Chapter 1

Introduction
Despite the common belief that news exerts a powerful influence on the public during public health crises, and in spite of widespread expectations and hopes toward the media's impact voiced by crisis managers, the existing scientific evidence on the determinants of news impact during such crises remains incomplete and provides an inconsistent picture. This especially holds true with regards to the role of emotions, a crucial factor in health crisis coverage. Being highly disputed in terms of their use in news coverage, and potentially detrimental, exacerbating fear and panic, emotions remain nonetheless an essential element for rational risk judgements, and for motivating the very behaviours needed for crises mitigation – the adoption of precautionary measures, behaviour changes, and pro-social acts such as monetary donations. The present thesis aims at illuminating this ambivalent role of emotion, by looking at emotion as (a) a key element in news portrayal and determinant of the impact of health crisis news, and (b) an important audience response to such news. In doing so, it pursues the broader goal of contributing to a better understanding of whether and how news media coverage contributes to greater, potentially unwarranted, perceptions of risk and fear: to making a drama out of a crisis. I took the approach of studying the role of news media from a broad perspective, examining factors shaping the production of media content, the content of news, and the effects of coverage on audiences’ emotional and cognitive responses to a health crisis.

In the remainder of this chapter, I will (a) discuss the important role of news media in health crises, (b) explain the rationale behind a focus on emotion, (c) define the object of study, (d) discuss the multidisciplinary approach taken, and (e) provide an overview of the current state of research, highlighting remaining gaps, and describing my methodological approach. The chapter concludes with a brief overview of the remaining chapters of this dissertation.

Public Health Crises & the Role of News Media

On February 1, 2016 the World Health Organization's Director-General Dr. Margaret Chan declared the recent outbreak of the Zika virus in South America a “public health emergency of international concern” (World Health Organization [WHO], 2016). The disease – transmitted by mos-
quito bites and causing defects in newborns – had, after an initial alert in Brazil, spread rapidly to large parts of South America, the Caribbean and parts of North America. This health crisis emerged just after an epidemic of the Ebola virus disease in West Africa, which had been of unprecedented scale and caused more than 10,000 deaths, had finally abated (WHO, 2016). The Zika virus and Ebola are only two examples of several occurrences of infectious disease outbreaks during the last decades (Holmes, 2008; Swain, 2013; Vaughan, 2011). Whether locally confined or spreading internationally, such outbreaks are, as Vaughan (2011, p. 83) notes, “largely unpredictable and periodically emerge with a potential for extreme public health, economic, and social consequences”.

Media representations are often the primary – if not the only – way we learn about public health crises: their occurrence, geographical spread, seriousness, and available measures of prevention. As population surveys demonstrate, traditional news media remain a primary channel for informing the general public about health risks and prevention, albeit the growing significance of new media. A 2002 Gallup poll found that next to medical doctors, news media were the primary sources of health and medical information among Americans, with 64% receiving health information from television, and 52% from newspapers (Newport, 2002). A more recent study in the European context similarly found that the public received information about influenza pandemics predominantly through the mass media (Kristiansen, Halvorsen, & Gyrd-Hansen, 2007). In times of crises or emergencies, the central role of the media grows in importance, as media usage accelerates and individuals’ dependence on media increases (Ball-Rokeach & DeFleur, 1976; Beaudoin, 2007a). This could be observed during the events of September 11, 2001, where “people were ‘glued’ to their television sets, and most voiced a high degree of trust in what they read and saw”, as Glik (2007, p. 42) notes.

The mass media thus holds a crucial role in shaping the public perception as well as the mitigation, or containment, of such crises. Their importance rests on the assumption that media portrayals exert a powerful impact, swaying public perception of health risks, and individuals’ behaviour (McComas, 2006; Ruhrmann & Guenther, 2014). Scholars have argued that many among the public base their judgements of the severity of a health risk and their personal vulnerability to the risk primarily on the in-
formation they receive from the media (Fischhoff, 1995; Kitzinger & Reilly, 1997; Yu, Frohlich, Fougner, & Ren, 2011). Of particular importance in the context of health crises, the news media may also influence emotional responses, either for the better, by helping individuals avoid levels of anxiety disproportionate to actual risk (Roche & Muskavitch, 2003, p. 354-55), or for the worse, by creating unjustified fear. Lastly, individuals learn about preventive measures through news reports. The perceptions of risk and of prevention they derive from media portrayals can affect individuals’ daily-life behaviours: such as whether to avoid certain foods, eschew particular travel destinations, or receive vaccination (Ruhrmann & Guenther, 2014; Yu et al., 2011). Such behaviours, in turn, matter greatly during public health crises. The effectiveness of efforts of crisis mitigation and the containment of spread depend heavily on individuals’ behaviour, immunization and other precautionary measures (Brug et al., 2009; Vaughan, 2011).

