).

While it is all too easy to move into survival mode during the crisis, effective leaders at the same time should embrace the long view and recognize the need for new business models and innovations during and post-crisis (Deloitte, 2020b). The forward-thinking leaders are likely to use crisis as an opportunity to identify new paradigms, incorporate innovative strategies and systems into the rebuilding process such that the new processes are stronger, more robust, and progressive (Kaul et al., 2020). In the case of COVID-19, the pandemic also offers opportunities for organizations to address novel demands that have emerged in the market and demonstrate their adaptability to stakeholders (Donthu & Gustafsson, 2020).

3.2.4. *Resilience and courage*

A resilient leader is a person who sees failures as temporary setbacks they can recover from quickly (Forbes, 2017). Instead of freezing under pressure, resilient leaders demonstrate courage in the face of uncertainty caused by the crisis. They must realize that hard decisions and sacrifices are required to preserve strategic direction during the crisis (Kaul et al., 2020). Leaders must learn to work under

extreme stress during a crisis while attempting to minimize the stress of their followers. At the same time, these leaders acknowledge that in moving quickly, it is natural to make some mistakes on the way (Stoller, 2020). However, good leaders learn quickly from their mistakes and bounce back strongly. Taking responsibility for the crisis means that leaders are demonstrating resilience, that they are in this for the long haul, and can be relied on to continue to persevere on behalf of their followers (Ahern & Loh, 2020). Such leaders also show honesty and courage in admitting when they have made missteps and when there have been failures (Ahern & Loh, 2020).

3.2.5. *Decisiveness*

During a crisis, time is of the essence. Also, crises call for leaders to be more direct and strong and adopt a take-charge approach. Decisive leadership is important to act swiftly during a crisis (Forster et al., 2020). A recognized characteristic of decisive leadership is a rapid response based on a clear understanding of the threat posed by the crisis, such as the COVID-19 pandemic. Leaders cannot afford to make decisions by the committee in such circumstances. A decisive leader during a crisis understands that no action or a delayed action may lead to a worse outcome (Kaul et al., 2020; Al Saidi et al., 2020). A decisive leader has well-defined expectations, communicates clearly, and typically expects people to follow the dictum without questioning it too deeply. This do-what-I say approach can be very effective at times in a crisis. The seminal studies on situational leadership have stressed the importance of “telling” employees what, how, when, and where to perform, especially when employees are unable and unwilling to take responsibility (Hersey et al., 1979; Hershey et al., 1977), which is a likely scenario during crisis situation. Also, decisive leaders do not hesitate to take these rapid, high-impact, hard decisions even in a limited information setting. This is because high-quality data are scarce or hard to come by crisis, and therefore, leaders must make decisions based on prior or best available knowledge, experience, intuition, consensus, and sometimes common sense (Kaul et al., 2020). Caringal-Go et al. (2021) study found that the employees want their leaders to be decisive such as “act quickly”, and ‘show a sense of urgency to address emerging concerns during COVID-19. Stoller’s (2020) reflection on leadership in the time of COVID-19 emphasized the need for leaders to show a sense of urgency and make decisions quickly during a crisis. Employees usually obey orders when they know that the stakes are high.

3.2.6. *Consultation and collaboration*

During a crisis, it can be tempting to move fast and make decisions without seeking input from others (UN Global Compact, 2020). However, addressing the challenges of a complex crisis like the current pandemic requires more than leaders acting alone and requires collective and inclusive decision-making and stakeholder collaboration for success (Dirani et al., 2020; Sadiq et al., 2021). Even authoritarian leaders should not stick to their “one-leader show” during a crisis (Deloitte, 2020c). The best leaders during a crisis actively resist the instinct of withdrawing inward as they are likely to be faced with information from outside of their area of expertise and may not have the time to learn more about the crisis.

Leaders, therefore, must reach out to individuals with relevant knowledge and expertise (Lagowska et al., 2020). They should look outward to internal and external expert colleagues such as employees, suppliers, customers, and other organizations to gather the insight required to enable better decision-making (Kaul et al., 2020). The leader may also consult with subordinates and seeks input to make consensus decisions. Dirani et al. (2020) stressed the importance of tapping onto the collective leadership potential of everyone in the organization during the pandemic. In sum, leaders who treat internal and external stakeholders as the solution to a crisis are likely to be more effective in handling the crisis (Haslam et al., 2021). This dimension is aligned with the situational leadership theory given that “participating” is to encourage the follower to participate and get involved in collaborating and shared decision-making (Hersey et al., 1979; Mujtaba & Sungkhawan, 2009).

3.2.7. Employee empowerment

Empowerment means releasing self-motivation of employees such that they have the will to perform and contribute more (Coleman, 1996). In order for employees to feel empowered, leaders must ensure that their ideas are valued and taken seriously in decision-making (Quinn & Spreitzer, 1997). Accordingly, one of the key aspect of employee empowerment is to encourage creative ideas rather than telling employees what to do, and thereby make everyone a contributor (Coleman, 1996). In the context of COVID-19 pandemic, Forster et al. (2020) highlighted the need to empower the employees and promote open discussions, in which creative ideas can be exchanged without fear of reprisal. Kaul et al. (2020) emphasized the importance of creative problem-solving strategies to keep the enterprise operational during COVID-19. Stoller (2020) mentioned the need to provide space for colleagues to experiment, take risks, and learn from the accompanying mistakes during the crisis. Eichenauer et al. (2021) highlighted the importance of providing employees the flexibility and autonomy in completing their tasks. Also, from a social exchange perspective, followers who receive support from leaders will reciprocate by performing in accordance with leaders' preferences (Keller & Dansereau, 1995). For instance, appreciation at work and recognizing the employees' contributions is critical during the crisis as it galvanizes their commitment and provides positive reinforcement (Dirani et al., 2020; Stoller, 2020).

In line with our first study objective, Table 1 summarizes the crisis leadership constructs and its underlying items derived from the literature. A total of 24 items are identified across seven constructs. While it may be argued that a host of other constructs and items could be identified in the crisis leadership literature, no other constructs and items appeared most often in the crisis and COVID-19 literature as those given in Table 1. These seven constructs and underlying items form the basis for our crisis leadership model.

4. Theoretical models

In this section, a second-order measurement model for crisis leadership is proposed, followed by two structural models to test the relationship between crisis leadership and organizations' effectiveness in handling the crisis.

4.1. Proposed second-order measurement model of crisis leadership

As evident from our review, crisis leadership is a complex and multifaceted phenomenon, encompassing seven constructs. An effective leader during a crisis should be able to display multiple competencies and styles as a coherent ensemble. In other words, no single dimension (construct) itself will be sufficient in describing or predicting the crisis leadership phenomenon. A measurement model defines relationships between the observed constructs and unobserved latent construct (the crisis leadership construct) and evaluates the reliability and validity of the model (Chiou et al., 2011). Previous studies have strongly advocated the operationalization of leadership as a second-order measurement model (e.g., Meng & Berger, 2013; Overby & Suvanujasiri, 2012).

In our study, we expect all seven constructs (observed) are governed by a higher-order crisis leadership construct (unobserved). Hence, we propose crisis leadership as a mathematical composite of all seven constructs identified in the literature. This leads to our first hypothesis:

H1: Each of the seven constructs (CC, OC, AD, RC, DC, CCL, and EM) will contribute uniquely to crisis leadership.

To test hypothesis—H1, a second-order confirmatory measurement model (Figure 1) is proposed. A confirmatory measurement model instead of exploratory is preferred since we already have a good priori knowledge of constructs and items from the literature. We now only want to test how well the sample data fits the proposed seven-construct model.

