

Digital Communication During Crisis: The Example of The World Health Organization and The Ministries of Health in The Covid-19 Global Crisis

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Abstract

This study focuses on examining the crisis communication efforts of public institutions, specifically health ministries, over social media during the Covid 19 period, in terms of word use and sentiment analysis. In the study, content and sentiment analysis was carried out by text mining method, focusing on the Twitter posts of the ministries of health of the countries with the highest number of cases in the world, especially on the social media pages used within the framework of crisis communication. According to the results of the study, it has been found that the health ministries of the countries have different crisis communication orientations and integrate with different words and emotions during the Covid global crisis. According to the results, while the US Ministry of Health and Human Services came to the fore as the ministry with the most content consistency with the World Health Organization, it is found that the Ministry of Health of the Republic of Turkey approached the crisis with a broad perspective, and the Ministry of Health and Family Welfare of India carried out activities for perception management. When the results were examined in terms of sentiment analysis, it was found that the sentiments in the posts of the health ministries of the countries differed significantly from each other.

keywords: *communication, crisis communication, covid-19 crisis, digital communication, text mining.*

Résumé

La Communication Digitale en Temps de Crise : L'exemple de l'Organisation Mondiale de la Santé et des Ministères de la Santé pendant la Crise Mondiale de la Covid-19

Cette étude se focalise sur les efforts de la communication de crise sur les médias sociaux des institutions publiques, en particulier les ministères de la santé, pendant la période Covid-19, à l'égard de l'utilisation des mots et de l'analyse des sentiments. Dans cette étude, l'analyse du contenu et des sentiments des messages Twitter des ministères de la santé des pays avec le plus grand nombre de cas dans le monde a été effectuée par la méthode de fouille de textes. D'après les résultats de l'étude, pendant la crise mondiale de Covid-19 les ministères des pays avaient des tendances différentes de la communication de crise et les concrétiaient avec les mots et les sentiments différents. Selon les résultats, il est révélé que le Département de la Santé et des Services Sociaux des États-Unis est le ministère le plus cohérent avec l'Organisation Mondiale de la Santé, que le Ministère de la Santé de la République de Turquie aborde la crise avec une large perspective, et que le Ministère de la Santé et du Bien-être Familial du Gouvernement de l'Inde mène des activités de gestion de la perception.

mots-clés: *communication, communication de crise, la crise du covid-19, communication digitale, la fouille de textes.*

Öz

Kriz Döneminde Dijital İletişim: Covid-19 Küresel Krizinde Dünya Sağlık Örgütü ve Sağlık Bakanlıkları Örneđi

Bu çalışma kamu kurumları özelinde sağlık bakanlıklarının Covid 19 döneminde sosyal medya üzerinden sürdürdükleri kriz iletişimi çabalarının kelime kullanımı ve duygu analizi açısından incelenmesine odaklanmaktadır. Çalışmada, kriz iletişimi çerçevesinde kullanılmakta olan sosyal medya sayfaları özelinde dünya üzerinde en fazla vakaya sahip ülkelerin sağlık bakanlıklarının Twitter gönderilerine odaklanılarak metin madenciliđi yöntemi ile içerik ve duygu analizi gerçekleştirilmiştir. Çalışmanın sonuçlarına göre ülkelerin sağlık bakanlıklarının Covid küresel krizi sırasında farklı kriz iletişimi yönelimlerine sahip olduđu ve farklı kelime ve duygularla bütünleştikleri bulunmuştur. Sonuçlara göre, ABD Sağlık ve İnsan Hizmetleri Bakanlığı Dünya Sağlık Örgütü ile içeriksel olarak en çok tutarlıđa sahip olan bakanlık olarak öne çıkarken, Türkiye Cumhuriyeti Sağlık Bakanlığı'nın krize yönelik geniş perspektifle yaklaştığı, Hindistan Sağlık ve Aile Refahı Bakanlığı'nın algı yönetimine yönelik faaliyetler gerçekleştirdiđi ortaya çıkmıştır. Sonuçlar duygu analizi açısından incelendiđinde ise ülkelerin sağlık bakanlıklarının gönderilerindeki duyguların birbirinden önemli oranda farklılaştığı bulunmuştur.

anahtar kelimeler: iletişim, kriz iletişimi, covid 19 krizi, dijital iletişim, metin madenciliđi.

Introduction

There is an ongoing state of crisis in today's world due to Covid-19. This crisis occurs not on a regional basis but on a global one. This global crisis caused considerable amounts of problems in various lines of business and fields of operation. Many areas of work such as tertiary sector, transportation, and textile industry, have been negatively affected by the Covid-19 crisis. In addition to the organisational affects, Covid-19 has also had social impacts. These have forced public organisations to have an active role in the process.

Similar to private organisations, public organisations may find themselves in crisis situations because of their ways of conducting business. When the present crisis is considered, the current situation has its distinct characteristics. The Covid-19 crisis has nothing to do with an individual act committed or a statement made by an organisation. Covid-19, to be more specific, has put the entire world into a global crisis.

Ministry of Health is the first thing that comes to one's mind as far as the Covid-19 crisis and public organisations are concerned. Dealing with health crisis on a social scale is amongst the duties of the Ministry of Health. Individuals tend to receive information and instructions from the people in charge. Stepping in by authorities who oversee the situation would prevent information pollution and build a sense of mutual trust. Whereas the communicative dispositions of public organisations are significant at a macro scale, those of ministries of health are significant at a micro scale.

