



Leadership & Stress in Crisis Teams - an Exploratory Research Investigating Experienced Stress(ors) of Crisis Leaders

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Abstract

Purpose – An exploratory research into the field of crisis management in relation to stress. The aim of this research is to explore potential stressors of crisis leaders and investigate their relation to stress. Thereby, providing a clear image of what the crisis leaders themselves experience as stressful during crisis management and how they experience this stress.

Methodology– The investigative team conducted nine qualitative interviews with multi-professional crisis leaders. Before participating in the interviews, the crisis leaders filled out a pre-questionnaire consisting of questions related to demographics, details about their team leader experiences and background information about their perceptions of stress. The interviews were conducted online and ranged from 30 minutes to 1 hour.

Findings – The results indicated the following main stressors across all professions: leadership stressors (doubt decision-making, responsibility and emotion navigation), organisational stressors (lack of support), personal stressors (exhaustion), interpersonal (team roles) and situational stressors (unexpected circumstances, confrontation with victims, high stakes/pressure, coordinating multiple stakeholders). There was consistent agreement among the interviewed crisis leaders about these factors.

Positive attributes to dealing with a stressful crisis can be found in the different steps of a crisis. Before the crisis, preparation is crucial. During a crisis, efficient teamwork and structured decision-making are helpful. Afterwards, detachment and debriefing are important.

Moreover, the research found that the crisis leaders directly state that they have a positive view upon stress, however, indirectly they mention many negative symptoms related to stress and highlight that the durance of stress should be as limited as possible. Therefore, there might be a discrepancy between their perception of their stress mindset and their actual mindset. Additionally, the qualitative analysis underpinned the perception that stress is normalised in the field of crisis management, thereby creating a culture where speaking up about stress is seen as a taboo. There might also be a survivor effect as only those that can handle very high stress levels will remain in the profession.

Practical implications – The study offers important implications for both field practice and theory. Based on the findings, crisis organisations are encouraged to increase their employees' stress awareness and foster an exchange of experience across domains, increasing the disclosure of stress symptoms. In this way, crisis organisations can expand their crisis leaders' mental health status, thus ensuring their long-term success. Furthermore, by integrating the existing literature, the qualitative analysis serves as a starting point for future research to relate stressors to alterations in team leader behaviours. Accordingly, this research provides clear guidance for further research on team leader behaviours, stressors in crisis management and discloses several unanswered questions.

Keywords: Experienced Stressors, Stress, Crisis management, Leadership, Critical Incidence Technique

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1. Introduction

The current global COVID-19 pandemic is a large scale, high stake crisis threatening public health and wellbeing. In order to prevent the virus from spreading, leaders have to make difficult decisions and multiple teams of different professions have to work together in order to manage the situation efficiently. Consequentially, the leadership and teamwork of politicians, the health care sector, police officers, municipalities, virologists, researchers and many more occupations are detrimental for lowering the infection rates and effective crisis management. For instance, during the first wave of COVID-19, the municipality of Maastricht worked together with different local businesses and the local hospital in order to transform a big congress hall, which is normally used for exhibitions or congresses, into an extra hospital wing for COVID-19 patients as many hospitals were overloaded. To establish such innovative and rapid problem solving, excellent crisis leadership is crucial. A crisis can be explained as “a phase of disorder in the seemingly normal development of a system. Crises are transitional phases, during which the normal ways of operating no longer work” (Boin, Stern & Sundelius, 2016, p. 2). As such, a crisis is a threat towards the core values or life-sustaining systems of a community. In contrast to crisis, disasters are foreseen to be even larger in scale and more complex due to their simultaneous occurrence and presence in regions that are potentially unexperienced with natural hazard (Owen, Scott, Adams, Parsons, 2015).

A crisis situation can potentially have very harmful effects on society and the surroundings, such as a large bushfire that is spreading towards a village or an explosion in a densely habituated area. In order to limit negative effects of such events, crisis management is of key importance. Crisis management can best be explained as “the process of leading group members through a sudden and largely unanticipated, intensely negative, and emotionally draining circumstance” (Dubrin, 2013, p. 3). An example of crisis management is the multidisciplinary on-scene command teams (OSCT), the crisis leaders have to lead multiprofessional teams in a high-stake environment such as large-scale fires, terrorist attacks or natural disasters. Characteristics of command-and-control teams are heterogeneous sub-teams, who have to coordinate large amounts of information, guide multi-cultural teams and operate in stressful environment (Salas, Burke & Samman, 2001). In the case of a bushfire, a crisis leader manages an on-scene command and control team including professionals from

multiple fields such as the fire department, the police force, first aid responders, hospitals and the local and national government. Thereby, on-scene command and control teams have heterogeneous sub-teams. These teams individually possess large amounts of different information which has to be shared with the crisis leader on demand. The fire department for example has domain specific expertise and information, such as information about density of the population or the closest water reserve in comparison to the police or the hospital staff. In these cases, there is for example high time pressure to act rapidly and quickly evacuate the village, extinguish the fire and bring victims to the hospitals. Given the high-stake crisis situation, many factors could potentially be experienced as stressful for crisis leaders. If a crisis leader does not perform well due to the stress they experience, this could have detrimental effects on his/her ability to manage the crisis. In the bushfire example, stress could result in poor decision making leading to deathly victims and slower anticipation on the crisis at hand. Moreover, these stressful factors might physically and mentally impact the health of crisis leaders.

According to Harms, Credé, Tynan, Leon and Jeung (2017) stress can be described as “physiological and/or psychological arousal that occurs when an individual perceives a threat to something of value to them and that threat taxes or exhausts the resources they have available to confront it” (p. 179). This definition connotes stress as inherently negative and is deficit oriented. Accordingly, stress can cause physical, mental and social illness, such as chronic fatigue, increased risk of cardiovascular diseases, mood disturbance, sleeping problems, depression and burnout (Mosadeghrad, 2014). However, there is a twofold in the literature, one side focusing on the negative effects of stress while the other highlight positive aspects. There is a gap in the academic literature as the research on the negative and positive aspects of stress and the related stress mindset is not combined in research. The positive efficiency boosting effects of stress are underexposed in academic literature. In line with this research domain, stress and appropriate stress coping can also have positive effects such as increased motivation and vigilance (Liu, Vickers, Reed & Hadad, 2017). Previous studies documented an association between stress mindsets and tendencies to perceive situations as challenging or threatening (Liu, Vickers, Reed & hadad, 2017). Stress mindset are found to be influential in how one copes. A positive stress mindset leading to less negative effects of stress (Liu, Vickers, Reed & hadad, 2017). Keech, Cole, Hagger and Hamilton (2020) explain stress mindsets as “sets of beliefs that individuals hold about the consequences of experiencing

stress” (p. 1307). Experiencing stress as a positive response alters the experience and associated effects of stress. Thus, individuals, that indicated having a positive stress mindset tend to portraying stress as something that allows them to flourish and gives them power. In this manner, individuals responded differently to the same stressor in controlled experiments and displayed a more task-oriented and less emotional coping (Crum, Akinola, Martin & Fath, 2017).

Despite its importance to health and professional performance of crisis leaders, research on stress in crisis management remains scarce (Janka et al., 2015). This thesis aims to establish an inclusive research, including all the different components of stress and crisis leadership. The research uses a holistic view. There is no distinction made between which stressors to include or leave out as the research is of exploratory nature. The topic of experienced stress will be explored broadly as well, including the different theories relating mindset to stress. The research question of this paper being:

How do crisis leaders experience stress(ors) in crisis management?

This paper will contribute to bridging the gap in the academic literature on stress research and the experienced stressors of crisis leaders. Additionally, this thesis will add practical relevance as it will be used in the development of a masterclass by OTO Limburg, an organization that is involved in the acute care in Limburg (The Netherlands) and trains crisis leaders. The masterclass will focus on stress and resilience. Thereby, this thesis can be used as a guide in establishing organisational regulations, interventions or provided training of organisations. A clearer overview of stressors in crisis leadership and accompanied training could potentially help crisis managers to better cope with stress. Having suited coping mechanisms to deal with stress is hypothesized to increase their leadership abilities and performance in a crisis situation. Such an increase in the crisis leader’s stress awareness and knowledge about suitable coping mechanisms could potentially avoid harmful mistakes resulting from experienced stress, which could have detrimental consequences for society, such as a delay in response to a large-scale crisis. Thereby, the research has not only academic, but also practical relevance in the field of crisis leadership and beyond. The research might also be interesting for other high-stake environments or team leaders in a different context dealing with stress.

This paper will first explore the academic literature in the theoretical framework, delving into what stress exactly is and what is already known about crisis leadership. Afterwards, the methodology of the research is elaborated on, presenting the interview method, Critical Incidence Technique (CIT). After elaborating on the different stressors and potential remedies uncovered in the data analysis, the interview results are explained. Lastly, these findings are discussed, the limitations of the research are elaborated on and avenues for further research are highlighted. Lastly, a concluding remark is provided.

2. Theoretical framework

In the introduction, the topics of crisis management, experienced stressors and stress were already discussed briefly. In this chapter, a more in-depth framework of these topics is provided through academic literature. First, the academic literature on stressors in crisis management is elaborated on to display the unique working conditions of crisis leaders. Secondly, the topic of stress mindsets is explored more in-depth to examine its impact on the experience of stress. Lastly, the topic of stress among crisis leaders is discussed to investigate how stress evolves and how it influences crisis leaders.

2.1 Stressors in crisis management

Boin, Stern and Sundelius (2016) state that “what all crisis events have in common is the impossible conditions they create for leaders: managing the response operation and making urgent decisions while essential information about causes and consequences remains unavailable” (p. 4). Crisis leaders have to make decisions in a high-stake environment and act fast as failures might result in tragic consequences and potentially have a deep impact on society such as deadly victims. (Haus, Adler, Hagl, Maragkos & Duschek, 2016). Accordingly, crisis leaders carry responsibility to deal with the crisis situation and have to keep an overview of the crisis situation and the multiple teams working together. They steer and coordinate the team of multiple professions to work effectively and efficiently together and to communicate properly both internally and externally. The urgency and high responsibility for their decision-making latitude while enduring a lack of information and potentially disastrous consequences, could result in a task overload for crisis leaders (Weisæth, Knudsen & Tønnessen, 2002). Moreover, crisis leaders may feel obliged to serve as a role model for their team and carry the

responsibility which adds additional stressors and may make leaders more prone to experience stress (Harms, Credé, Tynan, Leon & Jeung, 2017). All these factors could potentially be experienced as stressors for crisis leaders, stressing the importance of investigating the stressor types, their prevalence or frequency and potential consequences of stress on team leader behaviours in such high-stake environments.

Haus, Adler, Hagl, Maragkos, & Duschek (2016) propose the following division between different categories of stressors: First, traumatic workplace stressors, which includes witnessing injury and death and dealing with victims. Second, there are systemic workplace stressors which consist of perceived lack of control, role ambiguity and conflict. Third, crisis leaders might face organisational stressors, which includes conflicts with colleagues, lack of recognition and lack of psychological safety within the organisation. Kop, Euwema and Schaufeli (1999) referred to organisational stressors as the highest levels of associated stress. Lastly, stressors related to personal life can also be grouped as a category as they can decrease focus and concentration on the job (Haus, Adler, Hagl, Maragkos & Duschek, 2016). Mosadeghrad (2014) proposed: job-related stressors, work environment-related stressors, organisational policies-related stressors and interpersonal relations-related stressors. Thereby, leaving out the personal category and classifying interpersonal relations as a separate category from organisational. Further, all dimensions where established/ are hypothesized to be interrelated, meaning that if one stressor goes up others might be affected (Mosadeghrad, 2014).

2.2 Stress mindset

Previous studies demonstrated a link between stress mindsets and how we experience stress and the outcomes it has on our coping and health (Crum, Akinola, Martin & Fath, 2017). One can for instance view stress positively and perceive a situation as a challenge instead of a threat (Haus, Adler, Hagl, Maragkos & Duschek, 2016). According to Keech, Cole, Hagger and Hamilton (2020) two stress mindsets can be distinguished: 1) stress-is-enhancing mindset, the belief that stress has positive effects on health and performance, 2) stress-is-debilitating mindset which connotes stress as negative and is associated with poorer stress-related outcomes. In controlled experiments, those with a stress-is-enhancing mindset show more adaptive physiological responses and more approach-oriented behaviour responses in a stressful environment (Crum, Akinola, Martin & Fath, 2017). Our beliefs influence our health

and performance through two mechanisms. Firstly, our beliefs cause changes in physiological responses to stress. Secondly, it results in changes in behavioural responses to experienced stress (Keech, Cole, Hagger & Hamilton, 2020). A stress-is-enhancing mindset results in increase in positive affect, heightened attentional bias towards positive stimuli, and greater cognitive flexibility (Crum, Akinola, Martin & Fath, 2017; Hagger, Keech & Hamilton, 2020). Liu, Vickers, Reed and Hadad (2017) also found that framing stress positive, negative or balanced influenced the perceived stress and their associated bodily responses of participants in their research (e.g., physiological stress response such as heart rate). Consequently, empirical findings demonstrated that stress mindsets influence proactive behaviour, perceived somatic symptoms, psychological wellbeing, physical wellbeing and perceived stress (Keech, Cole, Hagger & Hamilton, 2020).

2.3 Stress among crisis leaders

The activation of stress results in changes in heart rate, blood pressure, pupil dilation and sweat secretion. This reaction is also known as the ‘fight-or-fight’ response in people. Where moderate levels of stress are useful for activating behaviours and cognitions to deal with the problem at hand, however, too much stress tends to have a negative effect on one’s physical and psychological health (Harms, Crede, Tynan, Leon & Jeung, 2017). A differentiation is often made between short-term and long-term stress and the according symptoms it portrays. The short-term acute stress response is normally not harmful towards the person’s health. However, prolonged stress can damage both mental and physical health (Schneiderman, Ironson, & Siegel, 2005). Stress is argued to impact performance in an inverted U shape, with excessive stress resulting in declining performance (Boin, Stern & Sundelius, 2016). Furthermore, prolonged stress can cause overstimulation for the body, which can lead to disease over long periods of time. (Keech, Cole, Hagger & Hamilton, 2020). Moreover, it narrows the attention span, makes one likely to rely on stereotypes and fall back on old and deeply rooted behavioural patterns (Boin, Stern & Sundelius, 2016). Stress is also likely to be cumulative, meaning that previous stress loads further impacts coping ability for additional stress factors. Eventually, stress can result in burnout, which means that the person’s capacities are overrun resulting in a breakdown (Kop, Euwema & Schaufeli, 1999). Weisæth. Knudsen and Tønnessen (2002) found that psychological stress during crisis management negatively impact decision-making. Harms, Crede, Tynan, Leon and Jeung (2017) found evidence that a stressed leader has poorer leadership as a result of cognitive and emotion drain of resources,

as they can dedicate less cognitive resources to problem solving and are less able to engage in positive leadership behaviours. Thereby, the leaders are not able to fulfil their role effectively. Additionally, they described that stress among leaders can result in destructive behaviour towards their team, such as lashing out towards a team member.