Table 1. Constructs and measurement items of crisis leadership in the context of COVID-19 pandemic

Constructs and Items	Literature Source (Adapted from)
Compassion and Care (CC)	
Have been an active listener to employee concerns during the crisis (CC1)	Forster et al. (2020); Dirani et al. (2020); Haslam et al. (2021); Kaul et al. (2020); Caringal-Go et al. (2021); Ahern and Loh (2020);
Has been empathetic to employees concerns during the crisis (CC2)	
Employee's needs and concerns are central to the decisions made during the crisis (CC3)	
Have encouraged employees to openly and honestly express their concerns (CC4)	
Openness and Communication (OC)	
Have ensured employees are regularly informed of the crisis situation on a regular basis (OC1)	Kaul et al. (2020); Stoller (2020); Dirani et al. (2020); Forster et al. (2020); Caringal-Go et al. (2021)
Have shown a great deal of transparency during the crisis (OC2)	
Adaptiveness (AD)	
Have been able to assess the changing/evolving crisis situation and set priorities accordingly (AD1)	Forster et al. (2020); Dirani et al. (2020); Kaul et al. (2020)
Have made drastic changes in the organization to overcome the crisis (AD2)	
Have tried new and unconventional means to overcome the crisis (AD3)	
Resilience and Courage (RC)	
Have been able to handle stress situation (due to crisis) well (RC1)	Stoller (2020); Deloitte (2020a); Kaul et al. (2020); Ahern and Loh (2020)
Has bounced back strongly from setbacks faced during the crisis (RC2)	
Have shown a great deal of courage in handling the crisis (RC3)	
Has taken full accountability/responsibility for the crisis situation (even the Leader did not cause the crisis) (RC4)	
Decisiveness (DC)	
Has not been hesitant in making difficult decisions during the crisis (DC1)	Al Saidi et al. (2020); Stoller (2020); Caringal-Go et al. (2021); Kaul et al. (2020); Forster et al. (2020)
Has shown a sense of urgency in dealing with the crisis (DC2)	
Have made decisions fast/quick during the crisis (DC3)	
Have provided clear orders and direction for employees to follow during the crisis (DC4)	
Have clear expectations from employees during the crisis (DC5)	
Consultation and Collaboration (CCL)	
Have consulted with others in making decisions during the crisis (CCL1)	Forster et al. (2020); Caringal-Go et al. (2021); Lagowska et al. (2020); Stoller (2020)
Has relied on internal subject experts/specialists to handle the crisis (CCL2)	
Has relied on external subject experts/specialists to handle the crisis (CCL3)	
Empowerment (EM)	
Employee creativity is encouraged during the crisis (EM1)	Dirani et al. (2020); Forster et al. (2020); Kaul et al. (2020); Stoller (2020); Eichenauer et al. (2021)
Considerable freedom/independence is provided for employees in handling the crisis (EM2)	
Employees are recognized for their work during the crisis (EM3)	

4.2. Proposed structural model

In contrast to the measurement model, the structural model defines the causal relationships among the unobserved latent constructs. In this case, we are examining the relationship between crisis leadership (second-order latent construct and independent variable) and organizations' effectiveness (first-order latent construct) in handling the crisis (dependent variable). A three-item construct was proposed by the authors to capture the effectiveness in handling the crisis at

Figure 1. A second-order measurement model for crisis leadership.

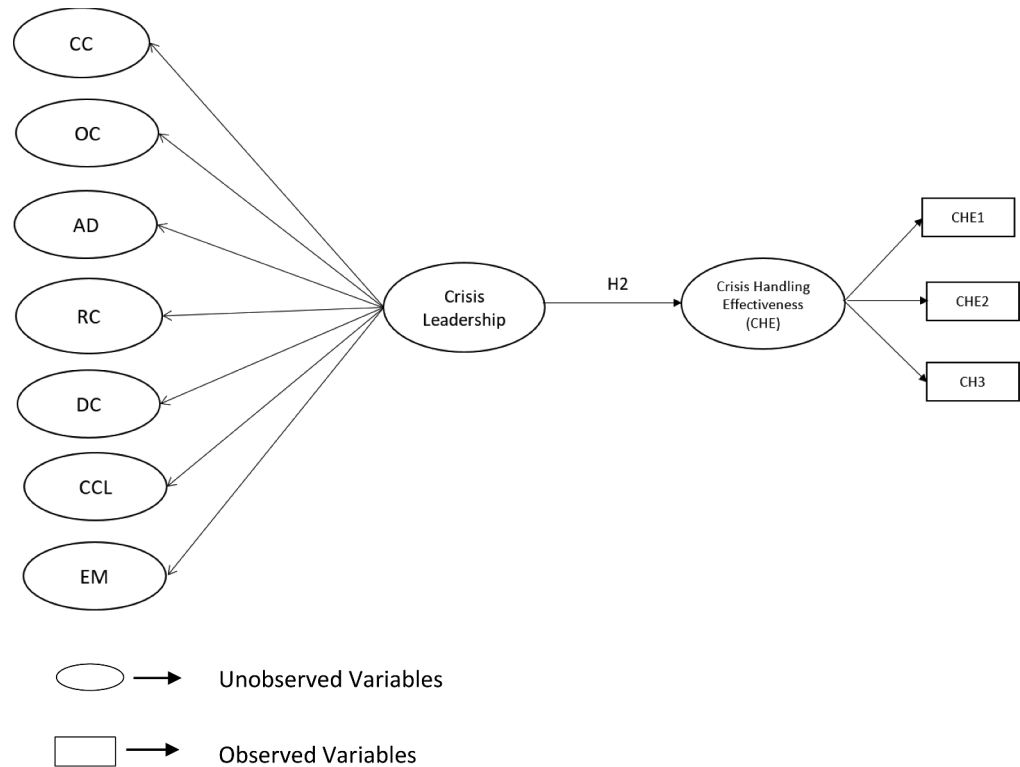


the beginning (past), current handling of the crisis (present), and preparedness for handling the crisis if it continues (future). Again, employees' perceptions (satisfaction) will be used to capture their organizations' effectiveness in handling the crisis. The three-item measure for crisis handling effectiveness (CHE) proposed are as follows:

- I am satisfied with the way in which my organization has handled the crisis at the beginning (CHE1)
- I am satisfied with the way in which my organization is currently handling the crisis (CHE2)
- I am satisfied with the way in which my organization is prepared for handling the crisis in the future (if it continues) (CHE3)

We expect effective crisis leadership to improve the organizations' effectiveness in handling the crisis. Hence we make the following hypothesis (H2) and sub-hypotheses (H2a, H2b, and H2c).

Figure 2a. Structural model for crisis leadership and overall crisis handling effectiveness.



H2: Crisis leadership will have a significant positive impact on the organizations' overall effectiveness in handling the crisis

H2a: Crisis leadership will have a significant positive impact on the organizations' effectiveness in handling the crisis at the beginning

H2a: Crisis leadership will have a significant positive impact on the organizations' effectiveness in the current handling of the crisis

H3a: Crisis leadership will have a significant positive impact on the organizations' effectiveness in handling the crisis in the future (if it continues)

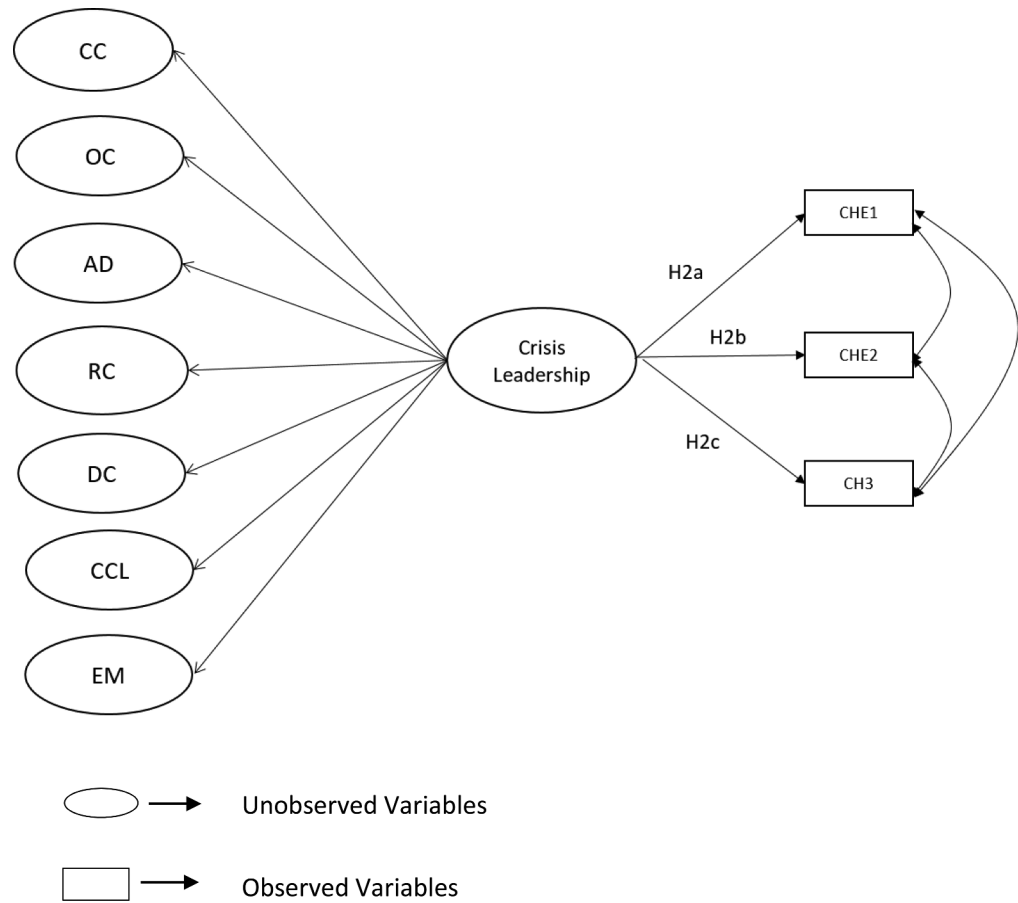
To test H2 and H2a, H2b, and H2c, we propose the following structural models Figure 2a-b, respectively.