Communication stands out as the most crucial element in times of crisis. Managing and overcoming a crisis is not possible without communication. Organisations need to establish a way of communication that is mutual and interactive, not one sided. This necessity brings the issue of choosing the suitable medium within crisis communication. From a historical point of view, traditional media tools are generally used in times of crisis. Communication is primarily one-sided because traditional media tools are one-way (Alptekin, 2020, p. 149). However, the internet plays a significant role in crisis communication (Flew et al., 2014). Both private and public institutions can communicate with the masses through traditional media tools and social media. The internet, which promotes mutual communication rather than one-sided communication, taking part in the process of communication, accordingly, becomes a necessity.

Social media posts stand out as important forms of communication when the internet is included in the process of crisis communication. The characteristics of the posts shared by the organisations illuminate the way those organisations deal with a crisis. The choice of words and the way in which an issue is expressed become as important as the issue itself because words have certain connotations and the meanings associated with those words influence people's behaviour. This study, accordingly, will examine the Twitter posts of the Ministries of Health in

the countries with the highest number of confirmed cases of Covid-19 in terms of sentiment and the choice of words. The data from the official Twitter accounts of the organisations are collected through userTimeline. RStudio software program enables retrospective access to 3200 tweets. Within the scope of this study, 2721 Twitter posts have been accessed between 19.03.2021-22.04.2021. Moreover, the study will focus on the communication strategies implemented by the public organisations in times of crisis with a comparative approach. The study will make use of text mining in terms of content and sentiment analysis.

Crisis Communication and the Use of Social Media

The origin of the word crisis dates back to ancient times. The word crisis has its roots in Ancient Greek, where it means “separating”, whereas in Chinese it is expressed by the two symbols “wei ji”, which come to mean “danger” and “opportunity” (Weiner, 2006, p. 6; Pira and Sohodol, 2012, p. 23). What the word crisis means today is something significant to discuss.

Crisis is defined as situations which threaten the existence of an organisation, cause time pressure, put decision-makers in difficult position, and create overwhelming pressure (Güreşçi, 2020, p. 55). Crisis, in other words, disrupts organisations’ ability to predict, puts the goals and even the existence of organisations at risk, reduces the available reaction time, and causes unexpected tension (Pira and Sohodol, 2012, p. 25). Crisis, accordingly, refers to the situations that disrupts the status quo. Put it differently, crisis is a disruptive situation which organisations would prefer to avoid and thus needs to be resolved in a short span of time. Crisis is a set of circumstances which either affects an organisation entirely or has the potential to do so. If only a small part of an organisation is affected, then the situation may not be considered as a crisis. Crisis, in plainest terms, refers to the price that an organisation pays or might pay as a consequence with its property, financial gain, reputation, and so on (Mitroff and Anagnos 2001, p. 34–35).

The concept of crisis needs to be constraint within the borders of corporate perspective. Perhaps one of the most significant impacts of crisis, which causes devastating consequences for an organisation, can be observed on stakeholders. This impact can be physical, financial, or psychological (Coombs, 2010, p. 19). Therefore, crisis and its potential effects need to be discussed from various vantage points.

Crisis situations are not something unnatural for organisations. Even though organisations would like to avoid crisis situations, they may find themselves in one in unexpected moments. Crises, therefore, should be managed on a reactive basis—that is, organisations need to take immediate action when facing a crisis. The word “potential” is commonly used for crisis situations. This refers to the possibility of the executives to prevent or reduce the effects of crises (Coombs, 2010, p. 19). Crises, therefore, can be managed on a reactive or a proactive basis.

Crises should be approached proactively within the context of crisis management. Crisis management is much more than a mere reaction; it includes prevention and preparation (Coombs, 2010, p. 19). Furthermore, crisis management fundamentally makes use of communication. The concept of communication is always the focal point when it comes to crisis, whether in the stage of prevention and preparation or of the emergence of the crisis. As far as crises, which are processes of management, are concerned, therefore, the concept of communication should always be taken into account.

“Crisis communication is the management of the communication made with the internal and external environment” (Civelek et al., 2016, p. 114). “Crisis communication is a verbal, visual, and/or written interaction (usually via media) between an organisation and its stakeholders before, during, and after a disruptive event” (as cited in Reynolds and Seeger, 2005, p. 46). In general terms, then, crisis communication refers to all forms of communication with the public.

Crisis communication is designed to minimise the damage, provide information to the stakeholders, manage the perceptions regarding accusation and responsibility, provide help and support, justify actions taken as well as to explain, learn, and change (Reynolds and Seeger, 2005, p. 46). Crisis information, in other words, is used to re-establish social legitimacy (Coombs et al., 2010, p. 340). Crisis causes an organisation’s legitimacy to be questioned and the best response to be given to it by the organisation is communication. Crisis communication is a vital part of crisis management. Overcoming crisis and establishing legitimacy are not possible without the aid of communication.

Crisis communication aims to prevent or minimise the potential negative outcomes. It makes use of informative communication for that (Spence et al., 2007, p. 541). Clarity and reliability are important in terms of crisis communication (Karaağaç, 2013, p. 126). The basic rule of crisis communication is to tell the truth (Nikolaev, 2010, p. 274). Accurate information regarding the crisis needs to be provided to the public. Hence the importance of communication channels.

Perception management is one of the topics to be discussed in crisis management. It can be said that state administrators and politicians use perception management to communicate well with the people or masses they deal with, to influence the people and masses they address, and to have a say over the people and masses. From this perspective, regardless of the name of the work done, states, international organizations, non-governmental organizations, companies, individual people who want to be perceived positively by the target audience, who want to keep their image and reputation strong, and individuals who want to take a correct place in the minds of the people and masses they deal with and change their perceptions. They use perception management to influence behaviors and activities.