Research by Janka et al. (2015) investigated stress in crisis managers, in comparison to a control group of managers, through self-reports and psychophysiological assessments during stress induction. The stress was simulated using images in an experimental setting. The investigative team compared crisis managers to a control group of managers in the field of economy, education or industry. Strikingly, the research findings established, crisis managers reported lower stress levels, a more positive strain-recuperation-balance, greater social resources, reduced physical arousal symptoms, as well as higher amounts of physical exercise and less alcohol consumption compared to the control group. (Janka et al., 2015). Summing up, the research findings demonstrated that crisis leaders reported lower levels of stress, a healthier lifestyle, less psychophysiological stress reactivity and reduced physical complaints within the sample of crisis managers. Moreover, crisis managers experienced less unpleasantness and arousal in response to the crisis-related images in comparison to the control group (Janka et al., 2015). The reduced unpleasantness and arousal might be due to repeated exposure to crisis environments causing crisis leaders to get habituated to the environment and thereby have an adapted coping mechanism. In the research, the investigators also found that crisis managers have greater interpersonal resources, a reduced burden from conflict and show more psychological flexibility which may all contribute to their increased stress resilience (Janka et al., 2015). Psychology flexibility in this case refers to the flexibility in behavioural, cognitive and energetic adjustments to the working conditions. Crisis managers are exposed to significant stress experiences which are time-limited. These time-limited episodes of stress might foster flexibility.

According to Janka et al. (2015) the ‘survivor effect’ might also be of influence on the coping of stress among crisis managers, which circumscribe a phenomenon in which managers that are more stress-resistant end up being more prone to stick to the profession, while those who are less resilient are more likely to switch professions (Janka et al., 2015). Additionally, having many years of experience in the job, might help in learning healthy coping behaviour and result in better coping with stress (White, Lawrence, Biggerstaff & Grubb, 1985). Thereby,

the profession of crisis management is an extremely valuable sample to investigate more in-depth. The other way around could also be the case, the ‘selection effect’ where only those are selected for the job that naturally have high stress resistance (Kop, Euwema, & Schaufeli, 1999). Those cannot handle severe amounts of stress will dropout during solicitation assessments and training (Vuorensyrjä & Mälkiä, 2011). However, this might have negative consequences, Haus, Adler, Hagl, Maragkos and Duschek (2016) interviewed crisis managers and found that there are barriers to make use of psychosocial support programs as it causes role conflict. The crisis managers are perceived as strong and stress resistant by their team. Consequentially, crisis leader might feel obliged to maintain an exemplary reputation so others remain trust in their decision-making (Harms, Credé, Tynan, Leon & Jeung, 2017).

3. Methodology

The results chapter first entails a detailed description of the research approach of the study. Secondly, the Critical Interview Technique is elaborated on. Thirdly, the sample and its characteristics are discussed. Fourthly, the data collection procedure is described in detail. After, the interview guide will be presented. Then, the procedure of data analysis is presented including an overview of all codes of the research and the inclusion and exclusion criteria for analysis. Lastly, the intercoder reliability test is presented.

3.1 Research Approach

The focus of this research is on individual experience and the unique perspective on the crisis situations that crisis leaders have led during their career. Experienced stressors in crisis situations are individual experiences and vary per person. Therefore, the most suited research approach is found in qualitative research, as it focuses on experience and meaning-making of individuals (Gray, 2013). Qualitative interviewing was used to gather data. According to HesseBiber and Leavy (2006), an in-depth interview focuses on the individual’s unique experiences and knowledge. The interviewer assumes that this knowledge is ascertainable through verbal communication. Moreover, a qualitative interview approach was chosen as it was hypothesized to be easier to build rapport and trust compared to online questionnaire, thereby allowing the interviewees to open up. Since stress on the job is a sensitive topic, which requires a delicate approach a qualitative interview seems suited. Due to the exploratory nature

of the research, qualitative interviewing is also more suiting. Prompts and probes can be used during interviewing to guide the interviewee in their story telling. Prompts can be explained as sub-questions leading the interviewee back to the original question asked in the interview when the interviewee goes off topic (Gray, 2013). Probes are questions asked in order to get a more elaborate response and go more in-depth into a topic (Gray, 2013). The research is based in grounded theory, which refers to theory that is ‘discovered, developed and provisionally verified through systematic data collection and analysis of data pertaining to that phenomenon’ (Gray, 2013, p. 611). Academic literature was explored before the conduction of interviews to build the conceptualization of the different factors involved and get insights in the current state of the art of research in the field.

3.1.1 Critical Incident Technique

The interviews were semi-structured in-depth interviews using the Critical Incident Technique (CIT), which is a qualitative interview procedure focused on understanding an individual experience through the perspective of the individual (Grempler, 2004). The CIT enables the interviewee to choose a significant event that represents a crucial milestone in their career. Such milestones can be characterized by positive and negative feelings. Strikingly, the interviewee will be invited by the interviewer to discuss and analyse this particular event by elaborating on the event in depth. By exploring this event, their perspective and feelings are investigated. The CIT is flexible as interviewees can themselves decide which experience is relevant and what to focus on (Hughes, Williamson & Lloyd, 2007). The recollection of such memories can be supported by prompting questions (e.g., how were you feeling in during this situation?). The CIT was recognised by the academic community to suit the exploratory research approach (Grempler, 2004). This approach was the most suiting for this research as it allows the interviewees to talk about their experience and according feelings and thoughts without the influence of the researcher pointing them in a certain direction (Grempler, 2004). Critical Incident Technique leaves space for probing and unexpected turns in the interviews and gives an in-depth insight into the perspective of the interviewee of the described experience. For certain topics where a more straightforward in-depth approach deemed necessary, the researcher asked questions about a specific topic. For example, questions about the relationship between stress and leadership. Moreover, when using the CIT, one focuses on real-life experiences, which is especially relevant for crisis situations as they are very unique and individually experienced. During the interviews, examples of stressors and stressful

situations were discussed in-depth and elaborated on in order to grasp the severity of crisis in the occupational setting.

3.2 Sample

Interviews were conducted with nine crisis leaders operating in high stakes environments. Participants were included in the research if they had led at least one crisis situation with a multidisciplinary team. As illustrated in table 1, there was a well-balanced sample regarding gender. The research aimed to be interdisciplinary as it included interviews with crisis leaders of multidisciplinary on-scene command teams (OSCT). The elite and diverse sample leaders operating in OSCT allowed a variety of occupational backgrounds, thereby transferability of gained insights to a broader context of crisis leadership can be ensured. Mostly, crisis leaders from the healthcare department and police force were interviewed. However, since crisis leaders usually work with multi-disciplinary teams, their experiences are intertwined. The sample consisted of participants who already possess many years of experience. Most of the interviewees having led multiple crisis situations in the past five years.

Table 1

Overview of participants' characteristics (N=9)

Participant Characteristics		N	% of total
		(participants)	N
Gender	Female	5	55.56%
	Male	4	44.44%
Sector	Healthcare	5	55.56%
	Police	3	33.33%
Years in profession	Other	1	11.12%
	1	1	11.12%
Amount of times leading a crisis in the past 5 years	7+	8	88.89%
	1	4	44.44%
	4	1	11.12%
	7+	4	44.44%

3.3 Data Collection Procedure

In order to gather data on experienced stressors, nine interviews were conducted. OTO Limburg, an organisation in the acute care in Limburg who provides training to crisis leaders, started the solicitation process. OTO Limburg approached potential participants through a solicitation email, containing an explanation of the research as well as flyers of the aim and purpose (See Appendix 3 and 4). General information about the research and content of the interviews was distributed by which potential participants could decide to be interviewed. After a subject expressed interest in participating in the study, she/he has read the cover letter entailing all procedural details of this study. Participants filled out an online pre-questionnaire consisting of the consent form, demographic questions, questions related to the research as well as a calendar to schedule the interview. The pre-questionnaire can be found in Appendix 1.

After completing this online questionnaire, the participants received a thank-you email containing details concerning their scheduled interview and the according zoom link. Interviews were conducted either, via telephone or online, following the current COVID-19 restrictions of the government. The interviews were scheduled for approximately 30 minutes and participants could choose their preferred language: English, Dutch or German. The preferred language of interviewing was English. However, if a participant felt more comfortable speaking their native language (Dutch or German) the interviewer speaking that native language conducted the interview (Dieuwertje van Dijk conducted the Dutch interviews, Alice Scott conducted the German interviews). All interviews were recorded with permission of the participants. It was ensured by the study investigator that the participants were able to stop the interview at any moment if pleased.

Rapport was built during a short introduction round. The interviews consisted of two parts, research on the stressors of crisis managers as well as research on the mental models of crisis leaders (Master thesis, Alice Schott). Both parts being equally represented in the data collection. Interviews of approximately 30 minutes were conducted with each of the participants, combining both the topic of stress as well as mental models. Any remaining questions and other issues could be addressed by the participants via email to the study investigator Corinna Rott. After completing the qualitative interview, the interviews were transcribed in the original language by an external organisation, after which they were

translated to English to assure coherence in coding. After the completion of the master thesis, participants can request a digital copy of the research report.

3.4 Interview guide

An interview guide, consisting of open-ended non-leading questions, was developed to ensure all key areas of interest were discussed and to provide structure during the interview. During the interview there were two main questions: 1) Could you please tell us about your greatest success as a crisis leader, 2) Could you describe an incident that you experienced as very challenging during past crisis management? Additionally, several probes were included that could be asked to gain the perspective of the crisis leader (see Appendix 2). The questions were asked in an exploratory manner, suited to the CIT. However, when it was difficult for topics to touch upon naturally, more explicit questions were asked. During the developmental stage of the interview guide, the guide was thoroughly examined by experts in the field, to ensure suitability and relevance of the questions.

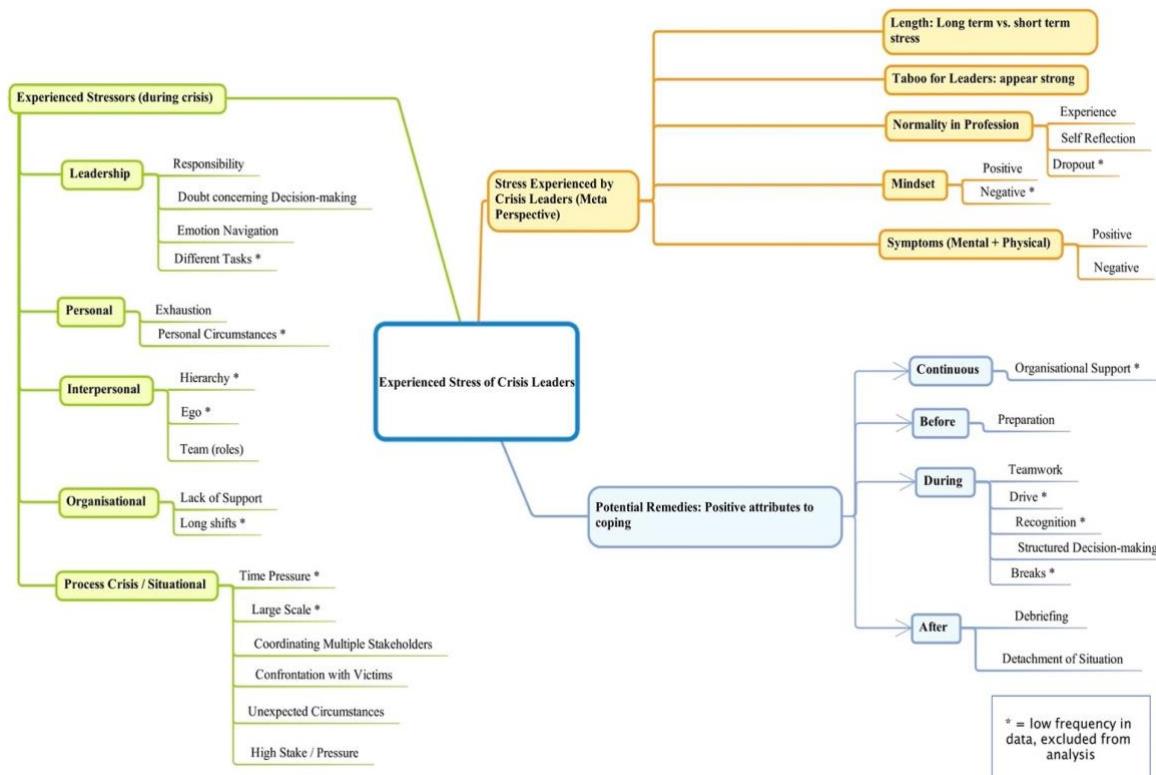
3.5 Data Analysis

The software program ATLAS.ti was used in order to code the conducted interviews. The transcriptions were provided by an external organisation. Transcribing and analysing the data was conducted simultaneously during the interviewing phase. Thematic coding was used to analyse the data, meaning that recurrent patterns and themes among the interviews were revealed through comparison between the interviews (Gray, 2013). The unit of analysis of this study was ‘multiple chunks’, which refers to meaningful segments in the responses of participants such as a part of a sentence, a sentence or a set of sentences (Miles & Huberman, 1994). Both deductive and inductive coding was used. Inductive coding refers to codes retrieved directly from the data, while deductive refers to codes retained from the academic literature (Rivas, 2012). The interview guide was based on the findings in the theoretical framework, therefore deductive coding was used for establishing the global code groups and according chunks that fit into the pre-existing knowledge basis. Inductive coding was used when participants brought up heretofore unexplored topics that were not yet explored in the academic literature. During the coding process the literature was reviewed on multiple occasions.

The codes found were included or excluded from the analysis based on their frequencies. The total amount a code was mentioned had to be above 10 in order to be included, as well as three or more interviewees had to have mentioned the specific topic. The coding scheme and whether they are included or excluded can be found in Appendix 5. In figure 1, a clear overview is provided of the codes and their inclusion or exclusion of analysis. The definition and an example quotation of the excluded code can be found in coding scheme. The excluded codes will not be covered in the results section due to their low frequency and the scope of the thesis.