Those responsible for managing public health crises, such as governments and health authorities, recognize the role of media and appoint communicating with the public through the media an important place in emergency planning and preparedness (Holmes, 2008; Hyer & Covello, 2005; European Centre for Disease Prevention and Control [ECDC], 2015). The WHO and several national health authorities have developed guidelines aimed at supporting health officials interactions with the media during public health crises (e.g., Hyer & Covello, 2005), as well as handbooks tailored to journalists (WHO, 2005). Commonly, crisis managers wish that journalists use their power to better public health, for example, by disseminating official recommendations of precautionary measures, or acting as partners in emergency response (Holmes, 2008; Leask et al., 2010; Reynolds & Seeger, 2005; Veil & Ojeda, 2010). Whether these wishes are always granted is a different story but they certainly show that health officials perceive the media as key in managing a health crisis.

Given the key informative function of news, a central element of informing the public well is enabling citizens to act sensibly in the face of risk, for example, by installing appropriate understanding of risk and justified levels of concern. Are news media an effective means for this, or do they rather exaggerate risk perceptions and fuel fears, perhaps unjustifiably so? Common criticisms of news media suggest the latter. A main goal of the present dissertation project was therefore to address this question, and
examine health crisis coverage and its impact on public response. In doing it zooms in on a crucial factor in health crisis coverage: the role of emotion.

The Particular Role of Emotion

“Panic is less a side-effect of Ebola than its own sort of infectious disease, spread by misinformation and fear, a sickness that frays and tears the ways people usually get along. Hysteria shuts down schools and airports, paranoia undermines health workers and law enforcement, and fear encourages some of people’s worst instincts. As of Monday, there’s a lot more panic in the US than Ebola.” (Yuhas, 2014, para. 1)

This quote formed the opening paragraph of a news article published by The Guardian during the Ebola epidemic at the time the virus had reached American soil and the first U.S. case Thomas Eric Duncan had been confirmed (Yuhas, 2014). It captures two key issues related to public health crises and the particular role emotion plays. The first aspect is that health crisis events, such as a disease outbreak, can have a strong emotional impact. Already 25 years earlier, the psychologist Strong (1990) had described the very phenomenon The Guardian portrayed, and called it an “epidemic of fear”. Often following and triggered by the physical epidemic, such an epidemic of fear posits a psychosocial epidemic marked by panic, irrationality and suspicion. Although triggered by real-life events, it is often disconnected from actual risk. The strong collective response of the U.S. media and the general public to the very low local threat of Ebola (in total 11 cases, 2 fatalities) is a vivid example of such a disproportionate response, mockingly called “Fearbola” by some among the popular press (Blakey, Reuman, Jacoby, & Abramowitz, 2015). A second aspect that The Guardian captured is that the main concern about unjustified fear among the public is its potential to cause irrational responses to risk that threaten efforts to contain crises (May, 2005; Yusuf, Yahaya, & Qabli, 2015).

Mass media are often considered a main cause or contributor to such an epidemic of fear and the resulting irrational responses. Not seldom have they been scolded for fear-mongering, dramatizing stories by sounding alarm, or sensationalizing (Andresen, 2006; Glik, 2007; Shuchman &
Wilkes, 1997; Wagner-Egger et al., 2011). Ungar (1998, p. 36) notes that the perceived association between the media and the creation of public fears is so strong that scientists and policy makers almost habitually complain about it, and also journalists and editors themselves are self-reflective on their role (e.g., Farhi, 2014; Yuhas, 2014). Whether this association indeed exists is a matter of debate.

The use of emotion-evoking news elements is often a central part of the criticism. However, though journalists certainly need to beware of exacerbating fear and panic through overly emotional reporting, emotions are also a key element of interesting and engaging news as well as a necessary element for rational risk judgements in the face of risk (Bechara, Damasio, Damasio, & Anderson, 1994; Damasio, 1994; Finucane, 2013; Loewenstein, Hsee, Weber, & Welch, 2001; Slovic, Finucane, Peters, & MacGregor, 2004). Further, they are crucial for the motivation of the very behaviours needed for crisis mitigation – the adoption of precautionary measures, behaviour changes and pro-social behaviours such as giving donations (Das, de Wit, Vet, & Frijns, 2008; Hong, Lee, & Yu, 2010; Jenni & Loewenstein, 1997; Zebregs, van den Putte, Neijens, & de Graaf, 2014). If members of the public were not to a justified degree worried or afraid of health consequences, what motivation would they have to change their behaviours? Journalists must therefore manage a task that often resembles a walk on a tightrope, striking a delicate balance between not causing panic and not effectuating complacency.

However, considering the media’s key role in crises and the widespread criticisms, surprisingly little definitive evidence on both the emotional impact of health crisis news and the role of emotive formal news features, as a ‘usual suspect’ in fuelling this impact, exists. With its diverse studies, this dissertation aims to contribute to an evidence-based understanding of the role of emotion – both as audience response and as elements in news portrayals (emotive imagery, language, exemplars). Accordingly, the overarching question guiding this dissertation project is:

» Does news coverage of public health crises contribute to greater, potentially unwarranted, perceptions of risk and fear among the general public, and if so, how?

