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Analyzing Communication Strategies of the Saudi Ministry of Health During COVID-19

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ABSTRACT

Effective communication is imperative during crises such as the COVID-19 Pandemic. The study investigates the communication strategies employed by the Saudi Ministry of Health through its official Twitter account during the pandemic. A content analysis of 1129 Tweets from the Saudi Ministry of Health's official Twitter account was conducted from January 21, 2020, to July 21, 2020. Twitonomy software was used to collect the tweets. A coding sheet was developed and validated for measuring communication strategies, content types, language, target audience and user interaction. The results demonstrate that the Saudi Ministry of Health utilized an "information strategy" (74%) to communicate with the public. Most tweets included infographics (75.9%), followed by videos (16,95%). Text-only tweets (2%) and links to external websites (0.35%) were less absent. Arabic was the predominant language (86%), followed by English (12%), and a mix of ten other languages (2%). This study emphasizes the value of understanding audience dynamics for upcoming crisis communication strategies as well as the significance of effective communication in public health crises. The results can help public health authorities approach similar circumstances more effectively and effectively.

INTRODUCTION

Social media emerged as one of the primary communication tools and became a crucial element of civic society. According to the Saudi Ministry of Communication and Information Systems, Saudi Arabia has the highest global proportion of Twitter users, where 41% of internet users use Twitter (Al-Hila *et al.*, 2017). Moreover, Saudi Arabia ranks fourth Globally in terms of its number of Twitter users (Alotaibi *et al.*, 2019). Mohammed and Ferraris (2021) highlighted that social media, particularly Twitter, is widely employed by Sadis for social and political objectives, with a prevalent focus on information seeking (Mohammed & Ferraris, 2021). They add that many Saudis expect social media to help improve society and government (Mohammed & Ferraris, 2021). Saudis who use social media have more opportunities to discuss political issues because these platforms provide safer channels to express their opinions (Al Amri *et al.*, 2023).

Communication activities through social media are common among ordinary people and for many organizations, including government agencies (Shirky, 2011). The Saudi government has issued many official orders that confirm how the Saudi government recognizes the importance of communicating with people through social media platforms such as Twitter and Facebook (Shirky, 2011). According to a law implemented in 2003 in Saudi Arabia, all agencies of the Saudi government are required to have an Internet presence (Gharawi & Alneami, 2020; Yesser, 2014). That decision has encouraged a historic change in the relationship between Saudi citizens and government and non-government organizations. Accordingly, the Saudi government started creating content that meets Saudis` desire to know about political and social issues that touch their interests (Gharawi & Alneami, 2020). According to Alsubaie (2021), Saudi officials started their accounts on Twitter after the Arab Spring in 2010/2011 to monitor citizens' opinions (Alsubaie *et al.*, 2021). One such was Abdul-Aziz Khoja, the former Saudi Information Minister who used his social media presence to avoid political revolution(Alrefaee, 2023).

Moreover, Saudi organizations use social media platforms, in particular Twitter, during crises such as the Coronavirus (Covid-19) pandemic. The coronavirus disease outbreak in 2019 (COVID-19) is a serious global public health emergency (Ali *et al.*, 2020). This pandemic is considered one of the most challenging global crises of current decades. The corona disease was identified in December 2019 in Wuhan, China(Ali *et al.*, 2020). According to the World Health Organization (2020), since the disease began to spread in December 2019 till 21 July 2020, COVID-19 has infected 14,727,753 and spread into 210 countries and territories with 610,560 deaths(Ali *et al.*, 2020; Burki, 2020). So, in the next chapter, Some studies have investigated how governments communicate crisis information efficiently and effectively with the public during the Coronavirus disease crisis.

LITERATURE REVIEW

Social Media Use During the Corona Pandemic (Covid-19)

Rosenthal *et al.* (1991) say that crises are situations when social, institutional, and organizational interests have been threatened and require immediate steps with uncertain results (Rosenthal & Rosenthal, 2020). Crisis events

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include global pandemics, natural disasters, technical disasters, terrorist events, nuclear threats and international conflicts (Islam *et al*., 2023; Rosenthal & Rosenthal, 2020). Social media have become one of the main channels where the public can gain information and express their feelings and opinions about different issues (Islam *et al*., 2023). Government agencies in various countries have used social media platforms to conduct and manage crisis communication. For example, US government agencies used Twitter during the hurricane crisis to engage citizens in public service efforts (Chatfield & Reddick, 2017).