Now that we have developed the conceptual models, the next stage is to test and validate the individual constructs and the measurement and structural models and, in the process, examine the proposed hypotheses. The research methodology used to achieve this is explained in the next section.

5. Research methodology

A survey-based research approach was adopted to test and validate the proposed models and hypotheses in the study. This method facilitated structured data collection from a large representative sample population, which is critical for enhancing the generalizability of the findings to a larger population (Al Ahabbi et al., 2019). The various stages of the survey research are discussed in the following sections.

Figure 2b. Structural model for crisis leadership and crisis handling effectiveness at different stages.



5.1. Survey design

The survey had three sections. The first section captured the demographic profile of the respondents and their organization. The second section captured the respondent’s perceptions of crisis leadership and their organizations’ effectiveness in handling the crisis. The third section included open-ended questions to gather more in-depth qualitative insights such as the “What leadership decision worked or failed during the crisis?” and “what is the best leadership strategy during a crisis situation?”. For capturing crisis leadership, the underlying items within each construct, as given in Table 1, are used with all statements assessed on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). All constructs had a minimum of three items with the exception of “OC” construct, which had two items. For capturing organizations’ effectiveness in handling the crisis, the three-item measure for crisis as suggested in Section 3.2 is used with statements also assessed on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The use of multiple-item measures is expected to enhance the reliability of the constructs of interest.

5.2. Survey pre-test

During the development phase of the survey instrument, the questionnaire was pre-tested with two industry leaders and two academic experts with knowledge in this domain. The pre-test process with the participants involved checking the appropriateness of the questions, survey flow, evaluating the readability/choice of terminology, clarity, and ease of understanding on the intended objective of the question, and the practical relevance of the items in real-world situations

Table 2. Demographic classification of survey respondents

Personal Details	Responses	Percentage
Gender		
Male	122	60.4
Female	80	39.6
Age		
18–24	17	8.4%
25–34	60	29.7%
35–44	60	29.7%
45–55	51	25.2%
Above 55	14	6.9%
Education		
High School/Diploma	4	2.0%
Bachelor’s Degree	67	33.2%
Master’s Degree	113	55.9%
PhD/Doctoral Degree	18	8.9%
Position/Level in Organization		
Entry/Junior Level	30	14.9%
Mid-Level	79	39.1%
Senior Level	73	36.1%
Top management/Leadership	20	9.9%
Experience in the current organization		
6–12 months	20	9.9%
1–3 years	74	36.6%
4–5 years	34	16.8%
6–10 years	30	14.9%
Greater than 10 years	44	21.8%
Firm Details		
Number of employees		
Less than 100	46	22.8%
100 to 249	62	30.7%
250 to 999	35	17.3%
1000 or more	59	29.2%
Firm Type		
Private Sector	152	75.2%
Public Sector	20	9.9%
Semi-government	21	10.4%
Others	9	4.5%

Table 3. Measurement model fit indices (first-order confirmatory factor analysis)

χ^2/df	CFI	GFI	NFI	RMSEA
1.309 (<3)	0.985 (>0.90)	0.908 (>0.90)	0.942 (>0.90)	0.039 (<0.07)

Note: Recommended value in parentheses

(Balasubramanian & Shukla, 2017). Based on the suggestions from the pre-test respondents' certain modifications were made to improve the survey instrument. For example, the question, "Leader has demonstrated a great of self-awareness during the crisis" has been excluded from the survey because one of the pre-test participants mentioned that followers may not be able to assess and rate the self-awareness of their leaders. Similarly, "Leader has a long-term view (big picture) of the crisis" was excluded from the final survey.

Table 4. First-order confirmatory factor analysis

Constructs and Items	Standardized Estimate (Factor Loading)	Standard Error	Critical Ratio
Compassion and Care (CC) (AVE = 0.76)			
CC1	0.88	0.054	19.052
CC2	0.86	0.057	16.838
CC3	0.87	0.065	15.365
CC4	0.87	Initially constrained to 1	
Openness and Communication (OC) (AVE = 0.75)			
OC1	0.84	0.054	16.551
OC2	0.89	Initially constrained to 1	
Adaptiveness (AD) (AVE = 0.52)			
AD1	0.85	0.081	12.852
AD2	0.50	0.086	7.039
AD3	0.76	Initially constrained to 1	
Resilience and Courage (RC) (AVE = 0.69)			
RC1	0.85	0.080	13.713
RC2	0.82	0.076	13.137
RC3	0.88	0.075	14.297
RC4	0.78	Initially constrained to 1	
Decisiveness (DC) (AVE = 0.59)			
DC1	0.65	0.091	9.346
DC2	0.83	0.076	13.62
DC3	0.74	Initially constrained to 1	
DC4	0.88	0.090	12.984
DC5	0.73	0.088	10.651
Consultation and Collaboration (CCL) (AVE = 0.47)			
CCL1	0.83	0.233	7.287
CCL2	0.66	0.143	7.961
CCL3	0.55	Initially constrained to 1	
Empowerment (EM) (AVE = 0.71)			
EM1	0.85	0.064	15.661
EM2	0.82	0.063	14.753
EM3	0.85	Initially constrained to 1	

Note: All standardized first-order factor loadings are significant at $p < 0.001$

Table 5. Heterotrait-monotrait ratio of correlations

Constructs	OC	AD	RC	DC	CCL	EM
CC	0.85	0.76	0.86	0.81	0.72	0.86
OC		0.74	0.82	0.80	0.68	0.78
AD			0.72	0.75	0.70	0.78
RC				0.86	0.72	0.79
DC					0.70	0.78
CCL						0.77

Table 6. Mean, standard deviation and reliability of constructs

Constructs (No. of items)	Construct Mean (\bar{X})	Mean Range of Items	Standard Deviation (SD)	α	CR
CC (4)	3.69	3.61–3.80	1.14	0.92	0.93
OC (2)	3.72	3.60–3.85	1.17	0.85	0.86
AD (3)	3.70	3.61–3.86	0.96	0.74	0.76
RC (4)	3.81	3.76–3.90	1.00	0.90	0.90
DC (5)	3.92	3.85–3.99	0.92	0.88	0.88
CCL (3)	3.51	3.30–3.81	0.97	0.72	0.72
EM (3)	3.71	3.63–3.76	1.10	0.88	0.88

5.3. Survey pilot-test

Immediately following the pre-test, a pilot survey test with 20 participants using convenience sampling was conducted to gain insight into the planning and preparation of the main survey, including aspects such as the response rate, the dropout rate and average time for completion, questions/sections skipped. For instance, close scrutiny of the behavior of drop out respondents revealed that few respondents dropped out around the 10–12-minute period without completing the important “crisis performance” section. Based on this pilot study responses, changes were made to the sequencing of the questions, and survey length was reduced by removing some demographic questions. For example, demographic question on participants’ monthly salary was excluded in the final survey instrument.

