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Digital Storytelling in Public Health: Lessons from COVID-19- Related Instagram Stories for Future Crises

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Abstract

The COVID-19 pandemic underscored the critical need for effectively disseminating public health information to prevent the spread of disease. Social media platforms, particularly Instagram stories, played a significant role in conveying health messages to younger audiences and professionals. This study explores how Instagram stories created awareness during the COVID-19 pandemic, identifying persuasive elements and their impact on public health communication. Using qualitative content analysis (QCA), this article analyses COVID-19-related Instagram stories from the World Health Organization (WHO), UNICEF, and medical influencers to categorise key storytelling techniques. In addition, thematic analysis was conducted based on interviews with seven active Instagram story viewers to assess the perceived persuasiveness of these stories in raising awareness. The QCA revealed five categories of Instagram stories, while thematic analysis uncovered eight primary themes and 45 sub-themes related to persuasion. The findings provide valuable insights into creating effective digital storytelling strategies for public health, offering lessons to inform health communication efforts in future crises.

Keywords Health communication; Instagram stories; Digital storytelling; Public health crises

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Introduction

In 2020, severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and the resulting COVID-19 became a severe public health issue and experienced a global pandemic in no time. People in every nation have struggled and adopted a comprehensive series of COVID-19 safety measures to cope with this pandemic. Infection with COVID-19 has become a severe public health concern worldwide. The COVID-19 virus is caused by the SARS-CoV-2 Coronavirus, which recently surfaced in China (Zarei et al., 2021). The World Health Organization (WHO) announced the first notification of the disease outbreak on the 5th of January 2020 (Archived: WHO Timeline - COVID-19, 2020) and proclaimed COVID-19 to be a pandemic on the 11th of March 2020 (WHO General, 2020), the first time such a designation has been made in the last century. Therefore, it was of utmost importance to prevent the further spread of the virus and to create complete awareness of the infection in public using proper healthcare settings. This way, almost all the information dissemination mediums, such as mass media, printed media and social media, were wholly utilised to propagate the information on COVID-19 to the public. Among the available media, social media is known to be more efficient in reaching people easily and quickly (Luo & Zhong, 2015). Social media have transformed traditional information dissemination, which relies on central mass media such as television and newspapers (Luo & Zhong, 2015).

Social Media and Health Knowledge

Several researchers have claimed that the impact of social media on health knowledge and health behaviour is significant (Dubey et al., 2016; Giustini et al., 2018; Korda & Itani, 2013). Results from the studies demonstrate that social media platforms are effective tools for raising public awareness. Further, it allows for the real-time dissemination of information about the disease's status as well as the provision of appropriate advice to the general public on how to avoid becoming infected with the disease (Al-Dmour et al., 2020; Giustini et al., 2018; Korda & Itani, 2013). For instance, Korda and Itani (2013) summarised current indications and understanding of social media usage for health promotion. Korda and Itani (2013) also emphasised the necessity of analysing the effectiveness of various kinds of social media and applying research and theory results to design health promotion programs for social media. Similarly, Ameer et al. (2022) have shown that using digital storytelling in social media can significantly improve therapeutic outcomes. Moreover, researchers have stated that the information and viewpoints relevant to human health issues are revealed informally through social media outside official medical and health institutions (Dubey et al., 2016; Giustini et al., 2018; Korda & Itani, 2013).

In addition, the literature contains various studies that have already used data from social media to help identify and detect outbreaks of infectious diseases and to elucidate public attitudes, behaviours, and perceptions, even before the COVID-19 pandemic (Jordan et al., 2018; Shah et al., 2019; Sonnenberg et al., 2017; Steffens et al., 2019). For instance, Tsao et al. (2021) mentioned that, through the onset of the COVID-19 pandemic, social media has rapidly become an imperative communication tool for information generation, dissemination, and consumption. It is proved by Al-Dmour et al. (2020) and Bridgman et al. (2020), who demonstrated that emerging infectious diseases, like COVID-19, increase public usage and media consumption in all forms. Thus, social media influences people's perceptions of disease, decisions, and risk behaviours.

Instagram Stories as a Tool for Persuasion

Among available social media, Instagram has become a highly accepted visual post based on social media and a trendy tool among the available diverse social media, especially among younger adults and teenagers (Ye et al., 2020). It has been widely adopted by both end-users and organisations, with users posting personal experiences and expressing their opinions during significant events and times of crisis, such as the COVID-19 pandemic and the search for effective vaccine treatment. Instagram stories are incredibly persuasive in making the desired persuasiveness for viewers (Belanche et al., 2019). In this line, Instagram stories are made to create enough awareness among the viewers to prevent COVID-19 infection.

Recent research by Baghestan et al. (2023) identified the effectiveness of the components of health messages on Instagram to strengthen adherence to healthy lifestyle practices through a self-care approach. Their results indicated that source credibility, involvement, and likeability significantly influenced message acceptance. Their findings suggest the importance of effective communication strategies, considering heuristic cues such as source credibility and social support, to align community health priorities with individuals' health needs and enhance coordination in promoting healthy behaviours.

Despite the growing body of literature probing the role of social media, especially the role of Instagram stories in the age of COVID-19, limited insights have been provided into the impact or persuasiveness of Instagram stories as a tool to create awareness of COVID-19 among users. In that sense, using Instagram stories during the COVID-19 pandemic provides valuable insights into how digital storytelling can be leveraged for health communication in future crises. As social media continues to evolve, the strategies employed in COVID-19-related Instagram stories can inform how health authorities and influencers communicate during subsequent public health emergencies. By utilising Instagram stories, health organisations can reach a broad, diverse audience quickly and

effectively, encouraging preventive behaviours, dispelling misinformation, and increasing community resilience. These lessons are crucial for addressing pandemics like COVID-19 and tackling other emerging health threats, including climate-related health risks, outbreaks of infectious diseases, and chronic illness management. Thus, understanding the role of Instagram stories in persuasive health communication allows for developing more targeted, adaptive communication strategies essential for future public health preparedness and response. Therefore, this study explores the persuasiveness of COVID-19-related Instagram stories in creating awareness of COVID-19 infection. The subsequent section describes the objectives and research questions of the study.

Objectives of the Study

The study used a qualitative approach to primarily explore the persuasiveness of COVID-19-related Instagram stories in creating awareness for COVID-19 infection prevention among Instagram story viewers. To explore the persuasion of users, Instagram stories need to be seen as a tool to persuade users. Accordingly, three sub-objectives are defined as follows:

1. To identify the persuasive elements in COVID-19-related Instagram stories.
2. To explore the persuasiveness of COVID-19-related Instagram stories in creating awareness of preventing COVID-19 infection.
3. To draw insights from the effectiveness of COVID-19-related Instagram stories that can be applied to future health crisis communication.