Additionally, local governments in the UK used Twitter to interact with citizens, dispel rumors, and track down potential suspects during the 2011 riots (Panagiotopoulos, 2014). Indonesian government agencies used Twitter to broadcast early warning messages during the tsunami of 2012 and to develop their efficiency in providing public information (Chatfield *et al*., 2013). Neely and Collins (2018) emphasize that most government agencies do not employ social media to promote citizen engagement but use these platforms just to broadcast information (Neely & Collins, 2018). Using two-way interactive communication via government social media stays at a superficial level through strategies such as the limitation of comments and deletion of what is seen as inappropriate dialogue (Neely & Collins, 2018).

Raamkumar *et al*. (2020) conducted a study to examine the COVID-19-related communication initiatives of Public Health authorities in three countries: Singapore, the United States, and England. (Sesagiri Raamkumar *et al*., 2020). The results showed that the Ministry of Health in Singapore published more about COVID-19 than the Centre for Disease Control and Prevention in the USA or Public Health England (Sesagiri Raamkumar *et al*., 2020). Moreover, the result showed that analyzing social media content could provide signs of communication strategies used during the outreach diseases. Han *et al*. (2020) investigated public opinion during the early stages of COVID-19 in China by analyzing content on Sina-Weibo (a Twitter-like microblogging platform) (Han *et al*., 2020). The results demonstrated that the number of Weibo texts varied over time for different topics and sub-topics through the various developmental stages of the disease(Han *et al*., 2020). In their investigation of the temporal aspects of crisis responses on the social media site Facebook, Huang and DiStaso (2020) identified the message appeal that significantly impacted the general public's perceptions of hospitals (Huang & DiStaso, 2020). According to their research, articles with a rational appeal received more engagement than articles with an emotional appeal. In addition, they discovered that a hospital's immediate Facebook response to a crisis led to higher levels of trust than a response shared a week later (Huang & DiStaso, 2020). In their research, Chen and colleagues (2020) looked at 1441 posts from the National Health Commission of China's official Sina Weibo account, "Healthy China." The study aimed to find out how people interacted with these posts. According to the findings, about 34% of the posts appreciated first responders, 30% offered advice to other parties, and 28.7% provided details on how the government handled the COVID-19 crisis (Chen *et al*., 2020). Moreover, 43% of posts (n-606) of posts included photos, 31% included only text, and 26% included videos. Analysis revealed considerable differences in citizens' engagement, as 44.4% of posts had fewer than 100 citizens engaging with them, and just 100 posts were engaged more than 100,000 times(Chen *et al*., 2020).

Communication appeared during crises in different forms, depending on the general circumstances and contexts, including the development of communication techniques and information technology (Islam *et al*., 2023). During the COVID-19 pandemic, the media approached the crisis in various ways, focusing on understanding its dual role in instilling fear and panic about the virus and correcting misconceptions (Figueiredo & Massano-Cardoso, 2021). For instance, a study conducted by Figueiredo and Massano (2021) aimed to evaluate how the media influenced people's fear of contracting COVID-19, their anxiety related to daily statistical reports, their concerns regarding preventive measures and warnings presented in the media, as well as the media's effectiveness in explaining and reporting the pandemic, and its impact on people's fear of contracting the disease (Figueiredo & Massano-Cardoso, 2021). A total of 349 people participated In the survey, and the results showed that women were more afraid of contracting COVID-19 than men, and the sample trusts information that appears in traditional media more than social media (Figueiredo & Massano-Cardoso, 2021). In response to the COVID-19 pandemic, Santoso and colleagues (2021) investigated how the gender of public relations professionals affected their communication strategies (Santoso *et al*., 2021). The study conducted in-depth interviews with 224 participants who confirmed that both gender (Female and Male) of public relations practitioners has the same understanding of the COVID-19 pandemic and ways to face the crisis and different public relations activities (Santoso *et al*., 2021). Moreover, female public relations practitioners use social media platforms more than males, while male counterparts pay more attention to making organizations' reputations and images stronger via conventional media publicity (Santoso *et al*., 2021). The study by Gui (2021) focuses on media frameworks related to COVID-19 in Chinese social and cultural contexts (Gui, 2021). The study analyzed Xinwen Lianho's reports for nine weeks, showing that the framework of war metaphorically prevailed for a period but did not persist as it was (Gui, 2021). There are also some metaphors related to race and defiance; although they are not as dominant as the framework of war, they should not be overlooked(Gui, 2021). Liu and Liu (2020) aimed to investigate the relationship between media exposure and anxiety and shed light on the underlying mechanisms mediated by the media vicarious effect. (1118) (Liu & Liu, 2020). Chinese citizens participated in filling out the questionnaire (Liu