5.4. Main survey administration—population and sample

The main survey was administrated via Qualtrics, an online survey system, for a period of 2 months, from August 2020 to September 2020. In terms of sampling, both convenient sampling and snowball nonprobability sampling techniques were used to recruit global participants via email and social media platforms an emerging tool used by researchers (Stokes et al., 2019). The recruitment of global participants was justified given that the COVID-19 pandemic is a worldwide crisis. Also, the use of convenient and snowball sampling using email and social media platforms, are justified given that it is difficult to adopt probability-based sampling technique such as random sampling for a global target population (NEDARC, 2019). A total of 323 participants from 22 countries (where they live and work) responded to the survey. However, to ensure quality responses, respondents who are self-employed, not working for some time, and new to the organization (less than six months) were excluded. Also, several responses with missing values were removed using the list-wise method leaving 205 usable responses for our data analyses. The demographic details of the survey respondents are given in Table 2. Although there are no strict guidelines on the sample size for statistical analysis such as

Table 7. Measurement model fit indices (second-order confirmatory factor analysis)

χ^2/df	CFI	GFI	NFI	RMSEA
1.625 (<3)	0.967 (>0.90)	0.870 (>0.90)	0.920 (>0.90)	0.055 (<0.07)

Note: Recommended value in parentheses

Table 8. Second-order confirmatory factor loadings

Second-order relationships	Standardized Estimate (Factor Loading)	Standard Error	Critical Ratio
Crisis Leadership (CL) → Compassion and Care (CC)	0.981***	Initially constrained to 1	
Crisis Leadership (CL) → Openness and Communication (OC)	0.967***	0.050	20.849
Crisis Leadership (CL) → Adaptiveness (AD)	0.952***	0.053	15.103
Crisis Leadership (CL) → Resilience and Courage (RC)	0.970***	0.050	17.087
Crisis Leadership (CL) → Decisiveness (DC)	0.954***	0.050	15.367
Crisis Leadership (CL) → Consultation and Collaboration (CCL)	0.940***	0.057	9.660
Crisis Leadership (CL) → Empowerment (EM)	0.958***	0.051	17.825

***Significant at $p < 0.001$

confirmatory factor analysis and structural equation modeling, the minimum sample size recommended by researchers is approximately 200 (Kline, 2005; Lei & Wu, 2007), though a sample size of 100–150 with no missing values was found to provide valid results (Anderson & Gerbing, 1988).

5.5. Model and hypothesis testing

A two-stage procedure was used to test the measurement and structural models. In the first stage, confirmatory factor analysis (CFA) was conducted to test the measurement model. In the second stage, structural equation modeling (SEM) was used to examine the hypothesized relationships in the structural models. SEM can handle multiple relationships simultaneously and efficiently (Garver & Mentzer, 1999), including relationships between multiple unobserved latent constructs and between unobserved latent constructs and observed variables (Lei & Wu, 2007). Both CFA and SEM can check how well the model fit the data. It provides estimates for the overall model fit and various other goodness-of-fit indices to ensure the statistical appropriateness of both models. They are discussed in the following sections.

6. Analysis and findings

In the first phase of the analysis, the statistical appropriateness of each of the first-order constructs was assessed. First, the unidimensionality of the seven crisis leadership constructs was determined using convergent validity and discriminant validity (Balasubramanian & Shukla, 2017). Next, the construct reliability was assessed using Cronbach's alpha (α) values and composite reliability (CR) scores. Reliability estimation was conducted after construct validation because reliability would not be meaningful in the absence of a valid construct (Lee et al., 2012). However, before presenting the validity and reliability findings, the various model fit indices of the first-order confirmatory factor analysis (CFA) were computed to check how well the measurement model fit the data. The first-order CFA output is given in Appendix 1.

6.1. Goodness-of-fit of first-order confirmatory factor model

As seen in [Table 3](#), the chi-square/degrees of freedom (χ^2/df) is much less than the 3.00 maximum recommended by Kline (1998), indicates a good overall model fit. Also, the other fit indices, the Comparative fit index (CFI), the goodness-of-fit index (GFI), and the Normed fit index (NFI), were greater than the recommended threshold of 0.9, indicating a good level of fit of the model (Bagozzi & Yi, 1988). Further, the root mean square error of approximation is below the recommended maximum of 0.07 (Hu & Bentler, 1999). Overall, it can be concluded that the measurement model fits the data reasonably well.

6.2. Convergent validity

Convergent validity ensures measures of constructs that theoretically should be related to each other are, in fact, observed to be related to each other (Al Yami et al., 2021). The convergent validity of each of the seven constructs was tested using first-order confirmatory factor analysis (CFA). Usually, a higher factor loading (which indicates the correlation between the individual items and the corresponding construct) greater than 0.5 and a corresponding critical ratio above 1.96 shows evidence of construct validity (Anderson & Gerbing, 1988); Balasubramanian et al., 2020a). The results of the first-order CFA are given in [Table 4](#). As seen in [Table 4](#), factor loadings of all constructs were above 0.5 and significant at $p < 0.001$, demonstrating strong convergent validity. Also, the average variance extracted (AVE) was greater than 0.50 for all constructs except CCL (AVE = 0.47), further demonstrating convergent validity (Fornell & Larcker, 1981). The rigor in the survey development process and content validation during the pre-test stage by subject experts on how accurately an assessment or measurement tool taps into the various aspects of the specific construct in question could have contributed to the clean loading of items to the underlying constructs.

6.3. Discriminant validity

Discriminant validity ensures measures of constructs that theoretically should not be related to each other are, in fact, observed to not be related to each other (Balasubramanian et al., 2020b). In this study, discriminant validity was assessed using the heterotrait-monotrait (HTMT) ratio of correlation. The HTMT method compares the correlation values of latent constructs with a pre-defined threshold value of 0.85 (Rao et al., 2021) or 0.90 (Gold et al., 2001). The values that are closer to 1 indicate a lack of discriminant validity. It is more superior with higher specificity and sensitivity rates (above 97%) when compared to Fornell-Lacker's 20.82% (Henseler et al., 2015). The results of the HTMT test is shown in [Table 5](#). Overall, it can be concluded that the constructs have sufficient discriminant validity though the correlation is on the higher side. However, the relatively high correlation among first-order constructs is expected largely due to the presence of a higher-order construct of crisis leadership as hypothesized in this study. The findings further strengthen the conceptual basis for the specification of the higher-order construct since the higher-order crisis leadership construct is believed to account for the correlations among the first-order constructs (Meng & Berger, 2013).

6.4. Construct reliability

It indicates the consistency, precision, and repeatability of the items within the constructs. In this study, construct reliability is assessed using Cronbach's alpha (α) values and composite reliability (CR) scores. The value for both indicators ranges from 0 to 1, in which a score above 0.7 demonstrates good reliability (Fornell & Larcker, 1981; Nunnally & Bernstein, 1994). The α values and CR scores of each of the seven constructs are provided in [Table 6](#). The results demonstrate strong reliability for all the constructs.

Since the study has established the validity and reliability of the constructs, the next phase of analysis required examination of the descriptive statistics at both the construct and the item level to identify the relative importance of the constructs and items as perceived by the respondents.

Table 9. Measurement model fit indices of structural models

Models	χ^2/df	CFI	GFI	NFI	RMSEA
Model 1	1.661 (<3)	0.963 (>0.90)	0.860 (>0.90)	0.913 (>0.90)	0.057 (<0.07)
Model 2	1.577 (<3)	0.968 (>0.90)	0.867 (>0.90)	0.918 (>0.90)	0.053 (<0.07)

Note: Recommended value in parentheses

6.5. Descriptive statistics

The relative importance of each construct is understood using descriptive statistics. The combined mean (\bar{X}) and standard deviation (SD) of the constructs are shown in Table 6. The results indicate that all seven crisis leadership constructs are demonstrated by the leaders ($\bar{X}>3.5$). Also, the difference in the perceived importance among construct is relatively small, with CCL ($\bar{X}=3.51$) being the lowest and DC ($\bar{X}=3.92$) being the highest. Also, within constructs, the mean score of individual items was mostly consistent with the exception of CCL, demonstrating its importance for the construct. For CCL, the relatively high range in the mean score among individual items was due to the item CCL3—“Has relied on external subject experts/specialists to handle the crisis” which had a mean score of 3.30. Overall, with the exception of CCL3, the mean score of the remaining 23 items was within a tight range of 3.60 and 3.99. Further, the SD of constructs was in the range between 0.92 and 1.17, indicating reasonable consistency in the responses.