Etymologically, the term “perception” is derived from French and literally refers to the collection of rents by feudal landlords. The term perception has an etymological meaning as receiving, collecting, understanding, measuring. Perception in the Turkish Language Association dictionary (2023) is defined as “becoming conscious of something by paying attention to it” while the verb ‘to perceive’ is defined as “perceiving an event or the existence of an object with the sense organs, comprehending”. Perception management is a combination of accurate information as well as deception and other psychological influencing elements (Online Etymology Dictionary, 2023).

According to Siegel (2005), perception management strategies have three main purposes. These purposes can be stated as creating and maintain public support at home and abroad in order to create a basis for legitimacy and maintain this legitimacy, communicating intentions and objectives to opponents and/or third parties so that they fully understand the consequences of their actions, and guiding the attitudes and behavior of local people so that they act in accordance with the objectives of the perception management implementer.

In order to achieve the final goals by applying perception management strategies, some of the stages and rules that must be implemented are as of identifying all social stakeholders who may affect the results of the issue on which the perception management strategy will be implemented; using basic communication techniques that can reach the minds and emotional structures of social stakeholders; understanding that actively listening to the target audience and the elements of mutual interaction and dialogue are very important in terms of perception; the style to be used when shaping the messages of the subject must be appropriate to the value judgments, attitudes and cultural characteristics of the target audience; and in order to establish a symmetrical communication in mutual interaction with the target audience, creating a common mind about the target audience and benefiting from feedback in this context (Türk, 2014, p. 19).

Traditional communication channels are the first things that come to people’s mind as far as crisis communication is concerned. Before the use of the internet became widespread, organisations had submitted press releases to the media in order to share information about the crisis with the public (Frandsen and Johansen, 2010, p. 436). In addition to this form of communication in which gate-keeping is of significance, organisations have the opportunity to represent themselves visually in the media. Such forms of communication, however, prioritise one-sided communication. Although perhaps not as one sided as the communication via press release, one of the people in charge holding a press conference where s/he answers certain questions is also a form of one-sided communication. The reason for that is there is time constraint in a press conference and the selection of the journalists who will be asking questions raises the question of objectivity. What’s more, it is not possible for the members of the public to be individually become a part of this process.

With the rise of the internet, however, there has been some changes. It made two-sided communication possible more than it ever was and changed the extent of interaction in terms of time and space. Thanks to the internet, people can reach out to organisations any time they want. It also made the dismissal of the mediators possible for both the individuals and the organisations. This has affected the process of crisis communication. Ignoring the need for a two-sided communication can be regarded as a potential disaster in today's world (Gainey, 2010, p. 309).

Digitalization covers and expresses automation in the shortest and most basic sense. In addition, the concrete example of digitalization is the information-based products produced by many companies without incurring inventory costs and transportation costs (Yüksel and Şener, 2017). In new communication technologies emerging with digitalization, there are versatile digital channels that are not available in traditional media and publishing systems and, as a result, interactive media alternatives. In the literature, these media alternatives have five basic features which are numerical representation, modularity, automation, variability, and transcoding (Başlar, 2013, pp. 775-781; İrge, 2012, pp. 64-79; Dilmèn ve Öğüt, 2006, p. 20; Manovich, 2001, pp. 53-64; Abanoz, 2017, p. 287).

The internet and social networks, which provide an intense and fast flow of information in the digital world, have changed all habits. Virtual environments, where individuality is at the forefront, transform social norms by causing changes in living spaces. On the other hand, the networks in the online environment that emerged with the development of technology have, in a sense, been reduced to networks within society. When we look at today's societies; we see that they use networks in almost every social, economic, and political field. These societies, which spend most of their lives intertwined with technology. In other words, digital communication is a communication opportunity that provides information transfer through the latest technologies without time and space limitations. Social media, which is one of the platforms that individuals use to communicate in this networked society, is effective in discovering what people are talking about, making predictions on potential crises, making communication with the public during crises (Yenice et al., 2018, p. 4). It would be safe to say that social media has become a central element of crisis communication plans.

Many crises that have happened showed the importance of using social media effectively (Austin et al., 2012, p. 189). Inclusion of social media in the crisis communication plan has turned into a necessity. People follow traditional media along with social media during times of crisis and comment on the statements made by organisations. These comments are shaped both by the posts shared by the organisation and by the communication that individuals make in the digital world. Therefore, organisations not keeping up with the digital world would be in a disadvantageous position in terms of preventing information pollution. Not being able to access accurate information in times of need, people would tend to look for the sources that are not reliable.

As mentioned above, crisis also means opportunity. Crisis is a turning point, in which things can become either better or worse (Fink, 1986, p. 15). Apart from the fact that crises can be destructive, they can also be regarded as an element of transformation for the organisations (Topcu, 2017, p. 80). The organisations that do not approach crises situations with a certain awareness may disappear, whereas the ones that have developed a certain understanding towards crises may find themselves in a much better situation in its aftermath. Put it differently, crisis situations test organisations, and the actions that they take either improve their image publicly or put them in a worse position. Public opinion, therefore, has the power to shape the perception of an organisation and its future.