Figure 1

Overview of categories and codes



Different aspects of the codes were reviewed in order to gain insights such as how many crisis leaders mentioned the topic and frequency of the code. Moreover, the data gathered from the pre-questionnaire was compared to the data of the interviews. The pre-questionnaire was merely used as an additional source of data, to investigate if the interviewees provided similar information and the data was coherent.

3.6 Intercoder reliability test

In order to ensure reliability of the coding process an intercoder reliability test was conducted using 10% of the total data (O'Connor & Joffe, 2020). After the initial coding was finalised, one out of the nine interviews was evaluated. A second coder was consulted who was an independent colleague. Thereby, the reproducibility of the research is tested as coders should be interchangeable (Krippendorff, 2004). The second coder received the coding scheme as well as access to a transcript including quotations to which the second coder assigned codes. The intercoder-agreement mode was activated in ATLAS.ti and the coding of coder one and coder two were merged together in one project. In order to compare the coding, Krippendorff's cAlpha Binary index in ATLAS.ti was calculated. This coefficient is suited for this research as it fits small sample sizes. The Krippendorff's c-Alpha Binary shows if the different coders identified similar areas for a specific code and thereby establish agreement on the coding (Krippendorff, 2011). The coefficient ranges from 0 to 1, meaning perfect disagreement (0) to perfect agreement (1) and everything in between. If $\alpha = 0.667$, the intercoder agreement is acceptable (Krippendorff, 2004). The conducted intercoder-agreement analysis yielded the Krippendorff's c-Alpha Binary coefficient of 0.854, which is a satisfactory agreement of coding.

4. Results

The qualitative interview analysis revealed stressors structured around three main themes, which can be viewed in figure 1. The first topic focuses around the experienced stressors of crisis leaders, these factors were mentioned by crisis leaders as tough to deal with and stressful during crisis management. The experienced stressors were subdivided in different subtopics, based on the source of stress: leadership stressors, situational stressors, personal stressors, interpersonal stressors and organisational stressors. Secondly, the analysis revealed a high prevalence of verbal statements discussing experienced stress. Focusing on the different elements of stress mentioned in the interviews, such as stress mindset, symptoms of stress and perceptions and ideas about stress and their work. The statements made about experienced stress and stress mindsets were compared to answers provided in the pre-questionnaire. Thirdly, the analysis demonstrated positive attributes to coping as a topic widely discussed by interviewees. Positive attributes to coping refers to positive factors that were experienced as helpful for dealing with stress and the high-stake crisis management.

4.1 Experienced stressors of crisis leaders

4.1.1 Stressors related to leadership

Stressors experienced by crisis leaders concerning their leadership position include the responsibility of crisis management ($n=25$), doubt during decision-making in a crisis situation ($n=16$), emotion navigation of one's own emotions as well as the emotions of their team members ($n=84$). Lastly, having to deal with many different tasks at the same time ($n=6$) was mentioned by the interviewed crisis leaders. However, due to low frequency, the variable is excluded from the data as shown in table 2.

Table 2

Frequency of experienced stressors related to leadership (n1=9, n2=316)

Code	n1 (Interviewees)	% of total n1	n2 (statements)	% of total N2
Responsibility of crisis management	9	100%	25	7.91%
Doubt in decision-making during the crisis situation	7	77.78%	16	5.06%
Emotion navigation of oneself and the team	9	100%	84	26.58%
Different tasks*	4	44.44%	6	1.9%

Note: n2 refers to total statements concerning stressors

*= excluded from analysis, see chapter 3.5 for inclusion and exclusion regulations

4.1.1.1 Responsibility of crisis management

A stressor found related to the leadership of crisis leaders during crisis management is the burden of responsibility of crisis management. The end responsibility is carried by the crisis leader, if anything goes wrong and the team looks at the crisis leader for solutions. All nine interviewees mentioned this factor during the interview and described it as a stressor.

“But you certainly feel like, you are actually trying to reassure your environment by saying that it will be okay, it will work out, we will do it, and those pats on the back or that shoulder for people, and to say like guys don’t be afraid, it will be fine, this we are going to do it, I will take responsibility, I am going to take care of it, this is going to happen, and yes, inside you think ‘I hope it all works out the way I want it to work’. Because if it fails, I am ultimately responsible for the whole story, and I have a problem.” (Interviewee 8).

As mentioned before, due to the potential aftermath of wrong decisions, the responsibility is very high during crisis management. Lives sometimes depend on it. Interviewee 8 experiences the burden of responsibility of successfully dealing with the crisis situation as well as a feeling of responsibility towards the team. The team members often are the ones executing the tasks and are the ones working in the crisis environment. The phenomenon of feeling responsible

for the team was additionally supported by interviewee 7: “*Especially crisis leaders often get into situations where everyone first looks to him or her and wants to know, okay, what do we do next.*”

Moreover, crisis leaders highlighted Problems in adjusting after a crisis situation and indicated difficulties with determining their responsibility /the boundaries of their responsibility as a crisis leader. Interviewee 6 explains: “*They only hand over when they have the feeling that I can also make such a handover.*” Such a handover can refer, for instance, to a colleague taking over their shift, but also to another team or person taking over a task. Interviewee 6 also states: “*That was a new challenge for us. And so, it goes on and on, first of all to see what is actually demanded of us, what is actually our task, and as a rule that also changes very quickly.*” In the above quote, interviewee 6 refers to finding the boundaries of one’s responsibility, to question what is actually asked and what is feasible to provide, which is a question that comes back in every crisis situation and changes rapidly during the crisis.

4.1.1.2 Doubt in decision-making during the crisis situation

As a result of this high responsibility also comes the burden of having to take the difficult decisions as the ultimately responsible leader. Thereby, one stressor mentioned in seven out of nine interviews was doubt concerning the decision-making during the crisis situation (n2=16). Crisis leaders, therefore, indicated doubts whether the right decisions were made during their operations. Interviewee 9 stated:

“You're just constantly weighing is this the right choice, yes and no, so you're constantly grinding in your head we're going to the left, we're going to the right, and what you're doing is, you have, you are constantly busy with imaging to arrive at a judgment and a decision.”

While interviewee 9 focusses solely on doubts during the crisis situation, interviewee 7 states that doubts do not only occur during the situation but might also come up after dealing with the crisis. In line with this hypothesis, interviewee 7 illustrated:

“Because also the decisions that you have to make, you have to... At the latest after the mission, you ask yourself whether you really should have made this decision. And then you have to... then you have to be self-confident enough, then you have to be sure enough to say, yes, that was necessary. But you have to... so that has to be clear in advance that you can do that.”

Every crisis situation is different and it is difficult to write exact protocols or guidelines as the situation changes rapidly and decisions have to be made on the spot, constantly being adapted to the situation. Interviewee one explains: *“You have no guideline, you got to decide from the very moment again and again and again always checking was my last decision right or must I redecide? Okay.”* Thus, decision-making is constantly evaluated by the crisis leader, which causes doubt in handling the situation.

4.1.1.3 Emotion navigation of oneself and the team

In a demanding crisis situation with pressure upon the crisis leaders and their teams, emotions can run high. In all nine interviews, handling emotions came to the surface. As shown in table 2, emotion navigation occurred 84 times in the interviews (out of 316 statements), which makes it the most highlighted stressor of crisis leaders. During a crisis situation, the crisis leader has to deal with their own emotional state. The factors mentioned before, high responsibility and doubt of decision-making in combination with a challenging crisis environment can put a lot of pressure on a crisis leader. As a result, crisis leaders might experience many emotions. However, during crisis management one cannot be distracted by emotions and the crisis leader has to remain emotionally stable in order to keep an overview of the situation and remain calm. The crisis leaders feel as they have to behave as a role model for their team and keep up positivity in order to remain the trust of their team. Interviewee 4 described:

“To remain standing and certainly also as a leader because yes, of course you also have your own emotions and that is not bad at all, but yes, how and when you can make room for that as long as you are still a leader for the team. there is a group and the group still needs you. So that sometimes makes it difficult.”

Crisis leaders do not only have to appear strong, but also confident in their leadership, teamwork and successfully dealing with the crisis situation. Hence, the analysis revealed that there is a thin line of showing enough or too much emotion as a leader. Interviewee 9 is very aware of the image that is portrayed towards the team as a crisis leader stressing the importance to act authentic:

“You are always aware of, people are still looking at you as a leader, chief, commando, you name it all, so you can show a certain degree of stress, otherwise people will also think of you it is not important what happens here either, so you have to show it now and then, but it should never be destructive, as a leader you can never be out of control.”

In line with this statement, the analysis revealed that crisis management can elicit very negative emotions forcing crisis leaders to mask their feelings while leading. Interviewee 3 explains: *“If you have frustrations, stress arising from frustration and annoyance and anger, yes, I do feel it, and I am a heart patient, well, that elephant will sit on my chest.”* Masking of emotions seemed important for the successful crisis management since the team needed to believe in a positive outcome of the crisis. Therefore, the crisis leader may portray a positive or natural emotional state to his/her team and hide emotions that could interfere with task-oriented coping.

In summary, crisis leaders do not only need to deal with one's own emotions, they also feel responsible for handling/directing the emotions of the team members. Hence, the crisis leader has to make sure that their team members are focused on solving the crisis situation. Interviewee 1 states: *“I was facilitating. So, I was trying to keep talking them through, and my success was to get the emotions out of the game.”* Emotions should also not be completely neglected as team members should also feel comfortable enough to consolidate in the leader about the arising emotions and find comfort with their leader and team members. Interviewee 8 describes: *“The most important was actually, call it ‘being the father of the department.’ To be there if people are struggling, to be there for patients and families who have questions. That was what I was doing most.”*

In order to know how to react to emotions, crisis leaders have to be able to quickly interpret the emotions of their team members. Thereby, knowing when a team member has for example reached their limit or is uncomfortable. Not only reading and responding to emotions but also tailoring the tasks in such a way that each team member is in the best possible position for them to flourish. This is also highlighted by interviewee 3:

“I think that a team leader must know his people very well, but also have to figure out very quickly what do I have here, even if he does not know someone but that he or she very quickly reads his team members that he feels and sees the group dynamics very quickly, but can also anticipate on it. That's really important.”

Additionally, the leader can experience loneliness in handling their emotions. The leader is there for their team's emotions, while sometimes there is no one looking out for them. Interviewee 1 illustrates this feeling:

“Really stressed actually, I was really stressed, and I felt a bit helpless because I find in the position that I had to walk around and make sure everybody is fine and there was no one who was actually looking at me and making sure that I was kind of fine. This is what they expect you from time to time to be ... yeah this is what they call a professional. And then you get angry because you feel I'm the adult here and I am the only one being professional, can we just calm down. And then again I told myself it doesn't help someone must still be reasonable”.

4.1.2 *Situational stressors*

Situational stressors include having to deal with unexpected circumstances during the crisis situation (n2=35), being confronted with victims (n2 =17), being in a high-stake environment (n2 =20) and having to coordinate multiple stakeholders (n2=18). The large scale of events (n2=6) and time pressure (n2=9) during crisis management also came up during data gathering, due to their low frequency they are excluded from analysis as shown in table 3.

Table 3

Frequency of experienced situational stressors (n1=9, n2=316)

Code	n1 (Interviewees)	% of total n1	n2 (statements)	% of total N2
Unexpected circumstances during the crisis	9	100%	35	11.08%
Confrontation with victims	5	55.56%	17	5.38%
High stakes during crisis management	7	77.78%	20	6.33%
Coordinating multiple stakeholders	7	77.78%	18	5.7%
Time pressure*	5	55.56%	9	2.85%
Large scale*	4	44.44%	6	1.9%

Note: n2 refers to total statements concerning stressors

*= excluded from analysis, see chapter 3.5 for inclusion and exclusion regulations

4.1.2.1 Unexpected circumstances during the crisis

During crisis management, there were unexpected circumstances that influenced how to deal with the situation. An example explained by interviewee 4 being a fire in a hospital which was close to the ER. The interviewee found out about the fire, while bringing in patients that needed care. Part of the hospital had to evacuate. In such a situation, an unexpected event happens while already dealing with a small crisis. There is a lack of information of the occurrence of events and the scale of the fire. Moreover, as a result of many people being involved in crisis management, a crisis situation is often chaotic at the start. The nature of unexpected circumstances thereby is a stressor for crisis leaders. An example provided by interviewee 7 also emphasizes this:

“Nobody knew what to do. It was a complete confusion, it was a maximum desperation, nobody really knew what is the first step now, because of course this is a scenario, a mother kills her own child, which nobody understood how.”

All nine interviewees brought up unexpected events, which suits the chaotic character of a crisis. Interviewee 5 states: “*You can't develop a standard there, in such special crisis situations. That never runs the same.*” As mentioned before, there is no guideline on how a crisis will evolve. Thereby, circumstances and according crisis management can change any moment. Interviewee 2 illustrates that the start of a crisis is always chaotic in nature: “*In the end it got off the ground well, but in the beginning the drama was natural.*” This is also in line with how for instance interviewee 9 portrays a crisis situation: “*The typical thing about a crisis situation is if it is all imaginable and predictable in advance, then I do not think it is a crisis.*” Summing up, a crisis situation represents a stressor for crisis leaders as the situation is very unpredictable and chaotic.

4.1.2.2 Confrontation with victims

While being in a crisis situation, crisis leaders can be confronted with (deadly) victims and scenes that can be experienced as traumatic. Five out of nine crisis leaders brought up the topics of confrontation with victims. Interviewee 6 illustrates: “*You can imagine people being killed by a bomb, that's not really a pretty sight. And I had to deal with the bodies very directly.*” Such a war-like environment is experienced as a stressor by crisis leaders. Especially, being confronted with young victims puts additional pressure on crisis leaders. Interviewee 7 explains: “*We regularly observe in crisis intervention that the deaths of youngsters and violent deaths of children lead to waves of consternation that were not foreseeable at the beginning.*”

Moreover, one crisis leader explained the difficulty of successfully managing the crisis but not being able to prevent a victim of dying. This can put severe strain on the crisis leader and its team. Experiencing the loss of a victim while crisis management was successful might increase their doubts about decisions made during crisis management. Interviewee 4 states:

“*You see the suffering, but also that you see that the team you just worked hard with together, that of course also suffer from it and now maybe threaten to fall in the thinking pattern of: yes, we did it right and hey, there have been victims, could we have prevented that? Of course, you should always be careful that you do not carry that with you.*”

Thereby, it is not solely the confrontation with victims but also doubts whether their decision making could have prevented it.