Theoretical Model

The theoretical model in Figure 1 depicts the applied theories for the study. COVID-19-related Instagram stories are analysed using qualitative content analysis (QCA) through the theories of digital storytelling, persuasive communication and persuasive technology. The theories were “core elements of a good digital story” by Lambert (2013), “Persuasive System Design (PSD)” by Oinas-Kukkonen and Harjumaa (2009) and the “seven principles of persuasion” by Cialdini (2021). The seven elements developed and regulated by the Centre for Digital Storytelling (CDS) by Lambert (2013) have been primarily used as the main elements of a digital story to provide guidelines for producing a persuasive good digital story. Further, Lambert (2013) mentioned that the application of digital stories is for telling an organisation’s story, persuasion or as a prompt to action, reflective practice, health and human services and more. The application of digital storytelling for persuasion or as a prompt to action justifies that the digital story attracts the audience to consider the issue, have a more profound sense of the issue's importance, and consider the idea, approach, or experience. Similarly, PSD opens ways to persuade the viewers of the stories through twenty-eight principles. Further, the seven

principles of persuasion by Cialdini (2021) also had been used to identify the elements of COVID-19-related Instagram stories to see how the stories persuaded the story viewers and created awareness of COVID-19.

In previous studies by Ameer et al. (2023a, 2023b), the focus was on exploring the persuasive elements in Instagram stories through the theoretical frameworks of digital storytelling and persuasive system design. These studies primarily investigated how the core elements of digital storytelling, such as character, emotion, and narrative arc, and the persuasive system design principles, including reduction, personalisation, and social influence, were applied within Instagram stories. The research aimed to understand how these elements worked together to engage users and influence their behaviour in digital environments. This current study extends that work by incorporating additional persuasive communication theories and applying these frameworks to COVID-19-related Instagram stories, offering insights into their effectiveness in public health communication.

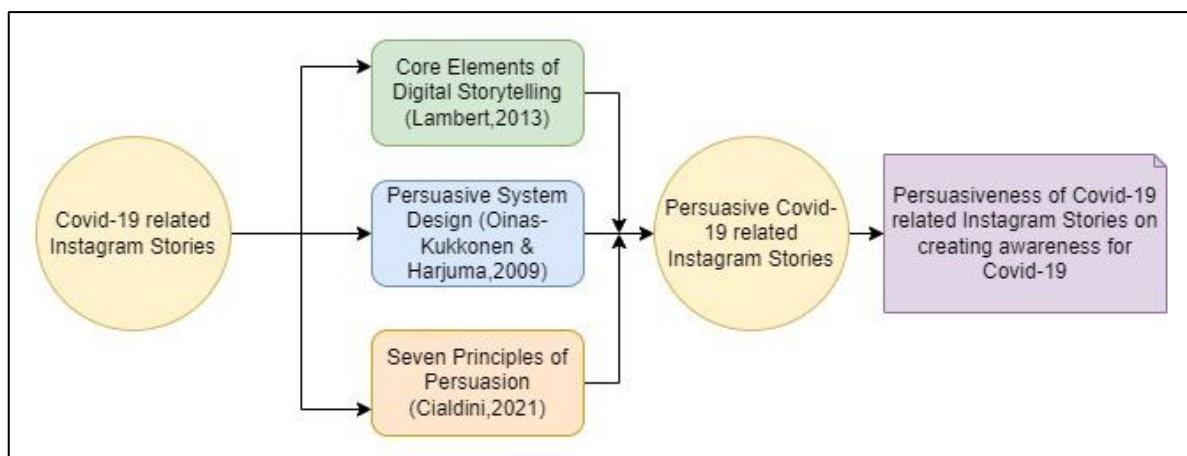


Figure 1. The Theoretical Model of the Study

Methodology

This study adopts a qualitative design as it seeks to dig deeper into Instagram stories to identify their ability to create awareness of preventing COVID-19. The choice of a qualitative approach is driven by exploring individuals' subjective experiences, attitudes, and motivations when engaging with COVID-19-related Instagram stories. Furthermore, this study demands the story viewers' honest and actual experiences and opinions on getting awareness of COVID-19 infection by viewing COVID-19-related Instagram stories. Therefore, this study was conducted in two phases. In phase one, COVID-19-related Instagram stories were qualitatively analysed using the "Qualitative Content Analysis (QCA)" technique. QCA has been utilised to describe the critical aspects of research attributes (Schreier, 2012, p.37; Mayring, 2022). In phase two, active Instagram users were interviewed using a semi-structured interview to deeply explore the persuasiveness of COVID-19-related Instagram stories in creating

awareness of the prevention of COVID-19 infection. Then, the interview data were thematically analysed to explore the themes through which the persuasiveness of COVID-19-related Instagram stories occurs in creating awareness of preventing COVID-19 infection.

Population, Sample and Data Collection

The COVID-19-related Instagram stories from authorised health organisations and Influencers were collected from the story highlights in phase one. The WHO is the prime authorised body to disseminate any new global health issue (World Health Organization, n.d.). In addition to WHO, organisations like UNICEF are also considering getting COVID-19-related Instagram stories. Besides the authorised bodies, Instagram influencers from health experts such as doctors also considerably shared COVID-19-related Instagram stories to create awareness about the disease. A general observation was made on Instagram to get the basic ideas on the Instagram account, followed mainly by information about the COVID-19 updates. From the responses, it was identified that WHO is followed by most Instagram users (12 million followers) to get accurate information about COVID-19. Instagram users also significantly follow UNICEF for updates (9.8 million followers). As the Instagram API does not let users retrieve stories, a different strategy was necessary to access stories. For example, the Instagram API using an Instagram scraper can retrieve stories from Instagram (bypassing) (Landers et al., 2016). In accordance with this, the archived stories from the highlights were downloaded using an online scrapping tool, “story saver”.

Moreover, users suggested that they prefer to view and believe the stories of the influencers who are doctors. Finally, WHO, UNICEF and a doctor influencer were chosen using convenience sampling. The selection of 100 Instagram stories was determined based on qualitative saturation, where the researchers aimed to cover a sufficient range of stories related to COVID-19 awareness from February 2020 to March 2022, ensuring diversity in messaging, content format, and audience reach. These stories were chosen to represent a balanced mix of health organisations and an individual influencer, aligning with the study's objectives of exploring both institutional and personal narrative-based COVID-19 communication. The influencer's consent to use the stories for the research has been obtained via Instagram Messenger.