As emotion’s role in the impact of health crisis news is ambivalent – poten-
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Potentially heightening perceptions of risk and fear, yet also seemingly fulfilling important functions in health crisis news – a second key question this thesis studies is:

» What specific role do emotion-evoking formal features play in the news media’s impact on the general public?

Defining the Object of Study: What is a Public Health Crisis?

The object of study – a ‘public health crisis’ – falls into the realms of various disciplines: health, risk, crisis communication, and disaster management, and is thus by nature multidisciplinary (Glik, 2007; Perry & Quarantelli, 2005). As a result, a plethora of definitions and terminology can be found in scholarly publications. I will in the following clarify the definition employed in this thesis.

The first question to address is, what characterizes and distinguishes a crisis from other contexts? Rosenthal, Charles, and t’ Hart (1989, as cited in Rosenthal, Boin, & Comfort, 2001) specify several defining characteristics of a crisis. The foremost characteristic is that it poses a severe threat – of death, destruction, serious injury or mutilation of the body – or a disruption of social order. Such a threat must not necessarily be tangible and immediate, but could also pertain to “invisible or indirectly observable perils” (Rosenthal et al., 2001, p. 7). Further characteristics are uncertainty or inconceivability, and a sense of urgency. Lastly crises evoke a perceived need for immediate response and decision-making. Due to these characteristics, crises are often inherently emotion-laden, as there is a high chance that the public will react emotionally (Glik, 2007).

The Oxford Handbook of Public Health Practice (Bolton & Burkle, 2013, p. 210-11) defines a public health crisis, as a specific type of crises, as follows:

“A public health crisis is an event(s) that overwhelms the capacity of local systems to maintain a community’s health. (...) Crisis can range from specific health issues, such as a disease outbreak in an otherwise unaffected community, to a full-scale disaster with property destruc-
The specific terminology scholars use differs between those studying health crises as a subcategory of “disaster” or as “emerging infectious disease”. A commonality of the manifold definitions of public health crises is that these are caused by the outbreaks of infectious diseases, epidemics or pandemics. A main difference is that some scholars, especially those studying health crises in the context of disaster management, also include disease outbreaks that co-occur with or arise in the aftermath of other events, e.g., the Cholera outbreak caused by the 2010 Haiti earthquake (Bolton & Burkle, 2013). In this thesis, I study public health crises of the former type. The study object overlaps with what is often studied under the terminology of emerging infectious diseases (EID). According to Holmes (2008, p. 351), the term covers:

“previously unknown diseases (e.g., AIDS, Ebola), re-emerging diseases (e.g., tuberculosis, measles, pertussis), existing diseases that move to new places (e.g., West Nile virus, hepatitis), diseases that can no longer be controlled by once-effective drugs (e.g., malaria) and diseases exhibiting increased virulence (e.g., influenza in the 1918 epidemic)”.

While crisis and disaster/EID are often used interchangeably, they are distinct. Not every disaster is also perceived as a crisis, rather crises are socially constructed and politically defined events (Rosenthal et al., 2001). Since this thesis studies representations of health crisis events in the mass media and public perceptions, I chose the term public health crisis.

**Multidisciplinary Approach**

The present dissertation draws on research from various disciplines. As the discussed definition foreboded, the field of risk communication is in its very nature multidisciplinary, multi-dimensional and complex (Reynolds, 2011). Touching on the functions and effects of news media on the one hand, and health risks, health emergencies and disaster on the other hand, the current object of study is positioned at the intersection of journalism/media studies.
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and health-, risk-, and crisis/disaster communication. As an overarching theoretical framework is lacking (Hannawa et al., 2014), I built on findings from the various aforementioned disciplines, i.e., journalism, risk research, health communication, and media psychology.

Journalism and media studies have classically been concerned with the functions of media and journalism in a (democratic) society (e.g., McNair, 1999; Willnat, Weaver, & Choi, 2013), the processes and determinants of news selection such as gatekeeping (White, 1950) and news values (Galtung & Ruge, 1965; Ruhrmann, Woelke, Maier, & Diehlmann, 2013; Schulz, 1976; for an overview see Eilders, 2006, p. 8), journalistic practices and routines (Tuchman, 1972), as well as journalists' ideology and professional roles (Deuze, 2005; Hanitzsch, 2011; Hanitzsch et al., 2011; Johnstone, Slawski, & Bowman, 1972; Weaver & Wilhoit, 1996; Willnat et al., 2013). Further, a key research theme has been the role of emotion in news, its relation to quality journalism, objectivity and phenomena such as news sensationalism, ‘soft news’, infotainment (Brants, 1998; Reinemann, Stanyer, Scherr, & Legnante, 2011; Richards & Rees, 2011; Tulloch & Sparks, 2000), and the impact of such news coverage on news audiences (e.g., Grabe, Lang, & Zhao, 2003; Hendriks Vettehen, Nuijten, & Peeters, 2008; Zillmann, 2006). Journalism research formed the base for my study of the production side of news (Chapter 3), and for deriving theoretical arguments on the role of emotion in health crisis coverage (Chapter 2). Further, I derived assumptions about the impact of emotion-evoking formal features from journalism research and media studies for my experimental study of news effects (Chapter 5).