4.1.2.3 High stakes during crisis management

Crisis leaders explained being in situations where the stakes were extremely high. Meaning that the aftermath of the crisis could be disastrous. Seven out of nine interviewees experienced this as a stressor in itself. Interviewee 1, sketches such a situation: “*people are standing with fuel in airplanes in front of a burning house, which is a danger in itself*”. The crisis leader illustrates a situation where an airport caught fire, while the leader just landed on the landing strip with an airplane full of passengers that travelled a long distance. They were not allowed to leave the airplane. Pressure was felt by the crisis leader to bring the passengers to safety.

Other crisis leaders also explained the high stakes to be a burden as there is no room for mistakes. Interviewee 5 states: “*Just imagine, one identifies the wrong one or gives a death message then in the wrong place, or so*”, and elaborates “*so accuracy, that always has to be one hundred percent, before that you don't give out any information. That also has serious consequences*”.

4.1.2.4 Coordinating multiple stakeholders

Seven out of nine interviewees indicated having to deal with multiple stakeholders during crisis management. Each stakeholder having their own interest in the matter and their own perspective and needs. These needs and interests can be conflicting at times which puts additional stress on the crisis leader. Especially, in a large-scale crisis situation many different entities are involved, such as the government, fire department, health care sector, police department, but also companies and organizations. Interviewee 2 explains: “*It is difficult to get the information that you collect in such a regional consultation in line with your own organization. Because they are just different people and then you have to consult again and that always makes it complex.*” Here, the crisis leader illustrates having to cope with the crisis on multiple layers with different entities, thereby having to repeat some processes and having the danger of miscommunications or a lack of agreement. Interviewee 1 also states: “*I had the feeling that people from different angles with different needs are constantly pulling.*” This illustrates the different needs different stakeholders can have during a crisis, which causes additional stress for the crisis leader.

4.1.3 Interpersonal stressors

Interpersonal stressors refer to stressors caused by having to work with multiple people together. This includes finding one's team role during the crisis management ($n_2=10$). As shown in table 3, other variables in this category are hierarchy ($n_2=9$) and ego ($n_2=9$), these factors were excluded from analysis as their frequency was sparse.

Table 4

Frequency of experienced interpersonal stressors ($n_1=9$, $n_2=316$)

Code	n1 (Interviewees)	% of total n1	n2 (statements)	% of total N2
Finding one's team role	5	55.56%	10	3.17%
Hierarchy*	3	33.33%	9	2.85%
Ego*	2	22.22%	9	2.85%

Note: n2 refers to total statements concerning stressors

**= excluded from analysis, see chapter 3.5 for inclusion and exclusion regulations*

4.1.3.1 Finding one's team role

Five out of the nine interviewees highlighted team dynamics as a stressor. Crisis leaders experienced it as stressful when one has to find one's team role and find how to work together with their team. Especially, when the team has never worked together before and one is unfamiliar with each other. Balancing finding the right role distribution while being in a crisis situation that has time pressure and is urgent. Interviewee 6 describes:

“That's why you always have to look at, okay, what is required of the psychologists here, or also of the social science staff, or also the peers that we use with the police officers, where can I... So, what is actually to be done?”

Interviewee 6, not only describes finding their role within the team, but also to establish which task belongs to who. Unclear role division can also result in team members stepping into each other's territory. Interviewee 3 states: *“I saw all that chaos and I really stood there, I think to*

myself hello, this is my domain, but they didn't think so, they went very solo and in a different direction, then I think well, then not."

4.1.4 Organisational stressors

Organisational stressors focus on organisational factors that impact the experienced stress of crisis leaders. This category consists of lack of support from the organisation (n2=13) as well as having long shifts as a crisis leader (n2=6). Only the lack of support will be discussed in the analysis as presented in table 5.

Table 5

Frequency of experienced organisational stressors (n1=9, n2=316)

Code	n1 (Interviewees)	% of total	n1	n2	% of total N2
			(statements)		
Lack of support from the organisation	7	77.78%	13		4.11%
Long shifts*	6	66.67%	6		1.9%

Note: n2 refers to total statements concerning stressors

**= excluded from analysis, see chapter 3.5 for inclusion and exclusion regulations*

4.1.4.1 Lack of support from the organisation

The crisis leaders experienced a lack of support from the organisation as a stressor while dealing with crisis situations. Seven out of nine interviewees touched upon this topic. Interviewee 4 describes having the feeling: "*Then I think yes, that is for those who make the policy and those who have to implement it, yes, there is a gap somewhere, which is not answered properly.*" Interviewee 4 indicated to not feel understood by upper management as they themselves are often not active on location during a crisis situation and therefore there is a lack of understanding. Interviewee 6, also portrayed a lack of support: "*I am amazed at how difficult it is to get funding for this [psychological support]. My organization is not yet as modern as I would like it to be. Others are much further along. And I actually experience that as unprofessional.*"

4.1.5 Personal stressors

Personal stressors entail of the codes: personal circumstances of the crisis leader (n2=6) and exhaustion (n2=27). As a result of a low frequency, the category personal circumstances is disclosed from analysis as shown in table 6.

Table 6

Frequency of experienced personal stressors (n1=9, n2=316)

Code	n1 (Interviewees)	% of total n1	n2 (statements)	% of total N2
Exhaustion	9	100%	27	8.54%
Personal circumstances*	5	55.56%	6	1.9%

Note: n2 refers to total statements concerning stressors

**= excluded from analysis, see chapter 3.5 for inclusion and exclusion regulations*

4.1.5.1 Exhaustion

A crisis situation is a high demanding surrounding for a crisis leader, which requires being fully focused on the situation at hand for many hours. This results in fatigue due to the intensity of crisis management. All crisis leaders mentioned fatigue being a stressor during crisis management. Interviewee 1 illustrated: “*That was really challenging managing the situation and especially because I was extremely tired, too. It's not that you say you're a crisis manager and when you are tired, you must be very careful not to make dumb decisions.*” When a crisis arises, crisis leaders have long shifts, make many hours a week and can barely take time off or take breaks due to the high demand and as mentioned before high consequences and pressure. Interviewee 7 expresses feeling: “*During the mission, my coping strategies really reached their limits because the missions just didn't stop.*”

4.2 Potential remedies: positive attributes to coping

The potential remedies to the above explained stressors are divided according to the build-up of a crisis situation. Before the crisis starts, preparation (n2=18) positively contributes to coping with the crisis situation and the according stressors. During the crisis, structured decision-making (n2=31), efficient teamwork (n2=38), breaks (n2=9), recognition (n2=6), and

the drive of the team ($n2=7$) are positive attributes. Having breaks, being recognised for the work done and the drive of the team are excluded from analysis, due to their low frequency as portrayed in table 7. After crisis management, detachment of situation and having a debriefing with the team positively influence handling the stress after during the crisis.

Table 7

Frequency of positive attributes to coping ($n1=9$, $n2=654$)

Code	n1 (Interviewees)	% of total	n1	n2	% of total N2
			(statements)		
Before crisis management: preparation	8	88.89%	18		2.75%
During crisis management: efficient teamwork	8	88.89%	38		5.81%
Structured decision-making	8	88.89%	31		4.74%
During crisis management: recognition*	2	22.22%	6		0.92%
During crisis management: breaks*	4	44.44%	9		1.38%
During crisis management: drive*	3	33.33%	7		1.07%
After crisis management: debriefing	6	66.67%	14		2.14%
After crisis management: detachment of situation	9	100%	35		5.35%
Continuous: organisational support*	6	66.67%	6		0.92%

Note: n2 refers to total statements ($n2=654$)

**= excluded from analysis, see chapter 3.5 for inclusion and exclusion regulations*

4.2.1 Before the crisis situation

4.2.1.1 Preparation

Eight out of nine interviewees brought up the topic of preparation during data gathering. Interviewee 3 illustrates how preparation helped prepare everyone for the COVID-19 pandemic: “*In that preparation for the Bioware exercise, actually all healthcare institutions had their crisis organizations in order to participate in that exercise, so basically everyone was well prepared and everyone had a crisis team and everyone knew the upscaling structure.*”

Interviewee 1 describes:

“You have you have to prepare people for... that these are extreme situations here you're taking over a high responsibility, you have to make decisions in an unknown field in an unknown area and here you are under time pressure and I think you should not start afterwards you should, they should start before, you get to prepare people.”

By preparing crisis leaders for certain crisis scenarios, they are already familiar with the structures and the different stages of crisis management, which makes them feel more in control. Interviewee 7 even relates this to handling stress and dealing with the aftermath of crisis management:

“If it's just to let people know that they're not alone. The problem we have is that someone doesn't sleep after a mission, that they shake, that they have sweats and they think they're alone. And if three people in a group of ten believe that and don't talk about it, because the others don't show it either, then it's a vicious circle.”

4.2.2 During the crisis situation

4.2.2.1 Structured decision-making

Eight out of nine interviewees highlighted the importance of structured decision-making and its helpfulness in successful crisis management. Interviewee 4 mentioned: “*You actually hear that with the evaluation that people were glad that someone got up to bring structure into the chaos.*” Thus, it is generally appreciated if someone takes up the task of calling the shots and giving out orders. Interviewee 8 explains what structured decision making can look like:

"You also need to have a certain work pattern. So basically, you name it the army command story, it just has to be in there, there is only one leader, there are executors, and you shouldn't be discussing a lot of things. This is the plan, this is how we are going to do it, done."

There is no room for discussion while dealing with a crisis situation, therefore, tasks have to be divided promptly. Interviewee 6, also highlights the importance of this:

"That's really what it's all about, it's not the dead and the seriously injured that are "the problem" or responsible for the success, but how we as a team manage to get the routine into this situation as quickly as possible and work through it in the best possible way."

The crisis leaders further mentioned asking oneself structured questions when confronted with a crisis situation in order to bring structure to the chaos. Interviewee 4 illustrates:

"I myself am a type who tries to create an overview very quickly and in this situation that was the case, I started creating an overview very quickly and looked at what do I have now, what do we have, where do we have to go, what do I need for that and where can I get it."

4.2.2.2 Efficient teamwork

Teamwork was described as an important factor for coping with a crisis. The code team work consists of both smooth collaboration between team members and stakeholders as well as the inclusion of all vital stakeholders in the teamwork. Eight of the nine crisis leaders highlighted the importance of teamwork during the interviews. Interviewee 3, for instance describes working together with staff from different departments of the health care: *"The nursing homes are now relatively quiet, so they will use nursing staff from the nursing homes, if possible, in home care so that they can support home care. In this way they try to help each other every time."* Thereby, the different department help each other out when a crisis situation arises. Interviewee 3, also explained that having all stakeholders at the table from the start had a major impact on crisis management as it put gave a giant step ahead. Interviewee 6, also highlights

how important getting to know each member is and investing in this early in order to make teamwork smooth. Interviewee 2 also mentioned this:

“Being able to find each other very quickly and exchange phone numbers very quickly at the start of that crisis eh last year. At some point it is important who is in the contact list of your phone, so that you can act quickly.”

4.2.3 After the crisis situation

4.2.3.1 Detachment of the situation

After a crisis situation has taken place, it is extremely important to detach from the situation and release stress. All nine crisis leaders highlight this factor during data collection. Detachment means something different per crisis leader. This could include going on holidays, being in nature, partaking in sports or spending time with their loved ones. Interviewee 4 illustrates:

“The other day it was also very busy and that was a week of 60 hours, I called a colleague once in the afternoon of well, you know, do you have time this afternoon to take over the shift for a few hours? Oh yes, no problem at all, fine. Then I jump on my bike for three hours, then I go and clear my head for a while and then I come back and then I can just go for it again.”

Crisis leaders mentioned needed this time to recharge after the intense time and bring back balance between their work and their personal life. Interviewee 5 states:

“I also manage that quite well at times, to separate myself, so to create other mental free spaces for myself by listening to music or actually taking a book with me and reading something, because then you also... Well, I need that then, that I also do something else.”

4.2.3.2 The importance of debriefing after a crisis

A debriefing takes place after the crisis situation, where the event can be thoroughly discussed. The event is discussed and a safety environment is provided to talk about what happened and evaluate if further support is needed. Further, how the crisis situation was dealt with is evaluated and feedback is usually provided. Interviewee 6 explains:

"We do a follow-up meeting afterwards, where we then process everything again, where we look okay, what went well, what went badly, what should we urgently change next time, what was the big special feature of this mission, what do we learn from it for a possible next time etcetera."

Six of the nine crisis leaders touched up the topic of debriefing. Interviewee 7 illustrates how he provides debriefing to the team:

"With me there's always the, so the basic rule with me is, whoever goes with me on the mission has to have coffee with me afterwards, after every mission, even if virtually nothing happened. (...) It's important to me that we do this after every mission, because then the threshold is low for someone to start talking if something is bothering them. If someone has to actively say, can we go for coffee today, that immediately creates a victim role that I would like to avoid at all costs with my people, so we go for coffee after every mission and if someone wants to say something, then it's a very simple circle, because we're already talking about it anyway."

Thus, by introducing the routine of debriefing the crisis situation, everyone involved has the opportunity to speak about doubts, insecurities, struggles or traumatic events that they experienced while on the job. Further, the debriefing provides a clear closure moment to the crisis situation and evaluating on the process helps processing the situation.

4.3 Experienced stress of crisis leaders

On several moments during data gathering the topic of stress was touched upon. The analysis includes positive stress mindset (n2=21), positive (n2=14) and negative symptoms of stress (n2=32), the duration of stress (n2=18), the normality of stress in the field of crisis management (n2=11) as well as the taboo of stress (n2=15) as illustrated in table 8. Part of the normality of stress in the field is the experience crisis leaders have (n2=19) as well as their awareness and self-reflection of their own stress levels (n2=28) as shown in table 9. Further, the individual's preference towards their optimal stress levels are discussed. The qualitative interview data is compared to the quantitative data of the pre-questionnaire. Associations and potential discrepancies are elaborated.