Since all the seven first-order constructs have been tested and validated and their relative importance understood, the study proceeded to the next phase to test and validate the proposed second-order measurement model of crisis leadership and the structural model examining the relationship between crisis leadership and organizations’ effectiveness in handling the crisis.

6.6. Testing the second-order measurement model of crisis leadership

To test the hypothesized higher-order measurement model of crisis leadership, a second-order confirmatory factor analysis (CFA) was conducted. The full second-order CFA output is given in Appendix 1. The results of the overall model fit and various other goodness-of-fit indices as given in Table 7 shows that the second-order confirmatory measurement model fits the data relatively well, proving the statistical appropriateness of the second-order measurement model of crisis leadership. Only GFI (0.870) was slightly below the recommended threshold level of 0.90. Although RMSEA was not as good as the first-order model, it was well within the recommended threshold of 0.07.

The second-order factor loadings and their significance is given in Table 8. As seen in Table 8, the second-order loadings were well above 0.5 and significant at $p < 0.001$ for all the constructs, thereby demonstrating strong convergent validity. This implies that crisis leadership could be operationalized as a second-order construct, i.e., the relevant first-order constructs, namely, compassion and care, openness and communication, resilience and courage, decisiveness, consultation and collaboration, and empowerment, are governed by a higher-order crisis leadership construct (see Appendix 1). Therefore, our hypothesis H1 is supported as each of the seven constructs had contributed uniquely and strongly to crisis leadership.

Among the seven constructs, compassion and care ($\beta = 0.981, p < 0.001$) emerged as the construct that explained the highest variance in crisis leadership. The qualitative comments in the survey supported the quantitative results. For instance, one of the respondents quoted: “I was really impressed by the fact that the employees’ needs and well-being were put first at all times“. In the words of another respondent, “Leadership team ensured physical and mental well-being of team members and special considerations were provided to the team members based on their social

Table 10. SEM test results (Model 1 and 2)

Hypothesized relationship				β	S.E	Critical Ratio	Result
Model 1							
H2	CL	→	CHE	0.909***	.053	14.160	Supported
Model 2							
H2a	CL	→	CHE1	0.840***	0.051	15.514	Supported
H2b	CL	→	CHE2	0.837***	0.053	15.421	Supported
H2c	CL	→	CHE3	0.809***	0.055	14.578	Supported

***Significant at $p < .001$ (2-tailed test); β —standardized coefficients; S.E. = standard error

context”. The result echoes the previous findings in the COVID-19 literature. For instance, a qualitative study by Caringal-Go et al. (2021) found that being compassionate and caring is the most salient characteristic of an effective leader during the COVID-19 pandemic. A quantitative study by Eichenauer et al. (2021) also found compassion and care among the top desired leadership behavior by employees.

Resilience and courage ($\beta = 0.970$, $p < 0.001$) explained the second highest variance in crisis leadership. The significance of resilience and courage can be summarized in the words of the following respondents: “Leaders must remain positive and must not show fear if you are frightened you will fail “; “ ... the leader needs to be adequately resilient to tide the rapidly dynamic situation”; and “Creating panic, and imagining the worst will not help anyone”. The results support the notion in the literature that leaders need to lead through the crisis with enough agility to absorb adversity and improve responsiveness to arising challenges (Dirani et al., 2020). Moreover, the study findings acknowledge the fact that, during a crisis, it is normal for leaders to make mistakes (Stoller, 2020), but they should demonstrate courage in admitting the mistakes and failures they have made (Ahern & Loh, 2020). Also, the results echo the Deloitte industry report findings on leadership that highlighted the need for leaders to demonstrate courage in making decisions during the COVID-19 pandemic, including unpopular ones based on imperfect and inconsistent information (Deloitte, 2020a,b,c).

Openness and Communication explained the third-highest variance in crisis leadership ($\beta = 0.967$, $p < 0.001$). The importance of openness and communication appeared consistently in the qualitative comments of survey participants. For example, one participant wrote, “Our Director created an online newsletter for all staff and had regular online meetings to ensure staff is well informed of the evolving crisis situation“. Another respondent mentioned, “the CEO sent regular communication to all employees almost every other day to keep employees informed and hosted a digital townhall for employees to discuss with management any COVID-19 related issues or concerns employees are facing”. The results are in line with the previous findings in the literature that highlighted “communication” as one of the core leadership attributes during a crisis (Kaul et al., 2020; Stoller, 2020). Caringal-Go et al. (2021) found communication as the third most important characteristic of the leader during the pandemic (Caringal-Go et al., 2021). The quantity and quality of communications coming from a leader during a crisis provide information instead of leaving a vacuum for others to fill, thereby mitigating the risk of rumors and misinformation being spread. Moreover, clear evidence-based communication, especially organizational procedures, affecting employees can reduce their anxiety and fear (Dirani et al., 2020; Forster et al., 2020; Kaul et al., 2020). Caringal-Go et al. (2021) found constant and open communications from their leaders helped alleviate the negative feelings brought about by the COVID-19 pandemic. Further, open and transparent communication during a crisis creates trust, which serves as an anchor in uncertainty (Deloitte, 2020b) and instills a sense of comfort and

confidence among the employees (Caringal-Go et al., 2021). Openness, transparency, honesty, and trust have appeared frequently in the qualitative comments of survey participants.

Empowerment emerged as the fourth important contributor of crisis leadership ($\beta = 0.958$, $p < 0.001$). Several survey participants also mentioned the importance of empowerment in the open-ended questions on crisis leadership strategy. For example, respondents mentioned the importance of “*delegating and empowering employees to make decisions during the crisis*”; “*encouraging employees towards self-innovation*”; and “*empowering employees to find creative solutions to the problems*”. Similarly, participants also mentioned: “*Recognition of employees for their excellent work values, ethics, and behavior during the pandemic is critical, so that feel important and motivated*”; and “*The encouragement and recognition during the crisis could create a more positive and optimism among the team members*”. The results support the findings in the literature that leaders need to empower their employees during the crisis (Eichenauer et al., 2021; Forster et al., 2020), including freedom, flexibility, and autonomy at work, along with appreciation and recognition for their contributions (Dirani et al., 2020; Stoller, 2020).

Decisiveness explained the fifth-largest variance ($\beta = 0.954$, $p < 0.001$) in crisis leadership. The decisiveness of leaders to invest in human resources and technology during the pandemic is reflected in the comments of respondents. For instance, respondents mentioned, “*Without any delays, he (the leader) took action to ensure employees are trained on the online environment much before the crises deepened and work from home was implemented*”; “*The CEO decisively moved to online platforms as the crisis began which helped in our functioning*”, and “*Overnight, our CEO invested in technology to ensure that the business did not cease because of ‘lockdown’ situation*”. The result echoes the findings of Caringal-Go et al. (2021), who found that the decisive behavior of leaders is one of the most important leadership attributes during the COVID-19 crisis. For instance, the study found that many leaders acted fast to encourage employees to work from home, even days before the mandatory country-wide lockdown was announced (Caringal-Go et al., 2021).

While adaptiveness ($\beta = 0.952$, $p < 0.001$) emerged as the construct to explain the second least variance in crisis leadership, its contribution to crisis leadership is not far behind others, especially decisiveness and empowerment. The relevance of adaptiveness during the crisis is echoed in the comments of survey participants. For instance, respondents mentioned “*Leaders should be flexible and open to ideas from employees at all levels of the organization*”; and “*Leaders should be able to adjust to ever-changing circumstances*. One respondent highlighted the need for “*leaders to adapt their business strategy by making products and services that is useful for the people during the pandemic*”. The results support the notion in the literature that during the crisis, leaders need to be adaptive at all levels, something not usually associated with leadership in more ‘business-as-usual’ times (Ahern & Loh, 2020; Dirani et al., 2020). The result also supports the view of Kaul et al. (2020), who suggested that effective leaders during a crisis need to be flexible in changing course, adopting novel, more promising ideas while abandoning dogma or prior diktat. Moreover, the results show that leaders need to demonstrate adaptiveness to overcome difficult situations and seize the opportunity presented by the pandemic (Kaul et al., 2020).