& Liu, 2020). The results showed that official media, commercial media, social media, and external media cause anxiety to varying degrees (Liu & Liu, 2020) as the direct exposure to the external media and the commercial media was direct, while the impact was indirect to the official media and social media platforms (Liu & Liu, 2020). On the other hand, Jain (2021) analyzed the attitudes of six political leaders in India during the four periods of lockdown in India (Jain *et al*., 2021). Also, the study investigates to what extent the political leaders in India used Twitter across the four lockdown periods during the COVID-19 crisis and discovers the type of content of communication that the Indian political leaders used during the crisis (Jain *et al*., 2021). The results explained that Narendra (the PRime minister) came first in terms of the number of followers on Twitter with (56.42.983), followed by Harsh Vadhan with two million three hundred thousand followers (Jain *et al*., 2021). The results confirmed that 81% of the six leaders' tweets were related to COVID-19, and the leaders' tweet rate was with the progression of the lockdown stages. Also, the results showed that the media tweets for crisis management came first with (30%) and the Prime Minister of India came as the most tweeted by (36%) (Jain *et al*., 2021).

Communication Strategies by Governments on Social Media and Websites

According to Bonsón *et al.* (2019), governments have recently shifted to transparent communication and engagement with the public on social media instead of distributing propaganda (Bonsón *et al*., 2019). Many existing studies have investigated the influencing factors of CEGSM (Citizen Engagement on Government Social Media) in normal circumstances (Bonsón *et al*., 2019). Government and non-government organizations have started using communication strategies to convince citizens, disseminate information, and raise awareness regarding different issues. For example, Al-Zadjali (2012) investigated communication strategies used by Omani government organizations (Al-Zadjali, 2012). The results showed common use of Ruler's model, concentrating on one-way communication, including information and persuasion strategies (Al-Zadjali, 2012). Educational organizations' use of Twitter was investigated by Leona *et al.* (2017) to identify communication strategies in public relations(Leona *et al*., 2021). They indicated that educational organizations used Twitter to disseminate information, communicate and advertise their events. These organizations also used the strategy of one-way communication as outlined in Ruler's Model (Leona *et al*., 2021). Also, government and non-government organizations use Twitter more than other platforms to communicate with their audience, and their interactive communication is high (Aldekhyyel *et al*., 2022). Cho and Lee (2014) monitored the use of five government organizations in two countries (Korea and the United States of America). They revealed that the information strategy was most commonly used by government organizations, followed by an asymmetrical communication strategy (Cho & Lee, 2014).

In contrast, Ayish (2005) found that 20 Emirate government and non-government organizations used interactive communication with their audience (Ayish, 2005). Said (2017) monitored communication strategies Egyptian and Emirate aviation companies used on their social media accounts (Said, 2017). The results demonstrated that each company used all the communication strategies in Ruler`s model differently to communicate with audiences and broadcast their policies and knowledge (Said, 2017). Moreover, Alharbi (2021) sought to monitor communication strategies used for public relations and their influence in supporting Saudi Arabia's Vision 2030. The result showed that the Saudi government relies on the information strategy on social media platforms (Alharbi, 2021).

Previous studies found that government, non-government, profit, and non-profit organizations use communication strategies for public relations through their communication with stakeholders to convince them, change their behaviors and opinions and raise their awareness (Aldekhyyel *et al*., 2022). However, they did not investigate communication strategies for public relations used on social media during a time of crisis, which will be presented in the following paragraphs (Alsubaie *et al*., 2021).