In phase two, seven Instagram users were approached for an interview. The participants were selected from diverse geographic locations through judgmental sampling techniques, including Sri Lanka, Malaysia, Pakistan, Qatar, USA, and the UK aged 22 to 35, were either professionals or students who actively used Instagram to stay informed during the pandemic. These participants were chosen based on their high Instagram usage, specifically their active engagement with Instagram stories related to COVID-19 updates. Each participant was identified through the researcher's personal

social media network, ensuring that they regularly followed health organisations like WHO and UNICEF and influencers who shared COVID-19-related information. Their frequency of Instagram use ranged from several times daily to multiple times a week. According to Finlay (2009), the number of participants can be one to three and generally ranges between six and twenty as the literature has no rigid rule. Baker and Edwards (2012) recommend that focusing on quality rather than quantity would be better. Accordingly, seven Instagram users were interviewed using a semi-structured interview. A semi-structured interview was done to collect detailed information using a conversational style with more probes. Further, the process of semi-structured interview followed a quintamimensional protocol that determines the intensity of the respondent's opinions and attitudes with five steps to assess the degree of awareness of an issue, uninfluenced attitudes, specific attitudes, reasons for these attitudes, and intensity of these attitudes (Gallup, 1947; Stewart & Shamdasani, 2014).

The interviews were conducted via Zoom, and the audio was recorded with the interviewee's consent and then transcribed using the non-verbatim technique. The transcribed data were analysed for themes using the qualitative analysis tool ATLAS.ti, which is known to be a widely used qualitative data analysis (QDA) tool. Participants were given instructions about the nature and the objectives of the study through a consent agreement form. The participants were assured of confidentiality, which made them comfortable while sharing and explaining their personal views on the topic (Cobb & Forbes, 2002). The phase two data collection of the study used five main interview questions using a quintamimensional approach to investigate and understand the experiences of the persuasiveness of COVID-19-related Instagram stories.

Data Analysis

This study was conducted in two phases. The first phase of the process argues the potential for Instagram stories to persuade users by creating awareness for COVID-19. Subsequently, phase two meets the goals of eliciting valid information from respondents close to the phenomenon of the study. Further, the results from phase one are used to justify the persuasiveness of phase two.

I. Phase one

Data analysis begins with the qualitative content analysis (QCA) of 100 Instagram stories from WHO, UNICEF, and influencer doctors. As in Ameer et al. (2022, 2023a), 100 stories were sampled, following the approach of Anselmo et al. (2004), who used 100 samples from 186,000 cystic fibrosis-related online results. The first step in any QCA is identifying the main and sub-attributes that would enable the categorisation of the defined attributes from the sample. It was achieved in two different steps. First, the story's content was categorised into six: awareness of regular behaviours during the COVID-19 pandemic, COVID-19 test, COVID-19 vaccination, awareness of social distancing, and

awareness of wearing a mask and educating aspects of COVID-19". The categorisation of the types of story content was entirely subjective and emerged throughout the QCA of the Instagram stories and coded the story's meaning (see Table 1). Secondly, the universal attributes from the theories of digital storytelling, PSD and seven principles of persuasion were used to establish a set of categories for coding to identify the elements of Instagram stories.

In the process of QCA, the key step involves segmenting the material under analysis into distinct units: the unit of coding, the unit of analysis, and context units. In this study, the entire story was considered the unit of analysis and context unit. To comprehend the overall meaning of the coded unit, various elements within the story were identified as context units. These elements helped to grasp the broader significance of the unit being analysed. The unit of coding, on the other hand, consisted of specific elements extracted from the theoretical framework encompassing the three theories. These elements were identified in the Instagram story and served as the basis for the coding process. By employing this segmentation approach, this study aimed to systematically analyse the content and derive meaningful insights from the Instagram story. This methodological framework ensured that this study comprehensively captured the relevant components within the story and effectively utilised the theoretical foundations.

Table 2 shows that the categories used for coding were clustered in groups. It also presents the frequency count of each persuasive attribute found in the COVID-19-related Instagram stories.

Table 1. Frequency of the type of COVID-19-related stories.

	COVID-19 stories from Influencers (Doctors)	Stories from WHO under the COVID-19 category	Stories from WHO under the vaccine category	UNICEF COVID-19-related stories	UNICEF Immunisation-related stories	UNICEF vaccination-related stories	Totals
Awareness of regular behaviours during the COVID-19 pandemic	0.00%	0.00%	8.33%	0.00%	4.54%	0.00%	2.86%
COVID 19 test	0.00%	12.0%	0.00%	0.00%	0.00%	0.00%	2.86%
COVID 19 Vaccination	42.11%	0.00%	41.67%	0.00%	95.46%	100.0%	40.95%
Create awareness on social distancing	21.05%	16.00%	0.00%	45.45%	0.00%	0.00%	12.38%
Create awareness on wearing a mask	5.26%	20.00%	0.00%	0.00%	0.00%	0.00%	5.71%
Educating aspects of COVID 19	31.58%	52.00%	50.00%	54.54%	0.00%	0.00%	35.24%
Total	100.0%	100.0%	100.00%	100.00%	100.00%	100.00%	100.00%

The category of COVID-19-related Instagram stories was categorised based on the meaning of the story's content. "Awareness of regular behaviours during the COVID-19 pandemic" is characterised as the stories of regulations or lifestyles that must be followed during the pandemic. The "COVID-19 test" category represents the stories about the tests related to COVID-19. Similarly, the "COVID-19 vaccination" category is about the stories about the vaccination or to simulate the viewers vaccinating themselves. The "Create awareness on social distancing" category consists of stories that convey the message to practise social distancing to prevent infection. The "creating awareness on wearing a mask" category is about the stories persuading viewers to wear a mask properly. Finally, the "educating aspects of COVID-19" category is about the stories containing various information related to the science of COVID-19 and its terminologies. Amongst the 100, COVID-19-related Instagram stories were primarily based on educating aspects of COVID-19, followed by instructing the importance of vaccination against COVID-19.

Table 2. Frequency of Persuasive elements used in the COVID-19-related Instagram stories.

		COVID-19 stories from Influencers (Doctors)	Stories from WHO under the COVID-19 category	Stories from WHO under the Vaccine category	UNICEF COVID-19-related stories	UNICEF Immunisation-related stories	UNICEF vaccination-related stories	Totals	
Persuasive Communication	Authority	-	7	-	-	2	-	9	
	Commitment	-	5	2	-	11	1	19	
	Liking	-	5	-	-	-	-	5	
	Reciprocity	-	-	-	-	-	-	-	
	Scarcity	-	-	-	-	-	-	-	
	Social Proof	4	3	3	-	6	-	16	
	Unity	-	-	-	-	-	-	-	
	Totals	4	20	5	0	19	1	49	
Digital Storytelling	Intention	1	-	-	-	-	-	1	
	Length and Design	-	-	-	-	-	-	-	
	Lived experience of the author	-	-	-	-	-	-	-	
	Personal or First Person Voice	1	1	-	-	-	-	2	
	Photos more than the moving image	1	1	-	-	-	-	2	
	Self-Revelatory	2	2	3	-	4	-	11	
	Soundtrack	1	1	-	-	1	-	3	
	Totals	6	5	3	0	5	0	19	
Persuasive Technology	Primary Task Support	Personalisation	-	-	-	-	2	2	
		Reduction	-	-	-	-	-	-	
		Rehearsal	-	-	-	-	-	2	2
		Self-Monitoring	1	1	-	-	2	2	6