It is important how the crisis is handled at the stage of turning the crisis into an opportunity. The message strategy during the crisis is decisive at this stage. Institutions can create many different strategies for crises. Coombs (1995, pp. 450-453) defines crisis-response strategies under five subcategories which are nonexistence strategies, distance strategies, ingratiation strategies, mortification strategies, suffering strategy. Nonexistence strategies include denial, clarification, attack, intimidation; distance strategies have excuse and justification, ingratiation strategies include bolstering, transcendence, praising others; mortification strategies consist of remediation, repentance, and rectification. Nonexistence strategies involve creating arguments that the crisis does not exist. It is assumed that if there is no crisis, there will be no negative attitudes to associate with the institution. Distance strategies are characterized by making a weak connection with the crisis. If the connection is weak, it is thought that the drying effect will be less. Public approval is sought in Ingratiation Strategies. Attempts are made to exhibit behaviors that will be appreciated by the public. Mortification strategies focus on being accepted and forgiven. The Suffering strategy, on the other hand, tries to create sympathy in the eyes of the public by positioning the organization as a victim. Benoit (1997) also focuses on certain behavioral patterns in times of crisis under the name of Image Restoration Strategies which include categories as denial, evasion of responsibility, reducing offensiveness of event, corrective action, and mortification. These strategies also differ within themselves and include action plans such as denial of the action, attributing the responsibility of the action to external factors, lack of information, claiming that the action was an accident or in good faith, trying to justify the action, directing the action to important points, compensating for the damages of those affected by the action, solving the problems and apologizing, etc. While discussing crises, Travers (1998) focuses on the defense mechanism and makes a classification as denial, disavowal, fixation, grandiosity, idealisation, intellectualisation, projection, splitting. Accordingly, behaviors such as accepting the truth, rejecting the truth, reducing the effect of the truth, attributing the reasons to external factors, framing certain points emerge.

In today's world, social media is as important for the public organisations as it is for the private ones. The use of social media by municipalities, ministries, embassies, governorates, universities, and so on has been the subject of vari-

ous studies (Solmaz and Görkemli, 2012; Erkek, 2016; Çömlekçi, 2019; Günmüş, 2018; Gündoğdu and Kılıç, 2017; Samur, 2020; Güçoğlu, 2019). The use of social media, which is quite popular under normal circumstances, becomes useful in terms of crisis communication because crisis goes beyond the private organisations. Just as public organisations may face crises on their own, they can become competent authorities in times of a global crisis and thus oversee crisis management. The Covid-19 crisis, whose occurrence had nothing to do with the public organisations' ways of conducting business, can be a good example that shows that public organisations can sometimes be regarded as the leading authority in crisis communication.

Ministries of health have been in charge of maintaining communication during the Covid-19 crisis. People have been receiving the necessary information regarding the crisis from their country's Ministry of Health. The way that organisations deal with a crisis, accordingly, is significant.

There are many topics of discussion on the use of social media in crisis communication. The posts shared via social media are important in times of crisis and it should be noted that these posts construct meaning. The content of a post and the specific use of certain words, therefore, are crucial in terms of the way that the crisis is being handled and of sentiment analysis. Many research have so far proved that social media has been actively used in crisis situations (Graham et al., 2015; Zhu et al., 2017; Cho et al., 2013; Flew et al., 2014). Graham et al., (2015) examined the role of social media use in crisis management with the data obtained through surveys from more than 300 local government officials working in municipalities in the USA. According to the results of the research, a positive relationship was determined. Zhu et al., (2017) focused on the challenges and opportunities that social media presents to multinational companies in crisis situations. They examined how McDonald's and KFC used social media in the management of crises. BunCho et al., (2013) investigated the use of social media during the 2011 earthquake in Japan. They tried to explain how the focus of the relationship between social media and crisis is transformed when there is a social crisis in the era of social media. In the research, the Twitter account of the Japanese government was examined. According to the results of the research, the government's tight control over crises and the traditional leadership role facilitating communication are not clearly revealed through Twitter. Flew et al., (2014) proceeded from the point that although the media has long been used to spread messages in many crisis phases such as forest fires and floods, social media has become more important with its dissemination opportunity. In the study examining the floods in Brisbane and Southeast Queensland in Australia in January 2011 and the February 2011 earthquake in Christchurch, New Zealand, the two key issues that emerged with social media in crisis communication events were defined as authority/trust and coordination. In addition to focusing on whether social media is used actively or not, the quality of content needs to be examined.

Method

The aim of the study is to put the endeavors of the World Health Organization and the ministries of health in communicating with the public on social media during the Covid-19 crisis under scrutiny in terms of the use of words and sentiment analysis.

In the research, an attempt has been made to find answers to questions such as: "What are the prominent words/themes in the sharing of the World Health Organization and the relevant ministries of the countries?", "Is there contentual consistency in the posts of the ministries of the countries related to the World Health Organization?" and "Which emotions come to the fore in the posts of the World Health Organization and the relevant ministries of the countries?"

In the research, since it is not possible to access the accounts of all countries in the World Health Organization Coronavirus (Covid-19) Dashboard, which constitutes the universe, voluntary sampling was used while creating the sample (Ergin, 1994: 91) and the first ten countries in the list were included in the scope. World Health Organization Coronavirus (Covid-19) Dashboard shows that as of 21 April 2021 11:51, there had been 142.238.073 confirmed cases of Covid-19, including 3.032.124 deaths (WHO, 2021). The table below displays the dashboard of top ten confirmed cases of Covid-19 by countries. The scope of the study consists of the digital communication efforts and channels of World Health Organization, which is an agency of the United Nations, of the ministries of health in the top ten countries that have been affected by the Covid-19 pandemic. The sample of the study includes the Twitter posts shared by the official accounts of World Health Organization and the ministries of health of the ten countries with the highest number of confirmed cases of Covid-19.

Table 1. Dashboard of Top Ten Confirmed Cases of Covid-19 by Countries

Number	Country	Number of Confirmed Cases
1	USA	31,350,021
2	India	15,616,130
3	Brazil	13,973,695
4	France	5,214,493
5	Russia	4,718,854
6	England	4,390,787
7	Turkey	4,323,596
8	Italy	3,878,994
9	Spain	3,428,357
10	Germany	3,163,308

Source: WHO, 2021

The study employs qualitative research paradigm. The data is collected through RStudio (R Core Team, 2021), which is a software for statistical analysis. The study first detects the most frequently used words in the posts by text mining methods, followed by sentiment analysis. Text Mining is the process of obtaining previously unknown, potentially useful, structured and organized data from the unstructured and irregular electronic text stacks. With the information obtained, relationships, hypotheses and trends that are not clearly seen in the analyzed text sources are identified. Although Text Mining is considered as a part of data mining, it is different from conventional data mining. The main difference is that in Text Mining, patterns are extracted from natural language texts rather than event-based databases. Sentiment analysis, or opinion mining, is an active field of study in the field of natural language processing that analyzes people's thoughts, feelings, evaluations, attitudes, and feelings through calculated treatment of subjectivity in text (Pandey, 2018). Sentiment analysis is simply the process of studying (statistically) whether a piece of text is positive, negative, or neutral.