Communication Strategies

Ruler built his model on Grunig's model and considered them both situational models whereby communication strategy is assessed in relation to the situation facing public relations practitioners (Ruler, 2004; Tolchin, 1968). Ruler created his model, the Situational Model of Communication Strategies, where each strategy might be used in specific situations or where situations call for a mix of these strategies(Brackett *et al*., 2019). The model identified communication strategies according to two main axes:

The first axis relates to the nature of the communication process and to what extent the audience is involved in this issue. One end of this axis represents one-way communication, while the other represents two-way communication(Brackett *et al*., 2019). The second axis indicates the nature of the content and meanings that are included in the message communicated. One end of the second axis represents messages where meaning and content represent the organization`s viewpoint, while the other end represents the viewpoint of other organizations and audiences and signs that reflect both sides of any argument(Brackett *et al*., 2019).

According to Ruler`s model, there are four communication strategies for public relations: Information strategy, persuasion strategy, dialogue strategy and consensus-building(Brackett *et al*., 2019). Ruler named these strategies in his Communication Grid (see Figure 1)

Information Strategy

In this strategy, communication is one-way, with connotations and meanings denoting one meaning (Ruler, 2004) presents examples of this strategy, such as press releases and an organization's materials. He adds that stakeholders receive vital information through this strategy that helps them make decisions and build opinions (Van Ruler, 2019).

Persuasion Strategy

This strategy combines one-way communication and content that presents other organizations and the audience`s viewpoints (connotative) (Ruler, 2004). The organization seeks through this strategy to bring intended changes to particular audience behavior, attitudes and knowledge. The persuasion strategy requires precise targets and a mix of persuasive messages (Van Ruler, 2019).

Consensus Strategy

Ruler (2004) emphasizes that this strategy combines two-way communication (Asymmetrical) and a communication message that presents the organization`s opinion (Denotative) (Ruler, 2004). He says this strategy builds relations between an organization and its outside environment or between an organization and its internal audience (Ruler, 2004).

Dialogue Strategy

This strategy combines two-way communication and content that presents the organization`s and the audience`s opinions (Ruler, 2004). He believes that this strategy includes consulting audiences about the organization`s policies and taking their opinions about a variety of relevant issues seriously(Van Ruler, 2019). Therefore, this strategy is called a facilitating strategy, where organizations work to facilitate the audience`s participation in making decisions, as well as organizations being eager to meet their social responsibilities(Ruler, 2004). Dialogue strategy is used in brainstorming about crises and problems that are expected to happen and addresses how to respond to them(Ruler, 2004). It is worth noting that all four strategies mentioned are related to various theories in different sciences(Van Ruler, 2019). According to Ruler (2004), the theoretical aspects of information strategy are mainly discussed within theories of mass media communication and journalism (Ruler, 2004). Theories of persuasion are mainly found in social psychology, advertising and propaganda(Van Ruler, 2019). Moreover, dialogue and consensus creation are crucial characteristics of conflict and negotiation theories and a primary point of investigation in organizational communication, interpersonal communication and mediation(Ruler, 2004).

This study will consider any tweet sent by the Saudi Ministry of Health that includes pure information, statistics, news or guidance about COVID-19 that aims to educate and inform tweet recipients without any prior intention to change their behaviors or attitudes as information strategy, i.e., when the Ministry of Health sends information to raise awareness about Covid-19. On the other hand, any tweet sent by the Saudi Ministry of Health that reflects the Ministry's and recipients` viewpoints and aims to effect intended changes in the audience's behaviors, attitudes, and knowledge will be considered a persuasion strategy. The consensus strategy will be employed when a tweet presents two-way (asymmetrical) communication between the Saudi Ministry of Health and its audience if it just provides the Ministry of Health`s viewpoint and aims to find common ground with the main stakeholders. Lastly, the dialogue strategy is considered to be used when a tweet includes two-way communication and presents brainstorming as an opportunity to find solutions for problems and the Saudi Ministry of Health attempts to facilitate audience participation in decision-making. The Communication Grid is shown in Figure 1.