Table 8

Frequency of codes related to experienced stress of crisis leaders (n1=9, n2=654)

Code	n1 (Interviewees)	% of total	n1	n2	% of total N2
			(statements)		
Positive stress mindset	7	77.78%	21		6.65%
Negative stress mindset*	4	44.44%	6		1.9%
Positive stress symptoms	7	77.78%	14		4.43%
Negative stress symptoms	8	88.89%	32		10.12%
Duration of stress: short term versus long term	6	66.67%	18		5.7%

Note: n2 refers to total statements (n2= 654)

**= excluded from analysis, see chapter 3.5 for inclusion and exclusion regulations*

Table 9

Frequency of codes normality in profession (n1=9, n2=654)

Code	n1 (Interviewees)	% of total n1	n2 (statements)	% of total N2
Normality of stress in crisis management	7	77.78%	11	1.68%
	9	100%	19	2.91%
Experience in crisis management				
Self-reflection on stress	7	77.78%	28	4.28%
Dropout*	4	44.44%	8	1.22%
Taboo of stress among crisis leaders	7	77.78%	15	2.29%

Note: n2 refers to total statements (n2= 654)

**= excluded from analysis, see chapter 3.5 for inclusion and exclusion regulations*

4.3.1 Positive Stress mindsets

Seven of the nine crisis leaders touched up having a positive view of stress and that stress helps them perform better. When the topic was not touched upon, the direct question was asked: ‘Do you feel like stress enhances your performance or do you feel like stress limits you?’. Interviewee 3 mentioned: “*I am also someone who gets a kick out of that, I think that is also very, I also need that. If I am not, I am also someone who needs a certain pressure.*” Interviewee 9 also states: “*I think you should always have certain moments of stress in order to stay sharp and to be focused interview.*” Their views are part of the stress-is-enhancing, also referred to as the positive, stress mindset by Keech, Cole, Hagger and Hamilton (2020). Interviewee 8 even goes a step further than the other interviewees:

“If the stress, the pressure, the workload increases, you also see that the performance also increases, they do the work well, I dare to come to the hospital here with every patient, or to the emergency room, but I notice if there is an incident, you see, what I just said, qualities that you did not expect at first, and have not seen. So, stress in my view promotes so called functioning.”

Even though most crisis leaders actively state that they have a positive stress mindset, 4 of these leaders spoke negatively about stress. Especially, relating to endurance and amount of

stress. For instance, interviewee 4 states: “*I can perform best myself under stress, under pressure*”. However, the crisis leader also explained quitting her job as a first responder due to the high stress level of the profession. Further, interviewee 4 also described:

“The best thing was of course if we had a traffic light on our body, what told us, now we are turning orange and now you have to be careful because you should not turn red or huh, you should not exceed 80% stress, that would be the best, but there is none.”

4.3.2 *Symptoms of stress: positive or negative*

Both positive and negative symptoms of stress were mentioned during data gathering. Eight of the nine crisis leaders noted negative symptoms ($n=32$) of which seven also touched upon positive symptoms ($n=14$). Interviewee 3 for instance mentioned her fear of the negative impact of stress during the COVID-19 crisis will have on health care staff:

“Showing that 80% of the people who really worked in the heat of the pandemic do not return to their old job (...) I am afraid that when the Corona is over and people start to rest, I wonder how many heart attacks, strokes and I don't know what's to come. I am very afraid of that.”

The crisis leaders, for instance, found it difficult to relax and detach after they have been in a very alert state during a crisis situation. Additionally, interviewees mentioned fatigue after being in a crisis situation. Moreover, they noted physical complains, interviewee 3 mentioned having a very high blood pressure, her body starting to tremble, having joint and muscle pain due to stress. This crisis leader also mentioned: “*if I feel that I am getting that pressure on the chest then I know from now on I really have to stop because otherwise I will die soon.*” Two crisis leaders also mentioned having direct colleagues or heard knowing people that have committed suicide as a result of extremely high stress levels.

In contrast to the negative symptoms, positive symptoms were also highlighted. Several crisis leaders mentioned feeling like they were in a ‘special mode’ while being stressed, meaning that they are very concentrated and immediately go for action and can take a helicopter view of the situation. Moreover, factors such as having more energy and being more focused were mentioned. Interviewee 7 illustrates feeling: “*have always managed to switch to a mode in*

which I can also make tough decisions, that I can also go to parents and deliver a death notice to them and then continue my mission normally." Interviewee 8 also states that performance rises while being under severe stress, while interviewee 5 highlights needing less sleep during a stressful period.

4.3.3 Duration of stress: short term versus long term

Next to the discussion of symptoms and mindsets, six of the nine crisis leaders touched upon the topic of the duration of stress. Differentiation was made between short-term and long-term stress. Mostly the interviewees see short-term benefits of stress, but acknowledge that long-term stress has negative consequences. Interviewee 9 illustrates:

"I think you have to make a difference between healthy stress and when stress is no longer healthy, and that is, of course, very difficult. People who have a burnout always say yes, suddenly it is over. Then I think of stress as an elastic band that you keep pulling and suddenly the stretch is gone, that's how I think it is."

As shown by a quote of interviewee 3 above, fearing of the impact of the duration of the COVID-19 crisis on the health of people in the field due to the stress. Interviewee 9 states: "*Now with corona, I know really good crisis leaders who have just burned down because they just couldn't last because of the duration of the corona crisis.*"

4.3.4 Normality of stress in crisis management

In crisis management stress is unavoidable, thereby seven of the nine crisis leaders touched upon perceiving stress as a normal part of their job. Accordingly, crisis managers indicated a high stress level as part of their profession. In line with this association interviewee 7 mentioned having a different concept of stress since working in the field of crisis management. Some crisis leaders expressed perceiving stress levels different, being used to a high stress level at work. One interviewee explained no longer feeling stressed for things that were stressful before such as exams or selection process. Interviewee 4 explained: "*A lot of people who are in that leadership situation, who choose it, are often people who can do their job well under stress.*" People unfit for the profession will not choose such a career or will drop out. Interviewee 7 states:

“That's why I think talking about it alone and knowing that you can be overstressed both in the field and after the field, but that that's normal for the job that we do. Most people wouldn't even dare to go to these deployments and that we have problems afterwards because we're not gods, that's normal now. We are just people who have chosen this profession.”

The topic of normality of stress in crisis management includes the codes self-reflection of own stress levels (n2=7) as well having experience in the profession (n2=9). The interviewed crisis leaders are very self-aware of their own stress and how they handle it. Additionally, all crisis leaders interviewed had many years of experience in the field. All these factors add to the feeling of normality of stress in crisis management.

4.3.4.1 Experience in crisis management

Eight of the nine crisis leaders have more than seven years of experience in their profession of which 5 of them have led more than four crisis situations. Therefore, they have a lot of experience dealing with stressful situations. Interviewee 8 states: *“Have been here for twenty years, I have been working in the hospital for forty years, so it rarely happens that I think ‘and what now?’.”* Through this experience the crisis leaders have learned to adopt to challenging situations and dealing with stress. Interviewee 4 describes her journey of dealing with stress: *“Of course I have learned that very clearly in recent years. I now know how my body functions pleasantly and how pleasant my environment finds me when I feel good about myself.”*

4.3.4.2 Self-reflection on stress

During data gathering seven of the nine crisis leaders reflected upon their own stress level and how they deal with stress. The crisis leaders expressed being self-aware, recognized signals of stress and explained knowing their boundaries very well. Interviewee 3 states: *“You have to experience it once, perhaps that you have very high stress and that you also feel it in your body, but people sometimes do not know what they feel and people often ignore what they feel.”* Without being aware of one's stress levels and how to detach, one will quite be burnout when a crisis runs for an extended period of time. Interviewee 5 describes: *“It is important to know where your own limits are. So, to know yourself and then to know, that is very important, how is your moral compass set up, how is your sensitivity compass set up.”*

4.3.5 Taboo of stress among crisis leaders

Since the analysis indicated that stress is seen as normal in crisis management, crisis leaders may experience this normality as a burden. Seven out of the nine interviewees touched upon the topic of taboo around stress of crisis leaders. Since it is seen as part of the profession, this might scare people off to talk about it. Consequentially, crisis leaders might see their colleagues handling stress well and having the false conception that they need a high level of stress in order to perform, thereby they might feel ashamed to speak up about their struggles. Although the crisis leaders themselves did not state they experienced this, they did refer to a ‘macho’ culture, where stress is seen as a good thing and working hard and under stressful circumstances is normalized. Interviewee 9 states:

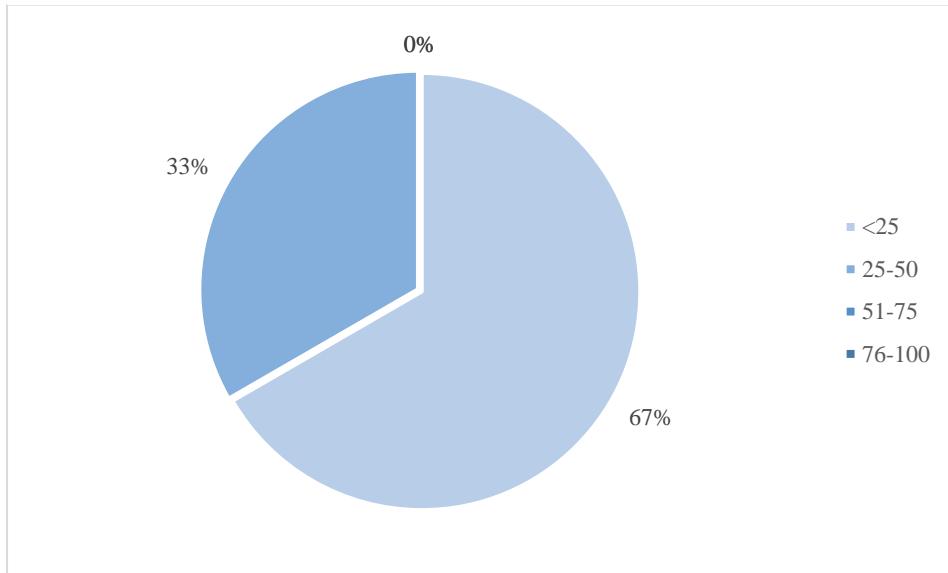
“While very few people will, you know, I think about stress, burnout, stress at all, there's always a bit of a taboo. And that there is always a bit of a macho culture of "I never have any stress". I can imagine that some people say like 'I need that stress because then I am at my best', and I have often encountered those people who say 'no, stress, this and that', and who after the first action immediately are stressed.”

4.3.6 Stress levels of crisis leaders

Part of data gathering included distributing a pre-questionnaire before conducting interviews. For an overview of all the questions, see appendix 1. As seen in figure 2, most of the crisis leaders found their average stress level during a regular working week rather low, below 25% on a scale of 0-100.

Figure 2

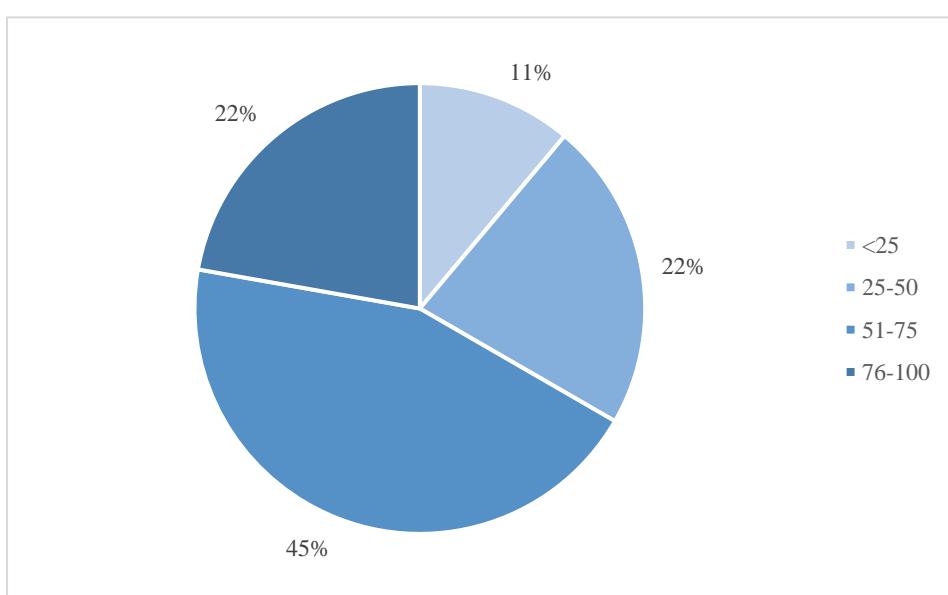
Average stress level during a regular working week (1-100)



When reviewing their optimal stress level this looks different as shown in figure 3. For their optimal stress level, the crisis leaders are more towards the high end (4 of the leaders being in the 51-75 range, 2 being in the 76-100 range). The crisis leaders, thus, perceive their optimal stress level to be rather high, which might explain why they would thrive profession with a high stress level.

Figure 3

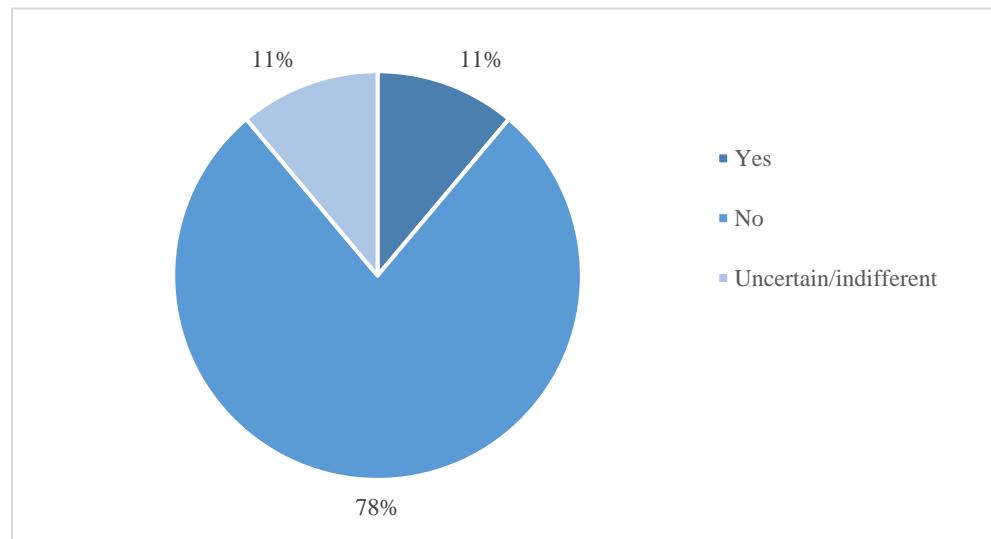
Optimal stress level (1-100)



Additionally, as seen in figure 4, seven of the crisis leaders state that they do not want to reduce their stress levels.