Risk research commonly studies public understanding of risk, risk assessment and risk management, and has researched questions such as why public understanding often differs starkly from risk assessment by experts and risk managers (Kasperson, 2003; Loewenstein et al. 2001; Slovic & Weber, 2002; Slovic, 1987). Health communication, in contrast, typically investigates how health messages affect attitudinal and behavioural changes in individuals or groups, often with a focus on mass-mediated public health campaigns (Carpenter, 2010; Das, 2011; Rogers, 1975; Strecher & Rosenstock, 1997; Witte, 1994). Scholars have investigated how messages influence the adoption of health-preventive behaviours such as vaccination (e.g., Betsch, Ulshöfer, Renkewitz, & Betsch, 2011; Das, de Wit, Vet, & Frijns,
2008), as well as the cessation of unhealthy behaviours such as smoking (e.g., Biener, Ji, Gilpin, & Albers, 2004; Helweg-Larsen & Nielsen, 2009). I drew on risk and health communication research for a theoretical discussion of the role of emotion in health crisis coverage (Chapter 2). Both disciplines provided further theoretical models for the psychological processes of (health) risk formation and decision-making, and the exact role emotions play in these, which served as base for the experimental study (Chapter 5). I built on all aforementioned domains for the development of a coding scheme for a literature review of news reporting of the H1N1 pandemic (Chapter 4).

The advantage of the multidisciplinary approach employed in this thesis is that it allows an understanding of all sides to the process of health crisis coverage: factors shaping news content, content itself, and news effects.

We may ask ourselves, why not just act based on knowledge from risk or health communication? Reynolds (2011) pointed out that the psychology of emergency-risk communication, the way individuals process information and respond to it, may differ from non-emergency situations, increasing the potential for miscommunication. Further, crises “disturb regularities” and may thus render routines or commonly applied rules and procedures “quite useless, if not counterproductive” (Rosenthal et al., 2001, p. 7). For this reason, we cannot solely apply established general knowledge to the issue of health crisis communication without first testing their applicability. Likewise, we cannot simply assume that journalists necessarily follow the same routines and apply the same standards as in other contexts.

Current State of Research and Approach

“If we assume that the media provide most of the reality that people know outside their own personal experience, then studying media content surely helps us assess what reality it is that they consume. (...) A study of media content alone is not sufficient, however, to understand either the forces that produce that content or the nature or extent of its effects.” (Shoemaker & Reese, 1996, p. 25)
Following Shoemaker and Reese the present thesis looks into three components of the communication process to understand the role of emotion (and in extension the role of news media more generally) in public health crises: (1) factors shaping the production of news content, specifically journalists, (2) news media content itself, and (3) the nature and strength of news effects (see Figure 1). The particular role of emotion runs like a common thread through all three components and will be first addressed in an initial theoretical chapter, and reoccur in the chapters that follow as a common theme.

For each of the three components – factors shaping news content, content itself, and effects – I will in the following provide an overview of the current state of research, point out remaining gaps, and explain my methodological approach to address these gaps.

Journalists as a Key Factor Shaping the Production of News Content
News coverage is influenced by a multitude of factors, on various levels – the individual journalist, the news organization he or she is employed for, and wider societal influences such as culture. Shoemaker and Reese (1996)
propose that these factors can be modelled as hierarchical levels of influence (comparable to the layers of an onion) of which journalists are at the core – their ideology, values, professional roles, and expertise. I therefore studied journalists as key factor influencing media content. Specifically, I chose *journalistic role perceptions* as these pose an essential concept “in describing how journalists in different cultures and media systems understand their work and its social function” (Donsbach, 2008, p. 2605).

*Role perceptions* exert considerable influence on journalists’ practices, their interaction with sources, news selection, and the content and packaging of journalistic products (Donsbach, 2008; Skovsgaard, Albaek, Bro, & de Vreese, 2013; Van Dalen, de Vreese, & Albaek, 2012). Journalistic role perceptions have been well studied, predominantly through surveys on large, often cross-national, samples of journalists. Scholars have identified what journalists across the globe perceive as the main roles and responsibilities of their profession. One of the earliest and most influential studies by Johnstone, Slawski, and Bowman (1972) proposed distinguishing two professional roles that journalists may adopt: a neutral and a participant role. Journalists endorsing a neutral role feel that their profession demands staying objective and dissemination-focused, whereas those assuming a participant role feel it requires taking on social responsibility and being more actively involved. Scholars have since then developed this approach further, and mapped out the contours of the journalistic profession by developing role typologies and delineating professional milieus or subcultures based on shared values and role perceptions (Hanitzsch, 2011; Hanitzsch, 2007; Hanitzsch et al., 2011; Weaver & Wilhoit, 1996; Willnat et al., 2013).