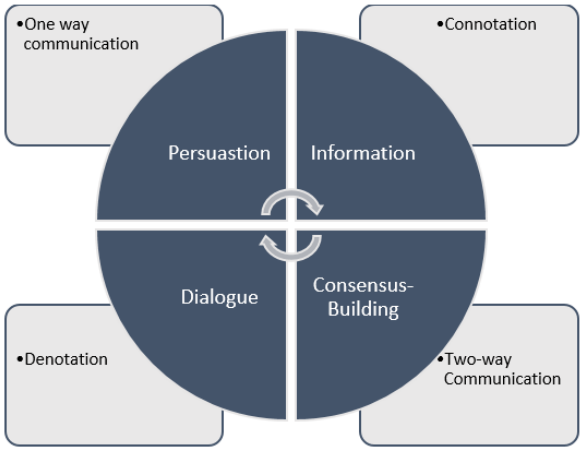

Figure 1: Communication Grid

Previous studies show the importance of communication messages during crises and their use to communicate with people (Liu & Liu, 2020; Ruler, 2004). The studies dealt with the contents of these messages differently and with different research methods and tools (Sesagiri Raamkumar *et al.*, 2020). This study will examine the messages ministries and government agencies used differently during the Corona crisis. This study will examine, by analyzing the tweets of the Saudi Ministry of Health, the public relations communication strategies that the Saudi Ministry of Health used in its official Twitter account during the COVID-19 pandemic.

The study examines the Saudi Ministry of Health's social media campaigns to spread information about the COVID-19 pandemic. It aims to comprehend how the Ministry used this platform for PR, taking into account the tone, information, and timing of their tweets. The study will also gauge user engagement with these tweets by counting the number of retweets, comments, and likes. Last but not least, the study aims to identify the type of audience engaging with the Ministry's Twitter content, offering essential insights into their demographics,

interests, and needs that can help them develop more successful crisis communication strategies.

Research Method

The research adopted an exploratory study design to investigate the communication strategies employed by the Saudi Ministry of Health during COVID-19. The researcher surveyed the contents of tweets on the official Twitter account of the Saudi Ministry of Health during the Coronavirus (COVID-19) pandemic, specifically from 21 January 2020 to 21 July 2020. Content analysis of these tweets will facilitate answering the research questions of this study.

Data Collection

To identify tweets related to COVID-19, a systematic screening process was undertaken. All tweets directly addressing or concerning the COVID-19 Pandemic were isolated for further analysis. The Twitonomy software program was used to collect tweets from the Saudi Ministry of Health`s official account on Twitter because that program helps researchers import tweets by allowing a transfer of data into PDF and Excel pages. Content Analysis was conducted on the identified tweets. Each tweet was code-based on the predominant message type it conveyed. This coding process enabled a detailed understanding of the messaging strategies.

Coding Scheme

When the researcher prepared the first draft of the coding sheet, this draft was sent to five media experts and doctors who work at the Department of Media at King Saud University for their comments and suggestions. When these were received, the researcher modified the coding sheet accordingly and made sure that it would be useful for answering the research questions. To make sure of the internal validity of the coding sheet to measure what it purported to investigate, the researcher analyzed 1020 tweets (10% of the sample). The same tweets were analyzed again at a different time (after 12 days) to measure the percentage of agreement between the results of the two different tests. The high percentage of agreement (97.5%) is shown in Table 1.

Table 1: Results of the Validity Test for the Coding Sheet

	Variables	Average rate of agreement
1	Communication strategy of public relations	90
2	Attachment	96
3	Language	100
4	Type of Audience	98
5	Replies	99
6	Re-tweets	100
7	Likes	100
	All variables	**97,5%**

Ethical Approval

Ethical approval was not required for this research, as the study did not involve any human participants. The data utilized in this research were sourced from a public Twitter account maintained by a government entity and were publicly accessible.

RESULTS

Communication Strategies

Table 2 shows that the communication strategy used by the Saudi Ministry of Health during the Corona pandemic (COVID-19) to communicate with Saudi citizens during the health crisis was one-way communication. The information strategy was used more than any communication strategy (74% of tweets), and the rest of the tweets (26%) used a persuasion strategy. Two-way communication, which includes consensus-building and dialogue, was not present in tweets sent by the Saudi Ministry of Health in this sample.