Finally, consultation and collaboration emerged as the construct that explained the least amount of variance in crisis leadership ($\beta = 0.940$, $p < 0.001$). However, the contribution is still strong and significant, highlighting that it is integral to crisis leadership. The qualitative comments from the respondents supported the importance of consultation and collaboration during the crisis. For example, one of the survey participants reflected: “*Our leader established different committees/task forces to deal with different areas of work and propose solutions to cope with the crisis*”. Similarly, other respondents mentioned, “*Leadership team consulted with all internal and external stakeholders including experts and outsourced staff to overcome the challenges caused by the pandemic*”, and “*Our leader took the entire employees in confidence and got*

feedback/advice from everyone irrespective of their designation, and involved them in decision making". The results, to some extent, reject the notion in the literature that crisis leadership requires authoritarian and highly centralized leadership that focuses on swift action over delegation (Joniaková et al., 2021). On the contrary, it supports the notion that crisis leadership requires collective and inclusive decision-making and stakeholder collaboration for success (Dirani et al., 2020; Sadiq et al., 2021). For instance, Caringal-Go et al.'s (2021) exploratory study on leadership characteristics during COVID-19 found that many leaders were consultative in how they engaged with their employees (e.g., ask for inputs and suggestions) in gathering ideas on how to adjust to new ways of working and coming up with collaborative solutions. Similarly, Stoller (2020), reflected on the importance of leaders harvesting wisdom from every part of the organization and outside during the COVID-19 pandemic.

Overall, the findings support the argument that crisis leadership requires an all-encompassing effort rather than being oriented toward one or two particular behavior. However, the mean score for seven constructs shows that there is still room for all-around improvement in crisis leadership as none of the constructs had a mean score greater than 4.00 on a 5.00-point scale. Consultation and collaboration emerged as the least demonstrated attribute of crisis leadership (\bar{X} =3.51, $SD = 0.97$), while decisiveness emerged as the most demonstrated attribute (\bar{X} =3.92, $SD = 0.92$).

6.7. Structural equation modeling and hypothesis test results

Structural equation modeling (SEM) was used to test the hypothesized relationships in the structural models, Model 1 (Figure 2a) and Model 2 (Figure 2b). The results of the overall model fit and various other goodness-of-fit indices, as given in Table 9, shows that the structural models (Model 1 and Model 2) fits the data reasonably well. The RMSEA value was comparable to that of second-order measurement model but marginally inferior than the first-order measurement model.

In terms of the predictive power (proportion of variance explained in the outcome variable) of the second-order crisis leadership construct, the SEM results confirmed the strong predictive power of the crisis leadership model in explaining the organizations' "overall" effectiveness in handling the crisis as well as the organizations' effectiveness in handling the crisis at the beginning, the current handling of the crisis, and preparedness for handling the crisis if it continues, thereby supporting hypotheses H2, H2a, H2b, and H2c respectively. The full SEM output for Model 1 and Model 2 is given in Appendix 2 and Appendix 3, respectively. Table 10 shows the hypothesis test results for Model 1 and Model 2.

For H2, the crisis leadership explained almost 83% of the variance in the organizations' overall effectiveness in handling the crisis ($\beta = 0.91$; $p < 0.001$). Similarly, the crisis leadership explained around 71% variance in organizations' effectiveness in handling of the crisis situation at the beginning ($\beta = 0.84$; $p < 0.001$) as well as during the pandemic ($\beta = 0.84$; $p < 0.001$). Despite the uncertainty of the COVID-19 pandemic, the crisis leadership explained approximately 66% of the variance in organizations' preparedness in handling the crisis if the COVID-19 continues ($\beta = 0.81$; $p < 0.001$).

The results are not surprising as the synthesis of the qualitative comments of survey participants shows that effective crisis leadership is leading to several organizational outcomes such as employee productivity, employee motivation, work-life balance, employee commitment, loyalty, and retention, among others. For instance, one respondent mentioned: "*Leader showed faith followed by freedom at work helped in me giving my best and doing what it takes to keep the business moving*". Similarly, other respondents mentioned: "*Trusting your workers to work from home provides flexibility for employees which results in improved work-life balance and happiness and work efficiency*"; "*... keeping employees' interests/apprehensions in mind while making decisions for the company reinforces motivation in them to work harder as tougher situations arise*"; and "*... when an employee is valued and taken care during a crisis, he/she will remain loyal*".

and will have more respect and dedication to the employer". On the contrary, one respondent mentioned, " ... with the leader panicking first and securing themselves, there is a lot of uncertainty and negativity spread within the company that led to lower employee morale, leading to increase in employee attrition and lower productivity". This echoes the findings in the literature that, during a crisis, leaders must validate gratitude for the employee's adversities, which helps build loyalty and promotes commitment on behalf of the organization (Dirani et al., 2020). Similarly, empowering employees during a crisis creates motivated teams, improves decision-making, and boosts the stakeholders' commitment to the organization and its survival (Dirani et al., 2020). Also, the delegation of tasks and ownership to employees during the crisis will enhance employee motivation through autonomy and leader-follower trust relationship (Crayne & Medeiros, 2020). Further, acknowledgment of employees' contributions during a crisis galvanizes employees' commitment and provides stamina for the long haul (Stoller, 2020).

7. Discussions and conclusions

The current COVID-19 crisis is having and will continue to have a huge impact on us at the individual, organizational, societal, and global levels. At the organizational level, the COVID-19 pandemic brings into the spotlight the role of leaders and leadership in reshaping their organizations to survive during and after the crisis. Unfortunately, despite crisis leadership being a strategically important area in leadership studies, especially in the wake of the COVID-19 pandemic, empirical studies in conceptualizing and measuring crisis leadership have been limited and fragmented. This study bridges this gap in the literature using the lessons learned from the ongoing COVID-19 pandemic. The fundamental question the study attempted to answer was "What attributes make an effective leader during a crisis such as the COVID-19 pandemic?"

In line with our research objectives, the study first developed a priori knowledge of the crisis leadership constructs and items from the review of recent COVID-19 literature in crisis leadership in conjunction with a larger body of crisis leadership literature. Using data collected through a global survey, first, the validity and reliability of the seven individual constructs were established using a first-order confirmatory measurement model. The results of the second-order CFA confirmed that the seven constructs are governed by a higher-order crisis leadership construct, and that each of the observed first-order crisis leadership constructs namely, compassion and care, openness and communication, resilience and courage, decisiveness, consultation and collaboration, and empowerment has contributed uniquely and strongly ($\beta > 0.90$, $p < 0.001$) to the second-order crisis leadership construct. The study supports the view in the literature that the leadership concept needs to be explored from a higher level of abstraction beyond the individual constructs and items (Meng & Berger, 2013). Further, the past, present, and future predictive power of the crisis leadership model demonstrate the importance of leaders demonstrating the underlying attributes of the model to successfully navigate the different phases of the crisis. The mean score of constructs shows that all constructs are perceived to be relatively important ($\bar{X} > 3.5$) in crisis leadership, although there is still room for an all-around improvement. Overall, the study provides clear conceptual and practical guidance for leaders in developing an all-encompassing strategy to enhance leadership effectiveness during a crisis.

