Netnography for Crisis Management and Information Systems Research

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Abstract

In this study, we champion netnography as a uniquely advantageous research method for both scholars and crisis management agencies. By examining a Facebook community's interactions during a health crisis, we illuminate how netnography can capture intricate social dynamics, including the level of public trust, in real time. This approach provides a nuanced, context-rich perspective often missing in traditional research methods, enhancing our understanding of crisis communication strategies. Our study underscores netnography's unique utility in crisis management, particularly its ability to document evolving communication patterns and public sentiment. This research posits netnography as an invaluable method, suggesting its wider adoption can significantly enhance the efficacy of social media as a tool for crisis communication.

Keywords: Netnography, Information Systems, crisis management, methodology, public health communication

1. Introduction

We confronted a monumental health crisis in the form of COVID-19, which had enduring repercussions on societies worldwide. In response to the pandemic, countries enacted lockdowns and social distancing measures, hastening the integration of technology into both our economy and daily routines. Industries quickly transitioned to technology-focused business models (Wade & Shan, 2020). In this sense, Information and communication technologies (ICT) played a vital role in managing and mitigating the impact of the pandemic (Siau & Han, 2020).

As individuals, families, and communities increasingly relied on digital platforms to counteract the effects of social isolation (Power & Hadidi, 2021), the internet and social media became indispensable tools for emergency agencies. These platforms enabled real-time information sharing, enhancing situational awareness (Shahbazi et al., 2023). Moreover, they provided agencies with a mechanism to continuously assess the effectiveness of their crisis management strategies through public feedback loops (Herrera et al., 2023).

The robust capabilities of social media analytics have found a valuable place in crisis management, offering Public Service Organisations a dynamic and remote tool for situational awareness and two-way communication with affected communities (Loewenson et al., 2021; Reuter et al., 2020). Despite advancements in data extraction, classification, and analysis for crisis prevention, response, and evaluation (Hiltz et al., 2020; Maresh-Fuehrer & Smith, 2016), one method that has yet to fully secure its rightful place in information support systems for crisis management is netnography.

The COVID-19 pandemic profoundly impacted not only global societies but also the realm of academic research. Traditional research methods, such as fieldwork, focus groups, and interviews, became severely limited due to social distancing measures and lockdowns. However, the demand for academic insights to assist crisis management remained high.

We argue that netnography, a method that involves the study of online communities and digital interactions (Kozinets, 2019), offers a promising avenue for academic research in crisis contexts and also benefits crisis response agencies in the areas of crisis prevention, response, and evaluation. This study reveals " *how netnography can offer both the academic research community and emergency management agencies actionable insights gleaned from online communities*

that can significantly influence and inform crisis management strategies."

The coronavirus crisis has served as a significant catalyst for the emergence and evolution of netnography. The pandemic has accelerated social interactions online, making the study of these communities more crucial than ever. As society's tools and technologies have evolved, so too must netnography adapt to new platforms, rules, and types of data (Kozinets & Gambetti, 2020). Within this evolving context, our research applies netnography to examine the effectiveness of official health communications in conveying risk to the public. Our findings highlight the depth and nuance netnography can bring to understanding complex real-world issues like public health crises.

1.1. Academic research in the face of a global crisis: the COVID-19 pandemic

As of March 2020, COVID-19 had reached almost all countries in the world; many countries instituted travel lockdowns and quarantine measures. As countries remain under lockdown, researchers, like other non-essential workers, are needed to stay at home and only leave to purchase medicine or food, essential work, and exercise. This means that while there is a significant demand for research covering different aspects of the pandemic, researchers face a situation that could stall or hinder data collection and intervention delivery (Marhefka et al., 2020).

The COVID-19 pandemic deeply affected the academic community by introducing numerous challenges for researchers. The dynamic nature of major crises can make existing theories less relevant (Dinis-Oliveira, 2020) and constrain research capabilities and resources (Mugabushaka et al., 2022). Emergency systems, during the pandemic, prioritized immediate needs, pushing aside non-essential research (Sohrabi et al., 2021). Funding reallocations toward COVID-focused projects disrupted other significant research (Boin et al., 2020; Gao et al., 2021). The move to remote work notably impacted early-career scientists, limiting collaboration and opportunities (Byrom, 2020). Ethical considerations, particularly concerning participant well-being, became more pronounced during such crises (Surmiak et al., 2022). As a result, 2020 experienced a 10%-12% decline in publication rates across disciplines (Riccaboni & Verginer, 2022).