Figure 4

Wish to reduce stress level



5. Discussion and Conclusion

In this chapter, the results are interpreted and connections are made between the findings and the academic literature discussed in chapter 2. The most important and surprising findings are discussed, due to the limited scope. Limitations of the conducted research are discussed and future avenues for further research are suggested. Moreover, the practical implications of the research are elaborated on, thereby putting the research back into the context and providing practical suggestions on how to use this research within organisations dealing with crisis teams and crisis management. Finally, a concluding remark is provided addressing the main findings of the research.

5.1 Discussion of Findings

The most important and surprising findings are discussed, due to the limited scope of this thesis. Generally, the consistent agreement between crisis leaders was high as most factors were mentioned by a majority of the crisis leaders. The experienced stressors are discussed

first, after which the potential remedies are elaborated on. Lastly, a more detailed account is given of the findings related to experienced stress: stress mindsets, normality of stress in crisis management and the taboo around stress.

5.1.1 Experienced stressors of crisis leaders

As shown in the results, the crisis leaders have consistent agreement of what they experience as stressful. Many stressors found during data gathering were also mentioned in the literature: such as carrying responsibility, high pressure and confrontation with victims (Haus, Adler, Hagl, Maragkos & Duschek, 2016). The category of situational stressors was not surprising since many of these factors were already found in literature and fit the nature of crisis. Besides the crisis related stressors, there were also many stressors that can be found in a wide range of team leader contexts, these are mostly related to the human side of leadership and working with a team. Stressors related to team leader behaviours included for instance: emotion navigation, having to deal with conflicting stakeholders, having doubts about decision and carrying the responsibility as well as team roles. Especially, dealing with emotions was often mentioned as a burden. These factors are also stressors in other organisations. However, for crisis management additional pressure is present due to being in a high-stake crisis situation that often is paired with time pressure. Since time is limited, there is a lack of time to work on the individual factors during crisis management such as role division or getting to know the team better. Thereby, the burden may be more severe in crisis management.

Surprisingly, there were some factors mentioned in literature that were less present in the research, such as organisational aspects, for instance, lack of recognition and having conflict with colleagues (Haus, Adler, Hagl, Maragkos & Duschek, 2016). Additionally, details and influential factors related to the crisis leaders' personal life were less highlighted as a burden contradicting previous trends in the academic literature (Haus, Adler, Hagl, Maragkos & Duschek, 2016). However, this can also result from the small sample in the conducted research. The burden of fatigue was less highlighted in the academic literature. However, the topic was very prevalent in the research and seem like a heavy burden, which should be explored further.

5.1.2 Potential remedies: positive attributes to coping

This topic was not touched upon in the theoretical framework, due to the limited scope. Nonetheless, these factors might be interesting for organisations when trying to improve the experienced stress of crisis leaders. The found factors might lessen stress and the experience of stressors for crisis leaders. For instance, if structured decision making is incorporated in the training program for crisis management, this might limit doubts about made decisions and might make one more confident about the carried responsibility. During data gathering, structured decision-making came up repeatedly as being an important factor.

5.1.3 Stress of crisis leaders

A surprising finding of the research is a contradicting expression of stress mindsets among crisis leaders. When directly asked, crisis leaders describe a positive view upon stress and portray the stress-is enhancing mindset. However, indirectly the crisis leaders mentioned more negative symptoms than positive symptoms. The negative symptoms mentioned were also more severe than the benefits highlighted. Additionally, most crisis leaders made a distinction between short-term stress and long-term stress. Often short-term stress is explained as neutral or positive while long-term stress is illustrated as negative. This is also in line with Boin, Stern and Sundelius (2016), who described performance under stress as an inverted U shape. Nonetheless, most crisis leaders present their optimal stress level to be high. Thereby, the interviewed crisis leaders have no coherent perception of stress and according stress mindset and obtain contradicting views. Further research is required to investigate these conflicting views more in-depth.

Moreover, almost all crisis leaders interviewed had more than seven years of experience in profession and had already partaken in multiple crisis situations. The survivor effect illustrated in the literature by Janka et al. (2015) might impact the heterogeneity of the sample. The survivor effect illustrates that only those that are very stress resistant will remain in the profession and those that have difficulty to cope will dropout early in the process or adjust their work to fit their boundaries. This could explain the trivialization of stress among crisis leaders and the according taboo that lays on having difficulty coping as a crisis leader. Stress is an inherent part of crisis management and is also necessary in crisis management in order to act quickly. Due to stress being part of crisis management, it could explain why many of

the crisis leaders are very aware of their stress boundaries and how to detach from a stressful situation.

The taboo that is described by crisis leaders about the topic of stress could also be a result of the normality of stress in the culture of crisis management moderated by the survivor effect. Those being in the profession then generally have a high threshold of stress that they can handle, which could put pressure on the crisis leaders to give signs when stress is actually becoming too much. Moreover, they often feel like they have to be perceived as strong by their team and feel like a role model in order for others to trust their decision-making Harms, Credé, Tynan, Leon & Jeung, 2017). According to literature, this makes one also more prone to experience stress Harms, Credé, Tynan, Leon & Jeung, 2017).

5.2 Limitations

First, a limitation of the current study is that the sample of crisis leaders could have been larger and more diverse. Crisis leaders are in a high demand profession and often have very busy schedules, therefore, the solicitation process was difficult and resulted in a small sample. Due to their limited time, the interviews conducted were scheduled for 30 minutes. If more time could be reserved for in-depth discussion, results might have differed.

Second, the findings in this study are affected by considerable heterogeneity due to the sample quota. The sample mainly included crisis leaders from the health care section or the police force, in future research this could be extended in order to ensure a representative sample of crisis leaders. In addition, research was mostly conducted in the south of the Netherlands and Germany. The crisis leaders interviewed had many years of experience already, this might have impacted the results provided.

Third, because limited accessibility and strict inclusion criteria, the investigation did not focus on people who dropped out to the unbearable amount of stress during crisis management. It might be the case that only those that have a very high threshold concerning stress remain in the profession and those who cannot take the stress anymore leave (Janka et al., 2015). The sample only includes one crisis leader that mentioned switching jobs due to the stress experienced.

In qualitative research, the purpose is also not to find a general ‘law’ or ‘rule’ that applies to everyone. The goal of this research was to investigate individual experiences of crisis leaders, which was successfully completed. As the research is exploratory and the critical incident technique was used, the interview setup was broad and interviews could go in different directions. Thereby, many different topics were touched upon in this research. Some topics only being touched upon briefly while others are discussed more in-depth. Including many topics suits the exploratory nature of this research, however, this does limit the depth of analysis in the research. However, the agreement between crisis leaders was high on most topics.

Data collection took place in the midst of the current COVID-19 pandemic. Many crisis leaders, especially those in the health care sector, have been in the heat of this crisis for almost 1,5 years. The endured stress is thereby long lasting and might be a big burden for the interviewed crisis leaders. Most crisis leaders explained making very long shift and barely having any time off. While being at the centre of the pandemic, this might influence their perceptions of stress and according coping as to when they would be interviewed after for example a relaxing holiday.

The COVID-19 pandemic could not only influence the perceptions of crisis leaders, but interviews had to be conducted online via ZOOM. Thereby, body language and facial expressions were more difficult to read. Additionally, crisis leaders conducted the interviews on different locations, sometimes in their offices with other colleagues present. This might have influenced the answers provided. However, this also might have beneficial effects, crisis leaders might have felt more comfortable speaking from their own chosen place. Thereby, they might have felt more safe speaking up.

5.3 Avenues for future Research

First, Avenues for future research could include conducting research on a larger scale with crisis leaders stemming from diverse backgrounds (i.e., experience, demographics, profession). More in-depth longer interviews could be conducted, as mentioned before, this research has an exploratory nature and is thus broad. Further research could go more in-depth

on the experienced stress and the stress mindsets of crisis leaders asking multiple implicit and explicit questions about their stress mindsets.

Second, it would also be very interesting to combine the interviews with physiological measurements of stress. Especially, since the research found that the statements about stress mindsets of crisis leaders differed when directly asked or indirectly mentioned. The direct stated perception of crisis leaders of stress is positive, while indirectly their statements are negative. This is a surprising research finding that should be elaborated on in combination with physiological testing of experienced stress. Including a control group of leaders in a different high-stake profession might then also be interesting to examine if there are differences between different professions. Further research could also explore the connection between the training that crisis leaders have received and how they cope with stress during crisis management. The way crisis leaders are trained for the profession might influence how they handle stress and act in crisis situations which was outside of the scope of this research but could be influential.

Moreover, it would be interesting to extend the research to crisis leaders who have left the profession and compare their experienced stressors and stress mindsets to those who are still in the field. Thereby, the survivor effect can be studied further. Exploring why crisis leaders dropped out might give additional insights into stressors of the profession. In the current study, mostly those leaders that are comfortable in the profession and with many years of experience were interviewed.

5.4 Practical Implications

As mentioned in chapter 4.2, during the interviews the following factors were perceived as helpful in coping with stress during crisis management: preparation, efficient teamwork, structured decision-making, detachment of the organisation and debriefing. Organisations can use this research as a guide to check whether their current practices are aligned with the research. Especially, the factors can be used to evaluate whether crisis leaders are prepared for their role as a crisis leader during crisis management. Hence, organisations are able to assess if crisis leaders received appropriate training for structured decision-making, and whether they offer enough possibilities for debriefing after a crisis situation and have moments to detach. Thereby, enforcing what crisis leaders demonstrate as helpful during crisis management.

Moreover, a masterclasses or customized training could be provided focusing the human factors of crisis management, such as on team dynamics, leadership qualities such as emotion navigation and how to deal with carrying responsibility. A thorough program could be developed where crisis leaders do not only get trained on the practical side of crisis management, but even as importantly on leadership and the human side.

Many interviewed crisis leaders mentioned feeling of exhaustion and taking on long shift as a burden to crisis management. Organisations may benefit from investigating if they can shorten their shifts and explore whether their employees also struggle with this burden. More breaks or holidays to detach from the stress could be provided as to ensure that crisis leaders really can shut off from the endured stress and can recharge thereby chances of burnout is reduced and efficiency might foster (Boin, Stern & Sundelius, 2016).

5.5 Concluding remark

This exploratory research has identified stressors for the interviewed crisis leaders. The following categories of stressors and codes were found: leadership stressors (doubt decision-making, responsibility and emotion navigation), organisational stressors (lack of support), personal stressors (exhaustion), interpersonal (team roles) and situational stressors (unexpected circumstances, confrontation with victims, high stakes/pressure, coordinating multiple stakeholders). Moreover, the research revealed positive attributes that are helpful in dealing with crisis situations thorough the crisis situation. Before the crisis situation, preparation is crucial for crisis leaders. During crisis management, efficient teamwork and structured decision-making are helpful in dealing with the experienced stress. During the aftermath of crisis management, detachment from the situation and debriefing the crisis situation are important for coping. Further, it delved into the topic of stress of crisis leaders and explored their stress mindsets and how they experience stress as a crisis leader. The research found that stress is often seen as inherent to the profession, however, this also causes a taboo for crisis leaders to talk about stress. One of the most interesting findings being a discrepancy between perceived stress mindset and indirect statements about stress. The perceived mindset to be positive, while indirect statements being negative. Especially, indirect statements were found concerning negative symptoms and experiencing stress negatively on a longer term. This research finding should be explored more in-depth in further research,

potentially in combination with physiological testing. This research is a valuable stepping stone for further research. The research also has practical value as it can be used to develop training and master classes for crisis leaders and can be used as a guide as to where to put the focus in order to better the mental health status of crisis leader.

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7. Appendix

Appendix 1: Questionnaire Overview

Pre-questionnaire

Start of Block: Default Question Block

Q1 INFORMED CONSENT, Informed Consent to Participate in a Research Study Leadership & Stress in Crisis Teams- A multi-professional field investigation

PURPOSE AND BACKGROUND, we are conducting a research on the stress and leadership of crisis leaders. The interview aims to improve our understanding of what puts crisis team leaders under pressure, how they experience stress, how they deal with it, and the extent to which it impacts how they take up their role as a team leader. Besides, we aim to learn how crisis team leaders see their role as a team leader. As a crisis leader, you were selected as a possible participant in this study.

PROCEDURES If you agree to participate in this research study, your participation will involve an interview of approximately 30 minutes. The interview topics include questions about leadership and stress. The interview will be audio recorded to process the data afterwards. The records from this study will be treated confidentially. The data will be stored according to the rules of the School of Business and Economics of Maastricht University. The data will be reported anonymously in any reports or publications resulting from the study.

THE RESEARCH TEAM Our research team consist of the following members: Dieuwertje van Dijk, Alice Schott, Corinna Rott

QUESTIONS If you have any questions about the study, questions about the rights of research participants or research related concerns please contact Corinna Rott (corinnarott@maastrichtuniversity.nl).

CONSENT YOUR SIGNATURE BELOW DECLARES THAT YOU HAVE VOLUNTARILY DECIDED TO PARTICIPATE IN THIS STUDY AFTER READING ALL OF THE INFORMATION ABOVE. YOU UNDERSTAND THE INFORMATION IN THIS FORM AND ALL OF YOUR QUESTIONS CONCERNING THE STUDY WERE ANSWERED. YOU HAVE THE RIGHT TO ACCESS YOUR DATA AT ANY MOMENT DURING THE RESEARCH STUDY. YOU HAVE THE RIGHT TO WITHDRAW YOUR

CONSENT AT ANY TIME WITHIN A MONTH AFTER THE INTERVIEW HAS TAKEN PLACE WITHOUT GIVING ANY REASON FOR DOING SO.

- I give consent to participate in the research and that the interview will be audio-recorded. (1)
 - I do not consent. (2)
-

Display This Question:

If Q1 = I do not consent.

Q10 If you do not consent to participate we thank you for your time and wish you a pleasant journey.

Q2 Profession

Q33 Years in profession

- 1 (1)
 - 2 (2)
 - 3 (3)
 - 4 (4)
 - 5 (5)
 - 6 (6)
 - 7+ (7)
-

Q3 Gender

- Male (1)
 - Female (2)
 - other (3)
-

Q4 Sector

- Healthcare (1)
 - Military (2)
 - Police (3)
 - Politics (4)
 - Fire Authority (5)
 - Psychology (6)
 - other (8) _____
-

Q6 Please indicate how many times you have been the leader of a crisis team during the past 5 years?