	Dialogue Support	Simulation	3	-	1	-	4	2	10
		Tailoring	4	4	-	-	1	2	11
		Tunnelling	5	2	1	1	-	-	9
		Totals	13	7	2	1	7	10	40
	Dialogue Support	Liking	-	5	-	-	-	-	5
		Praise	-	-	-	-	-	-	-
		Reminders	5	-	2	5	11	3	26
		Rewards	-	-	-	-	-	-	-
		Similarity	-	-	-	-	-	-	-
		Social role	1	5	-	-	8	-	14
		Suggestion	1	9	1	1	7	2	21
		Totals	7	19	3	6	26	5	66
		Credibility Support	Authority	-	7	-	-	2	-
	Expertise		3	6	9	-	2	-	20
	Real-world feel		-	-	-	-	-	-	-
	Surface credibility		1	-	-	-	-	-	1
	Third-party endorsement		-	-	-	-	-	-	-
	Trustworthiness		2	1	-	-	2	-	5
	Verifiability		3	-	-	-	-	-	3
	Totals		9	14	9	0	6	0	38
	Social Support	Competition	-	-	-	-	-	-	-
		Cooperation	-	-	-	-	-	-	-
		Normative Influence	-	1	-	-	2	2	5
		Recognition	-	1	-	-	-	2	3
		Social comparison	-	-	-	-	-	2	2
Social facilitation		1	1	-	-	-	-	2	
Social Learning		3	9	-	-	-	-	12	
Totals		4	12	0	0	2	6	24	

Table 2 illustrates the frequency counts of elements identified from the 100 COVID-19-related Instagram stories sample. According to Table 2 and Figure 2, COVID-19-related Instagram stories contain significant elements that persuade viewers toward the story's content. Most of the elements are from the category of "dialogue support" of the theory of persuasive technology. Moreover, other categories of elements also were noticed considerably in the stories. The results of QCA of the COVID-19-related Instagram stories were used to justify the findings of the thematic analysis.

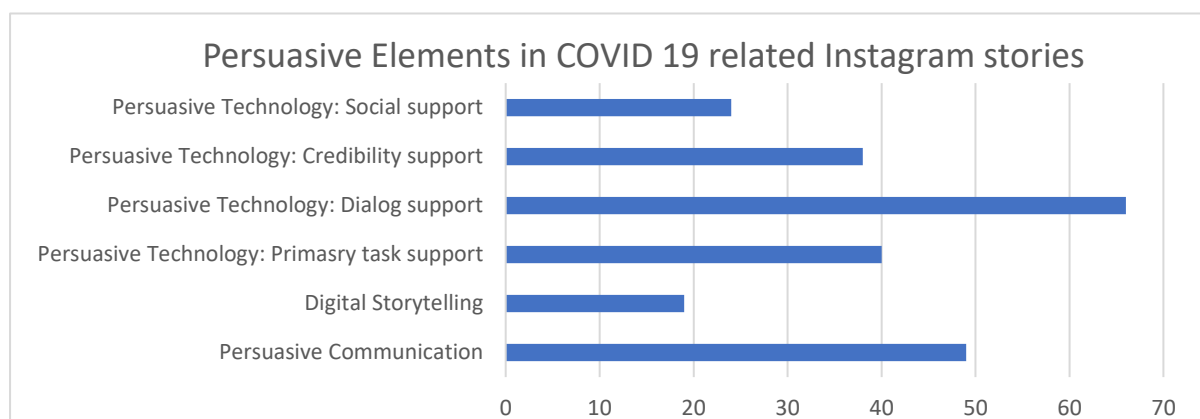


Figure 2. Frequency of the elements found in COVID-19-related Instagram stories according to the theoretical model

II. Phase Two

Similarly, the second phase of data analysis on transcribed interview data was thematically analysed in ATLAS.ti. Thematic analysis is defined as the analysis of narratives qualitatively. This study chooses the six-step framework for thematic analysis proposed by Braun and Clarke (2006). Braun and Clarke (2006) state that the thematic analysis consists of six phases. The analysis starts with familiarisation with data, followed by preliminary coding, finding themes, reviewing themes, defining themes, naming themes, and finally, producing the report. In the first step, the interview transcripts were read multiple times to become familiar with the quotes and statements used in the interview data and to obtain a general idea of what is the general opinion of interview participants on the persuasiveness of COVID-19-related Instagram stories in creating awareness of the disease.

In the second step, the critical points of the interview text of each participant were extracted separately and tabularised into eleven preliminary codes. Eleven preliminary codes have been categorised into potential subthemes in the third step. In this step, ten themes have emerged for the central preliminary theme of “persuasiveness of COVID-19-related Instagram stories”. In the fourth step, the themes were reviewed regarding the associated quotation to ensure the validity of the theme based on the interview data. In the fifth step, the themes were named and defined based on the nature of the themes concerning the meaning and the aspect of the quotation or interview data they represent. In the final step, the themes were analysed by the relevant codes and other themes to provide a comprehensive representation to answer research question two of the study.

Results and Discussion

The outcome of the first phase of QCA shows that the COVID-19-related Instagram stories considerably contain elements from digital storytelling, persuasive technology and persuasive

communication. Among the analysed 100 COVID-19-related Instagram stories, elements under dialogue support have been mostly identified. However, elements from other categories of primary task support, credibility support, and social support have also been significantly identified from the persuasive technological perspective. Furthermore, many of the stories were based on the educational aspects of COVID-19 and the COVID-19 vaccination. It might result from COVID-19 being new to the general people, and COVID-19 vaccination is a controversial topic across the globe (Karlsson et al., 2021; Paris et al., 2021).

A recent study uncovered that belief in COVID-19 misinformation considerably reduces the willingness to get vaccinated (Roozenbeek et al., 2020). Hence, it is critical to ramp up defences against the COVID-19 vaccine misinformation and exploit effective strategies to curb its influence (van der Linden et al., 2021). Hence, inculcation of the importance of vaccination against COVID-19 and proper education on the disease of COVID-19 infections to the public is essential to ensure that people follow other health guidelines and preventive measures. The interview transcripts and preliminary themes were analysed using ATLAS.ti, as shown in Figure 3.

