‘The newer, the better!..?’

- *Health crisis communication of the German Government on Instagram during COVID-19-*

Carolin Makus, s2025612

Bachelor Thesis in Communication Science (BSc)
Faculty of Behavioral, Management and Social Sciences

Supervisor: DR. A.D. Beldad
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ABSTRACT

On 27th December 2019, in Germany, the first person was infected with the Corona virus, COVID-19. Since then, the media coverage increased on every channel. Also, the German Government itself started to use its online channel to communicate about the situation. On 17th March, on the social media platform Instagram, the Federal Ministry of the Health was officially assigned to disseminate information about the virus and published its first post about it. Meanwhile, the World Health Organisation classified the virus as being a global pandemic. Earlier studies on the role of the government during health crises and its communication about it have found that the content of the communicated message as well as the underlying goal and it perceived tone play a crucial role in decreasing uncertainty and anxiety among the public during times of crises. The successful addressing of the public as well the understanding and processing of the messages can be thereby facilitated through the use of visuals as a form of message.

As the nature of Instagram is to mainly communicate via pictures and videos, and the platform can be regarded as new in terms of governmental health crisis communication, compared to more established social media channels, this study is an attempt to examine the role of Instagram during a health crisis. Additionally, the relation of communication and two different crisis phases, regarding the development of the virus as well as according measurements of the German government is analysed. These insights may be of interest for researchers as the study aims to discover the role of the comparatively newly used social media platform Instagram in governmental health crisis communication.

The present study is a content analysis, examining the extent to which the communication on the Instagram account of the German government differ in two crisis phases of COVID-19 in terms of addressed stakeholder, the utilized form of the message, the content, the occurrence references in the messages, as well as the tone and the underlying goal of the postings. For that, 111 posts were coded, using a pre-developed coding scheme.

The study revealed that during a health crisis, as the situation regarding the development of the crisis and therefore, the governmental measurements changes, the content as well as the form

of the message shifts and should be adapted accordingly, in order to assure transparency and trust among the public towards the government. Based on the ongoing situation in the crisis phases, also the underlying goal of the communicated messages shifts necessarily. Overall, the role of Instagram in the governmental health crisis communication can be described as supporting, as the use of different visuals allows for adapting messages that can be communicated in an easy and fast understandable way. However, the platform should be rather seen as a complementary tool, since mainly instructions for behaviour are communicated and the access to the messages are limited to the user of Instagram.

Keywords: Health crisis communication, Government, Social media, Instagram, Crisis moments, Tone of message, Content Analysis

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Enclosures

1. INTRODUCTION

‘The risk of the virus spreading in Germany is still low’. Those were the words of the German minister of the Federal Ministry of Health on the 27th January 2020, the day of the first infected person by the Corona virus, COVID-19 in Germany. The frequency of posts on the Instagram account of the German Federal Ministry of the Health remained low by only publishing numbers of infected people, followed by posts about other political subjects. That has changed quickly, when the number of infected people in Germany increased and the first deaths occurred. What has started with an article in the newspapers, or a post on social media, has become a crisis that affects everyone, in some countries with more restrictions, in others with less. Now, the topic ‘COVID-19’ is on top of every media agenda and the social media channels of the German Government frequently posts about it, providing different messages for the public.

The Corona virus is the most common name for the novel virus from China. Its official name, established by the World Health Organization (WHO), is Sars-CoV-2 and the lung disease resulting from the virus is called COVID-19 (RKI, 2020).
Since first identified, the epidemic scale of this virus in Wuhan, China, has increased rapidly, with cases arising across China and other countries and regions (Read, Bridgen, Cummings, Ho, & Jewell, 2020).

On 31st December 2019, the WHO Country Office in China was informed about an increase in the number of patients with pneumonia of unknown cause in Wuhan, a city of 11 million people in Hubei Province, China. The Chinese authorities were able to link the first cases identified to exposure in a market, animals being the source of infection was suspected.
After further studies, the Chinese health authorities confirmed the detection of a novel corona virus (2019-nCoV, current designation SARS-CoV-2) in connection with the accumulation of pneumonia in Wuhan. During January 2020, an increasing number of patients with pneumonia and reported cases of COVID-19 were identified in Wuhan, and other countries outside of China. After initial reports of limited human-to-human transmission, there was growing evidence that COVID-19 is a viral disease that is easily transmitted from person to person by respiration, and has so far caused mild symptoms such as rhinitis, coughing, general fatigue with or without fever in a large proportion of people.. However, some of the patients fall seriously ill and especially older people or those with pre-existing underlying diseases can die from Covid-19 (RKI, 2020).

On 11th March 2020, the WHO declared the worldwide spread of COVID-19 as a pandemic. A pandemic can be defined as a worldwide extensively epidemic which has spread over a wide area and usually affects a large proportion of the population. This includes the aspect of a wide geographic extension of the virus, meaning that diseases are distributed or occur widely throughout a region, country, continent or globally (Morens, Folkers, & Fauci, 2009). Furthermore, a pandemic is described by the aspect of novelty. An (influenza) pandemic is caused by a novel (influenza) virus that is capable of causing serious illness and spreading from person to person.

Disasters and crises are a source of news, as they fulfil a criterion of relevance for journalism: they break the rule and represent a disturbance of everyday life. On the part of the population, they cause a high demand for information, to which an appropriate response must be made. Public interest and the growing importance of the Internet reinforce the tendency towards ever more spectacular news. All of this increases the pressure on those responsible for crises - the result can be wrong decisions and misunderstandings. Unprepared or erroneous crisis communication can cause the situation to escalate uncontrollably, lastingly impair the trust of the population and thus damage the credibility of responsible bodies. The working atmosphere and the motivation of the public can suffer as a result. And finally, contradictory statements by those responsible and experts, misunderstandings, recriminations and discussions in the media become a burden for crisis management itself. Hereby, authorities and companies with tried and tested crisis management structures and a targeted crisis communication strategy can therefore cope better with crises (Bundesministerium des Innern, 2017)
Even though, during the times, there were already several crises, thus theory about it, the public health crises, such as COVID-19, are likely present the most widespread and forthcoming threats to public well-being and marks the first pandemic of the social media age (Sood, 2020) which leads to the most immediate informational demands as well as to necessary adaption in the governmental communication towards the public (Graham, Avery, & Park, 2015).

The spread of the Corona virus engages the whole society. Not only because of the dangerous disease itself and people fear it, but also because of regulations set by the government, that everyone has to follow.

Thus, it affects and addresses many different stakeholders who have to be taken into account when providing crisis related messages. Therefore, not only regulations and restrictions have to be planned and organized, it is also necessary to manage to communication properly in order to reach and address everyone with appropriate transparent content.
Moreover, the Federal Ministry of the Interior has published general guidelines of crisis communication, including the purpose, stakeholder as well as the use of social media. However, it becomes clear that a pandemic, such as COVID-19, is touched from a rather theoretical perspective (bmi.bund, n.d.)

Meanwhile, cases of infection with the Corona virus have been confirmed in all federal states in Germany. Since the first detected case in Germany occurred on January 27th, the German government set up several restrictions and measurements with the aim to confine the further spread of the virus among the German public. Nowadays, in crisis communication it is not uncommon for governments to use social media to communicate with its public.
Thus, besides traditional media, such as newspapers, especially online sources are used to communicate regulations and updates to the public. Along with established channels, such as official websites, Twitter or Facebook, also the platform Instagram are increasingly utilized by the Government to disseminate messages about the virus to its citizens.

Being an emerging new form in the realm of social media communication, Instagram is a photo-based platform that specializes in creating and sharing images or short video clips. With about 300 million users worldwide, including around 4 million in Germany, it is one of the largest and already most successful social networks (Germann, 2015). The platform is a visual-first medium that emphasizes pictures and videos over written text (Gruzd, Lannigan, & Quigley, 2018). Instagram was one of the first social media platforms to have celebrity accounts and has become popular among some politicians (Hemsley, Tanupabrungsun, & Semaan, 2017). In previous governmental use of Instagram, the medium was mostly used as a rather informal narrative platform, while employing these more informal forms of communication, in lieu of professionalized and concerted PR efforts, might be the future of government-citizen communication (Gruzd et al., 2018). This means, by having the possibility to make the communicated messages visual and interactive, there is much potential in social media for encouraging preparedness, knowledge, and involvement in crisis response (Veil, S, Buehner & Palenchar, 2011).

On March 17th the first post was published on Instagram. This date also marks the appeal from the government to limit social contacts. Furthermore, shops were closed, and public places were barred. Further, on April 20th, first easing of the restriction were determined and communicated. They included the re-opening of stores and restaurants with the order to wear facemasks in the open and public institutions. Up to the finalization of the present study, based on decreased infection rates in Germany, the government decided on an anew easing of restrictions on May 6, including the opening of schools and the easing of the contact restriction. Based on these changes of governmental measurements in dealing with the Corona virus, it is expected for the content of communication to change as well. Accordingly, the two phases, beginning with 17th March 2020 until 19th April 2020 (1st crisis phase) and 20th April 2020 until May 6th 2020 (2nd crisis phase), implicating different states of the virus as well as corresponding governmental measurements will be compared in terms of message content, tone and underlying goal.

The Corona virus demands for effective communication by the government. In times of the use of social media for (health) crisis communication, the comparatively new medium Instagram demonstrate new but also challenging opportunities for governments to communicate with its diverse public. Consequently, it appears to be promising to explore the content and ways, this platform is used during a health crisis in different phases of the crisis. In order to examine the activity for future implications of this platform, the following research questions (RQ) arise:

RQ1: How does the German government communicates about the Corona virus on Instagram in terms of the type of message, the message content, the tone and the addressed goal?