The sweeping impact of COVID-19 disrupted conventional data collection methods, such as field observations and interviews. Researchers like Cheadle and Pattinson (2021), who engaged in fieldwork during the pandemic, reported these limitations. To adapt to the new constraints, some researchers swiftly transitioned to alternative approaches. For example, Tremblay et al.

(2021) adopted what they called "agile research," leveraging video-call software to conduct remote video ethnography, including 'home tours' and other elicitation techniques. Although this adaptation posed challenges, like missing sensory and emotional nuances, it also presented new opportunities and insights for conducting remote social research. Given the extensive reach of COVID-19's impact, there has been a growing call to reevaluate traditional research methods across various disciplines, including Information Systems research (Zhang et al., 2020). This adaptive landscape makes Kozinets' counsel particularly pertinent. "Just sit down with that nice mug of coffee, point your magic search engine in the right direction, click a couple of times, and start-up that free-flowing online conversation about" your topic (Kozinets, 2010a, p. 75). With physical gatherings and on-site resources constrained, researchers can take advantage of online platforms. These digital avenues enable the continuation of meaningful discourse, facilitate collaboration, and offer fresh insights, serving as invaluable resources for academic endeavours in a socially-distanced world.

1.2. Social Media Analytics as a support system for public service organisations

Social media analytics significantly bolster Public Service Organisations (PSOs) by improving their crisis response capabilities, especially in volatile settings. Emergency response organisations, a vital subset of PSOs, can leverage these analytics to seamlessly navigate between routine and crisis scenarios, echoing the "unstable equilibrium" theory presented by Herrera et al. (2023). Social media platforms offer PSOs real-time insights without the need for on-ground physical resources, as noted by Hughes and Palen (2012). Beyond just being communication tools, they act as dual-directional channels, facilitating swift reactions, early alerts, and combating misinformation, as highlighted by Pekar et al. (2020) and Zade et al. (2018). This rich data reservoir is instrumental for decision-making and community involvement, ensuring that PSOs maintain uninterrupted service, as emphasised by Ehnis and Bunker (2020), and Tapia and Moore (2014).

While social media is often utilised as a source of information by emergency response agencies, the benefits that netnography offers in interpreting this data are less acknowledged in such contexts. Netnography humanistic focus characteristic is particularly significant in an era dominated by big data analytics, which often fails to capture the richness of human experience and social interactions. As Thompson (2019) and O'Leary (2020) pointed out, the rush towards data-centric approaches risks overlooking the complexities of human behaviours and emotions, which cannot be adequately captured through large, quantitative data sets

alone. Netnography adopts ethnography methods to study online communities and understand the meanings, symbolism, and consumption patterns of online groups. Kozinets (2015) distinguished netnography from "unengaged content analysis" and explained it as a "more human-centred", participative, personally, socially and emotionally engaged vector". By complementing existing data analytics with netnographic studies, PSOs can develop a more comprehensive, human-centred approach to crisis management, ultimately enhancing the efficacy of their programs and communications.

2. Netnography

Ethnography is a method to study cultures through deep immersion, often using participant observation, as Aktinson and Hammersley (1998) highlighted. 'Netnography', coined by Kozinets (1998), is the online counterpart of ethnography and is predominantly employed in marketing research. Kozinets (2020) characterised netnography as a qualitative approach to social media research, detailing it as a blend of practices encompassing data collection, analysis, and interpretation through six intertwined stages. As technology evolves, netnography adapts, becoming vital for formulating discovery-oriented theories, as Kozinets and Gambetti (2020) discussed.