Table 2: Communication Strategies used by the Saudi Ministry of Health in Tweets on Covid-19

	Communication Strategy	Number	Percentage
1	Information strategy	836	74%
2	Persuasion strategy	293	26%
3	Consensus-Building Strategy	0	0
4	Dialogue Strategy	0	0
5	**Total**	**1129**	**100%**

The Contents of Tweets

The Saudi Ministry of Health used different types of content in its tweets during the Corona pandemic (Covid-19), as shown in Table 3. For example, only 2% of tweets included text messages without any attachments. Photos appeared in 54 tweets (4.8%). The most common type of content was infographics, which appeared 857 times (75.9%). Videos were used in 191 tweets (16.95%), but links appeared in the tweet sample very rarely (4 times) and comprised only .035% of the sample.

Table 3: Content of Tweets posted by the Saudi Ministry of Health about Covid-19

	Attachment	Number	Percentage
1	Only Text	23	2%
2	Photo	54	4.8%
3	Link to another website	4	0.35%
4	Infographic	857	75.90%
5	Video	191	16.95%
6	**Total**	**1129**	**100%**

Languages Used in Tweets

Table 4 shows the languages used in tweets by the Saudi Ministry of Health during the Corona pandemic (Covid-19). The majority of tweets (86%) were posted in

Arabic (970 tweets), and the rest were in other languages. The second most commonly used language for tweets was English, which comprised 12% of the sample (132 tweets). The rest (2%) included 10 languages, namely German, Spanish, Indonesian, Urdu, Indian, Swahili, Chinese, French, Turkish and Persian, and represented 27 tweets in the sample.

Table 4: Languages used in Tweets about Covid-19 by the Saudi Ministry of Health

	Language	Number	Percentage
1	Arabic	970	86%
2	English	132	12%
3	Different Languages	27	2%
4	**Total**	**1129**	**100%**

Targeted Audience

Table 5 shows that the Saudi Ministry of Health targeted the general population with its tweets 1119 times (99%) during the coronavirus pandemic (COVID-19) and posted tweets to a specific audience, such as policemen, nurses and doctors on the front line in fighting the Coronavirus only 100 times (10%).

Table 5: Audience Targeted by the Saudi Ministry of Health in Tweets on Covid-19

	Targeted Audience	Number	Percentage
1	General	1119	99%
2	Specific	10	1%
6	**Total**	**1129**	**100%**

The Type of Interactions with Tweets

Table 6 shows to what extent Twitter users interacted with the Saudi Ministry of Health`s tweets during the Corona pandemic. 86.5% (977 tweets) received very low replies, and 9.7% received middle-level replies. In contrast, the majority of Twitter users` re-tweets to the Saudi Ministry of Health were very High: 52% (592 tweets) and 27% (302 tweets) received low interaction, and 21% (235 tweets) received mediate interaction. Saudi Ministry of Health`s tweets received a high level of likes, 63.4% (716 tweets), and 21% (237 tweets) received a middle level of likes.

Table 6: Interactions with Tweets from the Saudi Ministry of Health about Covid-19

	The level of interaction	Reply		Re-tweet		Like	
1	Low	977	86.5%	302	27%	176	15.6%
2	Intermediate	42	3.8%	235	21%	237	21%
3	High	110	9.7%	592	52%	716	63.4%
6	Total	1129	100%	1129	100%	1129	100%

Table 7: Comparing between three stages of tweeting

Type		First stage		Second stage		Third Stage	
Strategy	Information	17.80%	201	32%	362	24.18%	273
	Persuasion	3.27%	37	15.5%	175	7.17%	81
Attachment	Text only	0.70%	8	0.97%	11	0.35%	4
	Link	0%	0	0.177%	2	0.177%	2
	Photo	%2.66	30	0%	0	0.97%	24
	Infographic	13.72%	155	37.11%	419	25%	283
	Video	%3.98	45	8.14%	92	4.78%	54
language	Arabic	19.39%	219	35.6%	402	30.91%	349
	English	0.97%	11	10.27%	116	0.44%	5
	Others	0.70%	8	1.68%	19	0	0
Audience	General	21%	238	46.76%	528	31.26%	353
	Specific	0%	0	0.79%	9	0.088%	1
Interaction							
	Low	20.99%	237	%40.56	458	24.97%	282
	Mediate	0.08%	1	1.68%	19	%1.94	22
	High	0%	0	5.31%	60	4.43%	50
	Low	1.24%	14	14.43%	163	%11.07	125
	Mediate	2.92%	33	10.80%	122	7.08%	80
	High	16.91%	191	22.32%	252	13.19%	149
	Low	1.32%	15	1.68%	19	18%	204