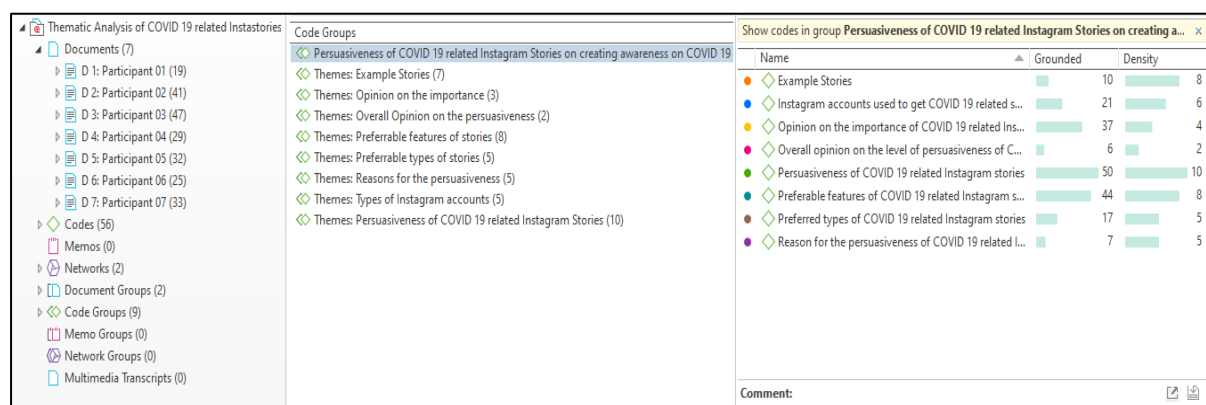


Figure 3. The Themes Established in ATLAS.ti from the Sample of Instagram Stories

The themes were entirely subjective and named based on the meaning of the supporting quotation. The main theme of “persuasiveness of COVID-19-related Instagram stories” has ten sub-themes: *alarming, comforting, commitment, educating, inculcation, instruction, loss of intensity, reminder, sentiment, and stimulation*. The theme of “reason for the persuasiveness of COVID-19 related Instagram stories” has five sub-themes: *easy navigation to verify the information, intention to imitate the celebrity influencer, real-life portrayal, reminder and validity of the information*.

The theme of “overall opinion on the persuasiveness of COVID-19 related Instagram stories” has high and moderate sub-themes. The low persuasiveness had yet to be identified in the analysis. The next theme, “Opinion on the importance of COVID-19-related Instagram stories,” has positive,

neutral, and negative sub-themes. The consecutive main theme of “preferable features of COVID-19 related Instagram stories” has eight themes: *advertisement-free, easy navigation, fancy content, professional interface, real-life portrayal, simplicity, stories as a system and varieties of stories.*

The next main theme of “preferable types of COVID-19-related Instagram stories” has five sub-themes: *animation, image stories, real-time video/ live video, stories with interactive stickers, and video stories.* The next main theme of “Instagram accounts used to get COVID-19 related Instagram stories” contains five sub-themes: *authorised international organisations, hospital or medical corporations, influencers, interdisciplinary organisations, and media.*

The last main theme, “examples of COVID-19-related Instagram stories,” has sub-themes of *cremation of dead bodies, lab work related to COVID-19 research, preventive measures, sanitising, vaccination, and wearing a mask.* Figure 4 showcases the network view of the main and sub-themes that emerged from the thematic analysis.

Table 3. Themes, sub-themes, and supporting quotations were extracted from the thematic analysis of interview data and justifying elements.

Main theme	Sub-theme	Example interpretation from quotation	Elements from the theoretical model justify persuasiveness.
Persuasiveness of COVID-19-related Instagram stories	Alarming	"When I see the death count related stories, it made a great threatening and made an impact of getting responsible over this."	Social Proof, Social facilitation, Reminder
	Comforting	"It gives hope like if we take preventive measures; we can be safe from the infection."	Social role
	Commitment	"I actually got to know the seriousness of the disease and felt like I have a responsibility to protect myself, and from protecting myself, I can break the chain of spreading."	Commitment, Normative influence
	Educating	"I learned so many things about COVID-19 as it was a new and unknown science to common people."	Social facilitation, Social role
	Inculcation	"By viewing the lifestyle of the influencers during the pandemic time, I got influenced by them and followed a pre-cautious lifestyle."	Normative Influence, Liking
	Instruction	"Hammad Medical Corporation provided stories on the way to act once we got infected with COVID-19."	Social role, Authority
	Loss of Intensity	"As the days pass by, almost all the social media contents have made the serious content of COVID-19 into meme content."	Intention
	Reminder	"During the first wave in 2020, many people were posting like stay home, wash your hands, wear a mask."	Suggestion, Reminder, Social role, Social Facilitation
	Sentiment	"Insta stories which were based on the real-life struggle of the people during pandemic had created fear as well sympathy on the affected people."	Liking, Real world feel, Normative Influence
	Stimulation	"Use of vaccination sticker in the Instagram story has become a trend."	Normative Influence, Liking
Reason for the persuasiveness of COVID-19-related Instagram stories	Easy navigation to verify the information	"Instagram stories provide swipe up link to navigate external sources to get more information."	Tailoring, Tunnelling, Reduction, Verifiability, Surface Credibility
	Intention to imitate the celebrity influencer	"When Cristiano Ronaldo suggested using a mask, being a fan, I got positive impact from his stories wearing masks."	Liking, Rehearsal
	Real-life portrayal	"Stories portraying the behind the scene or real-life practice made a huge impact on me."	Personalisation, Real world feel
	Reminder	"I saw an influencer's story where she opened a parcel after spraying disinfection spray; it was a reminder and suggestion to follow the health guidelines."	Reminder, Commitment, Social Facilitation
	Validity of the information	"I followed the stories from verified accounts and from authorised bodies."	Verifiability, Surface credibility, Trustworthiness, Expertise
Overall opinion on the persuasiveness of COVID-19-related Instagram stories	High	"The impact of COVID-19 related Instagram stories were really high in creating awareness and making people cautious all the time."	Liking
	Moderate	"Nowadays Instagram stories lead to creating meme contents towards the kinds of stuff related to COVID-19."	Liking
Opinion on the importance of COVID-19-related Instagram stories	Positive	"The stories content should not be leaven, and certain authorities and global health organisations must continuously work on giving updates to the younger generation."	Liking
	Neutral	"From my honest opinion, Instagram is famous for knowing trending fashion and lifestyle. This way, Instagram stories are unsuitable for getting more information on COVID-19."	Liking
	Negative	"I cannot get detailed information about COVID-19 from Instagram stories, and I need to look for other social media for detailed information."	Liking
Preferable features of COVID-19-related Instagram stories	Advertisement free	"Instagram stories are 15 seconds in length and advertisement free, so it is hassle-free to view continuously."	Surface Credibility, Real world feel
	Easy navigation	"The interface of Instagram stories is easy to navigate to view the next story by a simple single tap."	Reduction
	Fancy contents	"Instagram stories are fancy and short."	Personalisation, Liking
	Professional interface	"Settings and interface of Instagram are somewhat easy to use and look so professional."	Liking, Expertise, Length and design, Recognition
	Real-life portrayal	"Instagram stories are based on real-life updates and portray the lifestyle and struggles faced by the people through stories."	Lived experience of the author, Real world feel.
	Simplicity	"I hope that due to the simplicity of the features and the diversity of the types of stories, it is interesting to view."	Reduction, Length and Design

	Stories as a system	“Instagram stories contain technological elements in terms of filters and interactive stickers; thus, stories are highly interesting and impactful.”	Expertise, Corporation,
	Varieties of stories	“It usually has a variety of stories, so viewing the story is interesting.”	Personalisation
Preferable types of COVID-19-related Instagram stories	Animation	“In my perspective, animated videos or the real practical videos with vocal is much more effective to create awareness.”	Liking
	Image stories	“Image stories made a quick impact by showing a compact message.”	Liking, Photos more than moving images
	Real-time video/ live video	“Animated video and the lively captured video content in real-time is more appealing.”	Liking, Real world feel
	Stories with interactive stickers	“Interactive stories enable me to contact story creators in private.”	Liking
	Video stories	“I think it will be more colourful if it is a video or a short video kind of story.”	Liking
Instagram accounts used to get COVID-19-related Instagram stories	Authorised international organisations	“WHO, UNICEF, UN World representative bodies.”	Authority, Expertise
	Hospital or medical corporation	“Hamad Medical Corporation”	Authority, Expertise
	Influencers	“Desani Athawutha”, “thebumblingbiochemistry”, “celebrity influencer Cristiano Ronaldo”	Liking, Normative influence, Recognition
	Interdisciplinary organisations	“American Chemical Society”, “Ortho Chemistry”, “Institute of Chemical Engineering”, “Royal Society of Chemistry”	Expertise
	Media	“Al Jazeera”, “Newsfirst. lk”	Liking, Normative influence, Recognition
Examples of COVID-19-related Instagram stories	Charity campaign	“Few of the influencers in Malaysia raised a charity campaign using Instagram posts and stories using donation stickers during the pandemic time to help needy people affected from.”	Simulation, Social role
	Cremation of dead bodies	“The issues on the cremation of the dead bodies of COVID-19 patients were serious in Sri Lanka, and the scarcity of the burial or cremation space for dead bodies in India was seriously affecting me to be more responsible on following preventive measures.”	Social role, Reminder, Commitment
	The lab works related to COVID-19 research.	“thebumblingbiochemistry had shared one to three stories about her lab works and other stuffs on what is going on in the COVID-19 research, what is behind the biochemistry part in COVID-19 vaccination.”	Expertise
	Preventive measures	“In Doha Hamad Medical Corporation (HMC) create contents clarifying preventive measures including proactive and reactive measures using multiple languages.”	Simulation, Reminder, Rehearsal, Social learning
	Sanitising	“One of the influencers sprayed a sanitiser over a parcel she received via door delivery, and it greatly impacted following the health guidelines properly.”	Simulation, Reminder, Rehearsal,
	Vaccination	“Many local and international doctors have posted the behind the scene pictures of vaccination with vaccination stickers. As the vaccination issue was a controversial issue in earlier times, I was afraid of getting vaccinated. But as I saw doctors' stories, I got rid of my fear and got vaccinated.”	Authority, Expertise, Simulation
	Wearing mask	“A celebrity influencer Cristiano Ronaldo suggested a mask to wear to prevent COVID-19 infection. He posted many stories related to wearing masks and practising more preventive measures. It made an impact to imitate him.”	Simulation, Reminder, Rehearsal, Social learning

Emerged subthemes from the thematic analysis show that the persuasiveness of the COVID-19-related Instagram stories has considerably persuaded the story's viewers from various perspectives. For instance, the sub-theme “alarming” is defined as a kind of threat for the betterment. It can be seen from the perspective of the persuasive principle of reminder and social role under dialogue support and through the principle of social facilitation category under social support. The subtheme of “commitment” is justified through the elements of commitment from Cialdini’s principle of persuasion and the normative influence of persuasive system design. Similarly, the subtheme of educating is justified through social facilitation and social role; inculcation is justified through the normative influence of and the liking principles; instruction is justified through social role and authority; loss of intensity is explained through the intention and reminder. Correspondingly, Table 3 portrays elements from the theoretical model to justify the subthemes. The following subsection composes the findings from phase two of the thematic analysis according to similar literature.

The Persuasiveness of COVID-19-Related Instagram Stories

The findings of the majority of the sub-themes under the theme of “persuasiveness of COVID-19-related Instagram stories” clearly aligned with the research findings from various literature. For example, Lunn et al. (2020) emphasised the need for interventions to change human behaviours to practice handwashing and the education aspects of face touching, coping with isolation, and other health measures to be followed by people during pandemics. Further, Lunn et al. (2020) stated that education and information are important but insufficient to change habits. Al-Dmour et al. (2020) revealed that social media platforms heavily influenced public health protection against COVID-19. Al-Dmour et al. (2020) also suggested that social media platforms influence the awareness of public health behavioural changes and general safety against COVID-19. Al-Dmour et al. (2020) stated a significant link between the use of social media and public health awareness, public behavioural changes, and health protection. Public health authorities may use social media platforms as a highly effective tool to increase public health awareness by disseminating brief messages to targeted populations. The above-discussed outcomes of the previous literature support the emergence of the sub-themes of educating, inculcation, instruction and stimulation.

In addition, the sub-theme of 'loss of intensity' is supported by a recent study by Abidin (2020), which explores meme factory cultures and content pivoting in Singapore and Malaysia during COVID-19. Similarly, the role of COVID-19-related Instagram stories in educational aspects is supported by the statement that social media and mass media played a significant role in spreading awareness about the new Coronavirus COVID-19 (Barua, 2021). The emerging sub-theme of comforting is meant to give hope by eliminating the fear of passing away from the infection of COVID-19. It is achieved by inculcating that “If you follow the health guidelines seriously, you can

be protected from the infection". This claim is supported by the findings of Alfatease et al. (2021), which state that social media information impacts their psychological well-being.

Reason for the Persuasiveness of COVID-19-Related Instagram Stories

The following quotations belong to the sub-themes of easy navigation to verify the information and education. *"Instagram stories provide a swipe-up link to navigate external sources to get more information (Participant 02)"* and *"I learned so many things about COVID-19 as it was a new and unknown science to common people (Participant 04)"*. It is supported by the findings of Morgan et al. (2021), which say that social media is used to keep updated about COVID-19 issues. Further, Pennycook et al. (2020) evidenced that people partly tend to share untruthful claims about COVID-19 because they fail to think sufficiently about the accuracy of the content. In contrast to the findings of Pennycook et al. (2020), this study portrayed that Instagram story viewers are more concerned about verifying the information provided by the story. It is achieved by following the stories of verified accounts, authorised organisations and government bodies, and authorised media and expert influencers. Hence, the persuasiveness of COVID-19-related Instagram stories in disseminating accurate information can be expected to be high compared to other social media.

This argument is further solidified by the sub-themes of validity of the information and easy navigation to verify the information of the central theme, "reason for the persuasiveness of COVID-19 related Instagram stories". It is again supported by the findings of Noor Alshareef (2021) that says participants who acquired their COVID-19 information from the Saudi Arabian Ministry of Health were more likely to have an optimistic attitude and follow preventive steps than those who obtained their information from other sources. Furthermore, González-Padilla and Tortolero-Blanco (2020) provided guidelines for the responsible use of information in social media during the COVID-19 pandemic derived from Chan et al. (2020). González-Padilla and Tortolero-Blanco (2020) stated that COVID-19 should be disseminated through established professional platforms. In addition, González-Padilla and Tortolero-Blanco (2020) mentioned that the information should be provided with the relevant source to ensure it is clear and from a trusted source. The COVID-19-related Instagram stories adapt as they allow for swipe-up links, mentions and tags to navigate the viewer to hunt for additional information.

Overall Opinion on the Persuasiveness of COVID-19-Related Instagram Stories

The sub-themes regarding the persuasiveness of COVID-19-related Instagram stories were categorized as either "high" or "moderate." The "high" sub-theme is illustrated by the following quotation: "The persuasiveness of COVID-19-related Instagram stories was high in creating awareness and making people cautious all the time" (Participant 03). The "moderate" sub-theme is

reflected in this quotation: “Nowadays, Instagram stories tend to create meme content related to COVID-19” (Participant 05). These findings align with Savitri and Irwansyah (2021), who noted that all informants held a positive attitude towards using Instagram stories, leading to their active use during the COVID-19 pandemic.

Opinion on the Importance of COVID-19-Related Instagram Stories

The sub-theme under this main theme was Positive, Neutral and Negative. The following quotation raises the sub-theme of “Positive”. *“The stories content should not be leaven, and certain authorities and global health organisations must continuously work on giving updates to the younger generation (Participant 06)”*. Similarly, the sub-theme of “Neutral” emerged from the following quotation. *“In my honest opinion, Instagram is famous for knowing trending fashion and lifestyle. This way, Instagram stories are not that suitable to get more information on COVID-19 (Participant 05)”*. Consequently, the “negative” theme emerged from the subsequent quotation. *“I cannot get detailed information about COVID-19 from Instagram stories, and I need to look for other social media for detailed information (Participant 02)”*.

Again, the sub-themes of positive and neutral claims support the findings of Savitri and Irwansyah (2021), who highlight the positive aspects of Instagram stories’ usage during the COVID-19 pandemic. Additionally, the negative sub-theme is supported by the arguments presented in Alnasser et al. (2020), which discuss the positive impact of social media on COVID-19 awareness in Saudi Arabia. Alnasser et al. (2020) revealed that the most widely used social media platforms included Twitter, WhatsApp, YouTube, Snapchat, and TikTok. Their findings indicate that social media usage during the COVID-19 pandemic is not universal; it varies based on geographical and demographic factors. Therefore, the emergence of the negative sub-theme, derived from the quotation of only one participant, does not negate the importance of COVID-19-related Instagram stories.

Preferable Features of COVID-19-Related Instagram Stories

Instagram began rolling out the Instagram story advertisements tool to all business accounts in March 2017 (Ganta, 2020). This option enables organisations to leverage targeting and reach capabilities through advertisements (Ganta, 2020). However, unlike other social media platforms, Instagram stories, especially stories from non-business accounts, do not necessarily have advertisements. Hence, viewing Instagram stories provides a hassle-free way to acquire information. Gitlin (n.d.) stated that social media users often say advertisements are overwhelming. Instagram is meant to be easy for a user and an attractive interface (Mukhtar, 2022). This way, this study claims that the COVID 19 related Instagram stories made a high persuasiveness through the variety of stories with fancy content

like Augmented Reality (AR) elements (Savitri & Irwansyah, 2021) and the professional interface (Gitlin, n.d.).

Preferable Types of COVID-19-Related Instagram Stories

Based on the thematic analysis, it was identified that animation, image stories, real-time video/ live video, stories with interactive stickers, and video stories are the most impactful and preferred types of COVID-19-related Instagram stories. Most subthemes are supported by the theory of Lambert (2013), which claims that the application of digital stories can be used for telling an organisation's story, persuasion or as a prompt to action, reflective practice, health and human services and more. Further, the application of elements of digital storytelling by Lambert (2013) can be seen through persuasion or as a prompt to action justifies that the digital story attracts the audience to consider the issue, have a more profound sense of the issue's importance, and consider the idea or approach or experience. Hence, most of the sub-themes rely upon the elements of digital storytelling (Lambert, 2013).

Instagram Accounts Used to Get COVID-19-Related Instagram Stories

All seven interview participants stated they viewed stories from authorised international organisations, hospitals or medical corporations, influencers, interdisciplinary organisations, or the mass media's Instagram pages. The subthemes are supported by the findings from González-Padilla and Tortolero-Blanco (2020) and Alshareef et al. (2021) on getting information from verified and professionally expert personnel. Further, Alnaseer et al. (2020) showed that the official government social media page was a regular source of information. Similar outcomes were observed in a study on obtaining information through official sources by Bhagavathula (2020).

Examples of COVID-19-Related Instagram Stories

When asked about COVID-19-related Instagram stories that persuaded them to raise awareness, respondents shared unique examples. These stories focused on themes such as charity campaigns to raise funds for those affected by COVID-19 and the cremation of dead bodies. Cremation was a significant religious concern in Sri Lanka during 2020 and 2021, and it became a major issue in India during the third wave due to the shortage of space for cremation. This situation heightened fears of the disease and reinforced the need for strict preventive measures.

Other examples included stories about laboratory work related to COVID-19 research, showing behind-the-scenes efforts in testing and vaccine production. Stories also emphasised preventive measures such as regular sanitising, vaccination, and mask-wearing. Overall, the stories were centred on raising awareness about preventing COVID-19 infection. For instance, the

persuasiveness of stories related to vaccination aligns with the findings of Alfatease et al. (2021), which highlight the significant role of social media in promoting vaccination.

In summary, the thematic analysis of the qualitative interview data depicts that the COVID-19-related Instagram stories were significantly persuasive, and viewers were persuaded to get updated on the disease and bring awareness of practising preventive measures. Subsequently, this section describes a relationship analysis of the main themes of the thematic analysis through a co-occurrence table (see Table 4).

Table 4. Co-occurrence table of the preliminary themes.

	Example Stories	Impacts of COVID-19-related Instagram Stories	Instagram accounts used to get COVID-19-related stories	Opinion on the importance of COVID-19-related Instagram stories	Overall opinion on the level of impact of COVID-19-related Instagram stories	Preferable features of COVID-19-related Instagram stories	Preferred types of COVID-19-related Instagram stories	Reason for the impact of COVID-19-related Instagram stories
Example Stories	-	8	4	-	-	-	-	1
Persuasiveness of COVID-19-related Instagram stories	8	-	6	12	2	9	-	3
Instagram accounts used to get COVID-19-related stories	4	6	-	-	-	-	-	-
Opinion on the importance of COVID-19-related Instagram stories	-	12	-	-	5	11	1	1
Overall opinion on the level of impact of COVID-19-related Instagram stories	-	2	-	5	-	-	-	-
Preferable features of COVID-19-related Instagram stories.	-	9	-	11	-	-	-	3
Preferred types of COVID-19-related Instagram stories.	-	-	-	1	-	-	-	-
Reason for the persuasiveness of COVID-19-related Instagram stories	1	3	-	1	-	3	-	-

Table 4 depicts the correlation between the identified main themes. From the table, the occurrence of the persuasiveness of COVID-19-related Instagram stories is twelve times used with the occurrence of opinion on the importance of COVID-19-related Instagram stories. Moreover, the features of COVID-19-related Instagram stories are preferred eleven times, with the quotation stating the significance of COVID-19-related Instagram stories. Similarly, the preferred features of COVID-19-related Instagram stories have been used nine times with quotations from the theme of the persuasiveness of COVID-19-related Instagram stories. The quotation's number of occurrences is relatively used and shows the relationship among the identified themes. Therefore, the persuasiveness of COVID-19-related Instagram stories is positively justified through the co-occurrence table above.

The thematic analysis identified several key persuasive elements within Instagram stories, revealing a nuanced interplay between qualitative and quantitative dimensions of user engagement.

Notably, the themes of "alarming," "comforting," and "educating" emerged prominently, with participants expressing that alarmingly framed content heightened their awareness of issues, particularly during the pandemic. This aligns with quantitative findings that showed a significant correlation between alarming narratives and increased user interaction rates, suggesting that urgency can effectively mobilise attention.

Conversely, content characterised as "comforting" resonated deeply, with users reporting feelings of reassurance and emotional support during uncertain times. The quantitative data reinforced this by demonstrating higher engagement metrics for stories that featured positive or soothing narratives. Similarly, the "educating" theme highlighted users' intrinsic motivation for knowledge acquisition, as reflected in the elevated interaction levels associated with informative content.

Furthermore, the analysis revealed that participants preferred storytelling elements such as animations and real-life portrayals over traditional static content, indicating a trend toward more dynamic and relatable formats. This preference underscores the importance of emotional connection and relatability in enhancing persuasiveness. This finding echoes established theories, such as the Extended Elaboration Likelihood Model, which posits that relatable content fosters deeper cognitive engagement.

To enhance the implications of these findings, it is crucial to articulate how they contribute to the public understanding of health communication via Instagram stories. For each identified theme, a concise interpretation of its significance can elucidate the broader impact of these persuasive elements on public health messaging. For instance, alarming content captures attention and motivates action, while comforting narratives can bolster community resilience during crises. By integrating these qualitative insights with the quantitative results, we better understand how specific persuasive elements resonate with audiences, ultimately reinforcing the significance of narrative style and emotional tone in compelling digital storytelling.

Conclusion

Distinctive sources of information influence attitudes and preventive actions differently within the context of a pandemic crisis (Alshareef et al., 2021). The role of various social media in propagating information on the novel Coronavirus COVID-19 and creating awareness among people on the disease was relayed highly. Among all social media, Instagram, especially Instagram stories, has been realised as a highly appealing platform to spend time with to get updated on COVID-19-related information, especially for the younger generation. This qualitative study identified the elements of

COVID-19-related Instagram stories through the theories of digital storytelling, persuasive system design and persuasive communication. It explored the persuasiveness of COVID-19-related Instagram stories on viewers, creating awareness for disease prevention. It was found that the COVID-19-related Instagram stories employ a considerable number of elements from the three theories. In this way, the stories are crafted to achieve the desired level of persuasiveness among users.

Furthermore, the study found that the use of Instagram stories to receive updates on COVID-19 issues and learn about prevention measures is significantly high. This suggests that the persuasiveness of COVID-19-related Instagram stories in raising awareness is notable among viewers. The study recommends that incorporating elements of digital storytelling, persuasive system design, and persuasive technology can enhance the effectiveness of these stories in achieving the desired level of persuasion.

Alshareef et al. (2021) recommended that Saudi Arabian health authorities focus on using appropriate social media platforms to effectively disseminate critical information to the public. They further demonstrated that different communication channels can influence attitudes and preventive behaviours during a pandemic. This qualitative study shows that authorized bodies, government organizations, and expert influencers can use Instagram stories to convey important COVID-19-related information, as well as other topics, to the public. Most participants acknowledged the educational value of Instagram stories and the credibility of the information they provide. Therefore, it is suggested that Instagram stories are particularly persuasive in raising awareness, as viewers tend to recognize both the validity of the information and the minimalistic portrayal of the content.

However, the use of Instagram stories is more prevalent among Generation Z, Millennials, and some cohorts of Generation X. To reach Generation X and Baby Boomers, Instagram stories may be less effective, as those groups predominantly use Facebook. Additionally, participants noted that they often emulate the behaviour of celebrities featured in Instagram stories. As celebrities continue to produce content for social media, the practice of tailoring messages through positive role models can also contribute to the persuasiveness of these stories.

In conclusion, adopting the successful digital storytelling techniques identified in this study is crucial for improving health crisis communication in future public health campaigns beyond COVID-19. For example, leveraging the distinct appeal of Instagram stories can enable the effective dissemination of critical information during future health crises, ensuring that important messages reach a diverse audience. Alshareef et al. (2021) recommend that Saudi Arabian health authorities

prioritize the use of relevant social media platforms for public communication, a strategy that can be applied across various contexts.

Moreover, the study suggests that authorized bodies, government organizations, and influencers consider incorporating celebrity endorsements in their Instagram narratives. Participants' tendency to imitate celebrity behaviour indicates that integrating positive role models can strengthen the persuasiveness of health messages. By tailoring stories to resonate with different demographic groups, particularly Generation X and Baby Boomers through more appropriate platforms, health communicators can expand their reach and impact.

Overall, the findings of this study offer valuable insights for future health crisis communication. The strategic use of Instagram stories, supported by effective digital storytelling principles, can lead to more impactful public health communication strategies, ultimately fostering a more informed and health-conscious society.

Limitations and Future Research

While this study provides valuable insights into the effectiveness of Instagram stories in disseminating public health information during the COVID-19 pandemic, it has certain limitations. One fundamental limitation is that the perception of persuasive elements in Instagram stories may vary by region due to cultural, socioeconomic, and digital media consumption differences. Future research should expand the dataset by incorporating user stories across global regions and sectors. Additionally, it would be beneficial to employ mixed methods, incorporating quantitative approaches to measure viewer engagement alongside the qualitative thematic analysis. This would provide a more comprehensive understanding of how digital storytelling can be optimised for public health communication in future crises, addressing awareness and behavioural change. Lastly, exploring the influence of different audience demographics, such as age, education level, and digital literacy, could offer deeper insights into tailoring public health campaigns more effectively.

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