Adopting a retrospective approach, the study analyses April 2021 and before, when the pandemic reached one of its peaks through various mutations discovered in many countries including Turkey (IHME, 2022). A comparative analysis is made through ten countries. The official Twitter account of the Ministry of Health of Russian Federation (Министерство Здравоохранения Российской Федерации - Минздрав РФ / @MINZDRAV_RF) has been excluded by the programming language due to the alphabet.

The data from the official Twitter accounts of the organisations are collected through userTimeline. RStudio software program enables retrospective access to 3200 tweets. Within the scope of this study, 2721 Twitter posts have been accessed between 19.03. 2021-22.04.2021. The codes used have been taken and adopted from Tunçay's (2020) doctoral thesis study which examined the digital communication activities and management of public diplomacy actors. The tweets that have been collected are transformed into data frame through text mining methods and saved as CSV. Furthermore, text stemming has been conducted and data purging is done by building corpus.

Findings

In this part of the study, the results obtained from frequency analysis and sentiment analysis will be presented. The study first detects the most frequently used words. The relevant data is provided in Table 2. In the table, the dates given are different due to the fact that the program automatically determines it while withdrawing tweets retrospectively.

Table 2. Official Twitter Accounts of Organizations and The Words Used for More Than Twenty-five Times in Posts

Account	Words
World Health Organization World Health Organization (WHO) @WHO 19.04.2021-22.04.2021	Covid (64), health (24), people (22), global (17), diabetes (14), support (12), vaccines (11), vaccine (11), world (10), countries (9), now (9), Tedros Adhanom Ghebreyesus / Director-General of WHO (drtedros) (9), emergency (8), live (8), new (8), today (8), committee (8), million (8), recovery (7), youth (7), healthy (7), young (7), chagasdisease (7), April (6), cases (6), pandemic (6), briefing (5), last (5), vaccination (5), climatechange (5), need (5), care (5), mobilization (5), year (5), make (5), media (5), months (5), protect (5), help (5), international (5), join (5)
U.S. Department of Health & Human Services HHS.gov @HHSgov 08.04.2021-21.04.2021	Covid (9), help (6), health (6), month (6), U.S. Department of Health & Human Services (hhs) (5), Centers for Disease Control and Prevention (cdcgov) (4), national (4), join (4), fully (3), reminders (3), observe (3), vaccine (3), news (3), best (3), tips (3), today (3), minority (3), million (3), long (3), throughout (3), travel (3), ways (3), sharing (3)
Ministry of Health & Family Welfare, Government of India Ministry of Health @MoHFW_INDIA 20.04.2021-21.04.2021	Unitefightcorona (17), largestvaccinedrive (8), remdesivir (6), states (5), doses (5), new (4), vaccine (4), account (3), cases (3), administrated (3), last (3), total (3), Covid (3), cumulative (2), irrational (2), States and Union Territories (stateuts) (2), coverage (2), lach (2), upward (2), India (2), given (2), hours (2), trajectory (2), doctors (2), till (2), daily (2), vaccination (2)
Ministry of Health (Brazil) Ministério da Saúde Ministério da Saúde @minsaude 14.04.2021-21.04.2021	Health (saúde) (665), Covid (Covid) (557), ministry (ministério) (520), Brazil (Brasil) (361), ministry (ministério) (349), more (mais) (306), against (contra) (254), information (informações) (187), millions (milhões) (171), vaccination (vacinação) (166), update (atualização) (161), daily (diariamente) (165), statement (divulga) (158), ministry (ministro) (145), doses (doses) (133), vaccines (vacinas) (132), have (tem) (127), movements (ações) (121), Pazuello / minister of health (pazuello) (104), vaccine (vacina) (103), combat (combate) (92), today (hoje) (90), morning (dia) (90), fur (pelo) (81), pandemic (pandemia) (80), national (nacional) (85), attention (atenção) (70), coronavirus (coronavirus) (67), support (apoio) (65), patients (pacientes) (63)
Minister for Solidarity and Health (France) Ministère des Solidarités et de la Santé Ministère des Solidarités et de la Santé @Sante_Gouv 10.04.2021-22.04.2021	Covid (37), injections (injections) (25), vaccination (vaccination) (19), April (Avril) (12), second (secondes) (12), first (premières) (12), realised (réalisées) (6), people (personnes) (5), mobilisation (mobilisationufe) (4), Olivier Veran / minister of health (olivierveran) (4), health (santé) (4), do (faire) (4), (aim) (visant) (3), year (ans) (3), law (lio) (3), can (peuvent) (3), hospitals (hôpitaux) (3), face (face) (3), misdemeanours (délits) (2), crimes (crimes) (2), violence (violences) (2), incest (inceste) (2), sexual (sexuels) (2), anti-Covid (tousanti-covid) (2), assurance (assurance) (2), need (besoin) (2), virus (virüs) (2)
Department of Health and Social Care (UK) Department of Health and Social Care @DHSCgovuk 18.04.2021-22.04.2021	vaccine (14), health (9), people (9), help (6), using (6), mental (6), England (6), rapid (6), figures (5), doses (5), update (5), daily (5), total (5), testing (5), hear (4), now (4), free (4), independent (4), check (4), protection (4), vaccination (4), next (3), consultation (3), stick (3), regular (3), millions (3), act (3), tests (3), women (3), protect (3), changes (3), watch (3), dose (3), better (3).