For practitioners, the study is timely given the high-stakes and urgent nature of the COVID-19 crisis. Moreover, given the uncertainty over how long this COVID-19 pandemic will last with several countries experiencing or likely to experience a second or third wave of infection, the study finding has significant implications for organizations and leaders to take pre-emptive measures for effectively steering the organization during the COVID-19 crisis as well to prepare for future crisis. This study demonstrated that crisis leadership is multifaceted and requires an all-encompassing effort focusing on all seven constructs rather than focusing on one or two aspects

From a theoretical standpoint, this study extends the discussion of crisis leadership through the lens of situational leadership theory and implicit leadership theory. The findings support the notion in the literature that situational leadership is an effective leadership style during crisis (Hersey &

Chevalier, 2000); Wisittigars and Siengthai, 2019) and that an effective leader requires a rational understanding of the task situation and make an appropriate response that has the highest probability of success (Hershey et al., 1977; McCleskey, 2014). In other words, there is no one-size-fits-all approach to responding to the crisis. Instead, leaders must be able to move from one leadership style to another or demonstrate multiple-leadership styles simultaneously to meet the changing needs of an organization and its employees. For instance, leaders may have to give orders to followers in a do-what-I say approach, while at the same time, leaders may have to consult and collaborate with employees and seek their creative inputs in responding to the crisis situation. Similarly, leaders may have to make tough decisions, including layoffs, while simultaneously demonstrate compassion and care for employees. The findings, therefore, provide a road map for organizations looking to develop the essential crisis leadership capabilities for senior managers and leaders. Given, situational Leadership applies equally well with/and by both men and women, and can apply with the same level of effectiveness across different cultures with different people groups, the theoretical lens of situational leadership used in this study is expected to enhance the generalizability of the findings across different setting (Mujtaba & Sungkhawan, 2009).

The findings also support the notion of implicit leadership theory that states that followers' cognitive structures or prototypes of leader characteristics will influence how they acts toward leaders and how they behave in their workplace (Schyns & Riggio, 2016; Shen, 2019). This results advocate a follower-centered approach to crisis leadership, especially during the ongoing COVID-19 crisis, given that the followers positive perceptions of leadership style are associated with a more positive organizational performance, in this case, crisis performance (Shen, 2019).

In terms of research contribution, the study also answers the growing calls in the literature for conducting quantitative studies to validate themes and/or test conceptual models of effective crisis leadership (Caringal-Go et al., 2021). Lack of reliable quantitative measures had stalled researchers' efforts in evaluating effective leadership behavior during a crisis. Previous literature has largely failed to empirically examine crisis leadership as a multi-dimensional construct. These gaps in the literature have been addressed through the development of a measurement model, which integrated the seven constructs of crisis leadership. The findings from this study are expected to be relevant to a broader population across different countries, given the fact that data was collected from a global survey comprising participants from 22 countries. The validated first and second-order crisis leadership constructs and their associated measurement items (24-item scale) can be adopted by future researchers in different settings to advance investigation and practice in crisis leadership. This in itself is a significant contribution, given that the construct development is at the core of theory building (Venkatraman, 1989). We expect the validated measurement scale and model to forge a path ahead for theoretical and empirical advancement of crisis leadership and help define the field's boundaries more rigorously.

The study has some limitations. Although recent literature has been reviewed and multiple-leadership concepts have been examined, we are by no means suggesting that this is a definitive set of leadership constructs and measures that should be examined. The study is only the first attempt in modeling crisis leadership during the pandemic. More work is needed to refine and extend the constructs and items of crisis leadership during the pandemic and in general. Researchers interested in crisis leadership can expand this study to different regions and cultural settings to test the universality of the proposed crisis leadership model as well as incorporate some unique aspects associated with each subculture. The established crisis leadership model in this study is based on the lessons learned from the ongoing COVID-19 pandemic. More work is required to test the generalizability and transferability of the proposed model in different crisis situations.

The other limitation of the study is the use of non-probability sampling technique of convenience and snow-ball sampling to recruit participants for this study. This limits the generalizability of the

findings since convenience and snowball samples may not produce representative results for the target population. Future studies could consider probability sampling technique such as random sampling to reduce sampling bias and enhance generalizability. Also, the model is build based on employee perceptions and has not considered the self-perceptions of leaders. Previous studies have found discrepancies in leader and follower perceptions of effective leadership behavior (Seghal et al., 2021). Future studies can test the model using leader perspectives. Such understanding is critical for narrowing the leader-follower perception gap and achieving congruence between leaders and followers on crisis leadership. Finally, the study findings are based on cross-sectional data from only 205 respondents. Future studies with increased participation can further enhance the validity and generalizability of the findings and tease out more managerially relevant implications. Moreover, it was evident from the literature that, at the employee level, organizations could rely on crisis leadership for enhancing employee productivity, loyalty and commitment, as well as reduce employee stress and anxiety. Similarly, at the organization level, crisis leadership can be effective in maintaining the financial health of the organization, and seize the opportunities presented by the crisis and stay ahead of the competition. Future studies could use the proposed crisis leadership construct to assess its impact on the aforementioned outcomes variables at the employee and organizational levels, such as revenue and market share.

Despite these limitations, the study findings make several significant contributions in advancing our understanding of crisis leadership during a pandemic and in general. This study has deepened the knowledge of how leaders can effectively manage crises, especially crises such as the COVID-19 pandemic. For researchers, this study provides a solid theoretical foundation and a measurement methodology that may greatly facilitate further empirical work in this domain.

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Author statement

The authors are part of the Middlesex University Dubai's COVID-19 research team that have been involved in a range of COVID-19 related over the past two years. Both authors have been interested in advancing situational leadership theory and in developing crisis leadership model. Previous leadership studies of authors include impact of transformational leadership and transactional leadership on employee innovation and performance, and leadership strategies for supply chain management.