Prior studies, however, have predominantly focused on journalists covering current affairs or political journalism. Their interest lay predominantly in identifying *shared or general* roles among journalists rather than roles *specific* to journalistic beats, or the issues covered. In recent years, however, there is a growing interest in understanding roles in specific contexts, such as development journalism (Xiaoge, 209AD), reporting on international conflicts (Tumber, 2013), terrorist attacks (Mogensen, 2008), or natural disasters (Pantti, 2011; Wahl-Jorgensen & Pantti, 2013). Yet, knowledge on the roles of health journalists is still limited.

Driven by the perception that health journalists experience specific ethical issues and performed roles that were not covered in existing general
journalistic codes of ethic, Gary Schwitzer and the Association of Health Journalists developed a code of ethics tailored to health care journalism (Schwitzer, 2004). In addition, together with other scholars, Schwitzer published a theoretical debate on what the essential roles and responsibilities of health journalists are (Schwitzer et al., 2005; Schwitzer, 2010). Notably, all of these address the issues of ‘sensationalism’ and ‘disease-mongering’, emphasizing journalists should beware of both. What these studies thus clearly indicate is that the key role of media in crisis management raises questions as to their roles and responsibilities. Yet, the existing literature is predominantly focussed on general health journalism rather than addressing the specific health crisis case. Crisis scenarios pose specific challenges and demands – they are clouded in uncertainty, marked by urgency and often much is at stake. How general ethics and principles apply to the crisis context is not entirely clear. An exception is an article by Krüger (2005), which discusses journalistic ethics for the case of the AIDS pandemic, however, does not address the issue of emotional coverage or sensationalism.

Furthermore, the existing literature presents solely a theoretical elaboration of ethics. Knowledge of the perspective of journalists’ themselves, the ‘frontline workers’ and those implementing ethics, are largely lacking, with the exception of two studies. Hooker, King and Leask (2012) interviewed 16 Australian journalists on health crises coverage, and Burkhart (1991) surveyed journalists participating in a governmental trial program that required them to be members of local emergency planning committees. While both studies brought about valuable insights, they are limited. In Hooker, King and Leaks study, journalistic roles were only one of several research interests and thus not covered in depth, and Burkhart’s study presents a small survey in a highly specific setting.

Lastly, and most importantly, although scholars admonish journalists not to engage in disease-mongering or sensationalism, knowledge on journalist’s attitudes towards the usage of emotion in health crisis coverage and the emotional impact of their work on audiences is scarce. To date, only two studies have researched journalist’s attitudes toward emotion, and also only in general contexts. Pantti (2010) showed that journalists perceive the use of emotions in news to hold certain value in portraying truth. Richards and Rees (2011) found that the emotional impact of their work on audiences was rarely considered by journalists, instead, the emotional
state of their sources (e.g., after experiencing crisis events) were at the heart of their concern. Despite their contributions, both aforementioned studies have been conducted in general contexts. It is unknown how journalists feel about emotions in the context of health crisis coverage. Do they indeed take no responsibility for the emotional impact of their work, such as creating unnecessary fear during public health crises? Or does the fact that emotions are particularly delicate in the context of health crises sensitize journalists to the emotional impact of their work?

In summary, it remains unknown how journalists view their responsibility toward the emotional impact emanating from health crisis coverage on the general public. The study presented in Chapter 3 of this dissertation set out to address this gap. It also more broadly aimed at advancing the existing theoretical literature on health (crisis) journalism by investigating journalists’ self-perceived roles in health crisis coverage. I conducted in-depth expert interviews with journalists and editors experienced in health crisis reporting (Chapter 3). I chose for expert interviews because my research interest required interviewing individuals with specialized knowledge (Meuser & Nagel, 2009). As the objective of the study was gaining an in-depth understanding of journalists’ subjective meaning of their profession and their self-perceived professional roles, qualitative interviews were an appropriate choice (Ritchie & Lewis, 2003). The method further fitted the explorative nature of the study as interviews allow for flexibility and extensive, open-ended elaborations on questions, rather than closed, pre-specified or limited open-ended answer categories.

News Media Content
The content of news media is at the heart of their impact. As Shoemaker and Reese (1996, p. 24) argue, “content is of interest not only in its own right, but also as an indicator of many other underlying forces”, such as the people and organizations producing the content, or consumer demands spawning certain kinds of content. Furthermore, studying media content is important for predicting its impact, as it reveals, “what messages are available to an audience and, therefore, what messages are available to have an effect on that audience” (Shoemaker & Reese, 1996, p. 24).