	Mediate	9.56%	108	%10.54	119	27.45%	310
	High	4.56%	53	8.76%	99	17.89%	202

In this section, the sample of tweets was divided into three stages, and each stage extended to around two months. The first stage started from the first tweet of the Saudi Ministry of Health around COVID-19 from 21st January 2020 to 22nd March 2020, when the Saudi government announced restricting movement in some cities from 7 p.m. to 6 a.m. The second stage started from 23rd March 2020 to 22nd May 2020, when the Saudi government announced the full restriction for 4 days from the 1st of Sahiwal to the 4th of Shawal 1441, and the third stage included a decrease in the number of infected by Coronavirus.

The result shows that the information strategy was the most used strategy during the three stages, but the second stage has the highest percentage of persuasion strategy, %15.5, compared with %3.27 and %7.1 in the first and third stages, respectively. Attachments include five types in this study: text (Only), link, photo, infographic, and video. Results emphasize that link was the lowest attachment used in the first stage. The Ministry did not use any links. Infographics increased from %14 in the first stage to %37.11 in the second stage and to %25 in the third stage.

Moreover, using video in tweets increased from %4 in the first stage to % 8.14 in the second stage and %4.18 in the third stage. Regarding the language, the Arabic language was the most used by %92 during the first stage, %98.5 at the first stage, and %99 in the third stage. The English language was the second most commonly used language, especially in the second stages, with %10.27 of tweets, but it was low during the first and third stages by %0.97 and % 0.44, respectively.

On the other hand, the Saudi Ministry of Health addressed the public audience with %100 of its tweets in the first stage and %99.7 in the third stage. The second stage witnessed the highest percentage of tweets that addressed specific audiences by %10. The results of interaction present different levels of interaction. The tweets of the Saudi Ministry of Health did not receive a high level of replies during the three stages, although the third stage tweets received %4.43. %40.56 of tweets that received a low level of replies were in the second stage. On the contract of reply, the Saudi Ministry of Health`s tweets received a high level of re-tweets where the first stage received %16.91, the second stage received %22.32, and in the third stage %13.19 of tweets received re-tweets. Tweets from the Saudi Ministry of Health received very low levels during the first and second stages of likes, 1.32% and %1.68, respectively. The third stage had the highest percentage of high and mediated levels of likes through three stages, %17.89 and %27.45, respectively.

DISCUSSION

The present study analyzed the contents of 1129 tweets sent by the Saudi Ministry of Health during the COVID-19 pandemic from 21 January to 21 July 2020. Saudi Ministry of Health used a one-way communication strategy to send its guidance and new information about Corona globally and locally. This result corresponds with the results of (Al-Zadjali, 2012; Cho & Lee, 2014; Leona *et al.*, 2021), where these studies presented "information strategy" as the common strategy used by government and non-government organizations to spread information and to communicate with stakeholders. However, the Saudi Ministry of Health used one-way communication with two strategies: information and persuasion in its tweets, where information strategy was used in 74% of tweets and persuasion strategy used in 26%. Although the Saudi Ministry of Health used an Information strategy during the three different stages more than persuasion, it is acceptable. A study revealed significant insights into communication strategies employed in government communication during COVID-19(Ngai *et al.*, 2020). It was found that the posts related to new evidence and those delivered in a non-narrative style were less likely to be shared, suggesting that the public may be more inclined to share posts that employ storytelling and narrative approaches(Ngai *et al.*, 2020). Another study revealed that compared to tweets that only provided information, those that promoted action and community-building were more likely to be liked by users (Tang *et al.*, 2021). Tweets mentioning handwashing habits were less likely to be favored than content-promoting practices like social distancing and testing. Additionally, the likelihood of receiving favorites was significantly influenced by the public's perceptions of the seriousness and vulnerability of health problems (Tang *et al.*, 2021).