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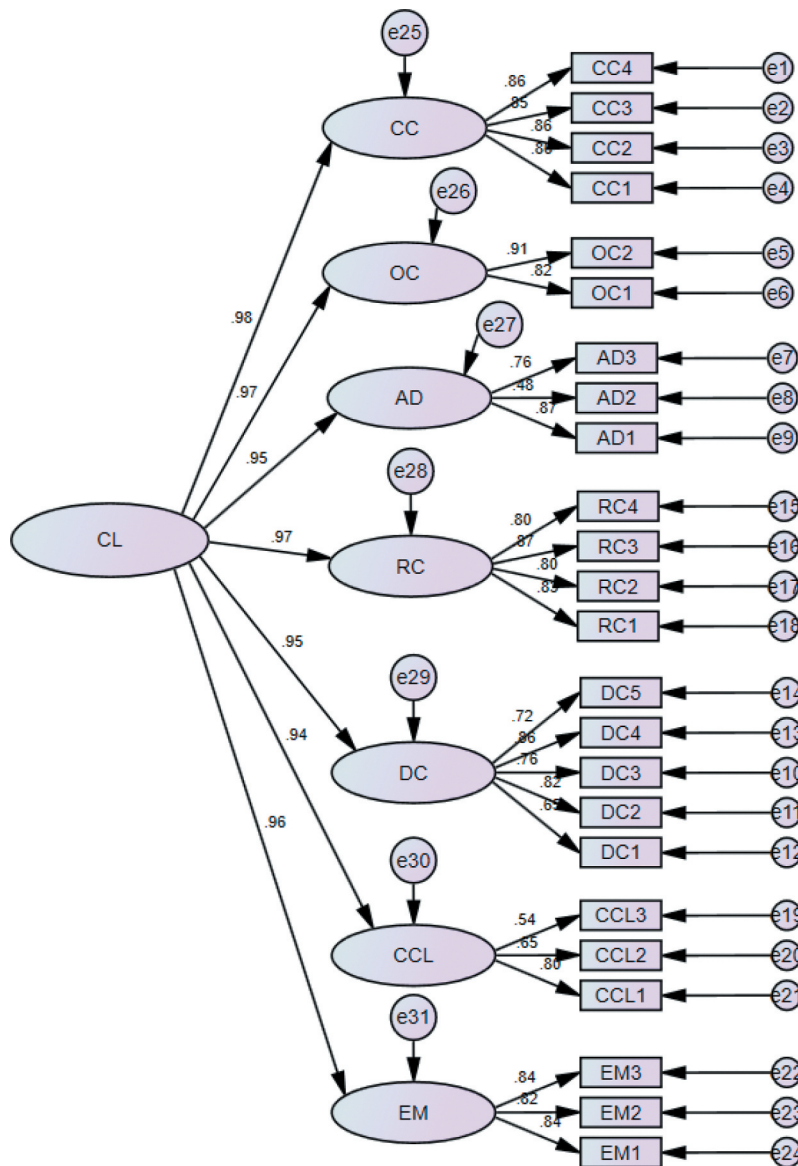
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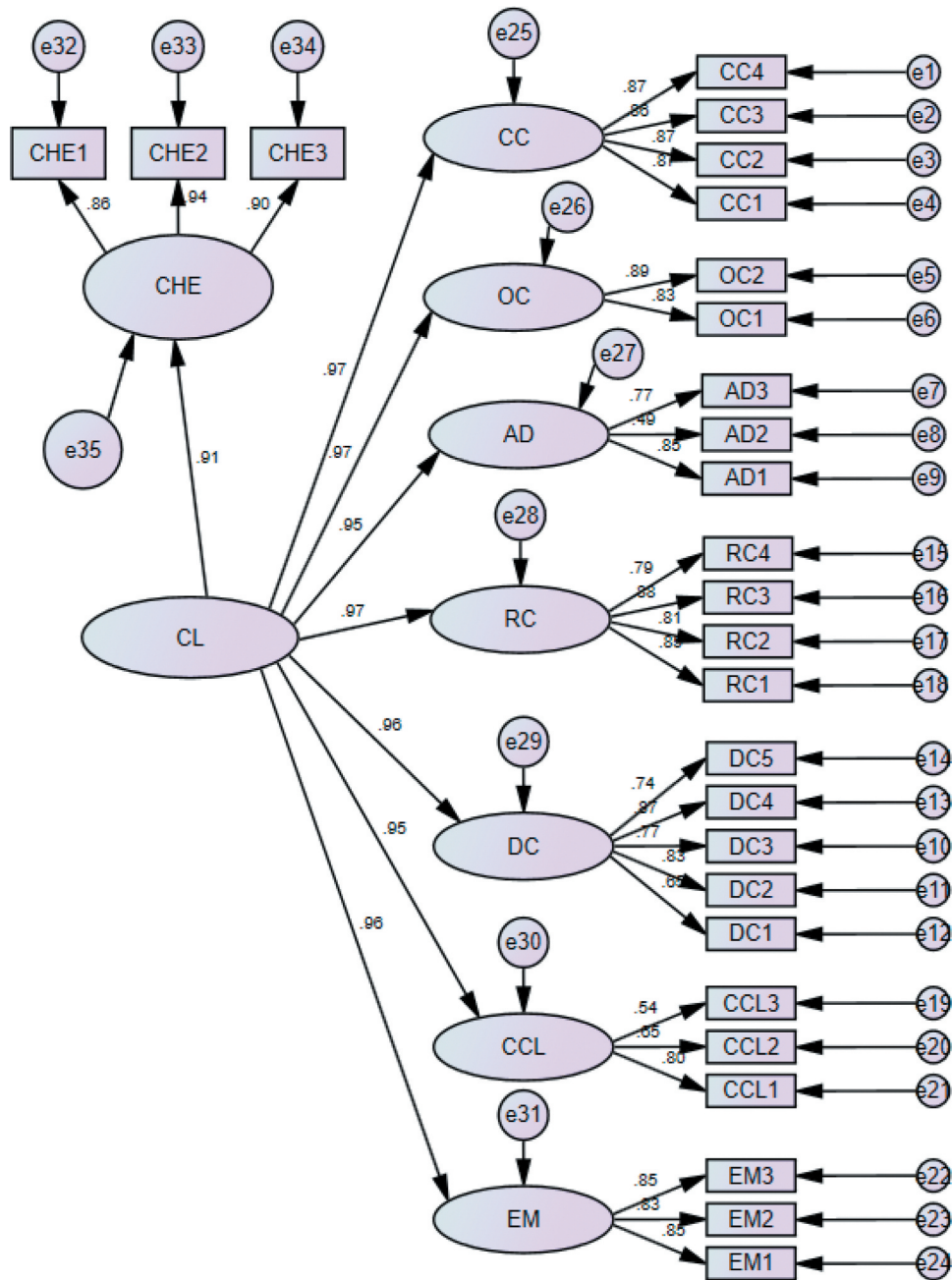
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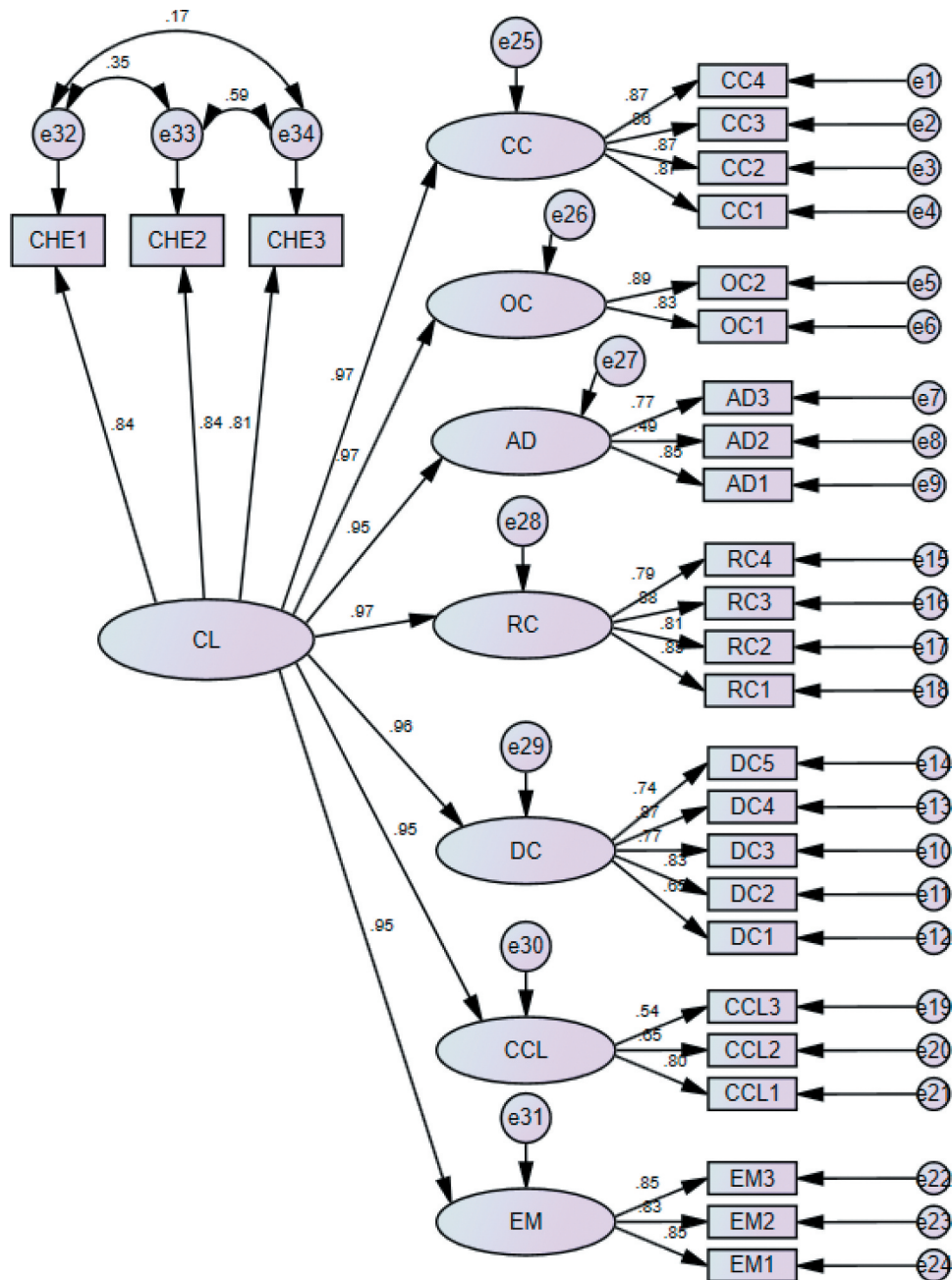
Appendix1: Second-order Confirmatory Factor Analysis Results



Appendix2: Structural Equation Modeling Results for Model 1



Appendix3: Structural Equation Modeling Results for Model 2





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