A rich body of content-analytic research on how mass media cover public health crises exists. One of the early studies was conducted by Shel-
don Ungar in (1998), who investigated the news media’s response to an Ebola outbreak in 1995. Since then, a large number of scholars have researched media coverage of different public health crises. Particularly the SARS (severe acute respiratory syndrome) outbreak and the H1N1 (‘Swine flu’) pandemic and their coverage in the news media received a lot of scholarly attention (e.g., Chang, 2012; Fogarty et al., 2011; Goodall, Sabo, Cline, & Egbert, 2012; Hilton & Hunt, 2011; Krishnatray & Gadekar, 2014; Lee & Basnyat, 2012). Further, several comparative studies exist, contrasting coverage on different diseases (Shih, Wijaya, & Brossard, 2008), health crises with more chronic diseases (Berry et al., 2007) or news coverage between countries (Beaudoin, 2007b; Oh et al., 2012; Tian & Stewart, 2005). The existing body of research is characterized by a large diversity in theoretical frameworks and methodological approaches, which complicates providing an overview of general findings. Still, I shall in the following attempt to sketch some key theories and findings in this diverse field.

**Amount of coverage.** A key topic of interest among many quantitatively oriented studies is the amount of coverage. Taken together, existing studies provide strong indication that public health crises typically receive large media attention, as was found for SARS (Berry et al., 2007; Hansen, 2009; Joye, 2010; Wilson et al., 2004) and the West Nile Virus epidemic (Pribble et al., 2010), however, exceptions exist (Nicol, Hurrell, McDowall, Bartlett, & Elmieh, 2008; Shih et al., 2008). For example, Nicol et al. (2008) found that a newly emerging pathogen (Cryptococcus gattii) was significantly less covered by Canadian press than the West Nile Virus, despite causing much higher rates of infection and fatalities. The amount of coverage health crises generally receive is particularly noteworthy in comparison to other, non-epidemic diseases such as cancer or heart disease. Scholars have repeatedly noted that these receive considerably less news coverage despite posing far larger health threats (e.g., Berry et al., 2007).

**Representations and framing.** Qualitative approaches mostly studied the metaphors, imagery, exemplars, and language used in media representations of health crises, using theories such as social representations theory. These often use language and imagery as a lens for uncovering the interpretations of events mass media provide for their audiences (Joffe & Haarhoff, 2002; Joye, 2010; Ungar, 1998; Wallis & Nerlich, 2005; Washer, 2004). Scholars proposed that journalists frequently use militaristic lan-
guage for describing diseases (e.g., Sontag, 1989, as cited in Wallis & Nerlich, 2005), such as ‘winning the battle against a disease’ or describing a virus as ‘agent’ or ‘killer’. However, evidence on whether this is actually a common journalistic practice is conflicting (see Joye, 2010; Wallis & Nerlich, 2005).

Among researchers taking a quantitative approach to the study of news content, ‘framing’ is by far the dominant framework (Beaudoin, 2007b; Chang, 2012; Oh et al., 2012; Krishnatray & Gadekar, 2014; Lee & Basnyat, 2012; Liu & Kim, 2011; Shih et al., 2008; Tian & Stewart, 2005; Vasterman & Ruigrok, 2013). Framing refers to journalists’ selections of certain aspects of reality and accentuating these “in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation” (Entman, 1993, p. 52). Framing shares similarities with qualitative approaches with regards to the pursued research goal, namely identifying the schemas for interpreting events that the media provide. Existing studies employ both inductive and deductive framing, resulting in a diversity of frames. Overall, despite slightly varying definitions across studies, it appears that health crises are most commonly framed in terms of their severity and spread, and in terms of control measures (Beaudoin, 2007b; Chang, 2012; Oh et al., 2012; Shih et al., 2008; Tian & Stewart, 2005).

Fewer studies have analysed the presence of emotion-evoking formal features in news coverage on epidemic outbreaks, including whether news coverage was fear-mongering. Some scholars have scrutinized the use of language, particularly of loaded words, or of worst case scenarios, i.e., descriptions of only the worst possible epidemic developments or comparisons to extreme past cases like the ‘Spanish flu’. For example, SARS coverage often had symbolic connotations of “deadly”, “mysterious”, “the next plague” or “Black Death” (Berry et al., 2007; Hansen, 2009). Others took a broader approach and analysed general tone of coverage, however, with varying findings. For example, Lewison (2008) finds for SARS coverage that while it was scary at times, the overall tone remained moderate. In contrast, Vasterman and Ruigrok (2013) found that the tone of H1N1 coverage in Dutch media was alarmist.