Dividing the sample into three stages helps to understand the differences and similarities between the Saudi Ministry of Health`s tweets because the Saudi government, in the first stage, started explaining its viewpoints and its policies to deal with this epidemic through educating people and increasing their awareness about COVID-2019 and the best way to avoid effecting by the virus in general. Approximately every day, from the beginning of the epidemic, the Saudi Ministry of Health tweeted about the new number of infected, deaths, and recovery and the recommendations and guidance that participated in increasing the number of tweets that included information strategy. In the second stage, the Saudi Ministry of Health continued to use an information strategy more than persuasion, but its use of persuasion strategy more than the first stage to focus on presenting individuals` viewpoints to protect their families and avoiding any reason that may cause their infect. In the third stage, the Ministry focused on motivating people to follow the guidance to protect themselves as well as to go to test centers to check if Coronavirus had infected them after spreading the virus in some cities. Then, Twitter users interacted with the Saudi Ministry of Health through re-

tweeting and liking at a high level, but they did not reply to these tweets at the same level. According to a general public survey, people's top concerns were learning more about curfews, developments in medical treatment and vaccine development, and steps to stop the spread of the virus(Alamro *et al*., 2020). The popular tweet categories during the specified period closely matched these public interests(Alamro *et al*., 2020).

The Arabic language dominated the majority of tweets (86%) of the Saudi Ministry of Health. The English language was used at 12%. Remarkably, the second stage included 87.87% of tweets that were sent in the English language, whereas the first stage had 8.3%, and the third stage had 3.78%. The study revealed that different methods of analysis have been documented, with a focus on looking at tweets in Arabic in relation to the COVID-19 pandemic (Aldekhyyel *et al*., 2022).

Moreover, the Ministry of Health sent tweets in 10 other different languages: German, Spanish, Indonesian, Urdu, Indian, Swahili, Chinese, French, Turkish and Persian, but this experience did not exceed two tweets for each language in the second stage which may be considered as the result of very low interaction of the audience with these tweets. Saudi Ministry of Health`s tweets addressed the general audience by 99%. The results demonstrated that 86.52% of tweets received a low level of interaction, which is expected because COVID-19 came from China, and Saudi society did not have experience or enough information about it. So, people received information from the Saudi Ministry of Health.

On the contrary, people interacted with the Saudi Ministry of Health`s tweets by re-tweeting and liking them highly. 52% of tweets were re-tweeted more than 600 times, and 63% received more than 600 likes, which emphasizes that Twitter users attempted to share information about COVID-19 with others because they trusted the Saudi Ministry of Health. Moreover, they presented their like to the Saudi Ministry of Health`s efforts to provide them with new information and sound advice to avoid being infected by Corona.

This study has several limitations. Although this study was conducted over 6 months, it may not have helped the researcher to analyze the audience's reaction to the Saudi Ministry of Health`s tweets after decreasing the number of infected by COVID-19. On the other hand, this study used content analysis of one social media platform, "Twitter," which did not allow it to get different reactions from different platforms. Moreover, this study did not conduct interviews with officials in the Saudi Ministry of Health to get their viewpoints about society's interaction with the Ministry`s tweets.

Future Studies

Future studies may focus on analyzing the contents of tweets at the period of 21st July 2020 to understand and compare the Saudi Ministry of Health's tweets after a gradual decrease in the spreading of disease and analysis of the audience`s reaction toward the Ministry`s tweets. Moreover, officials of the Saudi Ministry of Health should be interviewed to understand the Ministry's policy of using strategies, appeals, and tactics for building communication messages during COVID-19.

CONCLUSION

The study's findings underscore the critical role of effective communication during crises like the COVID-19 pandemic. The Saudi Ministry of Health predominantly employed an "information strategy" on its official Twitter account, with a focus on sharing infographics and videos. Arabic was the primary language used for communication. The results emphasize the significance of clear and accessible information dissemination in managing public health crises.

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