2.1. Netnography and crisis management

A crisis is an event threatening public safety, well-being, and trust, with potential financial and reputational impacts on organisations. Crisis management is a systematic method encompassing pre-crisis planning, immediate action, and post-crisis recovery, aiming to lessen threats and damage (Coombs, 2007). Ethnography aids crisis management by offering deep insights into the crisis facets, with studies like Kriyantono (2012) exploring the public's needs during a crisis. The flexible and adaptive nature of ethnographic research, as outlined by scholars like Emerson et al. (2011) and Van Maanen (2011), positions it as an optimal methodology for investigating complex events, e.g., a crisis. Ethnographers excel at uncovering latent meanings, values, and cultural practices that underpin these events. Given that crisis, events can be inherently dynamic, characterised by unexpected developments and changes in social dynamics (Hermann, 1963), ethnographic research offers the adaptability needed to shift focus, follow emergent themes, and explore new research questions as the event unfolds. This adaptability is particularly vital in high-stakes, rapidly evolving contexts like crisis management and emergency situations. However, during the COVID-19

pandemic, traditional ethnographic fieldwork faced considerable limitations due to public health measures like social distancing and self-isolation. To adapt to these challenges, researchers like Podjed (2021) turned to remote and technology-enabled ethnographic methods, allowing them to continue collecting valuable data despite the constraints.

Analogous to ethnography, Netnography allows researchers to delve into the contextual factors that are specific to each individual extreme event, thus shaping the study in accordance with what Knorr-Cetina (1983) refers to as the 'locally situated, occasioned character' of crisis. Studies, e.g., Stieglitz et al. (2018), highlighted that social media platforms become hubs for information dissemination and public engagement during a crisis, illustrating the extent and availability of crisis-relevant data for research. The data generated through social media allow for real-time monitoring of events and public sentiment, aiding decision-makers in managing crises (Lyson et al., 2019).

Netnography offers several advantages (Kozinets, 1998) that are highly beneficial for understanding crisis events. It allows researchers to access a large volume of free data from various time periods and geographic locations. Like ethnography, netnography is a naturalistic and unobtrusive research approach that focuses on studying social practices within their everyday context (Kozinets, 2010). Unlike traditional research methods, which often rely on questionnaires, interviews, or observations in physical settings, netnography enables researchers to examine naturally occurring conversations and interactions in digital environments. We argue that although netnography offers an authentic window into the sentiments and beliefs of social media users through user-generated data, it remains underrecognised in the field of crisis management research. This is particularly evident when compared to other social media analysis techniques, such as Social Network Analysis (SNA) and content analysis, which have been extensively employed by researchers, e.g., Stieglitz et al. (2017, 2018); Mirbabaie et al. (2020) analysis of Twitter data.

Netnography is a dynamic and evolving research method uniquely suited for the fluid cultural and technological landscapes of online environments (Kozinets, 2020), well-suited for studying the complex and ever-changing dynamics of crises. Acting as narrators, netnographers describe the multifaceted elements of online activities, weaving them into a coherent understanding of the real-world events they correspond to. This interpretive approach is particularly beneficial in the field of crisis management, as it allows for an in-depth exploration and analysis of the crisis event and the corresponding responses. For example, we leveraged netnography to conduct longitudinal research

into the challenges of creating "shared situational awareness" (SSA) throughout the COVID-19 pandemic. Our study uncovered how the sudden onset of the pandemic overwhelmed public health communication channels, thereby disrupting SSA during the crisis (Shahbazi et al., 2023). These findings offer critical insights into the repercussions of crisis management. The adaptability of netnography made it possible for the researchers to track the evolving situation and phenomena over time. This allowed them to draw nuanced conclusions about how changes in the crisis landscape influenced crisis response mechanisms. Thus, the fluidity of the netnographic approach enabled a rich, interconnected analysis that effectively bridged the crisis event with its digital reflections.

Comparably, Stieglitz et al. (2018) used statistical sentiment and social network analyses to reveal communication patterns on Twitter during crises. However, the researchers were able to explain the drivers of these patterns only by referring to crisis-relevant information that was not embedded in the analyses dataset, consequently, the explanation for the observed pattern was weakly supported in the discussion; "one possible explanation for this pattern could be that in the Germanwings case, many people lost their lives and the Twitter audience wanted to express sympathy (resulting in a high number of original tweets). Another reason might be that the cause of the Germanwings plane crash was unclear for many days and subject to speculation; therefore, communication about the event was variable and dynamic" (Stieglitz et al., 2018, p. 11).

Netnography offers a rich, interpretive approach to analysis, capable of incorporating a wide array of elements, integrating multiple data sources using interviews, data scraping, and archival work, online observation and advanced methods for data visualisation and thematic analysis (Kozinets, 2020). This comprehensive, holistic approach provides a more nuanced view of crises, capturing not just the apparent challenges but also subtle, often unexpected influences. This feature sets netnography apart from other research methods like content analysis, which generally focus on the systematic identification of specific message characteristics and are better suited for durable data (Stemler, 2000). While content analysis, as described by Holsti (1969), aims for objective categorization of text, netnography excels in the study of crises by uncovering surprising elements that were not initially the objective of the research. This advantage can assist researchers in uncovering surprising aspects of the event. For instance, during a crisis, e.g., the COVID-19 pandemic, government agencies increasingly rely on social media for crisis communication, but the spread of misinformation remains a concern (Basyurt et al., 2022).

Bunker et al. (2022) netnographic research revealed how the event's nature and the temporal characteristics of social media might generate tensions between objective and subjective information, thus exacerbating the spread of misinformation on public health channels (Shahbazi et al., 2023). Netnography facilitated a deep understanding of social media text, allowing researchers to adapt to new findings, settings, and contexts as they emerge, as was the case with the Crisis Lifecycle in our study.

In our 2018 study, we utilised a variety of data sources and integrated our understanding of the socio-economic and cultural characteristics of communities affected by extreme events to glean insights from Twitter data (Shahbazi et al., 2018). Although our approach is closely aligned with netnographic research principles, it's worth noting that we relied exclusively on content analysis as the research method. While content analysis has its merits, it lacks the depth of insight that netnography can offer, especially in the nuanced context of crisis scenarios. Consequently, this choice of methodology may have limited our ability to capture the full scope of socio-economic and cultural factors that influenced social media responses to the event. The subsequent sections provide a key example of how netnography can be applied in the field of crisis management. We employed netnography to examine the use of social media, specifically Facebook, by both officials and the public in response to infectious disease outbreaks and the COVID-19 pandemic. We aimed to uncover hidden dimensions of crisis management that could be broadly beneficial. A portion of our work that hasn't been presented before is presented here to showcase the effectiveness of netnography in revealing previously unexplored aspects of crisis response.

3. Netnography study of public health crisis communication; the COVID-19 pandemic in Australia

Organisations relied on information and communication technologies to respond to the COVID-19 pandemic and navigate its dynamic challenges (Siau & Han, 2020; Wade & Shan, 2020; Yang et al., 2020). The proliferation of social media has exacerbated the spread of misinformation during the COVID-19 pandemic. This has eroded trust in official sources, impaired situational awareness, hindered social response, and affected the effectiveness of government countermeasures. (Bermes, 2021; Buchanan, 2020; Bunker, 2020; Bunker et al., 2022; Fletcher et al., 2020; Kim et al., 2019). The situation has heightened societal concern and emphasised the urgent need for workable solutions. In Australia, the first COVID-19 case

emerged in January 2020, and the number of cases surpassed 6500, with over 70 deaths by April. The government responded with the Emergency Response Plan, including health screenings, travel bans, and eventually closing borders to non-citizens. National restrictions limited gatherings to two people, and Australians were required to stay home unless for essential reasons outlined by the government.

Our study began in 2019, building on previous findings that emergency response organisations faced challenges in using social media for crisis management, including issues of information quality, content creation and message positioning (Elbanna et al., 2019; Bunker et al., 2019). Initially, our research focused on an Australian public health use of Facebook to manage infectious disease outbreaks, specifically Measles. However, the focus shifted to the COVID-19 pandemic when it emerged in Australia in 2020. While the original study design combined netnography with an engaged scholarship approach involving various stakeholders and scholars (Van de Ven, 2007), we had to redesign the study due to COVID-19's impact on participant availability and research logistics. The following section outlines how we applied netnography in our study of public health crises.

3.1. Methodology and approach

As with traditional offline research methodologies, it is crucial to recognise that researching online communities demands the same level of rigour, trustworthiness, and ethical concern (Bertilsson, 2014). According to Kozinets (2020), while various types of online ethnography may include elements of netnography, what sets netnography apart is its systematic approach. In conducting our study, we followed the five steps of Netnography as outlined by Kozinets (2010a), including 1) defining the research question, 2) online community identification and selection, 3) online observation and data collection, 4) data analysis and iterative interpretation of findings and 5) presenting research findings and theoretical and practical implications. Our presentation of netnographic research aims to demonstrate the method's effectiveness while contributing insights into *how the content type and framing used by organisations in their crisis response can impact public perception and trust during a crisis (research question)*. These insights are intended to inform future message development strategies.

Netnographers (i.e., authors of the paper) in this study were situated within the context of the study (i.e., living in Australia), which helped to generate in-depth descriptions of the event and interpretation of findings. However, netnographers are nonparticipatory (passive) observers with limited involvement in the research setting (unobtrusive netnography), which means that, as outsiders, we remain impartial to and independent of the study context (Costello et al., 2017). The unobtrusive and passive study of our research context allows us to collect naturally occurring communications without influencing the data and which also supports our ability to analyse sensitive content within the dataset, e.g., tensions and conflicts (Langer & Beckman, 2005).

In line with our research objective, we selected an appropriate online community for observation. Online communities are considered communities of practice, a notion stemming from ethnographic studies of real-world communities (Lueg, 2007; Wenger, 1999). Guided by our research questions, we chose the New South Wales (NSW) Health Facebook page as our data source, as it is representative of Australian public health agencies' communication channels. NSW has the most extensive public health system in Australia's most populous state. Facebook is Australia's most dominant social networking service (Correll, 2020) and one of the official communications channels to provide critical health information to the general public (Australia, 2020). Hence, this community not only serves as a robust representation of the broader population but is also marked by active discussions on relevant topics. Its public accessibility and stable presence over time further enable us to collect data that directly informs our research question.

Our study focused on observing and analysing publicly accessible online behaviour, without directly interacting with the members of the online community. As such, these individuals were considered subjects of observation rather than active participants. This non-intrusive approach allowed our research to be categorised as low-risk, although we did acknowledge the potential for harm or discomfort to these passive participants. We were required to obtain ethics approval from the university's Human Research Ethics Committees, and the study was reviewed and conducted within the guidelines set out in the National Statement on Ethical Conduct in Human Research (2007) - Updated 2018 (NHMRC, 2018). To secure approval for a waiver of consent in accordance with the National Statement (2.3.10), we provided the following justifications: our research is categorised as low-risk and relies on publicly available social media data. Given the large and unspecified number of participants involved, obtaining individual consent is impractical. Furthermore, the societal benefits of understanding crisis management dynamics, risks, and shortcomings outweigh any minimal risks to participants. We also ensured that all social media data would be anonymised and securely stored, accessible only to authorised team members, and affirmed our compliance with all relevant laws while disavowing any intentions for commercial exploitation.

While it's acknowledged that some critics argue for the necessity of informed consent in online research Kozinets (2015, 2020), our study adhered to an "unobtrusive netnography" approach. The ethical debate in online research often hinges on whether the internet constitutes a public space where postings, already public, can be freely accessed and scrutinised by anyone (Hudson & Bruckman, 2004). While this may be true, it's also likely that most individuals posting online do not anticipate their content being analysed for research purposes (Finn, 1999). Given the impracticality of obtaining informed consent from a large and unknown number of online participants, our study proceeded without individual consent. While recognising the complexity of ethical concerns, we believe the societal benefits and timely importance of understanding crisis management dynamics justified this approach, effectively balancing ethical concerns while yielding valuable insights.

In our research, the concept of an "immersion journal," as outlined by Kozinets (2020), serves as more than a passive data repository. It is an evolving document that captures our engagement with technologically mediated social spaces. Rather than keeping conventional, structured field notes, we consistently collected posts and comments, storing them in Excel spreadsheets. Concurrently, we maintained our **field notes** in Word documents, which cross-referenced the stored posts and comments. Over a span of more than a year, we routinely gathered extensive data**,** including posts, comments, post IDs, parent IDs, dates, and times**,** from the online community. Although our diary lacked formal structure, it was diligently updated with timestamps and post IDs. This meticulous approach allowed us to track the timing and sequencing of community interactions effectively also enabled us to adapt to and investigate emerging phenomena **as they emerge**. The ability to later cross-reference post dates offered invaluable insights into the evolving communication patterns. We utilised our journal to cross-reference observations from 2019 while studying a phenomenon that emerged in 2020, as will be presented in the next section.

3.2. Observation: pre-crisis

We closely monitored various types of interactions—agency-to-public, public-to-public, and public-to-agency—related to discussions on infectious disease outbreaks. By scrutinising the content and sentiment of posts and comments, our observations confirmed that the public trusted this communication channel. We also determined how the public were leveraging Facebook to respond to infectious diseases and outbreak risks. The online community on Facebook became a crucial platform for **disseminating health alerts**, with users tagging friends about outbreak risks. This innovative approach allowed for the effective dissemination of information beyond traditional top-down methods. The platform also allowed users to **voice their concerns and anxieties** about outbreaks. Moreover, it functioned as a reliable **health forum** where users sought and provided information. Notably, discussions on vaccinations triggered debates, highlighting the community's varied viewpoints. These observations demonstrate the dynamic nature of user interactions and the significant role of the NSW Health Facebook page in *facilitating risk communication*, *addressing public concerns*, and *promoting health-related discussions*. To ensure the study's rigor and provide strong supporting evidence, we present an example of a discussion triggered by a post published by the agency on the NSW Health Facebook online community.

In August 2019, NSW Health posted an alert regarding the detection of a measles case and its movements within the state[1]. The agency urged the public to remain vigilant and monitor themselves for measles symptoms. The post garnered significant attention, being shared more than 5.6K times. Taking into account the average number of almost 400 Facebook friends for Australian users (©Statista, 2018), the message has potentially reached a substantial number of people across the country. This significant level of sharing highlights the trust placed in the information and the community. Upon delving into the conversation and content of over 1000 comments associated with the post, it became apparent that Facebook users actively sought health-related information by posting their queries under the post (e.g., *Can children still catch this after they had the vaccination 1-2 years ago?*). This user engagement demonstrated trust in the official online community as a reliable source of health information. Interestingly, 9NEWS Sydney[2], a well-known news agency in Australia, shared the same post on their Facebook page. However, we noticed that the information-seeking activities observed in the online space created by the official health agency were not replicated in the news agency's online platform. This further reinforces our argument regarding the *trust placed in the official online community* as a preferred source of trustworthy health information.

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[1] https://www.facebook.com/NewSouthWalesHealth/photos/a.23242 0926957256/986080081591333

[2] https://www.facebook.com/9NewsSydney/photos/a.2654737037983 33/914696482209382/

3.3. COVID-19 pandemic in Australia and social media crisis management

Dickmann et al. (2015) suggested that communication interventions during a public health crisis are crucial for preparedness, response, and recovery. Hunter et al. (2019) showed social media platforms can effectively influence health behaviours and facilitate communication between health agencies and the public. However, due to the unpredictable nature of infectious disease outbreaks, traditional health promotion and crisis communication methods may not be feasible (Holmes, 2008).

In the case of the COVID-19 pandemic, with no vaccine or cure available, health authorities turned to intervention efforts and utilised social media platforms to reach a broad audience. We observed NSW Health experienced a significant surge in its Facebook activity during the initial four months of 2020, surpassing the organisation's entire activity for the previous year, demonstrating the agency's heightened efforts to address the ongoing pandemic using the platform. We observed that the use of Facebook by NSW Health to address the pandemic directed to (1) facilitating risk communication, (2) responding to public concerns and queries (3) behaviour intervention (Shahbazi, et al., 2023). This shift in the agency's approach indicated a proactive strategy to leverage the online community as a platform for promoting and shaping public health behaviours. However, our observation of NSW Health's early Facebook messages and living in Australia during the COVID-19 pandemic highlighted a discrepancy between the information provided by the health agency and the public's reaction to the crisis. Despite the agency's efforts, the public's response was not fully aligned with the communicated information. For instance, despite NSW Health advising against panic buying, there was a surge in panic-buying behaviours in early 2020 (Wright, 2020). Additionally, although social distancing advice was communicated on social media, popular beaches like Bondi remained crowded, leading to their closure.

To better understand online community dynamics during COVID-19, we analyzed three pandemic alerts from NSW Health's Facebook page. By comparing these with a previous Measles alert, we discerned the crisis's impact on the online community. Our observations revealed that a significant portion of interactions still involved public users alerting their friends and family by tagging them in the comments. Additionally, social media served as a platform for users to seek information about the outbreak and ask health-related questions. A notable pattern emerged within the online community during the pandemic, with users expressing appreciation for the health authority's effective disease management.

However, it is important to acknowledge the existence of strong arguments and criticisms against the agency's communication approach and information, e.g., "*Such terrible handling of the whole thing!*". These conflicting opinions and criticisms targeting the agency barely existed before COVID-19 reflect a potential erosion of trust among the public, highlighting the need for further investigation and analysis.

We observed that the Measles alert published before the COVID-19 pandemic contained more detailed information, such as the specific date, time, and location of the case. In contrast, the COVID alerts were more frequent but potentially less detailed, indicating a change in the agency's communication strategy. This shift was met with criticism from users who expected more specific information, e.g., "*How come with measles you list out the places the patients have visited but not with this virus?.... .*" This difference in information provided could indicate that during the COVID-19 pandemic, health authorities focused more on the rapid dissemination of alerts and updates, given the widespread nature of the virus and the need to reach a larger audience quickly. However, this approach might impact audience trust and, therefore, the effectiveness of public health crisis communication. By actively listening to feedback from the public, the agency can identify areas for improvement and make necessary adjustments to its communication strategies and information dissemination approaches. Learning from this feedback can help rebuild trust, enhance transparency, and strengthen the agency's relationship with the public during times of crisis. Further research can explore the underlying factors contributing to trust erosion and how health authorities can effectively learn and respond to conflicting opinions to maintain public trust in times of crisis.

4. Conclusion

This study highlighted the valuable application of netnography in Information Systems and Crisis Management research, particularly in analysing human behaviour and interactions within online communities during a major crisis. The advantages of using netnography in our study were manifold. First, it offered us the opportunity to study a large and diverse audience in a naturalistic setting, thereby increasing the trustworthiness of our findings. Second, the method facilitated the timely collection of mass data, which was particularly crucial given the fast-paced changes characteristic of crisis. Moreover, netnography's adaptability allowed us to maintain the relevance of our research objectives, even when external circumstances like the COVID-19 pandemic prompted a change in focus and approach. Most importantly, this approach

provided a nuanced understanding of public trust and interaction patterns, offering agencies valuable insights into effective crisis communication strategies. Therefore, netnography emerged as not just a methodological choice, but as a critical tool for navigating the intricate landscape of crisis communication in the age of social media.

4.1. Limitations and challenges

In the context of this study, netnography is employed to explore Facebook as a mediator, connecting individuals and facilitating unique virtual communities with distinct applications. However, conducting qualitative research using social media data presents challenges, particularly in terms of handling large datasets and addressing sampling concerns. Social media platforms offer APIs for data retrieval, but researchers must consider potential selection bias and carefully determine the sampling window to ensure comprehensive coverage of past phenomena. We utilized a custom Python app to collect a large volume of data from Facebook. After the Cambridge Analytica scandal, Facebook restricted access to its API (Schroepfer, 2018), which in turn limited the scope of longitudinal studies, especially those with an extensive time window. In the process of data cleaning and sampling, keyword selection plays a crucial role in ensuring the study's inclusiveness and objectivity. Netnographers carefully choose keywords that align with their study objectives. In our study, we sought validation from informants who were not directly involved in the study to enhance the trustworthiness of our sampling and data cleaning. This external validation adds credibility to our approach and strengthens the reliability of our findings. However, the bias in interpretation of human behaviour remains an inherent characteristic of both ethnography and netnography. Understanding social media users and their online culture is of paramount importance; however, access to private profiles is often restricted due to ethical and privacy concerns. To ensure the strength of presenting results, we quoted users' comments while carefully removing any identifying information that could trace back to them. While this approach is valuable to enhance the trustworthiness of netnography research findings, it is important to acknowledge that ethical dilemmas may still arise, particularly for highly sensitive topics, as the quotes can be searched and traced back to their origin. As with traditional offline research methodologies, it is crucial to recognise that researching online communities demands the same level of rigour, trustworthiness, and ethical concern (Bertilsson, 2014). Therefore, we advocate for further research to explore alternative approaches in netnography that address these ethical concerns and bridge this gap. This will allow for a more robust and ethical study of online communities while respecting the privacy and confidentiality of participants.

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