▼ 1 (2) ... 7+ (8)

Q7 Did you manage crisis teams containing teams from outside your organization?

- yes (1)
 - no (2)
-

Display This Question:

If Q7 = yes

Q24

Please indicate how many professions on average were in the crisis teams you have managed so far

- 2 (1)
 - 3 (2)
 - 4 (3)
 - 5 (4)
 - 6 (5)
-

Display This Question:

If Q7 = yes

Q8 Please indicate from which sector these teams stemmed from

- Healthcare (1)
- Military (2)
- Police (3)
- Politics (4)
- Fire Authority (5)
- Engineering (6)
- Computer/ Information Science (7)
- Psychology (8)
- other (10) _____

Q11 Do you have a particular book, role model or author that inspired your leadership that you would be willing to share? If applicable, please write the name of the author, role model or book below

- Yes (1) _____
- No (2) _____

Q15 How did your organisation prepare you to lead multi-professional crisis teams?

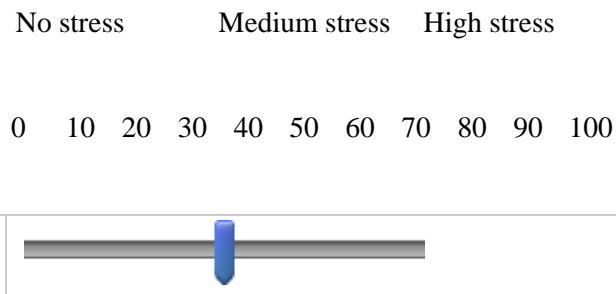
- By personal coaching (1)
- An external leadership training (2)
- An internal leadership training (3)
- Using online resources (4)
- By studying a book (5)
- I educated myself using ... (6)

-
- Not at all (7)
-

Q19 Which of the following symptoms have you experienced due to stress when you took up the role as a crisis team leader? (multiple answers possible)

- Increased heart rate (1)
- Body aches and pains (e.g., neck or back pain) (2)
- Headaches (3)
- Feeling anxious or depressed (4)
- Shortness of breath (5)
- Dizziness (6)
- Chest pain (7)
- Jaw Clenching (8)
- Stomach or digestive problems (9)
- Exhaustion or trouble sleeping (10)
- Irritability (11)

Q20 If you would scale your average stress level during a regular working week on a scale of 1 (no stress) to 100 (extremely stressed/burnout), How would you scale your average stress levels?



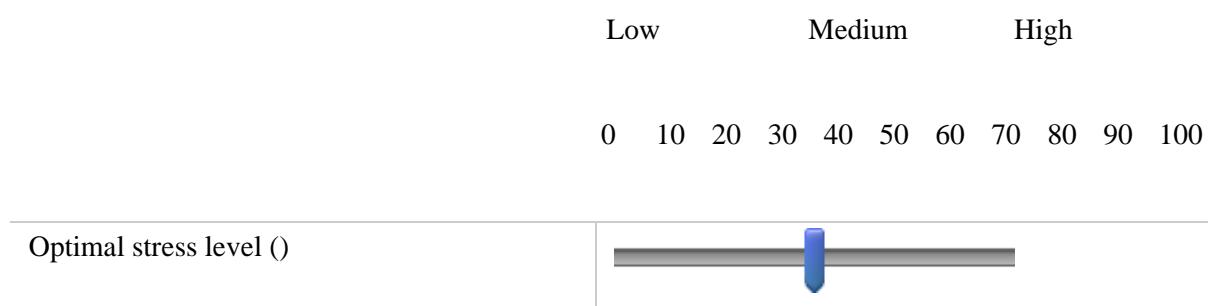
Q21 Which of the following statements suits you best? Pick max. 2 options. When I am stressed I ...

- Think about how I solved similar problems (1)
 - Spend time with a special person (2)
 - Think about the event and learn from mistakes (3)
 - Blame myself for having gotten into this situation (4)
 - Buy myself something (5)
 - Feel anxious about not being able to cope (6)
-

Q22 Which of the following collection of statements suits you best? Pick one per statement

	1 (1)	2 (2)	
The effects of stress are positive and should be utilized.	<input type="radio"/>	<input type="radio"/>	The effects of stress are negative and should be avoided.
Experiencing stress improves my health and vitality.	<input type="radio"/>	<input type="radio"/>	Experiencing stress depletes my health and vitality.
Experiencing stress inhibits my learning and growth.	<input type="radio"/>	<input type="radio"/>	Experiencing stress facilitates my learning and growth.
Experiencing stress debilitates my performance and productivity.	<input type="radio"/>	<input type="radio"/>	Experiencing stress enhances my performance and productivity.

Q30 What is your optimal stress level?



Q31 Do you wish to reduce your average stress level?

- Yes (1)
 - No (2)
 - Uncertain/indifferent (3)
-
-

Q39 Please enter a date to schedule the interview (before 18th of May). After completing the survey, we will send you a confirmation email with the scheduled interview and the Zoom link.

Q29 Please insert your time preference

Q34 Please write down your preferred email address to receive an interview reminder as well as your interview link. *Please note*, this email address will be masked, and cannot be traced back to any given responses of the questionnaire.

Q39 Which language would you prefer to be interviewed in?

- English (preferred) (1)
- German (2)
- Dutch (3)

Appendix 2: Interview Guideline

Guideline for interview	
Introduction	
Opening	<ul style="list-style-type: none">• Welcome thank you for agreeing to share your expertise.• “As explained during our previous conversations, we are currently conducting research on Crisis leaders. Thanks again for your time and dedication”.
Making the participant feel at ease	<ul style="list-style-type: none">• My name is Dieuwertje, I am a master student at the Maastricht University.• Together with another master student, we are researching leadership and stress in crisis teams.
Statement of Consent & Confidentiality	<ul style="list-style-type: none">• “We would like to remind you that this interview will be audio-recorded according to the confidentiality clause of the consent form. Are you still agreeing with this proceeding?”• It is important for me as an investigator to clarify that no identifying information will be made public, casually speaking none of the information you provide will be forwarded to any colleagues, your organization or the press.
Clarification of understanding	<ul style="list-style-type: none">• Do you have any remaining questions?
Building rapport	<ul style="list-style-type: none">• The purpose is to have an open conversation to better understand your experience as a crisis leader.• Clarification: there are no right or wrong answers. We want to hear your experience.

	<ul style="list-style-type: none"> • You will receive a transcript of our conversation and have the opinion to withdraw from the study at any time. (No information will be forwarded to your organisation)
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Main questions

First event	<ul style="list-style-type: none"> • Please tell us about your greatest success as a crisis leader? • Could you tell me about an event that you experienced as great success for you as a crisis leader?
Second event	<ul style="list-style-type: none"> • Could you describe an incident that you experienced as very challenging during past crisis management? • Could you describe an incident that you didn't feel comfortable navigating as a team leader?
If second event is not elaborate enough	<ul style="list-style-type: none"> • Was there ever a situation where the difficulties were nearly unbearable for you as a team leader, why?

CIT – Probes event I

Main question	<ul style="list-style-type: none"> • Please tell us about your greatest success as a crisis leader? • Could you tell me about an event that you experienced as great success for you as a crisis leader?
1) Describe the incident	<ul style="list-style-type: none"> • What happened? • What circumstances existed that caused this? • What was the occasion? • When did it happen? • Where did it happen? • Who was involved in the event? • What was your role during this event • How did the team relationships look like during the event? • In what ways did people collaborate?
2) Identify thoughts and feelings	<ul style="list-style-type: none"> • How did you feel in this moment? How did your body feel?

	<ul style="list-style-type: none"> • What were the factors that most strongly led to the decision you made? or what pieces of information, that is cues of factors, did you use to make this decision XY? or What aspects of your environment influenced your decision? • What were your thoughts during the incident XY? How did you feel during incident XY? What contributed to the thoughts you had? • Do you think your thoughts/ feelings affected your behaviour positively or negatively?
3) Analyse and Evaluate the Event	<ul style="list-style-type: none"> • Why was this so challenging for you as a team leader? • What personal behaviour contributed the most to this team success? What was the outcome of these actions/ your behaviour? Can you describe how you think it helped? • How was the incident a success? (if applicable) What made you conclude that it was a success and not a failure?
4) Identify what was learned from the Event	<ul style="list-style-type: none"> • What did you learn from this challenge? (If applicable) what would you have done differently? • What would you have done differently if you could do it over again? What did you do that What did not help or was ineffective? What did help and was effective? What was the outcome of these actions? • Looking back upon this experience, what would you say is the most efficient way to lead a team during a crisis? Which team leader behaviour made your team so successful?

CIT probes – event 2

Main question	<ul style="list-style-type: none"> • Could you describe an incident that you experienced as very challenging during past crisis management?
1) Describe the incident	<ul style="list-style-type: none"> • What happened? • What was the occasion? • Who was involved?
2) Identify thoughts and feelings	<ul style="list-style-type: none"> • How did you feel in this moment? • How did your body feel?
3) Analyse and Evaluate the Event	<ul style="list-style-type: none"> • Why was this challenging for you? • During that incident, what were factors that made it increasingly challenging? • What did you do to detach from the situation? (How did you reduce your stress level?) • As soon as they mention stress: Did you feel like stress enhanced your performance or do you feel it drained your energy / limited you in that moment?
If not critical enough	<ul style="list-style-type: none"> • Was there ever a moment/situation where stress was nearly unbearable, why?
4) Identify what was learned from the event	<ul style="list-style-type: none"> • How do you think stress influenced your leadership/ team leading behaviour in this moment? • If you look back at the challenging situation, which factors influencing your leadership do you think are often overlooked? Why? • Do you receive support from your organisation? Do you feel like you can talk about it with your colleagues?
Ending	
Ending	<ul style="list-style-type: none"> • Thank you so much for taking the time to answer our question.

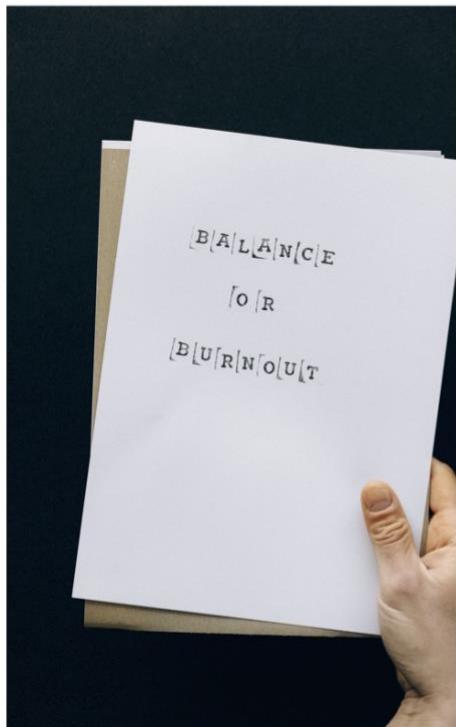
Opening for additional remarks

- Is there anything you still would like to address or that you think is missing when speaking about leadership stress?

Appendix 3: Global Flyer

Leadership & Stress in Crisis Teams

A multi-professional field investigation



In the midst of a global crisis

You feel you always "must push through"? Being a leader requires extra courage to acknowledge that you are under severe pressure. This pressure might affect how you take up your role as a team leader, influencing the team's interactions.



Our research Aim

This project aims to build an all-encompassing understanding of the role of stress in crisis management. It will focus on the team leader stress process, its effect on team leader behaviors, and team interactions. Hence, the team leader stress process will be analyzed in relation to the overall team functioning (e.g., team learning). By using innovative measurement tools to monitor physiological stress indicators, the studies aim to make the invisible stress "visible". Finally, these insights are input for the development of a Leadership Masterclass by OTO Limburg. As such, all efforts are taken to improve global leadership resilience in crisis management.

OTO LIMBURG
Voorbereiding op rampen en crises

The Team Leader stress process & resilience

Study 1 Assessing the current Status Quo in the field of crisis management. Exploring how crisis team leaders experience and deal with stress. Ultimately, a better understanding of team leader's stress and its consequences is essential to the betterment of crisis management.

Innovative Measurement tools

Study 2 will use physiological measurement tools to measure stress objectively.

Study 3 stands to educate crisis leaders to evaluate their physiological stress response and use real-time biofeedback to support team leaders in dealing with stress to enhance their performance and optimize their regeneration processes.



The three research studies

We have planned three studies in order to:

- 1) understand how crisis leader process stress and which mental models stand to guide team leaders behaviors.
- 2) test hypotheses in a laboratory setting measuring leadership stress amplitudes objectively.
- 3) use biofeedback to increase leaders stress awareness and thus efficient stress coping.

This project is based on a multidisciplinary cooperation, entailing social scientists, computational scientists, and experienced executives representing the Crisis Management and Education-Training-Practices of Limburg (OTO).

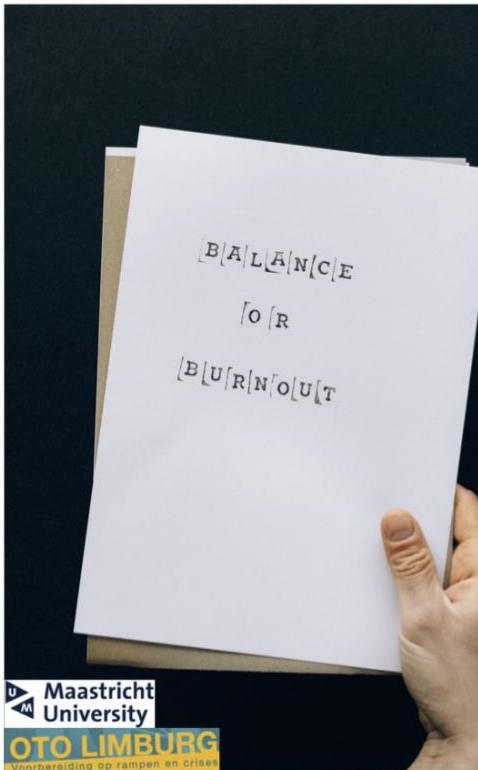
If you want to join our team, you can talk to the study investigator Corinna Rott: corinnarott@maastrichtuniversity.nl.

**Maastricht
University**

Appendix 4: Flyer Study

Leadership & Stress in Crisis Teams

A multi-professional field investigation



In the midst of a global crisis

You feel you always "must push through"? Being a leader requires extra courage to acknowledge that you are under severe pressure. This pressure might affect how you take up your role as a team leader, influencing the team's interactions.