Despite the multitude of studies, open questions regarding the content of health crisis coverage remain. The diversity in theoretical approaches and methods make it difficult to draw conclusions on general patterns.
Most studies are, due to inevitable sampling decisions, also limited in scope — either to national boundaries, a specific type of media (newspaper, TV, Twitter), or to selected time frames over the course of a health crisis. Most importantly, especially with regards to the important question as to whether the media dramatize health crisis events, existing findings are sharply conflicting. Interestingly, some of the above quoted studies (e.g., Hansen, 2009) conclude that despite their use of loaded words and worst-case scenarios, the media cannot be blamed for dramatizing. This indicates that dramatization or fear-mongering happens on multiple layers and cannot be identified solely through an analysis of language. Risk research and health communication studies demonstrate that besides language, emotions like fear as well as heightened (perhaps excessive) perceptions of risk can also stem from other factors. Firstly, the sheer amount of coverage may serve as risk amplifier and can increase opposition and fear among the public (Kasperson et al., 1988; Mazur & Lee, 1993; Rubin, Potts, & Michie, 2010). Secondly, factual information can also evoke emotions and influence the tone of coverage. For example, messages emphasizing the severity of a health risk without recommendations on how to reduce this risk may result in fear and harmful behavioural responses (Maddux & Rogers, 1983; Witte, 1994). Hence, it is important to examine the interplay of these factors, as is done in Chapter 4 of this dissertation.

I chose to conduct a systematic review of existing content-analytic studies on the H1N1 pandemic, primarily with the goal of investigating whether news coverage contributed to an exaggeration of the H1N1 pandemic (Chapter 4). The choice for a systematic review was motivated by the large number of existing content-analytic studies, yet a lack of literature reviews integrating their findings. Moreover, as discussed, the existing individual studies were — naturally — limited in scope. Rather than adding another media analysis to the already existing studies, I chose for a synthesis of earlier findings, thus allowing for conclusions on coverage over a longer time period, in various countries, and across media types. This approach has the advantage of uncovering more systematic patterns in news content, which, in turn, serve as indicator of more stable, underlying structural factors in the production of news contend or in media logic (Shoemaker & Reese, 1996).
Effects of Health Crisis Coverage on the General Public

Eventually, we can understand the true impact of news coverage only by studying causal effects on audiences. It has long been established that mass media do not have the strong, direct influence as once hypothesized in the hypodermic needle model, instead impacts result from a complex interplay of message and external factors (prior knowledge, general attitudes, personalities, etc.). What does empirical evidence demonstrate with regards to the effects of health crisis coverage? Different types of audience responses have been studied, such as factual knowledge about a disease (e.g., transmission, symptoms or prevention), perceptions of the seriousness of a disease, the likelihood of being infected, attitudes towards preventive measures (e.g., vaccinations), as well as (intentions to perform) different behaviours (e.g., information seeking, hand-washing, vaccination). However, research on the effects of health crisis coverage on the public is generally scarce, perhaps due to methodological reasons, as it is extremely difficult to examine public responses in times of crisis.

The existing evidence suggests that attention to health crisis news increases knowledge (Ho, Peh, & Soh, 2013). Findings on the influence of health coverage on risk perceptions, in contrast, are inconsistent: some indicate no influence of coverage on risk perceptions (Rim et al., 2014; Saguy et al., 2014), others more selective effects, namely that extensive coverage increases perceptions of severity, yet not of disease prevalence (Young et al., 2008). With regards to precautionary measures it appears that while news media may successfully influence compliance with everyday behaviours such as frequent hand washing and consulting a physician, it is less successful in influencing intentions for vaccination (Chen & Murphy, 2011). The majority of studies on the impact of health crisis news are cross-sectional (Chen & Murphy, 2011; Ho, Peh, & Soh, 2013; Kristiansen et al., 2007; Oh, Paek, & Hove, 2015; Wei, Lo, & Lu, 2008), and most measured ‘attention’ or ‘exposure’ to issue-specific news by the use of retrospective self-reports (Ho et al., 2013; Oh et al., 2015; Wei et al., 2008). This approach limits the possibility of drawing causal explanations, especially with regards to the impact of specific content or formal features of news.

An approach that allows stronger conclusions on causal explanations is studying the impact of specific characteristics of news reports on risk perception, as has been done by some scholars (e.g., Saguy et al., 2014). An
emotion-evoking portrayal of risk is often at the core of the criticism of harmful news effects, viewed as fanning the flames of fear. Studies researching the impact of emotion-evoking features, as often included in sensational news, in general contexts have provided indirect evidence for the effects of emotive news on perceptions of risk, fear and health intentions. It has been demonstrated that emotion-evoking content (e.g., stories on a fire, tsunami; Grabe et al., 2003), tabloid-style news packaging (e.g., music, close-ups, obtrusive reporter voice; Grabe et al., 2003), personal stories (e.g., the emotional account of a victim; Aust & Zillmann, 1996), or emotion-evoking imagery (e.g., explicit photographs of the skin cancer melanoma; Zillmann & Gan, 1996; Zillmann, Gibson, & Sargent, 1999), induce greater perceptions of the severity of a risk, of personal vulnerability to the risk, and stronger negative affect (e.g., distress) than news without emotion-evoking elements (Zillmann, 2006).