<p>Ministry of Health (Turkey) Türkiye Cumhuriyeti Sağlık Bakanlığı T.C. Sağlık Bakanlığı @saglikbakanligi 29.03.2021-22.04.2021</p>	<p>Smoke (sigara) (10), Covid (9), healthy Ramadan (sağlıklı Ramazan) (6), Ramadan (Ramazan) (4), Fahrettin Koca / minister of health (3), centre (merkezi) (3), to be (olmak) (3), healthy (sağlıklı) (3), enough (yeterli) (3), risk (riskini) (3), often (sık) (3), protect (korumak) (3), against (karşı) (3), early (erken) (3), our minister (bakanımız) (3), autism (otizm) (3), do (yapın) (3), increase (arttırır) (3), symptoms (belirtileri) (3), pain (ağrı) (3), your health (sağlığınızı) (2), soup (çorba) (2), hello (alo) (2), diagnosis (teşhis) (2), cancer (kanser) (2), world (dünya) (2), drug (uyuşturucu) (2), harmful (zararlı) (2), education (eğitim) (2), tobacco (tütün) (2), sahur (sahurda) (2), vaccine (aşısı) (2), treatment (tedavi) (2), heart (kalp) (2), leave (bırakma) (2), mental (zihinsel) (2), expose (maruz) (2), cheese (peynir) (2), be protected (korunmak) (2), disease (hastalığı) (2), breast (meme) (2), neglect (ihmal) (2), iftar (iftarda) (2), mild (hafif) (2), baby (bebeğin) (2), mhrs (2), consultation (danışma) (2), exercise (egzersiz) (2), health (sağlık) (2)</p>
<p>Ministry of Health (Italy) Ministero della Salute Ministero della Salute @MinisteroSalute 19.03.2021-22.04.2021</p>	<p>Covid (91), situation (situazione) (64), February (Febbraio) (30), April (Aprile) (29), March (Marzo) (25), monitoring (monitoraggio) (15), direct (diretta) (13), health (salute) (10), prof (prof) (9), comment (commento) (8), report (report) (8), published (pubblicato) (8), week (settimana) (8), anti (anti) (7), data (dati) (7), January (Gennaio) (7), vaccines (vaccini) (7), minister (ministro) (5), Rober Speranza / minister of health (robersperanza) (5), vaccine (vaccino) (3), world (mondiale) (3), thousands (mila) (3), Astrazeneca vaccine (astrazeneca) (3), year (anni) (3), disease (malattia) (3), today (oggi) (3)</p>
<p>Ministry of Health (Spain) Ministerio de Sanidad Ministerio de Sanidad @sanidadgob 16.04.2021-22.04.2021</p>	<p>Carolina Darias / minister of health (carolinadarias) (32), Ministry of Health (sanidadgob) (24), Covid (24), today (hoy) (23), minister (ministra) (22), Spain (España) (20), inform (informa) 813), data (datos) (11), dose (dosis) (11), vaccination (vacunación) (10), coronavirus (coronavirus) (10), update (actualización) (10), exercise (actividad) (10), infographics (infografías) (10), covid vaccine (vacunacovid) (10), health (salud) (10), find out (infórmate) (8), millions (millones) (8), people (personas) (7), schedule (agenda) (7), country (pais) (6), health (salud) (5), wheel (rueda) (5), press (prensa) (5), great (gran) (5), new (nuevas) (5), vaccines (vacunas) (5)</p>
<p>Almanya Federal Sağlık Bakanlığı Bundesministerium für Gesundheit BMG @BMG_Bund 31.03.2021-22.04.2021</p>	<p>Jens Spahn / minister of health (jensspahn) (10), give (gibt) (5), corona vaccine (coronaschutzimpfung) (4), sleeve-high (ärmelhoch) (4), weeks (wochen) (4), have to (wochen) (3), vaccine doses (impfdosen) (3), Germany (deutschland) (3), obtain (erhalten) (3), suicide (selbsttötung) (2), informed (informiert) (2), contacts (kontakte) (2), vaccination (impfung) (2), magic (magie) (2), podcast (podcast) (2), pandemic (pandemia) (2), let (lassen) (2), number (zahl) (2), acts (handelt) (2), Astrazeneca vaccine (astrazeneca) (2), test (testen) (2), Covid (2), emergency brake (notbremse) (2), prof (prof) (2), possible (möglich) (2), vaccination campaign (impfkampagne) (2), further (weitere) (2)</p>

Table 2 shows that the most frequently used words by the World Health Organization are 'Covid', 'health', 'people', and 'global'. U.S. Department of Health and Human Services most frequently used 'Covid', 'help', 'health'; Ministry of Health and Family Welfare, Government of India 'unitefightcorona', 'largestvaccinedrive', 'Remdesivir'; Ministry of Health of Brazil 'health', 'Covid', 'ministry'; Ministry for Solidarity and Health of France 'Covid', 'injections', 'vaccination'; Department of Health and Social Care of UK 'vaccine', 'health', 'people'; Ministry of Health of Turkey 'smoke', 'Covid', 'healthy Ramadan'; Ministry of Health of Italy 'Covid', 'situation', 'February'; Ministry of Health of Spain 'Carolina Darias' (minister of health), 'Ministry of Health', 'Covid'; Federal Ministry of Health of Germany 'Jens Spahn' (minister of health), 'give', and 'corona vaccination'. It can be observed that the posts shared by the World Health Organization, which is an agency of the United Nations, were appropriate in terms of trends of the day.