RQ2: To what extent does the communication of the German government on Instagram differ between two phases of the corona virus?

In order to answer these questions, a content analysis was conducted, examining the frequency of certain messages styles, communication tools and content of messages that were carved out in the previous sections. Based on the results, it will be aimed to find a strategy that is used by the German Government as well as it will be compared with existing and presented literature on government health crisis communication to find further patterns or ways to communicate in this extraordinary situation. The present study gives new insights into an overall communication to the citizens via Instagram by elaborating message types, tones and communication elements that are applied in this ongoing situation. Since the German Federal Ministry of the health was

assigned to be the main official account for communicating to the public and how to properly behave in these times, this will be the account that will be analysed in this regard.

The present study contains of six chapters. Next to this first introduction, the theoretical dimensions of governmental health crisis communication are explored in the second chapter, which involves general concepts and key variables to examine effective health crisis communication, focussing mainly on the use of social media, especially Instagram. Thirdly, the methodological choices for this study are elaborated on. Fourthly, the results will be presented, followed by the discussion and interpretation of the results in chapter five. Finally, in chapter six, final conclusions and future implication are stated.

2. THEORETICAL FRAMEWORK

This part of the research focuses on elaborating existing literature related to the present study. Firstly, the corona virus and its several consequences for society as well as for the economy will be presented. Secondly, the role of the government with its response strategies and channels used in this crisis will be put in context. Based on that, theory and literature-based elements that are essential for examining the government health crisis communication will be explained which will be followed by the discussion of channels used by the government by focussing on social media channels. Finally, the focus will be drawn to the social media channel Instagram. Being the platform of interest in this study, its role for health crisis communication will be examined.

2.1 Consequences of a health crisis

Besides the infection rates and death rates that already assumed critical proportions, the outbreak of the Corona virus demonstrated how an epidemiological and biological issue also affects many other sectors in society. Thus, going by the current physical reach of the COVID-19 pandemic in the population, there are also bound to be long-term implications, that have impact throughout society (Sood, 2020). These consequences can be broadly transformed to a psychological, societal and economic subject.

Hazards that are new, uncontrollable and has probably catastrophic consequences that are oftentimes perceived as high risk for any population (Vyas, Delaney, Webb-Murphy, & Johnston, 2016). The Corona virus outbreak has let to serious concerns for citizens in all countries due to the physical reach in the population consequently led to a creation of social anxiety of the population worldwide. The reason for that is the fear of the unknown and the uncertainty of such a situation that result in a broad range of mental health concerns. Not only individuals with pre-existing mental health conditions, but also in healthy people the anxiety levels raise (Shigemura, Ursano, Morganstein, Kurosawa, & Benedek, 2020).
One aspect that reinforces anxiety among people during such times are the essential but socially

disruptive measures policies by the government in order to decrease the chances of fast and further infections, such as quarantines and lockdowns. Having reduced physical interaction, also known as 'social distancing', as it has been advertised by many countries, but therefore being unable to meet their close ones in isolation is an unusual situation for the population. Staying away from family, loneliness as well as misinformation on social media, stigmatization or financial insecurity are reinforcing factors for significant psychological and psychiatric disturbances. These effects are coupled with the uncertainty about the effectiveness of such governmental measurements and the severity of the infection (Sood, 2020). Doubting and being uncertain about these measurements makes it likely for behavioural fatigue in the population to occur, leading to ignorance and contradictory activities (Viner et al., 2020)

Moreover, societal consequences have to be taken into account. Driven by the distorted perceptions of the present risk, people's emotional responses to this fear and uncertainty are very likely result in negative societal behaviour. (Shigemura, Ursano, Morganstein, Kurosawa & Benedek, 2020). Further, this leads to increased help-seeking behaviours that may be disproportionate and not recommended in response to the actual threat. For instance, 'panic buying' (Garfin, Silver& Holman, 2020) of essential items such as first aid kids, hand sanitizer, toilet paper or bottled water in response to the pandemic and thus diverting critical resources and overburdening health care facilities, has already led to global shortages and forcing up of prices of such important necessities in this pandemic.
However, public fear is mainly manifested as stigmatization, discrimination and scapegoating of specific population, authorities or scientists (Shigemura, Ursano, Morganstein, Kurosawa, & Benedek, 2020). This can be explained by the powerlessness that is experienced during a deadly epidemic. By projecting the risk of infection onto others, individuals or groups aim to reduce this fear of contagion and uncertainty. One reason of this behaviour is the lack of sufficient information and on the other hand the, if present, the content of information. The uncertainty of knowledge about an unfamiliar situation increases information seeking behaviour of people. The perceived absence of information is then filled with rumours or sensational news headlines, images or hyped information that trigger fear and foster rumours. As such news are noticed faster and remembered more easily, such overwhelming news take the place of fact based and objective news (Shigemura, Ursano, Morganstein, Kurosawa, & Benedek, 2020).

As pandemics being a global problem and thus, having very diverse consequences for the whole population, also the economic sector is affected. In large scale pandemics, the consequences

will affect whole economies in wide regions. This can have to reasons, firstly, because either the infection itself is widespread, and thus affecting economies globally individually, or secondly, because of trade and market integration that eventually distributes the economic threat across the globe (Jordà, Singh, & Taylor, 2020).

A pandemic will therefore likely slow or halt economic growth which will lead to a significant reduction in trade, particularly of services (Bloom, Wit, Jose, Carangal-San, 2005)
Even though, it is little is known about the medium- and long-term economic effects of global pandemics and it is difficult to predict how the public responds to it, the recent Covid-19 outbreak already places urgency on trying to gauge the economic fallout. Historical experience and psychological consequences of an epidemic outbreak as well as the Oxford Economic Forecasting (OEF) global model can be taken into account in order to estimate the market situation from an economic perspective. On the demand side, a pandemic is likely to change the social patterns which change the consumer behaviour and affect the consumer confidence. Because of uncertainty of the future, people may react with increased saving as a precautionary act. Moreover, the pandemic also impacts the supply side. As employees get sick and, in some cases, die, human and physical capital will be destroyed which on the long run, reduces the economic growth potential of an organization or a region. Since the psychological impact of the disease may be long-lasting, a lack of work force long after the pandemic outbreak can be assumed (Bloom, Wit, & Jane, 2005) Moreover, according to the World Health Organization (WHO), even a pandemic virus, which causes comparatively mild symptoms in healthy people, can overload a country's health care system in a limited period of time due to the large number of people who fall ill.

2.2 The role of governments in a health crisis

Based on the consequences as inevitable outcomes of any health crisis, such situation asked for the government as responsible party for its public to adequately communicate to the citizens (Institute of Medicine, 2003). This is because, during times of crises, the reliance on trustful sources among the public is increased. Especially during a health crisis, the public depends on sources to convey accurate and up-to-date information in order to make informed decisions regarding health protective behaviours (Ball-Rokeack & DeFleur, 1976). In the absence of information however, or because crisis related messages are ineffectively communicated,

appraisal of threat is heightened which provokes stress responses and inadequate behaviour.

Based on that, governments similarly play a major role in preventing and mitigating a flue pandemic, by reaching out to its public. The measurements and communication towards the public helps to minimize the human as well as the economic impact of a pandemic (Bloom, Wit, Jose, Carangal-San, 2005). Accordingly, the governments are expected to be communicating properly and sufficiently to its citizens. Specifically, for public health communication, one of the key functions of the government is to prevent epidemics and the spread of disease, as well as, to respond to disasters and assists communities in recovery (Wise, 2001). Therefore, public relations play an essential role in informing, educating, and empowering publics about health issues (Wise, 2001).

Based on that, Health organizations as well as governmental health institutions formulate guidelines on how to behave and what to communicate during such crises. The World Health Organization's outbreak communication guidelines emphasize building and maintaining trust, announcing information at an early stage, ensuring transparency, taking the publics interests into account and planning ahead (World Health Organization, 2015).

2.3 Governmental communication during a health crisis

The successful containment of any type of health crisis depends mainly on effective communication with the public about associated risk- and protective factors (Guidry, Jin, Orr, Messner, & Meganck, 2017). Generally, the trusted sources that provide risk assessments should be made available for everyone (Lachlan, Spence, Lin, Najarian, & Del Greco, 2016).

However, based on the psychological, societal and economic consequences a health pandemic as COVID-19 is, it shows that during this pandemic, it is necessary to address the public on diverse levels. This is inherently problematic. With the goal to transfer the messages clearly, professionals on that field tend to use technical terminology since it is more precise than similar, but not exactly equivalent non-technical words. Furthermore, it is often tried to communicate more information than the lay receivers are able to process. Especially in crisis, but regardless of the language skills, the receiver have difficulties to understand and process health information because of unfamiliarity of the terminology, preoccupation with possible symptoms as well as they are being upset with the whole situation which makes concentration on the message difficult. (Houts, Doak, Doak, & Loscalzo, 2006).

Additionally, Fischhoff, Wong-Parodi, Garfin, Holman and Silver (2018) add that when facts are known and effectively communicated, people tend to form more accurate perceptions of risks. Further literature as well as related studies show that effective governmental health crisis communication is based on specific content to be communicated as well as using an adequate tone in the message (Fischhoff, Wong-Parodi, Garfin, Holman and Silver, 2018).

2.3.1 Message content

Generally, governmental crisis response strategies aim to articulate a range of assorted strategic messages. Mainly, such strategies include corrective action and minimization of the crisis (Benoit, 1997) Especially in accidental and unexpected crisis, such as pandemics, the main goal for the government's crisis management is to provide guidelines to properly handling the crisis. This is supported by Coombs who states that management guidelines seek to 'prevent or lessen the negative outcomes of a crisis and thereby protect (organizations, industries and) stakeholders from damage' (Coombs, 1999, p. 4). Thus, crisis communications are most useful when they are open and transparent in addressing the concerns and priorities of the populations, personally relevant and strongly promoting self-efficacy about protective behaviours (White & Eiser, 2006).

Further, an effective crisis response can reduce the time it takes preclude the development of public policy issues, alleviate public threats and minimize damage to life and property (Barton, 1993)

Especially during natural- or human-produced crises that eventually have a global impact, public health messages promoting local preparedness and coordinating expert planning efforts are increasing important (Novick & Marr, 2003). Based on that, the main goals for the government to achieve with their crisis communication should be to instruct, inform and persuade while motive the public to behave in a way that favours the reduction of spread of the virus and thereby being transparent and building trust.

However, the publics strong negative emotions such as fear or distrust form considerable barriers to effective communication (Covello, Peters, Wojtecki, & Hyde, 2001). Thus, it is necessary to develop messages that address these emotions by delivering sufficient and critical information to the public. This includes to convey urgent information to the in real time, explaining the current situation.

Moreover, effective health risk communication includes the aim of protecting public health. In order to achieve this, besides informing, communications must successfully instruct and motivate appropriate self-protective behaviour (Holmes, 2008)

Ideally, pandemic communications support the public's capacity to effectively encounter the encouragement of prevention, the promotions of containment as well as the fostering of resilience and recovery (American Medical Association, 2006) and successful reinforcement of desirable health attitudes and thus a change in individual and community behaviours to limit the spread of the pandemic, reduce illness and deaths, and lessen the impact on societal infrastructures by reducing workplace absenteeism and numbers of hospitalizations (Reynolds & Quinn, 2008). Therefore, the messages should contain clear instructions and practical advice that individuals implement to protect themselves and others from the contagious virus, for example washing hands or social distancing (Garfin, Silver, & Holman, 2020). By providing clear instructions and information that are accurate timely consistent and credible, the chances of successful adoption of the self-protective actions are increased (Vlahov, Coady, Ompad & Galea, 2007). Based on that, these messages need to underly reasoning strategies that cover the formulated goals of effective governmental crisis communication. The messages themselves must be compatible with the cultural orientation, information priorities and reasoning strategies of the targeted populations. Thus, it is necessary to 'emphasize the rationale and importance of adherence to public health measures that people might consider intrusive (e.g. quarantine)' (Vaughan & Tinker, 2009). Often, this advice is understood as messages that assume analytical reasoning styles for information processing, even though individual may not evaluate health or safety information in his way (Elder, 2003). Instead, it is required to communicate clearly about the situation and justify the actions and measures taken by the government which can be achieved by communicating messages that are sensitive and relevant for the audience (Lindley, Wortley, Winston, & Bardenheier, 2006).

Examined communication plans for pandemic influenza hereby reflect clear and evidence-based messages.

Lastly, concerning the Corona virus, the WHO Director-General sums up the role of the government in the communication of that pandemic by stating that 'all countries must strike a fine balance between protecting health, preventing economic and social disruption, and respecting human rights' (World Health Organization, 2020)

2.3.2 Tone of message

All effective communication is based on an open and empathetic style that engender the public's trust. Even though trust is necessary in a crisis, the public's suspicions of governments and scientific experts are increasing for different reasons, including the access to more sources of conflicting information or a reduction in the use of scientific reasoning in decision making. Therefore, for persuasive communication, trust and credibility, which are demonstrated through competence and expertise as well as empathy and caring, honesty and openness and dedication and commitment are regarded as essential elements for crisis messages communicated by the government (Reynolds & Quinn, 2008).

In order to cope with the feeling of uncertainty of the public during health pandemics, government crisis communication becomes more effective when credibility and trust is successfully communicated. In crisis situations, people feel threatened and are in a state of high concern. This phenomenon is also called mental noise (Baron, Hershey, & Kunreuther, 2000) and describes that such mental states can significantly impair information-processing, decision-making, memory, and other key mental processes that are in necessarily involved in crisis communication (Glik, 2007). According to the related Mental Noise Model, high concern situations change the rules of traditional communication, meaning that in crisis communication practice, a negative message should be counterbalanced by a larger number of positive or solution-focused message (Covello, 2003).

Moreover, as the public's concern must be appreciated by the government, the messages should be both emotional and rational, depending on the content. Informational health communication messages are most effective and easily understood when they are clear and simple. However, when it comes to motivational appeals to adapt certain behaviour, an emotional, personal tone and empathy increases the perceived confidence in one's ability to take action (Freimuth, Linnan, & Potter, 2000). In addition to that, Freimuth, Linnan and Potter add that entertainment is effective in educating audiences about disease prevention. This is based on Albert Bandura's Social learning theory that states that most behaviour is learned through modelling and involves

persuading through emotions. The entertainment media does not only attract attention, reinforce existing behaviour as well as demonstrating new behaviour, they also affect the audience on an emotional level. In comparison to a rational communicated message, when the targeted audience is able to respond emotionally to the message, the communicated educational message is more likely to influence their behaviour. This makes the adaptation of a message with an emotional tone very effective for governments when it comes to communicate health related behavioural messages.

Furthermore, the messages need to be communicated to a highly diverse public, that reflects the targeted population. Since in a public health crisis, the whole society is affected and thus, targeted in government crisis communication. This is especially the case on social media where it is aimed to reach as many people as possible. This means, that the content of the messages should be communicated in an easy and understandable manner in order to avoid confusion which could lead to undermining public trust, raising fear and anxiety (Reynolds & Quinn, 2008).

2.4 Governmental health crisis communication on social media

Nowadays, citizens increasingly use social media and mobile technologies to learn about ongoing disasters and to seek help and to share information after emergencies. Compared to any crisis such as natural disaster, transportation, political, social, or criminal crises social media is used significantly more for crisis communication during public health crises (Graham, Avery, & Park, 2015).

Specifically, the ever-increasing role of social media in the dissemination of information from the institutions lead many public relation practitioners to view these platforms as an essential mean for strategic health communication (Guidry, Jin, Orr, Messner, & Meganck, 2017)

In addition to that, Steelman et al. (2015) suggests that the interactivity between sender and receiver is the key for effective and valuable crisis communication during disasters. Moreover, it has been examined that the way of how information and communication technologies affect communities during natural and unpredictable disasters could strengthen and empower communities due to the empowerment of the public to take part in the crisis response themselves (Leong et al., 2015).

Due to high uncertainty among the public during a crisis, strategic risk communication adds value via acknowledging the uncertainty through transparency, trust building and narrative enactment (Palenchar and Heath, 2007). Tirkkonen and Luoma-aho (2011) further argue that in crisis communication surrounding a health threat, public relation from the governments side plays a crucial role in managing these risks.

Social media can hereby contribute to building this trust by real-time dialogues and motivating the publics to take actions. However, it has to be mentioned that on the one hand, social media is aiding people in being more connected in times of physical isolation, while on the other hand, it is also a major source of rumours and false information adding to the stress (Sood, 2020).

The open nature of social media makes it possible for governments to disseminate information to as many people as possible and the communication with the public can be more open, frequent and targeted (Veil, Buehner, & Palenchar, 2011), which makes a strategic use of this medium during times of crises, an effective way for institutions or agencies to communicate crisis related messages (Lachlan et al., 2016), including information on what, why and how the event happened (Fors-Andrée, 2012; Wessling, 2013)

Furthermore, Beeline Labs (2009b) suggests that, 'social media has the power to humanize business' (p. 3). In a crisis, besides the need for information, people also seek for human conversation and compassion (Sutton et al., 2008). This humanness, that is based in the ability to connect people to others in a personal manner, makes social media an attractive mode of communication for people who have experienced a crisis and provides an ideal conduit for crisis communicators to display compassion, concern, and empathy. This is consistent with Solis' (2009) recommendation to express 'customer empathy, evangelism, passion, expertise, and knowledge' in the new world of influence (p. 14).

Since people increasingly search for health-related topics on the internet, the information that is found tends to influence the medical decisions they make (Kata, 2010). Therefore, it is necessary to understand what health-related information is online. Since it shows that and accurate health information is as equally present online as misinformation and rumors,

official and relevant institutions and especially governments during health crisis are taken into responsibility to be actively use social media in order to provide sufficient and adequate information to its public. Only then, misguiding and counterproductive information can be outbalanced (Guidry, Jin, Orr, Messner, & Meganck, 2017).

2.5 Instagram for governmental health crisis communication

The effectiveness of social media in governmental health crisis communication shows in the frequent use of these platforms, when it comes to addressing the broad public. Here, Twitter is the most used channel by the government. Since this channel imposes a 140 character-limit on its tweets, the use is forced to be concise and specific on what and how to formulate the messages. In contrast, the 2010 founded and thus, rather new social media platform Instagram does not have such limit in communication since it is based on photos and videos whereas text and caption take a secondary role (Guidry, Jin, Orr, Messner, & Meganck, 2017). While people have problems understanding and using health information, Houts, Doak, Doak and Loscalzo (2006) state that people receiving an illustrated version of a message are significantly more likely to remember and to follow the instructions that have been consumed than those who read just text.

This can be explained by the fact that this new form of transporting messages has a significantly different processing of the communicated content. From a cognitive psychology point of view, it is indicated that pictures leave a more distinct impression on the viewer while the attention is significantly increased as well as the comprehension of the message is increased. Following that, pictures may play a salient role in communication about health-related topics as visuals support the recall of health information (Houts, Doak, Doak, & Loscalzo, 2006).
Thus, with its characteristic to be a visually specific platform, Instagram forces the government to the use of different communication styles while it offers an opportunity to further involve in the engagement with crisis communication on social media.
Since the German government uses Instagram to communicate a health crisis for the first time (Instagram, n.d), little is known about the content and the underlying aspects such as tone and goal that is communicated via this platform. However, as stated, the effectiveness of health communications can be significantly increased by including pictures in the design of new health education materials for the public to increase the understanding und a corresponding use of the communicated health communication which makes Instagram a promising new social media channel for health-related communication.

2.5.1 Effectiveness of visuals in health crisis communication

When an urgent and important message needs to be communicated, persuasion, motivation and the understanding can be achieved by other communication tools, than simple text. Especially

on social media, more precise on Instagram as a mainly visual medium that emphasizes pictures and videos over written text, the elements of the posts facilitate the persuasion of the public. Visible demonstration of disease control behaviours helps to transform people's behaviour and beliefs about the disease. This makes Instagram to a distinctive channel compared to other platforms.

According to Saloman (1979), visuals have the ability to reduce the mental load and processing power, increase the quantity of the message being delivered and ease recall in individuals. On the one hand, this is explained by the word limit that is available, on the other hand, the viewing of pictures creates a memory representation that conceptualizes as information (Loftus et al., 1985, Whitley, 2013). Pictures, symbols and colours can be combined to create an infographic that tells a story (Krauss, 2012) while viewing pictures also creates a memory representation that conceptualizes as information (Loftus et al., 1985, Whitley, 2013). The information represented as an image causes the brain to look at the information from more than one angle which often assists the brain to faster absorb and process the information (Davison, 2009, Zhang, 2012). Based on that, the nature of messages on social media to be as short as possible, including pictures or symbols, the perceived quantity of information as well as the persuasion of any aimed content can be increased, even though little text is used, as it is the nature of Instagram.

3. METHODOLOGY

The following section elaborates on the methods of the present study. This includes the research, the sample, the procedure as well as the coding this study. Lastly, the analysis of the study is stated.

3.1 Research design and instrument

The main goal of this study is to examine the communication of the German federal government during the current crisis of COVID-19 via the social media platform Instagram. Accordingly, the official account of the Federal Ministry of the Health, as being closely connected to experts on that field and officially assigned to the crisis communication about the health crisis on Instagram, was examined. Further, it is aimed to define whether there were differences in communication between two phases of the of the crisis. In order to approach the purpose of this study, a content analysis was conducted. in order to examine the approach of the health crisis communication of the German government to its public. In a deductive coding process, the content, as well as forms of message and the addressed goal behind the messages were assigned to a total of 111 postings of the official account on Instagram.

A content analysis can be described as the assessment of the characteristics of a message (Neuendorf, 2001), The method is highly suitable for the present study, as it allows for systematic analysis of various text elements (Spurk & Lublinski, 2014) and involves the thorough examination of any piece of written or visual human communication (Krippendorf, 2004). Within the content analysis, the researcher serves as the research instrument. All postings were coded manually by the researcher, using the program Atlas.ti 8. The intercoder reliability was ensured through a prior pre-test.

3.2 Sample

The study aims to examine and compare the communication on Instagram of the German Government of two crisis phases during the Corona virus between two phases of the crisis, determined by according measurements undertaken by the German government. Therefore, the sample of the study consisted of 2 different data sets (first crisis phase and second crisis phase), covering in total the postings from March 17th, 2020 until May 6th 2020. This time frame was chosen because it begins with the first posting on this website and ends on the date on which the German government announced continuing relaxations of regulations regarding the corona virus.

However, as during that time frame, the German government took several measurements in order to adapt to the ongoing situation, two milestones were set within. This allows for a comparison of the content, the form, as well as the used tone and the addressed goal between the different levels of restrictions that were communicated to the public. In detail, the first milestone was set from March 17th until April 19th, 2020 (see overview in Figure 1). Beginning with the first posting on Instagram and the beginning of the lockdown in Germany, this time frame covers the first measurement undertaken by the German government. The second milestone was set from April 20 until May 6th, 2020 (see overview in Figure 2). This phase includes the first easing of governmental restrictions.

Figure 1: Overview of postings during the 1st Phase


bundesgesundheitsminist...
Abonnieren
BESUCH DES MINISTERS IN EINEM LAGER FÜR SCHUTZAUSRÜSTUNG
INFORMATIONEN ZU MASKEN UND MUNDSCHUTZ
Die Operationsmaske (medizinischer Mund-Nasen-Schutz) sowie FFP-Masken sind für den Schutz von KRANKEN und PFLEGENDEM Personal essentiell und müssen dieser Gruppe vorbehalten bleiben. Der Schutz von Fachpersonal ist von gesamtgesellschaftlichem Interesse. Deshalb gilt: Medizinische Masken für medizinisches Personal.
CORONAVIRUS PSYCHISCHE GESUNDHEIT SCHÜTZEN
FITNESS FÜR ÄLTERE MENSCHEN IN ZEITEN VON CORONA - MIT PROF. INGO FROBÖSE
01. APRIL 2020: CORONA IST KEIN SCHERZ
Erfundene Geschichten und Aprilscherze zu Corona können zur Verunsicherung beitragen und genutzt werden, um FALSCHMELDUNGEN zu verbreiten.
Bitte machen Sie keine Aprilscherze zum Coronavirus und HELFEN SIE MIT IHRE VERBREITUNG ZU VERHINDERN
Bundesministerium für Gesundheit
WER WIRD AUF DAS CORONAVIRUS GETESTET?
Bundesministerium für Gesundheit
DIESE SCHRITTE SOLLTEN BEIM HÄNDEWASCHEN EINGEHALTEN WERDEN
COVID-19: MEDIZINISCHE RISIKOGRUPPEN
Die Ausbreitung des Coronavirus erfordert, dass wir gemeinschaftlich die medizinischen Risikogruppen unserer Gesellschaft SCHÜTZEN
Nach derzeitigem Forschungsstand zählen hierzu:
COVID-19 VS. INFLUENZA
WARUM WIR COVID-19 UND DIE GRIPPE (INFLUENZA) DIFFERENZIERT BETRACHTEN MÜSSEN
Bundesministerium für Gesundheit
CORONAVIRUS DAS PASSIERT IM KÖRPER
DAS CORONAVIRUS IM ÜBERBLICK
DER AUFBAU
PROTEINE
RNA-STRANG
FETTMEMBRAN
Das Virus besteht aus:
Einer Fettmembran
Viralen Glykoproteinen
Einem RNA-Einzelstrang
Bundesministerium für Gesundheit
DAS ÄNDERT SICH IN DER PFLEGE

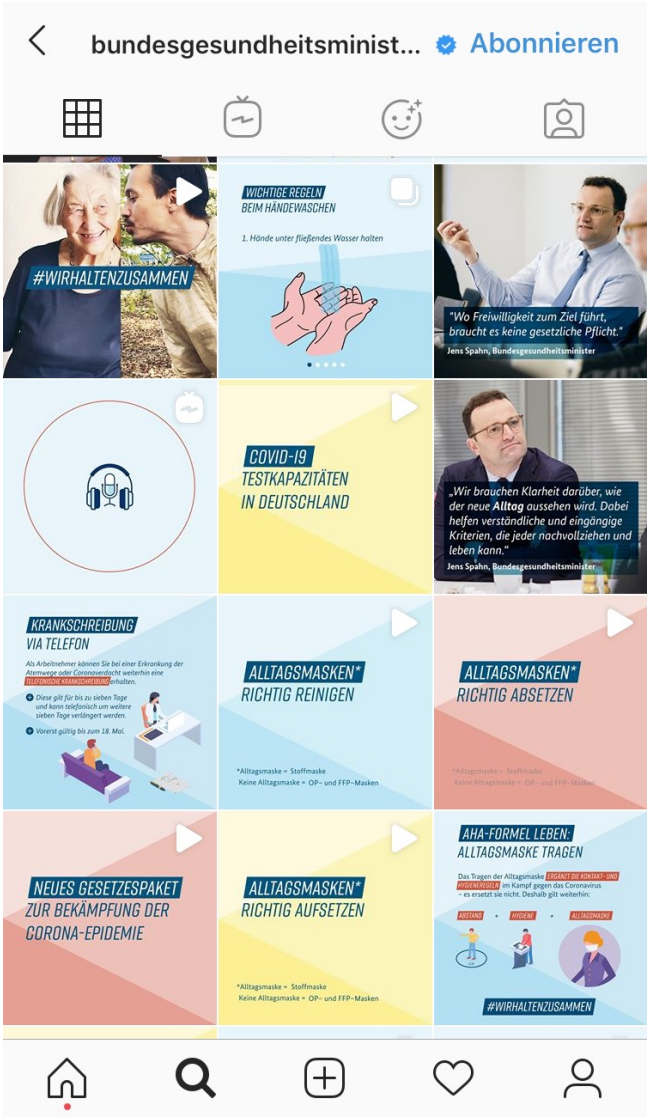

Figure 2: Overview of postings during the 2nd Phase

3.3 Procedure and Coding

In order to answer the research question of this study, a comparative content analysis of the official Instagram account of the German government was conducted. Since the German Federal ministry of the Health was assigned to be the official account for the dissemination of information about COVID-19 (Instagram, n.d.), and as being part of the German government, this was the account to be examined.

The study was limited to two crisis moments, based on the change in regulations and measurements undertaken by the German government in response to the development of Covid-19 in Germany. The two chosen time frames were regarded as decisive and newsworthy as they cover the phase of the first restrictions made (17th March 2020 – 19th April 2020) as well as the phase where first relaxation of the measurements were undertaken by the government (20th April – 06th May 2020) and communicated to the public. Based on that, the first phase consists of 79 documents while the second examined phase consists of 32 documents. Due to the different quantity of postings, the relative number of occurrences of the codes was elaborated in percentages as well.

For the purpose of the study, mainly a deductive approach was used, meaning that previously established categories were organized in a codebook, see in Appendix A.

In order to measure the frequencies as well as significant associations between the two crises phases, the following null hypotheses (H_0) are stated:

$H_0$1: There is no significant relation between the targeted stakeholder and the crisis phase.

$H_0$2: There is no significant relation between the used form of message and the crisis phase.

$H_0$3: There is no significant relation between the content of the message and the crisis phase.

$H_0$4: There is no significant relation between the underlying tone of the message and the crisis phase.

$H_0$5: There is no significant relation between the use of reference in a message and the crisis phase.

$H_0$6: There is no significant relation between the addressed goal of a message and the crisis phase.

The unit of analysis were postings of the account of the Federal Ministry of the Health on Instagram. The coding instrument consists of a total of 44 codes. Hereby, 7 main codes were established (see Table below), that were further specified into subcodes (see Codebook in Appendix A). Since some postings were in form of a video, in the particular cases, more than one code or subcode was assigned to one posting.

Table 1: Main codes and definitions

Main Code	**Description**
1. Stakeholder	A person, group or organization that affects or is affected by the action of an institution. The activity or message is aimed to address the diverse audience adequately
2. Form of message	The type or kind of how the message is communicated
3. Content of message	The essence of a communicated message or discourse, as comprehended or received by its intended audience
4. Tone of message	The character of the words articulated in the message
5. Reference	Directing someone to someone else for attention or stressing an information by basing the message on evidence (e.g.by an expert)
6. Addressed goal of message	The object of a someone's ambition or effort; an aim or desired result of what the message is aimed to communicate to the public
7. Other topic during time frame	Another (political/governmental) topic that issues a message outside the scope of the Corona virus

The codes are in alignment with the studies related to the research question. Overall, the codebook was established based on the theoretical framework presenting previous governmental communication during health crises.

While quantitative elements, such as frequencies of codes during the chosen time frame of postings are taken into account, the analysis also focuses on the qualitative component related to the underlying goals of the communicated messages as well as the tonality.

In order to assure transparency in the coding of qualitative components of the examined corpus, examples of the differently coded tonalities within the documents are presented below (Figure 3-6). As can be seen in the example, the underlying tone of the message was indicated by means of people smiling on a picture, for instance as a 'positive' tone (Figure 3) or the use of personal pronouns, for example 'du' (engl.: 'you') for a 'personal' tone of the message (Figure 4). In a lack of those aspects, a 'neutral' tone was indicated (Figure 5). A posting was coded as 'emotional', when phrases were used to emphasize and reach the receivers' emotions, such as 'Wer sich schützt, schützt auch andere. Lassen Sie uns aufeinander Acht geben' (engl.: ‚Protecting oneself, helps protecting others. Let us take care of each other', Figure 6).

Figure 3: Example positive tone of message

Figure 4: Example neutral tone of message

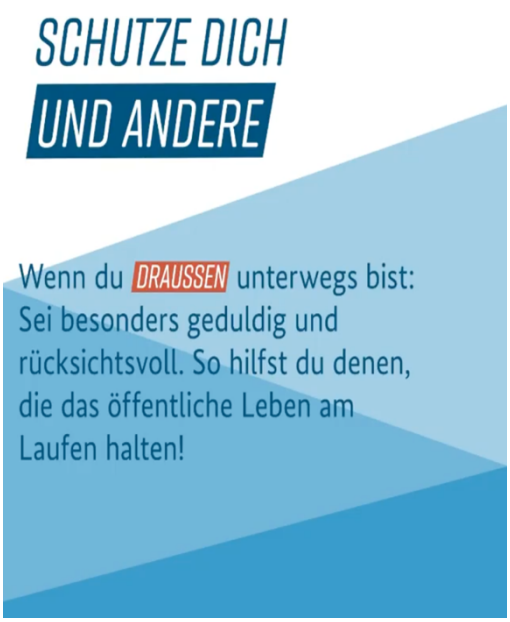

Figure 5: Example personal tone of message

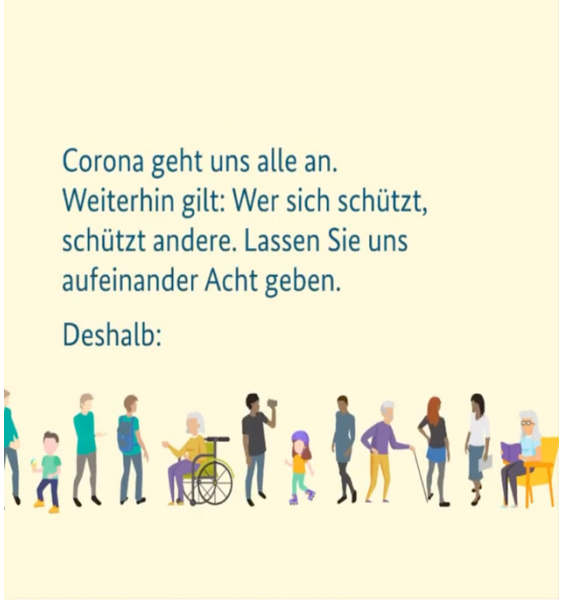

Figure 6: Example emotional tone of message

In order to assure reliability, a pretest assessing intercoder reliability was conducted. In explanation, ten percent of the corpus were randomly selected and coded independently by two research using the existing codebook. Based on that, a Cohen's Kappa score was calculated. The Cohen's Kappa score is used to measure the explanatory power, accuracy and reliability of codebooks and measures the degree to which both coders are in accordance with the choice of coding. In order to be sufficient, the Cohen's Kappa has to exceed a score of 0.6. Table 2 (below) shows that there was sufficient agreement and a satisfactory inter-coder reliability was established. Based on that, the entire corpus of postings was completely coded, using the program Atlas.ti 8.

Table 2: Intercoder Reliability

Code	**Cohen's Kappa**
Stakeholder	0.78
Form of message	1.00
Content of message	1.00
Tone	0.86
Reference	1.00
Addressed goal	0.86

The study proceeded with creating a dataset of the coded postings in IBM's SPSS program. This was done to provide this study with analytical results. In detail, SPSS was used to conduct Pearson's chi-square test. The Pearson's chi-square tests for significant association between the tested variables. In the present study, this test was used to verify whether the frequency of a code within on time frame is significant or only found by coincidence or chance.

4. RESULTS

4.1 Stakeholder

The analysis gives a clear trend about the stakeholder that are targeted in the postings. As can be seen in the table below (Table 3), the majority of the postings were targeted to the whole public during both time frames. while during the first phase, the whole public was addressed in 83% of all postings within that phase, other target groups were almost neglected. During the second time frame however, the number of posts addressing other groups within the public increased. Consequently, the frequency of the whole public being addressed, decreased to a frequency of 45.61%. In comparison, employees were not targeted at all during the first phase (n=0), while during the second phase, this group was addressed 6 times (n=6), which accounts for 10.53% of all postings within that phase. This trend can also be seen in the targeting of 'parents/family' who were addressed once during the first moment (n=1) which accounts for 1.12% of all postings within that phase, and for 12.28% during the second phase. The same applies for the stakeholder 'risk groups'. Here, the frequency of being the targeted stakeholder increased from 4.49% to 12.28% of all postings from the first to the second phase.

Moreover, while the value increases, organizations and industries being the targeted stakeholder of the postings still mark the lowest frequency within both phases, being addressed once in the first phase (n=1) accounting for 1.12% and being addressed in 8.77% of all postings within the

second phase. Additionally, the frequency of hospital and medical personnel being addressed in the postings is about the same in both phases, 10.11% during the first and 10.53% during the second phase.

To test whether these frequencies between targeted stakeholders and crisis phases are related, a chi-square test has been conducted. Thereby, a significant relation between the targeted stakeholder and crisis phase has been found, X2 (6, N = 148) = 101,1, p = .00. The null hypothesis ($H_0$1), that there is no relation between the targeted stakeholder and the crisis phase can therefore be rejected, meaning that the difference of contents within crisis phases is significant and not due to coincidence or chance.

Table 3: Addressed stakeholder

	1st crisis phase		**2nd crisis phase**		
	Count	% within document group	Count	% within document group	Total
organizations/industries	1	1,12	5	8,77	6
employees	0	0,00	6	10,53	6
parents/ family	1	1,12	7	12,28	8
Risk groups	4	4,49	7	12,28	11
Hospital, medical personnel	9	10,11	6	10,53	15
Whole public	74	83,15	26	45,61	100
Total	89	100,00	57	100,00	146

4.2 Form of message

Concerning the utilized forms of the message, it shows that pictures/infographics and videos are favorized in both phases (see Table 4). In the first phase, the messages were communicated in 32.99% of the postings within that phase, while the frequency increases to being utilized in 40.54%t of the postings within the second phase. A similar trend was detected for the use of a video as the message form. In 35.05% of the postings, it was utilized during the first phase and slightly decreases to being utilized in 29.73% of all postings within the second phase. Further, it can be stated that the visualizations are often combined with text. This accounts for 21.65% of all postings during the first phase and for 16.22% during the second time phase. Additionally, the relative frequency of photos being used as form of the message is about the same in both time phases, 10.31% within the first and 10.81% within the second phase. Moreover, a graphic or statistic is not utilized as form of the message at all in the first phase (n=0), while it only occurs once during the second phase (n=1).

To test whether these frequencies between the used forms of message and the crisis phases are related, a chi-square test has been conducted. Thereby, a significant relation between the used from of message and the crisis phase has been found, X2 (5, N = 134) = 27,03, p = .00. The null hypothesis ($H_0$2), that there is no relation between the used form of message and the crisis phase can therefore be rejected, meaning that the difference in the form of message within crisis phases is significant and not due to coincidence or chance.

Table 4: Used forms of message

	1st crisis phase		**2nd crisis phase**		
	Count	% within document group	Count	% within document group	Total
picture/infographic	32	32,99	15	40,54	47
graphic/statistic	0	0,00	1	2,70	1
photo	0	10,31	4	10,81	4
video	34	35,05	11	29,73	45
combined with text	21	21,65	6	16,22	27
Total	97	100,00	37	100,00	134

4.3 Content of message

Concerning the content of the messages, differences between both time frames could be detected. Generally, instructions for behavior were communicated most frequent in both time frames. However, the frequency slightly decreases from 35.10% of all postings in the first phase, to 22.06% in the second phase. A greater difference can be seen in the communication of the nature as well as the symptoms of the corona virus. As presented in the table below (Table 5), the nature of the corona virus as well as symptoms of the corona virus are more often issued in the first milestone, compared to the second. Namely, the nature of the virus was addressed in 11.92% of all postings during the first phase, less than half as frequent during the second time frame (4.41%). The symptoms of the corona virus were addressed almost five times more often during the first phase (5.30%) compared to the second phase (1.47 %). The frequency of current situation and news being the content of the issue increased from 16.56 % in the first to 30.88% in the second phase. Additionally, governmental decisions and measurement were issued in 9.93% of the messages within the first phase and almost doubles in the second phase, with being the content in 19.12% of the messages within that phase. Also, the frequency of everyday life being the content of the messages increases from 5.95% to almost twice as often in the second phase with 10.92%.

Furthermore, only during the first phase, celebrities were content of the message, in 11.92% of all postings during that time. This is also the case for fake news being the content. While it was mentioned 3 times (n=3) during the first phase, it was not issued during the second phase at all (n=0). However, only in the second phase vaccination was content of the messages with 7.35% of all messages communicated within that phase. Statements of politicians were at low frequency in both phases, being issued twice in the first phase(n=2), counting for 1.32% and being issued in 4.41% of the messaged within the second phase.

To test whether these frequencies between the contents of message and the crisis phases are related, a chi-square test has been conducted. Thereby, a significant relation between the content of message and the crisis phase has been found, $X^2(10, N = 219) = 110{,}2$, $p = .00$. The null hypothesis ($H_0$3), that there is no relation between content of the message and the crisis

phase can therefore be rejected, meaning that the difference of message content within crisis phases is significant and not due to coincidence or chance.

Table 5: Frequencies of content of message

	1st crisis phase		**2nd crisis phase**		
	Count	% within document group	Count	% within document group	Total
Nature of corona virus	18	11,92	3	4,41	21
symptoms of corona virus	8	5,3	1	1,47%	9
current situation/news	25	16,56	21	30,88%	46
governmental decisions/measurements	15	9,93	13	19,12%	28
statements of politican	2	1,32	3	4,41%	5
instruction for behavior	53	35,10	15	22,06%	68
celebrities	18	11,92	0	0,00%	18
everyday life	9	5,96	7	10,29%	16
fake news	3	1,99	0	0,00%	3
vaccination	0	0,00	5	7,35%	5
Total	151	100,00	68	100,00	219

4.4 Tone of message

Concerning the underlying tones of the messages (see Table 6), messages with an underlying personal tone mark the highest frequency during the first phase while it decreases to 30,32% in the second phase. Additionally, the frequency is higher during the first phase, being detected in 41,62% of all messages within that phase. In comparison to the first phase however, relatively more often a positive tone was used in the second phase, 22,84% in the first increasing to 36,05% in the second phase.
While the frequency of an used emotional tone as well as the neutral tone is about the same in both time phases, there were no messages within the time phases that were communicated with a negative tone (n=0).

To test whether these frequencies between the underlying tones of the message and the crisis phases are related, a chi-square test has been conducted. Thereby, no significant relation between the content of message and the crisis phase has been found, X2 (3, N = 283) = 7,43, p = .06. The null hypothesis ($H_0$4), that there is no relation between the tone of the message and the crisis phase therefore cannot be rejected, meaning that the underlying tone of message content within crisis phases do not significantly differ.

Table 6: Frequencies of underlying tone of message

	1st crisis phase		**2nd crisis phase**		
	Count	% within document group	Count	% within document group	Total
personal	82	41,62	26	30,23	108
emphatic/emotional	18	9,14	11	12,79	29
positive	45	22,84	31	36,05	76
neutral	52	26,40	18	20,93	70
negative	0	0,00	0	0,00	0
Total	197	100,00	86	100,00	283

4.5 Reference

Generally, it can be stated that the use of references in the messages did occur with a low frequency. Only in 45 cases out of 111 postings, the presence was detected (see Table 7). However, during the first phase, in 50% of all appearances, it was referred to health institutions. During the second phase, it decreased to 18.52%. Despite that, the reference to politicians almost doubles from 16,7 % in the first phase to 29.63% in the second phase. The frequency of referring to health experts marks the lowest occurrence within both phases, with being detected in 11,11% of the references in the messages during the first phase and 14,81% during the second phase.

To test whether these frequencies between the use of references in the message and the crisis phases are related, a chi-square test has been conducted. Thereby, no significant relation between the use of references and the crisis phase has been found, X2 (3, N = 45) = 5,06, p = .17. The null hypothesis ($H_0$5), that there is no relation between the use of references in the message and the crisis phase therefore cannot be rejected, meaning that the use of references within crisis phases do not significantly differ.

Table7: Frequencies of reference used in the message

	1st crisis phase		**2nd crisis phase**		
	Count	% within document group	Count	% within document group	Total
to (health) experts	2	11,11%	4	14,81%	6
to (health) institutions	9	50,00%	5	18,52%	14
to politicians	3	16,67%	8	29,63%	11
to websites	4	22,22%	10	37,04%	14

Total	18	100,00%	27	100,00%	45

4.6 Addressed goal

Concerning the addressed goal underlying the communicated message (Table 8), it shows that during the first phase, the frequency of the goal to instruct the receiver is as double as high as in the second phase, decreasing from 22,93% to 10,5%. The same trend can be seen in the frequency of the underlying goal to persuade and motivate the receiver, changing from being present in 31,95% of all postings within the first phase, to 15,67% in the second phase. Additionally, the frequency of the goal of building trust increased from the first to the second phase (14,66% to 23,88%). The goal to be transparent towards the public marks the lowest frequency with 10% of the coded goals of the messages within the first phase and increases to 19,40% in the second phase. Moreover, the goal to inform the receiver of the message was detected in 19,92% within the first phase. The frequency increased to 30,60% during the second phase.

To test whether these frequencies between the underlying goal of the message and the crisis phases are related, a chi-square test has been conducted. Thereby, a significant relation between the goal of the communicated message and the crisis phase has been found,
X2 (4, N = 400) = 30,11, p = .00. The null hypothesis ($H_0$6), that there is no relation between the underlying goal of the message and the crisis phase can therefore be rejected, meaning that the difference of the message goal within crisis phases is significant and not due to coincidence or chance.

Table 8: Frequencies of underlying goal of message

	1st crisis phase		**2nd crisis phase**		
	Count	% within document group	Count	% within document group	Total
instruct	61	22,93%	14	10,45%	75
inform	53	19,92%	41	30,60%	95

persuade/motivate	85	31,95%	21	15,67%	106
building trust	39	14,66%	32	23,88%	71
transparency	28	10,53%	26	19,40%	54
Total	266	100,00%	134	100,00%	400

5. DISCUSSION

The aim of this study was to investigate the way the German government uses the social media platform Instagram to communicate to its citizens during the ongoing health crisis related to the Corona virus and how this communication differs during two crisis phases. This was done by means of a quantitative and qualitative content analysis of the Instagram postings from the German Federal Ministry of the Health. Taking the results into consideration, it becomes clear that there are differences in the health crisis communication between the determined crisis phases. However, one main communicated content could be detected.
In the following, the different findings will be discussed, in order to conclusively answer the research questions:

RQ1: How does the German government communicates about the Corona virus on Instagram in terms of the type of message, the message content, the tone and the addressed goal?

RQ2: To what extent does the communication of the German government on Instagram differ between two phases of the corona virus?

Further, the results will be put into a broader context. Furthermore, the limitations as well as suggestions for future research in this field of study will be for the sake of replicability. Lastly, the conclusion of this study will be presented.

5.1 Addressed Stakeholder

The findings of this research support the theoretical claim that during a health crisis, the whole public is addressed and therefore has to be targeted by the responsible (Reynolds & Quinn, 2008). In this study, especially during the first phase (17th March 2020 – 19th April 2020), including the first lockdown and the appeal by the government to limit social contacts, the vast majority of the postings were addressed to the whole public. During the second phase 20th April 2020- 6th May 2020), the beginning of relaxations of restrictions, more specific groups were covered and addressed. The reason for that can be seen in the crisis phases themselves. In the first phase, the situation about the crisis was new to everyone. Since the role of the government is to sufficiently inform its citizens (Wise, 2001), it has to be aimed to include everyone, thus equally provide crisis- and situation related messages to the diverse public. Only if the population feels sufficiently informed about the situation, uncertainty as well as anxiety is reduced, and the public is able to form an adequate perception of the risk and will more likely follow any instructions or appeals imposed by the government (Fischhoff, Wong-Parodi, Garfin, Holman & Silver, 2018). Moreover, in the second phase, when the basis and direction is set and clear, more specific targeting is possible. This is also the case because at that time of a crisis, more research on the virus was conducted and could be taken into consideration for political decisions concerning supports for families for instance to be made, implying that during the ongoing crisis, a trend of the development of the virus could be observed, and thus more specific targeting for people of special need, such as risk group were issued.

5.2 Form

While a general trend for favorized used forms of the messages on the Instagram account could be detected, it yet differs between the two crisis phases. The use of infographics and videos mark the greatest utilization for communicating a message in both crisis phases. Generally, this can be explained by the target group and content of the postings. Since during public or global crises, the task of the government is to properly reach the whole diversity of society (Reynolds

& Quinn, 2008), it is necessary to communicate in a way that meets the accordingly diverse levels of education and perception of the public. Information and messages that are based on visuals can hereby increase the ease of understanding and thus, assure the desired processing of the information or instruction (Davison, 2009, Zhang, 2012)

More specifically, the use of infographics increases during the second phase, while the use of videos slightly decreases. This could be explained by the ongoing situation within the phases. As stated by Ferreira, Ramírez and Lauzon (2009), videos are useful as a means for informing a variety of stakeholders, as well as educating them. Besides that, in their study, it showed that videos have an effect on decision making. Based on that the main utilization of videos during the first phase can be explained. Especially in this beginning phase of the crisis, the government disseminate many different messages that are difficult to understand for the lay public due to the complex nature of health messages. The nature of a video however, as being multidimensional and in movement over the whole consumption of it, allows for greater and several sequential content which would be too complex and overwhelming when communicated as static messages, such as text (Houts, Doak, Doak, & Loscalzo, 2006).

The change in the frequency of utilized message forms in the second phase can be due to new measurements that were undertaken by the German government in order to adapt to the development of the crisis. Furthermore, research and studies about the virus could be completed as well as being presented. Therefore, many information as well as updates and measurements were present to be communicated to the public. The use of infographics to communicate such content is in alignment with and can be supported by Kraus (2012) who states that infographics tell a story which makes it easier to conceptualize and process the received information (Zhang, 2012). Especially, health related messages that are complex by nature are facilitated through the use of an according visualization (Houts, Doak, Doak, & Loscalzo, 2006).

5.3 Content

Nevertheless, the examined postings oftentimes contain of more than one communicated content. This can be explained by the frequently use of videos as form of the message.
The differences in the communicated contents in both crisis phases, show the adaptation from the German government to the ongoing situation. The nature and symptoms of the Corona virus

are more often issued during the beginning first phase and is less often addressed in the second phase. This can be explained by the fact that during health crises, the government is responsible for the public to provide them with information about the ongoing situation (Ball-Rokeack & DeFleur, 1976). By doing so, it is assured that the public knows what is going on in this new and uncertain situation. Accordingly, Sood (2020) states that by doing so, the level of anxiety among the public is reduced. In the second phase, a basic level of understanding the nature of the virus is set. Because of new developments of COVID-19 as well as new research on that topic, the government adapts to it by undertaking according measurements. Thus, with this change of restrictions and newest findings about that situation, there are more decisions to make and more adapting measurements to undertaken and communicated to the public. That is why the decisions and measurements are more often issued during the second phase. Furthermore, postings containing messages about everyday life increase during the second phase. This can be explained by the phase itself. As the milestone for it was set at the beginning of the first easing of restrictions for the public, doing activities in everyday life was possible again. Thus, issuing this topic is suitable for that phase.

Besides that, the analyzed content shows that in both phases, the frequency of the postings consisting of instructions for proper behavior is similarly high. This shows the role of Instagram for the governmental health crisis communication of the German government during COVID-19. Accordingly, it can be concluded that during this crisis, the Instagram account serves as an instrument to reach the public to demonstrate them adequate behavior. This can be based on Vlahov, Coady, Ompad and Galea (2007) who highlight the importance of the communication from the government to its public, containing direct messages of how to behave in order to reduce the chances of contagion. Thus, the postings present what the whole public can do in order to contribute to cope with the crisis. These messages can reduce the level of fear anxiety that results from a feeling of uncertainty that is common in situations as public crises as they then feel involved and useful (Sood, 2020).

5.4 Tone

Overall, no message was communicated with an underlying negative tone. This finding is in accordance with Covello (2003) who states that for effective crisis communication, any negative perception of a message due to the related situation should be counterbalanced with

the opposite tone of the communicated message. Based on that, there is a general high frequency of a used personal tone, especially in the first phase. As health crises affect the public on a psychological level, personal formulated messages from the government support hereby increases the perceived confidence in one's ability to take action (Freimuth, Linnan, & Potter, 2000). This can be seen as especially important in the beginning of the crisis. Since the government aims to address and involve the public in order to build trust from an early stage on (World Health Organization, 2015).
In the second phase, the messages were mostly communicated with an underlying positive tone. This can be explained by the fact that after the first easing of restrictions in that phase the motivation of the public to behave in the desired manner should be kept up, despite the positively development of the crisis in that phase. With a positive tone being used for that, there is an alignment with Freimuth, Linnan and Potter (2000) who state that during health crises, motivational appeals can be enforced by positively formulated messages.

However, there is no significant difference of underlying tones between the crisis phases. This aligns with existing literature, stating that the overall tone should be communicated in a certain way (Reynolds & Quinn, 2008), regardless the crisis phase. Nevertheless, since differences were detected, further research of underlying tones in health crisis phases could be conducted in order to find patterns in accordance with the present findings.

5.5 Reference

In this study, the frequency of references used in the messages was low. However, during the first phase, in 50% of the cases, it was referred to health institutions, compared to a decreased number of occurrences of that reference in the second phase. This could be the case because in the first phase, as shown in the contents of the message, basic facts about the virus are conveyed. Based on Reynolds and Quinn (2008), it can be summarized that the goal to increase trust in the communicated messages, they should be based on trust. In order to do so, the informational messages where therefore substantiated by basing them on verified sources, such as health institutions. Moreover, during the second phase, the reference to politicians increases. A possible explanation for that could be that in this phase, due to the relaxation of restriction, new measurements and decisions of the government had to be communicated. By directly referring to politicians, the decisions can be explained, based on trustful sources.

However, there is no significant difference of the use of references between the two crisis phases. This aligns with existing literature, stating that the overall tone should be positive and personal regardless the crisis phase. Nevertheless, since differences were detected, further in depth-research on the use of references in health crisis phases could be conducted in order to find patterns in accordance with the present findings.

5.6 Addressed goal

In line with the communicated content, especially in the first phase, the government aims to instruct the people. Since in this phase, the public is new to the situation, it is necessary for the government to clearly show how to behave accordingly which is similarly suggested by Covello (2003) and Freimuth, Linnan, and Potter (2000). In addition to that, in the first phase, an often underlying goal was to persuade and motivate the public. This finding is in alignment with Novick and Marr (2003) who state that, besides the instruction, one of the main goal for the government to achieve with their crisis communication should be to persuade the public to behave in a way that favours the reduction of spread of the virus. This is especially important at the beginning of the crisis, in the first phase. In order to assure the communicated instructions to be followed, Holmes (2008) states that it is therefore necessary to motivate and persuade the public to actually adapt the desired behaviour, which supports the present findings.
In addition to that, the underlying goal of the government to be trusted and transparent remain stable and about the same throughout both phases. This corresponds to White and Eiser (2006) who emphasize that transparency and trust contribute significantly to useful and effective health crisis communication. Thus, as being detected in the present study, transparency and trust should be an underlying goal in all messages communicated by the government towards the public in that matter.

5.7 Limitations and Future Research

This study is subject to various limitations that should be considered for the interpretation of the results.

Firstly, obviously, the crisis situation COVID-19 is not over at the termination of this thesis. Thus, the crisis communication of the German government will proceed as well. Since the future situation of the pandemic and the societal situation cannot be predicted, also the continuing crisis communication is unforeseeable. This study therefore can be seen as a snapshot for the governmental health crisis communication during the Corona virus and its adaptability in communication between two different crisis phases. Therefore, it might be interesting to extend the study to more, yet unforeseeable crisis phases in the future and investigating the whole communication process after the crisis has come to an end.

Secondly, the study's analysis was restricted to only the German health crisis communication. While the measurements undertaken by the governments and thus, the crisis phases differ, for future research, it would be interesting to carve out similar phases in other countries in order to compare the approach of health crisis communication on Instagram and thus, being able to further classify evaluate its use. The impact and success of the use of Instagram could be further evaluated in form of surveys for instance.

Thirdly, a factor impairing the validity of this study is the inherently subjectivity to manual coding. Even though, intercoder reliability was established prior to the data analysis, subjective perception to some codes, such as the tone of the message might play a role. In order for a codebook to be reliable, it needs to lead to the same outcomes for different researchers. Thus, in future research, it would be a possibility to assign teams of researcher to the whole coding process, as this would allow for discussions and more precise, but broader acceptance of the definition of a code could be assured.

6. CONCLUSIONS AND RECOMMENDATIONS

Since the use of Instagram for political communication, especially governmental health crisis communication is rather new, and not common yet, this study gives insights on how governmental crisis communication on Instagram is possible and how the German government changes its communication in different phases of the Corona virus.
The platform Instagram offers new possibilities, creating messages in an easy and fast understandable way. Its nature of using visualizations for the content can be regarded as suitable for health crisis communication as it allows for facilitation of health related, thus complex messages that need to be communicated to a diverse public.

In addition to that, the German government adapts its form of message to the crisis phases by utilizing videos in the beginning, the first phase and increasingly infographics in the second phase in order to be able to disseminate complex information and explain governmental

decisions in an adequate manner to its public. This possibility of adapting the form of message to the content that is aimed to communicate as well as facilitating the understanding and processing of the message, supports the use of Instagram for governmental health crisis communication.

The underlying tone of the communicated messages did not significantly differ between the two crisis phases. However, it is to mention that no message was communicated in a negative tone but based on personal and positive tonality. The results show that much room is left for further research and investigation on the relation of tone and crisis phase.

Further, the results of this study indicate that also the content of the messages is tailored to the crisis phase while shifting the majority of content being instructions for behavior in the beginning of the crisis, to more messages issuing undertook decisions and measurements by the government in the second phase, when new regulations had to be communicated. However, since the frequency of the instruction of behavior being the content of the postings remain high during both phases, the role of Instagram in the health crisis communication of the German government during COVID-19 could be detected. Based on the results, it can be concluded that the account serves as an instrument to reach the public to demonstrate them adequate behavior.

Based on the studied underlying goal of the message, it can be concluded that the basic underlying goal of the government is to maintain trust and to be transparent towards the public. However, the goals are tailored and in correspondence with the communicated content during the crisis phases while mainly aiming at instructing and persuading the public to follow the instructions in the first crisis phase and mainly aiming at building trust for support of the public to maintain the new regulations that were being set and communicated during the second phase.

Lastly, after elaborating on the literature in governmental health crisis communication, especially on social media and the outcomes of this study, the final conclusion is reached.
In a health crisis, the factor timing is decisive for the government. As the situation regarding the development of the crisis and therefore, the governmental measurements changes, the communication needs to be adjusted in terms of content, form and underlying goal of the message accordingly.
With the use of visuals, the possibility to distributing its messages and reach the public on a personal level and therefore increase the ease of understanding and processing the

communicated information and instructions, the platform Instagram can be regarded as promising channel for governmental health crisis communication.

However, it cannot be neglected that only users of Instagram are able to receive and follow the messages of the government. Thus, based on the content that is communicated as well as the availability to only users of the platform, the use of Instagram by the German government during the health crisis COVID-19 can be classified as an additional component for effective health crisis communication since it has its main focus on instructing the public for desired behavior. Therefore, it should not be seen as a sufficient source of information as it is rather intended by the government to call its public for desired action than disseminating daily news and updates.

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Appendix A

Codebook

Code	Description	Subcode
1. Stakeholder	A person, group or organization that affect or is affected by the action of an institution. The activity or message is aimed to address the diverse audience adequately	1.1.Organizations/industries 1.2.employees 1.3.parents/family 1.4.risk groups 1.5.hospital, medical personell 1.6.whole public
2. Form of message	The type or kind of how the message is communicated	2.1.picture/infographic 2.2.graphic/statsitic 2.3.photo 2.4.video 2.5.combined with text
3. Content of message	The essence of a communicated message or discourse, as comprehended or received by its intended audience	3.1.nature of corona virus 3.2.symptoms of corona virus 3.3.current situtation/news 3.4.governmental decisions/measurements 3.5.statement of politican 3.6.instruction for behavior 3.7.celebrities 3.8.everyday life 3.9.fake news 3.10. vaccination
4. Tone	The character of the words articulated in the message	4.1.personal

			4.2.empathetic/emotional 4.3.positive 4.4.neutral 4.5.negative
5.	Reference	Directing someone to someone else for attention or stressing an information by basing the message on evidence (e.g.by an expert)	5.1.to (health) experts 5.2.to (health) institutions 5.3.to politicians 5.4.to websites
6.	Addressed goal of message	The object of a someone's ambition or effort; an aim or desired result of what the message is aimed to communicate to the public	6.1.instruct 6.2.inform 6.3.persuade/motivate 6.4.building trust 6.5.transparency
7.	Other topic during time frame	Another (political/governmental) topic that issues a message outside the scope of the Corona virus	7.1.yes 7.2.no

APPENDIX B

Cohen's Kappa Calculations

Table *9: Cohen's Kappa Calculations for Frequency of Stakeholder*

Code	(1.1)	(1.2)	(1.3)	(1.4)	(1.5)	(1.6)
(1.1)	0	0	0	0	0	0
(1.2)	0	0	0	0	0	0
(1.3)	0	0	0	0	0	0
(1.4)	0	0	0	**1**	0	0
(1.5)	0	0	0	0	**2**	0
(1.6)	0	0	0	0	0	**6**

Note: Cohen's Kappa = 0.78

Table 10: Cohen's Kappa Calculations for Frequency of form of message

Code	(2.1)	(2.2)	(2.3)	(2.4)	(2.5)
(2.1)	**2**	0	0	0	0
(2.2)	0	0	0	0	0
(2.3)	0	0	**1**	0	0
(2.4)	0	0	0	**3**	0
(2.5)	0	0	0	0	**2**

Note: Cohen's Kappa =1.00

Table 11: Cohen's Kappa Calculations for Frequency of content of message

Code	(3.1)	(3.2)	(3.3)	(3.4)	(3.5)	(3.6)	(3.7)	(3.8)	(3.9)	(3.10)
(3.1)	**1**	0	0	0	0	0	0	0	0	0
(3.2)	0	**1**	0	0	0	0	0	0	0	0
(3.3)	0	0	**2**	0	0	0	0	0	0	0
(3.4)	0	0	0	0	0	0	0	0	0	0
(3.5)	0	0	0	0	0	0	0	0	0	0
(3.6)	0	0	0	0	0	**4**	0	0	0	0
(3.7)	0	0	0	0	0	0	0	**1**	0	0
(3.8)	0	0	0	0	0	0	0	0	0	0
(3.9)	0	0	0	0	0	0	0	0	0	0
(3.10)	0	0	0	0	0	0	0	0	0	0

Note: Cohen's Kappa=1.00

APPENDIX C

Literature Search Log

1. **Research Question:**

   How does the German government communicates about the Corona virus on Instagram in terms of the type of message, the message content, the tone and the addressed goal

2. **Main Concepts:**

Constructs	Definition	Related Terms	Broader Terms	Narrow Terms
government	The group of people with the authority to govern a country or state; a particular ministry in office	Administration; ministry	Authority; management; directorate	Cabinet, executive; council
message type	The type or kind of how the message is communicated	Form; kind; sort	Class; classification	Genre; category
content	The essence of a communicated message or discourse, as comprehended or received by its intended audience	Substance, topics, themes	Implication, connotation	Essence, substance
tone	The character of the words articulated in the message	Intonation, voice	Emphasis, inflection	Tonality, sound
goal	The object of a someone's ambition or effort; an aim or desired result of what the message is aimed to communicate to the public	Purpose, plan	Desire, intention	Aim, target

Date	Source	Search terms and strategies	Number of hits	Related terms/ authors	Notes
10th April 2020	Google Scholar	Health crisis communication	About 3.260.000 hits	Health crisis management	Too broad search term
10th April 2020	Google Scholar	Governmental health crisis communication	About 464.000 hits (first 8 hits relevant)	Coombs	Too broad search term
14th April 2020	Google Scholar	Instagram government crisis communication	About 28.800 hits (first 5 hits relevant)	Visual engagement; Social media	Too specific, no relation between terms
23th May 2020	Google Scholar	health crisis* AND government* AND communication*	About 2.560.000 hits (first 4 hits relevant)	Public health crises	specific

3. Search log

4. Reference list of 3 relevant articles

- Sood, S. (2020). Psychological effects of the Coronavirus disease-2019 pandemic. *Research & Humanities in Medical Education*, *7*, 23-26. Retrieved from https://www.rhime.in/ojs/index.php/rhime/article/view/264

- Reynolds, B., & Quinn, S. C. (2008). Effective communication during an influenza pandemic: the value of using a crisis and emergency risk communication framework. *Health Promotion Practice*, *9*(4), 13-17.

- Holmes, B. J. (2008). Communicating about emerging infectious disease: The importance of research. *Health, Risk & Society, 10*(4), 349-360. doi:10.1080/13698570802166431

5. Evalutaion of search

- Every search yield relevant articles
- Difficulties to find specific and good search terms
- Search terms about the general topic gave a good overview
- Using the reference list of relevant articles to find further articles