However, while these studies suggest that emotion-evoking formal feature in health crisis news may indeed fuel fears and distort risk perceptions, direct evidence – especially for the context of health crisis news – is lacking. Oh, Paek, and Hove (2015) conducted one of the very few studies on the emotional dimensions of risk in health crises reporting. Based on their findings news touching on emotions appears more effective in forming people’s risk perceptions, “making them not only informed but also emotionally oriented toward a risk issue” (p. 29). Still, these results are again based on retrospective accounts of media exposure more generally rather than to specific stories. The influence of the emotion-laden form of a news article covering a health crisis and its interplay with specific characteristics of such crises (the objective risk) remains unknown, particularly with regards to what exactly creates fear: the emotion-laden form or the actual risk itself? Entailing a prospect that is naturally frightening (Fung, Namkoong, & Brossard, 2011; Van Damme & van Lerberghe 2000), a sudden, novel and uncertain risk to our life and well-being, health crises are inherently emotion-laden. Thus, it is important to understand how much negative emotion can be attributed to the nature of the risk itself (e.g., its severity, or rapid spread) and how much to the nature of the portrayal of the risk in news coverage (e.g., an emotionalizing portrayal). In other words, how much can be attributed to something outside the bounds of control of the individual journalists versus something that lies within the control of the
individual journalist.

In summary, while several studies have investigated the impact of news on the public’s knowledge, perceptions of risk and adoption of precautionary measures, evidence regarding the differential effects of factual information versus emotion-evoking formal features is lacking. Moreover, existing studies are predominantly cross-sectional and based on (retrospective) self-reports of global measures of media exposure, thus providing little empirical evidence on causal effects. Chapter 5 describes a study that aimed to address these gaps. I conducted an online experiment to investigate the interplay of objective risk characteristics and an emotion-laden news form on audiences’ perceptions of risk, emotional responses, and behavioural intentions. As the purpose of the study was to uncover causal explanations, an experimental design was the preferential method, posing the most powerful design for testing causal hypotheses (Chambliss & Schutt, 2010). I further chose an online over a laboratory experiment to preserve as much of a naturalistic setting as possible with the intention of strengthening the external validity of findings.

As outlined above, this thesis takes a multi-methodological approach, using qualitative in-depth interview, a systematic review, and an experimental study. This has the benefit that it enables exploring more complex and wide-ranging aspects of health crisis coverage and its impact. It does so, amongst other things, by using qualitative methods for the generation of explanatory hypotheses regarding the factors shaping media content, and using quantitative methods to provide causal explanations were existing research allowed for evidence-based hypotheses on effects.

Outline of this Dissertation
The following chapters comprise first a theoretical chapter, discussing the particular role of emotion in the context of health crisis coverage, and thereafter three empirical chapters investigating (1) journalists as an important factor shaping news content, (2) the content of health crisis coverage, and (3) the effects of health crisis news on individuals’ affective and cognitive responses (see Figure 2).
Given the contested role of emotion in health crisis coverage, **Chapter 2** opens the dissertation with a theoretical discussion of the role of emotion in health crisis reporting from a multidisciplinary perspective. With the goal of contributing to an evidence-based discussion of emotion’s role, I reviewed empirical findings on the actual effects of emotion-evoking news elements on audience response from three academic spheres – journalism, (health) risk communication, and media psychology.

**Chapter 3** describes an in-depth study of journalists’ role perceptions when covering public health crises, primarily with the goal of understanding the view of the ‘frontline workers’, those shaping news content, on the role of emotion. Moreover, it investigates journalists’ understanding of their roles and responsibilities in covering health crisis news more generally, including situation-specific challenges to their professional practice, shifts in role prioritizations between non-crisis and crisis contexts, and differences between general and (health) specialist reporters.

**Chapter 4** presents a study of the content of news coverage of epidemic outbreaks, using the 2009 H1N1 pandemic as a case study. Specifically, it describes the results of a systematic review of content-analytic studies on the coverage of H1N1. The review primarily investigated the veracity of common allegations that news media created an artificial hype or hysteria around the H1N1 virus, thus contributing to unwarranted public fear.

**Chapter 5** presents the results of a large-scale online experiment on a representative sample that investigated two key factors that had emerged in the systematic review as potential determinants of greater fears and risk
perceptions. Specifically, the study set out to unravel the interplay of objective risk characteristics and a factual vs. emotion-laden form of health crisis news. The experiment tested various audience responses, such as perceptions of risk, negative affective responses to news (e.g., fear), empathic responses, and the evaluation of news quality.

Chapter 6 provides a general discussion of the findings of this dissertation, addressing intended and unintended consequences of news media coverage of public health crisis as well as the theoretical and practical implications of this dissertation.