As for the countries, except for United Kingdom and Germany, 'Covid' is amongst the most frequently used words. Ministry of Health and Family Welfare, Government of India distinguishes itself from the rest with the most frequently used words being 'unitefightcorona' and 'largestvaccinedrive'. Similarly, World Health Organization, France, United Kingdom, Turkey, and Germany often shared posts that were related to the diseases other than Covid-19. Another interesting thing to note is that 'smoke' is the most frequently used word by the Ministry of Health of Turkey. This demonstrates that while fighting against the Covid-19 pandemic, the Ministry of Health of Turkey also fought against the unhealthy consumption patterns such as smoking, which increases one's chances of being exposed to coronavirus. India (Remdesivir), Italy (Astrazeneca), and Germany (Astrazeneca) shared posts that included the names of the vaccines or drugs that were developed against Covid-19. Whereas some ministries included sentimental expressions like 'lach' (India) in their posts, the words such as 'Ramadan' (Turkey) and 'travel' (USA) that were trend words for daily life were also used. Lastly, another striking fact is that the Ministry of Health of Brazil, France, Turkey, Italy, Spain, and Germany as well as World Health Organization frequently included the names of the ministers in their posts.

The next chapter of the study conducted sentiment analysis, which provided a more detailed comparison. Syuzhet v1.0.6 package of RStudio software (RDocumentation, 2021) has been used for the analyses within this section. The sentiment lexicon of R package is as follows: anger, anticipation, disgust, fear, joy, sadness, surprise, trust, negative, and positive. In the table below, the findings have been given. In the table, the sentiments that are found in the analyses are represented by giving numbers (1st – 10th) to show their rank found in the context.

Table 3. Sentiment Analysis Results

Account	1 st	2 nd	3 rd	4 th	5 th	6 th	7 th	8 th	9 th	10 th
WHO	positive	trust	negative	anticipation	fear	joy	sadness	surprise	anger	disgust
HHSGov	positive	trust	negative	anticipation	fear	joy	sadness	anger	surprise	disgust
MoHFW_INDIA	trust	positive	negative	fear	anticipation	anger	disgust	sadness	surprise	joy
min-saude	trust	positive	negative	anticipation	anger	fear	disgust	sadness	surprise	joy
Sante_Gouv	positive	negative	fear	trust	sadness	anticipation	anger	disgust	joy	surprise
DHSCgovuk	positive	trust	anticipation	surprise	negative	fear	joy	sadness	anger	disgust
saglik-bakanligi	positive	surprise	anticipation	joy	sadness	negative	disgust	anger	fear	trust
Ministry of Health of Italy	joy	positive	fear	negative	anger	disgust	sadness	surprise	anticipation	trust
sanidad-gob	positive	trust	negative	anticipation	fear	anger	disgust	joy	sadness	surprise
BMG_Bund	negative	fear	sadness	anticipation	trust	disgust	joy	surprise	positive	anger

Sentiment analysis of the posts shared by the World Health Organization (WHO) between 19.04.2021-22.04.2021 shows that they mostly include positive sentiment. It is followed by trust, negative, anticipation, fear, joy, sadness, surprise, anger, and disgust. Sentiment analysis of the posts shared by the U.S. Department of Health and Human Services between 08.04.2021-21.04.2021 shows that they mostly include positive sentiment. It is followed by trust, negative, anticipation, fear, joy, sadness, anger, surprise, and disgust. Sentiment analysis of the posts shared by the Ministry of Health and Family Welfare, Government of India between 20.04.2021-21.04.2021 shows that they mostly include the sentiment of trust. It is followed by positive, negative, fear, anticipation, anger, disgust, sadness, and surprise. Joy is not amongst the detected sentiments. Sentiment analysis of the posts shared by the Ministry of Health of Brazil between 14.04.2021-21.04.2021 shows that they mostly include the sentiment of trust. It is followed by positive, negative, anticipation, anger, fear, disgust, sadness, surprise, and joy. Sentiment analysis of the posts shared the Ministry for Solidarity and Health of France between 10.04.2021-22.04.2021 shows that they mostly include positive sentiment. It is followed by negative, fear, trust, sadness, anticipation, anger, disgust, and joy. Surprise is not amongst the detected sentiments. Sentiment analysis of the posts shared by the Department of Health and Social Care of UK between 18.04.2021-22.04.2021 shows that they mostly include positive sentiment. It is followed by trust, anticipation, surprise, negative, fear, joy, sadness, anger, and disgust. Sentiment analysis of the posts shared by the Ministry of Health of Turkey between

29.03.2021-22.04.2021 shows that they mostly include positive sentiment. It is followed by surprise, anticipation, joy, sadness, negative, and disgust. Anger, fear, and trust are not amongst the detected sentiments. Sentiment analysis of the posts shared by the Ministry of Health of Italy between 19.03.2021-22.04.2021 shows that they mostly include the sentiments of joy and positive. They are followed by fear, negative, anger, disgust, sadness, and surprise. Anticipation and trust are not amongst the detected sentiments. Sentiment analysis of the posts shared by the Ministry of Health of Spain between 16.04.2021-22.04.2021 shows that they mostly include positive sentiment. It is followed by trust, negative, anticipation, fear, anger, disgust, joy, sadness, and surprise. Sentiment analysis of the posts shared by the Federal Ministry of Health of Germany between 31.03.2021-22.04.2021 shows that they mostly include negative sentiment. It is followed by fear, sadness, anticipation, trust, disgust, joy, surprise, and positive. Anger is not amongst the detected sentiments.

Sentiment analyses of the posts illustrate that whereas the posts shared by the World Health Organization and the ministries of the USA, France, United Kingdom, Turkey, and Spain include positive sentiment, the ones shared by the ministries in India and Brazil include trust, and the ones shared by the ministry in Germany include negative sentiment. The ministry in Italy distinguishes itself due to its posts including equal amount of joy and positive sentiment. While the posts shared by the ministry in India does not include joy and France surprise, the ones shared by the ministry in Turkey does not include anger, fear, and trust. Moreover, the posts shared by the ministry in Italy does not include trust, whereas the ones shared by the ministry in Germany does not include anger. Lastly, the graphs show that the order of the sentiments is the same for both World Health Organization and USA.

Conclusion

Crisis is something that whose potential occurrence poses a threat to all organisations. All organisations might face a crisis notwithstanding the industry or the sector they are part of and whether they are public or private and for-profit or not. This makes it a necessity that organisations should always take the possibility of a crisis into account and develop proactive approaches accordingly. Also necessary is that crises should be handled individually by the private organisations and an approach should be developed about global crises.

Communication is a fundamental necessity for organisations in times of crisis. In addition to whether communication is being made or not in crisis situations, how it is made is also a significant topic of discussion. There are two focal points to be dwelled on within this context: which medium or channel is used for communication and how the statement is expressed. The crisis communication dispositions of the organisations demonstrate that social media has become a part of crisis communication. The quality of communication,

however, is also something to take into consideration. To be more specific, the words and sentiments that are included in the communication efforts should be put under scrutiny.

This study, accordingly, focuses on the endeavours of ministries of health in communicating with the public on social media in a time of global crisis. Nowadays, health professionals are not considered as a sole source of reference for current health information. Today, as in many subjects, current information in the field of health is accessed through media tools. Especially with the discovery of the internet, the information accessed through social media tools has gradually increased and provided individuals with access opportunities far beyond the boundaries drawn by traditional media.

The findings of the study show that countries' ministries of health and World Health Organization maintained communication with the public regarding the process of crisis on social media. The posts shared by the ministries of health display that with the exception of United Kingdom and Germany, 'Covid' is amongst the most frequently used word. In the posts shared by the Ministry of Health and Family Welfare, Government of India, the most frequently used expressions appear to be 'unitefightcorona' and 'largestvaccinedrive'. This way of posting is distinct because it puts forward a catchy slogan which is devised to mobilise people.

The analyses made on the posts shared by World Health Organization, France, the United Kingdom, Turkey, and Germany display that some of the shared posts were not necessarily related to Covid-19. 'Smoke', for example, is one of the most frequently used words in the posts shared by the Ministry of Health of Turkey. This shows that organisations enlarge the scope of their approach to Covid-19 by pointing out the other diseases that might have an effect on the Covid-19 pandemic. Moreover, it was observed that India (Remdesivir), Italy (Astrazeneca), and Germany (Astrazeneca) shared posts that frequently included the names of the vaccines or drugs that were developed against Covid-19. Whereas some ministries included sentimental expressions like 'lach' (India) in their posts, it was observed that the words such as 'Ramadan' (Turkey) and 'travel' (USA) that were trend words for daily life were also used. Lastly, the study emphasised that the Ministry of Health of Brazil, France, Turkey, Italy, Spain, and Germany as well as World Health Organization included the names of their ministers in their posts in a repetitive fashion.

Sentiment analyses of the posts lay bare that whereas the posts shared by the ministries of the World Health Organization, USA, France, United Kingdom, Turkey, and Spain include positive sentiment, those shared by the Federal Ministry of Health of Germany include negative sentiment. Whereas in the posts shared by the ministries in India and Brazil the sentiment of trust was detected, in the ones shared by the ministry in Italy equal amount of joy and positive sen-

timent were detected. While it was observed that joy in the posts shared by the Ministry of Health and Family Welfare, Government of India was non-existent, surprise in the ones shared by the Ministry for Solidarity and Health of France; anger, fear, and trust in the ones shared by the Ministry of Health of Turkey; anticipation, trust, and joy in the ones shared by the Ministry of Health of Italy; anger in the ones shared by Federal Ministry of Health of Germany were also non-existent. Finally, the ranking of the sentiments included in the posts shared by the World Health Organization and the U.S. Department of Health and Human Services appears to be the same, while differing in terms of their amount.

The findings of the study show that each ministry of health has its distinct characteristics in terms of word choices and sentiment when it comes to crisis communication. Each ministry of health, accordingly, conceptualises crisis differently. India, in particular, succeeds at perception management thanks to its use of slogans in its communication efforts. The Ministry of Health of Turkey, on the other hand, is observed to widen its perspective on coronavirus not only by sharing posts that are explicitly on Covid-19 but also by sharing implicit ones (i.e., smoking increases one's chances of being exposed to coronavirus), thereby dealing with health issues in a broader sense instead of focusing solely on coronavirus. The posts shared by the U.S. Department of Health and Human Services and the World Health Organization appear to be quite similar. This shows how successful the U.S. Department of Health and Human Services is in being consistent in keeping up with the World Health Organization.

When the results of this research are compared with previous research, certain similarities emerge. As stated in the studies of Graham et al., (2015), Zhu et al., (2017), Cho et al., (2013), Flew et al., (2014), social media and in this context, twitter are frequently used in times of crisis. emerges as a popular platform. It is seen that the institutions covered in the research actively use Twitter during the crisis. However, unlike the related studies, this research focused on the meaning and emotions revealed by the shares beyond Twitter activities, and the research differed in this respect. It can be suggested that future research will make a comparison in the use of social media tools within the framework of different girl situations (institutional/social etc.). In addition, a different research design can be designed in which the data obtained via Twitter is verified with the data obtained through a survey over a certain sample.

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Ethics committee permission is not required for this study.

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