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Your Contribution

We invite you to participate in a research study because **you are a crisis leader (commanders)** with at least one experience in strategical, tactical and operational crisis navigation. In addition, the decisive reason for your qualification is your expertise in one of the following disciplines; the Health Care Sector, Law Enforcement, Politics, or you are a member of the fire department.

The interview aims to improve our understanding of what puts crisis team leaders under pressure, how they experience stress, how they deal with it, and the extent to which it impacts how they take up their role as a team leader. Besides, we aim to learn how the crisis team leader sees his role as a team leader. Finally, by evaluating organizational leadership trainings and support mechanisms the investigators aim to understand the individual team leader context.

The Interview Procedure

After you decided to participate in this study, you will receive an email to sign an online consent form and fill out a short biographical online questionnaire. Complementary, the online questionnaire enables you to schedule an in-depth interview. Interviews can be performed in person or via online means. We expect to complete the interview in approximately **30 minutes**. The interviews will be performed by two Master students related to this research project (can be performed in Dutch/English or German). The personal interview will be audio-recorded and transcribed. All transcripts will be accessible via an anonymous subject ID only and will not entail any identifying information.

If you have questions, concerns, or complaints, about the research, you can talk to the study investigator Corinna Rott: corinnarott@maastrichtuniversity.nl.

Appendix 5: Coding scheme

Code group	code	sub-code	Operational definition	examples	Inclusion or exclusion of analysis
experienced stressors	Process / Situational (es-pc)	Time Pressure	There was time pressure during the crisis situation.	"so, you have to be tight in the agenda, in the yes in the agenda and in the decision-making to also to be able to make progress. And a crisis that requires quite a bit to be able to switch quickly and that kind of thing"	Excluded
		Unexpected Circumstances	There were unexpected circumstances during the crisis situation that suits the chaotic character of a crisis and lack of information.	"a fire in the hospital so yes, we were actually quite unexpected, we ended up in a crisis situation". "Nobody knew what to do. So, it was a complete confusion, it was a maximum desperation, nobody really knew what is the first step now, because of course this is a scenario, a mother kills her own child, which nobody understood how."	Included
		Confrontation with Victims	The crisis leader was confronted with victims.	"And you can imagine people being killed by a bomb, that's not really a pretty sight. And I had to deal with the bodies very directly"	Included

Code group	code	sub-code	Operational definition	examples	Inclusion or exclusion of analysis
		Coordinating Multiple Stakeholders	Multiple entities were involved during crisis management, each having their own interest which can be conflicting at times.	"That it is difficult to get the information that you then collect in such a regional consultation in the right line in your own organization. Because they are just different people and then you have to consult again and that always makes it complex, I think for the organizations themselves" "I had the feeling that people from different angles with different needs are constantly pulling"	Included
		Large scale	The crisis was a large-scale event.	"it concerns large numbers of patients"	Excluded
		High Stake / Pressure	There was a high-stake environment. Pressure was felt by the crisis leader.	"So, accuracy, that always has to be one hundred percent, before that you don't give out any information. That also has serious consequences"	Included

Code group	code	sub-code	Operational definition	examples	Inclusion or exclusion of analysis
	Personal (es-per)	Personal Circumstances	There were personal circumstances, unrelated to the crisis situation, that were a burden for the crisis leader.	"but I also think about the balance between private and business. If you have a home situation where it, you know, when the private situation is not good, you cannot function properly during the day. If you've left home with a screaming argument, an argument with your partner or something else, then you can never go to work during the day, let alone if it is a crisis situation, you cannot tell me that it has no effect. I think that stress, as a person, you live twenty-four hours a day, and the environmental factors that determine whether you have stress, I think that are just twenty-four hours a day and that just has to add up, I think that for sure has an influence."	Excluded
		Exhaustion	Fatigue due to crisis management.	"that was really challenging managing the situation and especially because I was extremely tired, too. It's not that you say you are you're a crisis manager and when you are tired you, you must be very careful not to make dumb decisions"	Included
	Interpersonal (es-ip)	Hierarchy	There are difficulties with the hierarchical relations.	"Telling the CEO to keep quiet and then let someone else talk on this this is a bit of a challenge"	Excluded

Code group	code	sub-code	Operational definition	examples	Inclusion or exclusion of analysis
		Ego	There are co-workers that show ego.	"There are actually people also certainly in the administrative level that hang with their nails on the stage just to crawl on it and even now and then try to push each other off. And what I mean is there are people trying to claim the success for their own account"	Excluded
		Team (Roles)	Unclear team roles.	"saw all that chaos and I really stood there, I think to myself hello, this is my domain, but they didn't think so, they went very solo, someone completely hit that plan and everything and I think well, then not"	Included
	Organisational (es-o)	Lack of Support	There is a lack of support from the organisation.	"I am amazed at how difficult it is to get funding for this (psychological support). My organization is not yet as modern as I would like it to be. Others are much further along. And I actually experience that as unprofessional."	Included
		Long Shifts	The crisis leader has to make long shifts.	"where we were then on duty for eleven days almost continuously"	Excluded

Code group	code	sub-code	Operational definition	examples	Inclusion or exclusion of analysis
	Leadership (es-l)	Responsibility	The crisis leader feels the responsibility pressure him/her.	"But you certainly feel like, you are actually trying to reassure your environment by saying that it will be okay, it will work out, we will do it, and those pats on the back or that shoulder for people, and to say like guys don't be afraid, it will be fine, this we are going to do it, I will take responsibility, I am going to take care of it, this is going to happen, and yes, inside you think 'I hope it all works out the way I want it to work'. Because if it fails, I am ultimately responsible for the whole story, and I have a problem"	Included
		Doubt Decision-making	The crisis leader doubts his/her decision-making.	"Because also the decisions that you have to make, you have to... At the latest after the mission, you ask yourself whether you really should have made this decision. And then you have to... then you have to be self-confident enough, then you have to be sure enough to say, yes, that was necessary. But you have to... so that has to be clear in advance that you can do that."	Included

Code group	code	sub-code	Operational definition	examples	Inclusion or exclusion of analysis
		Different Tasks	The crisis leader has to manage multiple tasks at ones.	"We were with the family on the day, we were at the school the next day, we were at the school the day after that, we were in the neighborhood the day after that, because neighbors called us that they couldn't make it anymore, because they knew the family, of course, because they had seen the mother with her son regularly in the years before."	Excluded
		Emotion Navigation	The crisis leader has to handle / deal / get into balance the emotion of others and themselves. The crisis leader has to closely manage his/her team and keep an eye on their emotional state/coping while also paying attention to their own emotional state.	"So, I was facilitating. So, I was trying to keep talking them through, and my success was to get the emotions out of the game" "to remain standing and certainly also as a leader because yes, of course you also have your own emotions and that is not bad at all, but yes, how and when you can make room for that as long as you are still a leader for the team. there is a group and the group still needs you. So that sometimes makes it difficult."	Included

Code group	code	sub-code	Operational definition	examples	Inclusion or exclusion of analysis
Potential Remedies: Positive Attributes to Coping	Before Crisis Situation (pos at - before)	Preparation	The preparation leading up to a crisis.	"I would not start afterwards I would start with preparation I'm honestly, I think people, you have you have to prepare people for... that these are extreme situations here you're taking over a high responsibility, you have to make decisions in an unknown field in an unknown area and here you are under time pressure and I think you should not start afterwards you should, they should start before, you get to prepare people." "in that preparation for the Bioware exercise, actually all healthcare institutions had their crisis organizations in order to participate in that exercise, so basically everyone was well prepared and everyone had a crisis team and everyone knew the upscaling structure"	Included

Code group	code	sub-code	Operational definition	examples	Inclusion or exclusion of analysis
	During Crisis Situation (pos at - during)	Breaks	The crisis leader can take a break during the crisis event.	"I've only had assignments that were always so long that it was impossible to go through. So, it was clear from the beginning, at some point breaks have to be taken. That's why a shift system is always a good idea, and the moment we establish a shift system, that's usually the first thing we do, which is to bring in the structure, to bring in a time structure, to have a shift system for ourselves, because that's the only way an assistant can hand over. This is the same for police officers, firefighters and rescue workers. They only hand over when they have the feeling that I can also make such a handover,"	Excluded

Code group	code	sub-code	Operational definition	examples	Inclusion or exclusion of analysis
		Teamwork	The teamwork between team members and stakeholders. This variable consists of two parts: 1) collaboration, the collaboration is there and goes smoothly, 2) everyone is involved, all stakeholders are at the table.	"The nursing homes are now relatively quiet, so they will use nursing staff from the nursing homes, if possible, in home care so that they can support home care. In this way they try to help each other every time." "This put us a giant step ahead of the other 10 regions because we had everyone at the table right from the start" "For sure, how you could deal with these kinds of major pandemics, that you can 't do it alone, that you need multiple disciplines"	Included
		Drive	The motivation by team members is high.	"What I have experienced very positively is the enormous drive"	Excluded
		Recognition	The hard work is being recognised and valued.	"Of course, we received a lot of gifts, in quotation marks, fruit, custard, food, drink, from people, the applause, that kind of thing, that kept you going very easily, those were the things I say well that is really a compliment to the outside world."	Excluded

Code group	code	sub-code	Operational definition	examples	Inclusion or exclusion of analysis
		Structured Decision-making	The decision-making is organised and structured.	"in crisis you actually have to work according to the principle of the army. You give assignments that must be carried out, and you should not do more than the assignment you are given, because otherwise everything will go wrong. That applies to every reception of a major incident, then the same thing happens, a leader is appointed and he does nothing but give orders"	Included
	After Crisis Situation (pos at -after)	Detachment of Situation	The possibility to detach from the crisis situation and let go.	"The other day it was also very busy and that was a week of 60 hours, I called a colleague once in the afternoon of well, you know, do you have time this afternoon to take over the shift for a few hours? Oh yes, no problem at all, fine. Then I jump on my bike for three hours, then I go and clear my head for a while and then I come back and then I can just go for it again."	Included

Code group	code	sub-code	Operational definition	examples	Inclusion or exclusion of analysis
		Debriefing	A debriefing takes place after the crisis situation, where the event can be thoroughly discussed.	"So, with me there's always the, so the basic rule with me is, whoever goes with me on the mission has to have coffee with me afterwards, after every mission, even if virtually nothing happened. (..) It's important to me that we do this after every mission, because then the threshold is low for someone to start talking if something is bothering them. If someone has to actively say, can we go for coffee today, that immediately creates a victim role that I would like to avoid at all costs with my people, so we go for coffee after every mission and if someone wants to say something, then it's a very simple circle, because we're already talking about it anyway."	Included
	Continuous (pos at - continuous)	Organisational Support	The organisation provides support for the crisis leaders.	"And all employees had extra time off, we made sure that our staffing was in order, but we made sure that everyone was able to take their hours of vacation"	Excluded
Experienced Stress by Crisis Leaders	Mindset (stress-mindset)	Positive	The crisis leader has a positive outlook on stress.	"What I just told you, under stress, under tension, I feel I can perform better than the normal course of events in which you do things and think and say things."	Included

Code group	code	sub-code	Operational definition	examples	Inclusion or exclusion of analysis
Stress		Negative	The crisis leader has a negative perception of stress.	"and how ill stress can make you and that stress is a greater cause of cancer than anything else."	Excluded
	Length: Short term versus long term (Stress - Length)	Duration	Differentiation between short-term versus long-term stress and their perception of it.	"Only the engine should never overflow because the oil boils, I say. So, stress is necessary, healthy stress is necessary to get the dynamics, but it is a factor that you have to know, that you have to be aware of and that you have to be able to act. If stress is not dealt with, you will become ill. But then people also need to know what stress is and what does stress do to you physically."	Included
	Symptoms of Stress (stress - symptoms)	Positive	The crisis leader experiences positive symptoms of stress.	"if the stress, the pressure, the workload increases, you also see that the performance also increases, they do the work well, I dare to come to the hospital here with every patient, or to the emergency room, but I notice if there is an incident, you see, what I just said, qualities that you did not expect at first, and have not seen. So, stress in my view promotes so called functioning"	Included
		Negative	The crisis leader experiences negative symptoms of stress.	"if I feel that I am getting that pressure on the chest then I know from now on I really have to stop because otherwise I will die soon"	Included

Code group	code	sub-code	Operational definition	examples	Inclusion or exclusion of analysis
Normality in Crisis Management (stress-normality)	Experience	Experience	The crisis leader has many experiences in crisis management, which help cope with the crisis situation.	"have been here for twenty years, I have been working in the hospital for forty years, so it rarely happens that I think "and what now"	Included
		Self-Reflection	The crisis leader has reflected on their own experience with stress and according coping. He/she knows how they experience stress.	"What is a very important element in a team is that you have a leader who yes, how should I put it that way, who knows himself very well"	Included
	Dropout	Dropout	Those that do not cope with stress, dropout of crisis management.	"We have another [00:41:13] walk around that is more mental, showing that 80% of the people who really worked in the heat of the pandemic do not return to their old job. I find that very high, I find that very intense."	Excluded
	Normality	Normality	The experience of stress is standard in crisis management.	"a lot of people who are in that leadership situation, who choose it, are often people who can do their job well under stress"	Included

Code group	code	sub-code	Operational definition	examples	Inclusion or exclusion of analysis
	Taboo for Leaders (stress - taboo)	Taboo	There is a taboo for crisis leaders to come forward as being stressed or not being able to cope.	"and in the army, there's a really macho culture, and those people have had such a high degree of stress, and now mostly post-natal, I mean post-traumatic stress syndrome, and I spoke to someone and they said in that group as many as fourteen people have committed suicide. Fourteen eh, from a macho culture, at a given moment it can always become too much, that has nothing to do with your personal functioning. I think the strength is to indicate that you are not pulling it anymore."	Included

Appendix 6: Statement of Original Thesis

By signing this statement, I hereby acknowledge the submitted paper/thesis/report, titled:

An exploratory research on the experienced stressors of crisis leaders

to be produced independently by me, without external help. Wherever I paraphrase or cite literally, a reference to the original source (journal, book, report, internet, etc.) is given.

By signing this statement, I explicitly declare that I am aware of the fraud sanctions as stated in the Education and Examination Regulations (EERs) of the SBE.

Place: Maastricht
Date: 08-07-2021
Full Name: Dieuwertje Eletta van Dijk
Programme: Learning and Development in Organisations
Course: EBS4005
ID Number: I6128804

Signature:

