Bridging The Gap In Rural Health Communications: A Preliminary Study

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Contents

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I lived in a rural town in northeastern Alberta for the last five years where access to healthcare has always been challenging and tenuous. Prior to the pandemic, recruiting and retaining quality healthcare professionals in rural areas was already difficult (Matthews & Park, 2007), and while the situation was not ideal, it was not dire. Post-pandemic circumstances, however, saw frequent emergency room closures all across Canada, with hospital beds left empty due to the lack of nursing staff (Kitching, 2022). In the past year, rural residents in the area I live in, Cold Lake, have taken to social media to find doctor availability and emergency room wait times. This information enables them to determine if the emergency room is available and make informed decisions regarding undertaking travel to a hospital where they may have the best chances of being seen by a doctor. The situation in healthcare was made worse by COVID-19 as the loss of qualified healthcare personnel is particularly felt in rural areas (Lowrie, 2022). Based on this experience, the research questions guiding this inquiry are: How are residents in rural communities using social media to help them make informed decisions about doctors and the availability of healthcare services? Why are residents in rural areas using social media to help them make informed decisions regarding healthcare?

Literature Review

This literature review focuses on the use of social media during crises and in healthcare communications. I discuss and build on notable findings and identify gaps in the present academic literature. My primary literature search filters were:

1. Journal/Conference Paper

2. 2002 or later

3. Country of Study

4. Social Media Use

5. Social media use during emergencies and in rural areas

6. Social media's role in health communications.

My literature review includes academic journal articles from 2012 until 2021; however, it is important to note that some of the sources are older because these sources identify the original works or theories. I sorted the literature by country to remain relevant to the Canadian context. However, the literature concerning social media use in rural communities and during crises is limited. After much deliberation, I further segmented the articles by North America with the North American context being of primary relevance.

At the time of writing, there were no specific papers covering the phenomenon of social media during crises and in healthcare communications in rural areas. When I entered 'social media use in rural areas in Canada' or 'social media use in rural Canada,' there were only 13 results, none of which were entirely relevant; they were primarily focused on social media use and none of the studies were based in rural areas. I was able to, however, find articles on the reasons behind social media use and the role it plays in healthcare communication. This literature review consists of three sections: communication theories (i.e., the uses and gratifications theory and public goods theory), technological factors facilitating the adaptation and/or use of social media, and environmental factors facilitating the adaptation and/or use of social media.

This study investigates the motivation and phenomena of rural residents taking to social media to find healthcare information to make an informed decision during medical situations.

Communication Theories

Uses and Gratifications Theory

The uses and gratifications (U&G) theory is often used to understand the motivations behind using social media. The U&G theory originated from the functionalist view on mass media communication (Luo, 2002) and comprises an inductive approach for creating classifications of different motivations and functions of media use (Ruggiero, 2000; Weiser, 2002). The U&G theory posits that individuals actively involved in media usage will categorize the communication media by its uses and associated gratifications (Luo, 2002). The theory explains why individuals use a specific medium and how the medium serves them through its functions (Katerattanakul, 2002).

Scholars posit that the U&G theory is based on the idea that users have specific reasons and motivations for selecting media, intentionally choosing a certain message that best fits their own personal needs (Stafford et al., 2004). There is the idea of 'taste' when examining the selection of media which suggests that the users choose the media based on their personal preferences and motivations, and that the media is a means to obtain an end goal (McQuail, 1984).

With the rise of increased use of Facebook, Twitter, and YouTube, especially during the pandemic, users have become connected and capable of interacting with each other and these platforms are becoming an increasingly popular part of our daily lives (Blank & Reisdorf, 2012). It has been argued that the value of social media is gained from emergent network effects, in which a significant number of users discover that the platform is helpful to them (Sawyer & Chen, 2012). Research suggests that the gratifications derived from social media could be from a place to obtain and distribute information, to a venue for providing feedback, and for participation in a community of connected people (Stassen, 2010). In the same vein, social media

users can be motivated by the specific content on these platforms or by the process of scrolling through their social media feed, or both.

Stafford and Stafford (1996) suggest that the motivation individuals have while using media is due to the available content or the experience derived from the process of media usage. These overarching categories are classified as content gratifications and process gratifications. Content gratification is defined as the message conveyed through the medium, and process gratification is concerned with the process of using the medium itself (Windahl et al., 2009).

When reviewing the literature, it is important to note that the most exceptional factors of the U&G theory in relation to social networking services were noted by (Ancu & Cozma, 2009; LaRose & Eastin, 2004; Park et al., 2009). After studying a group of 1,715 college students, it was derived that the four significant U&G theory factors of Social Networking Service (SNS) users are: socializing, entertainment, self-status seeking, and information. Ancu and Cozma's (2009) study about the U&G theory in using Facebook reported that the gratifications sought were, first, a desire for social interaction, next, information seeking, and lastly, entertainment. LaRose and Eastin (2004) discovered similar factors such as the need for information-seeking, entertainment, and social needs to be the most prevalent reasons why people use social media. It is evident that information seeking is one of the major U&G factors of Social Networking Service (SNS) users across various studies.

Besides content gratification and process gratification, social gratification can also be derived from using social media (Stafford et al., 2004). Social gratification is defined as the fulfillment of social expectation; it includes social interaction and networking (Gan & Wang, 2015).

Also, the role of an active audience in relation to the U&G theory suggests that audience activity is a range where "different individuals tend to display different types and amounts of activity in different communication settings and at different times in the communication process" (Ruggiero, 2000, p. 8). In the same vein, the dependency and deprivation theories both suggest that some individuals with some form of stress (possibly in the form of a global pandemic) could form a high attachment to media; this includes communication technologies in the form of remote devices (Ferguson & Perse, 1994).

Limitations with the U&G Theory. Despite the common use of the U&G theory for the study of social media use, Ruggiero (2000) outlines several limitations. The five most relevant to this discussion is, first, the U&G theory focuses on audience consumption and is thus often too individualistic. It then makes explaining the societal implications of social media use unpredictable (Ruggiero, 2000). Second, U&G researchers peg different meanings to the concepts for example motives, uses, and gratifications and hence, contribute to the confusion and inquiry. Third, the idea of an active audience and the validity of self-report data to determine motives are assumptions made by researchers. These assumptions have been deemed far too simple or naïve. The fourth limitation recognizes that there is a lack of clarity concerning main concepts such as needs, motives, and behaviour. Last, research done on the subject is too compartmentalized, hindering the development of main theory since the findings are not synthesized (Ruggiero, 2000).

Public Goods Theory

First coined in 1954 by Samuelson, the public goods theory was initially used to refer to the economics of collective ownership of physical items such as bridges and parks (Samuelson, 1954). The notion of knowledge as public good has long been recognized (Kaul et al., 1999) and

the first condition of a public good is the impossibility of exclusion. This means that even if you did not contribute to the creation of the good (e.g., information), you can use the information that has been created by others (e.g., asking and answering questions) to obtain the information you need. As a collective group on Facebook, it is believed that if group members with vested interests and some resources make initial contributions, interest will spread amongst other members of the Facebook group and more people will start to make contributions (Monge & Contractor, 2003). Another concept is non-rivalry of consumption which is defined as how the consumption of the public good by the individual does not diminish or detract that of another individual's consumption (Verschraegen & Schiltz, 2007). The information provided on private Facebook groups is nonrivalrous due to the fact that people excluded from the group will not enjoy the benefits of knowledge, but alternatively there is no reason for exclusion as there is no cost to sharing its benefits. However, private providers such as Facebook do have a cost as you must have an account, a device, reliable internet access, and you must surrender some private information during the process (Schofield, 2019) but the good—in this case, knowledge—itself remains free.

Limitations with the Public Goods Theory. The public goods theory's limitation is that it is dependent on the goods that it is referring to, whether physical, or in this case, information. This theory is also broadly defined and can be applied ranging from economics to information (Verschraegen & Schiltz, 2007).

In summary, the U&G theory and the public good theory could help explain the motivations behind rural residents adopting social media; it can help them make informed decisions.

Technological Factors

Technological factors play an essential role in facilitating information flow. These factors include digital volunteerism, social media as an information intermediary; and the advantages and disadvantages of social media use.

Digital Volunteerism

Digital volunteerism is a rising trend where social media users come together and organize themselves, forming volunteer communities to ensure that the right information reaches the people who need it especially during a disaster (Kaufhold & Reuter, 2016). The idea of people helping each other is not new; there have been studies that categorized emerging groups of individuals helping each other.(Quarantelli & Dynes, 1977). Stallings and Quarantelli (1985) posit that some conditions must be met for these groups to emerge; namely, a social environment, a perceived threat, a network of social relationships, and the availability of resources, all of which can be found through a social media platform.

Interestingly, the first notion of digital volunteerism using social media surfaced in 2013, during the European floods (Kaufhold & Reuter, 2016). Public reporting during the European floods was used by affected residents and volunteers to help coordinate rescue efforts. The use of social media facilitated the volunteer efforts and relevant information concerning the developing situation and was shared in Facebook groups and pages (Kaufhold & Reuter, 2016). It became evident that Facebook pages were also used to facilitate communication between people who required help and those who offered assistance.

Digital volunteers during emergency events such as the European floods have been observed coordinating with emergency management throughout the entire disaster (Kaufhold & Reuter, 2016). While it is acknowledged that emergency services usually do not answer through Facebook, it is possible to allocate resources more effectively by using social media to inform

members of the public. According to Starbird (2013), digital volunteers perform activities such as conveying, organizing, and analyzing information during disaster events. Digital volunteerism could also have been made more prominent during the COVID-19 pandemic where individuals relied heavily on technology for help.

Social Media as an Information Intermediary

Social media is defined as the medium in which users can create a profile or account and build a friend/follower list, and it consists of tools that allow for an open exchange of information through conversation and interaction. Examples of social media include Facebook, Twitter, LinkedIn, Reddit and TikTok. The identities and purposes of social media platforms evolve with the level of popularity they experience. Facebook and Twitter not only let users manage their identity and connect with others, but also serve as sources of information (Richter & Koch, 2008). Liu et al., (2010) suggests that information sharing was likely why individuals continue using social media. In the same vein, newsrooms are citing Facebook and Twitter as sources of information when reporting. Social media has been suggested to be a tool that is necessary for information gathering (Paulussen & Harder, 2014). It is suggested that the first most common reason is to keep in touch and the second most common reason that individuals use social networking services was to share information (Richter & Koch, 2008). A comparative study, including individuals and their use of social media platforms such as Facebook and Twitter, found that individuals perceive Facebook is more useful as an instrument for crisis communication. In comparison, Twitter has the potential as an 'alert' tool for users in times of crisis (Eriksson & Olsson, 2016). Both social media platforms (Twitter and Facebook) were determined as those used by citizens commonly to obtain information (Alhabash & Ma, 2017). Another study done by Thackery et al., (2013) found that out of 1745 adult respondents, 31.58%

used a social networking platform to seek health information. It is suggested that online social networks can be used to facilitate communications around a certain medical topic. Opinions and experiences can be shared to help patients play a more active role in the care for their health and education (Greene et al., 2010). The study by Scanfeld et al., (2010) establishes Twitter as a platform used for the informal dissemination of health information and, while subject to abuse, has the potential to gather crucial real-time health data.

Another study done by Bryan et al., (2020) regarding social media as a source of pediatric health information found that parents with children of all ages look to social media as a source of information for topics related to the health of their children. It is also suggested that experience-based health information is popular across countries and leveraging social media as the medium in which this experience-based health information is conveyed adds to the receptiveness of the audience (Metzger & Flanagin, 2011).

Social media platforms therefore have perceived source credibility, of which is defined as "judgements made by a perceiver … concerning the believability of a communicator" (Westerman et al., 2014, p. 172). Social media users exercise perceived source credibility when they obtain information via social media platforms. This also means that individuals have more access to and options for consuming information rather than turning to traditional sources of information such as printed newspapers or official government websites (Westerman et al., 2014). It is noted that the public is no longer consuming information passively but actively seeking information and playing a role in the consumption of health information through an online environment (Martino et al., 2017). Gayle and Ryan (2015) cite the reason for using social media sources for health information is that people can relate to other users with the same problem and similar questions, of which sometimes the answer had already been identified. This

can be seen through a Facebook group where users can relate with other users concerning the lack of healthcare resources. The increased use of social media during COVID-19 also brought about a wave of individuals using social media as the information intermediary, as people sought out technology to remain connected to the world and their loved ones, on top of obtaining important information.

Advantages and Drawbacks of Social Media Use

The advantages of using social media for health and crisis communications are that social media is wide-reaching, provides quick real-time information, allows for multi-directional communication and, at the time of writing, free to use. Studies found that both crowdsourcing and social media are often used in response to a disaster (Harrison & Johnson, 2019). Goolsby (2010) suggests that for crowdsourcing, 1% of the multitude will generate content, 10% of the crowd validates it, and approximately 89% will utilize it. The feedback via social media is direct and enables members to obtain information from each other (Tang et al., 2015). Besides being a conduit for information, social media also allowed for the maintaining of social proximity without physical proximity. This was vital during the global pandemic as social media played an integral role in increasing morale with the sharing of encouraging stories (O'Brien et al., 2020). O'Keeffe and Pearson-Clarke (2011) found that adolescents are increasingly aware that they can assess information about their health concerns online without much difficulty, and anonymously. Teenagers can gain better understanding about the health conditions that they might face such as depression and stress. Results of this study also indicated that adolescents are able to develop supportive networks of people with similar chronic conditions and now have better opportunities to seek help (O'Keeffe & Pearson-Clarke, 2011).

During the 2014 California drought, Facebook became a successful two-way communication tool that gave the public opportunities to contribute their ideas to help the situation (Tang et al., 2015). Social media empowers the silent, who otherwise might not have a voice in a situation and allows public opinions and preferences to be gauged. It can also be a possible strong indication of how the public would react during disaster events – using social media to contribute ideas and render aid (Alexander, 2013).

There are also challenges with such an approach. A large drawback of social media has always been the misinformation and disinformation affecting the decision-making process. Misinformation is classified as information that is essentially false and shared without the intention to cause harm while disinformation is the sharing of false news with the intent to cause harm (Wardle et al., 2017). Studies indicate that social media has since become a formidable tool in distribution of large amounts of unfiltered information, both misinformation and disinformation (Lazer et al., 2018). These large quantities of information could possibly change the perception of reality for the public if the majority of unfiltered information is misinformation and disinformation. The pressing concern about circulating misinformation and disinformation is that often, the misinforming or disinforming content uses people's emotions, playing on feelings such as fear or anger. The emotional content is what drives the re-sharing among users of the platform and how false content spreads so quickly even with the increase in fact-checking mechanisms (Wardle et al., 2017). It is important to note that false news has always been circulating, but the situation was exacerbated by the COVID-19 pandemic to the extent that it was challenging to tell which reports were false (Apuke & Omar, 2021). Public sentiments of how the COVID-19 was handled became negative due to the fabricated news presented on social media, whether by malicious intent or by individuals who were unaware of the full truth. Studies

found that there is widespread misinformation and disinformation online about the side effects of vaccines, resulting in the lack of trust in the government or pharmaceutical companies when discussing vaccination (Zhan & Guo, 2018). Misinformation is also determined to be innumerable and more popular than correct information (Wang et al., 2019) and social media is a powerful catalyst for misinformation to thrive.

Individuals seeking emergency medical care may have been misinformed by other members of the public on social media. For example, misinformation would be a post stating that COVID-19 cases in emergency rooms are prioritized due to its contagious nature, and that people without the virus will not be seen. However, we know emergency departments have to triage all presenting patients. This misinformation may mean that individuals who require emergency medical care are dissuaded from seeking care because they believed they would not be seen. Misinformation also then fuels negative sentiments towards healthcare staff during a stressful pandemic.

Environmental Factors

Healthcare Communication in Rural Areas

Presently there is no comprehensive Canadian rural healthcare strategy that can adequately address the needs of the rural population (Wilson et al., 2020). The literature concerning healthcare communication in rural areas is limited, even more so when it comes to how the availability of healthcare services is communicated to the public in rural areas. As such in this section, the literature review is broadened to include health communications in rural areas primarily within North America with some from Europe and Asia.

Healthcare services including local walk-ins as well as doctors with clinics are known to use social media in their communication efforts to share crucial healthcare information with the public (Reuter et al., 2016).

A study of the barriers that rural healthcare professionals face note that "communication between healthcare providers is systematically fragmented" (Coombs et al., 2022, p. 8). Healthcare providers and officials have a responsibility to convey information in a way that patients can understand (Stableford & Mettger, 2007). Effective health communication between healthcare providers and patients is critical to improve health literacy; however, there are challenges that hinder effective health communication (Wynia & Osborn, 2010). The difference in quality of patient communication presents a challenge, especially for rural residents with limited health literacy. There is a need, therefore, to take into account the level healthcare communications in rural communities, and how it can be improved to reach the residents, especially those in marginalized groups.

Lack of Inclusivity - The Digital Divide

A significant barrier in accessing social media channels is the lack of connectivity in rural areas (National Research Council of Canada, 2021). The urban-rural divide is evident when it comes to broadband access and connectivity. When rural communities are denied access to affordable and high-quality connectivity, rural residents are cut off from the services, economic, and cultural benefits that better-connected communities experience. Balamurugan et al., (2007) posit that healthcare campaigns in rural areas face limited funding and this has severely handicapped communication efforts. Rural areas are also known to have higher rates of chronic diseases, partially due to the aging population and lower levels of health literacy. Furthermore, as

age is a strong indicator of social networking sites usage, the elderly in rural areas are further disadvantaged should news be disseminated only through social media (Haight et al., 2014).

This problem worsens when it comes to remote and indigenous communities (National Research Council of Canada, 2021) where the population in predominantly rural regions comprises a higher number of Indigenous peoples (60%, which is 33% more than the non-Indigenous population) (OECD, 2020). This severely limits the amount of information that these communities can obtain. There is a dire need to bridge the digital divide and increase access to connectivity in Canada as a whole.

A study concerning digital access discovered that there are significant disadvantages when it comes to the digital divide in Canada, especially for females, for those who do not speak official languages, for those living in rural areas, and for those who possess lower income (Metzger & Flanagin, 2011). This has been exacerbated by the pandemic (Stewart, 2020).

While rural residents using social media to find out healthcare options is increasing, there are individuals who have either poor Internet connectivity or live too far away to access a local newspaper promptly, or for other reasons cannot access the information in a timely manner due to limited dissemination channels. This could mean that these individuals are often left out when it comes to knowing healthcare availability.

Summary of Literature Review

The two communication theories, namely the U&G theory and public goods theory, could answer the question of how and why rural residents utilize social media to help them overcome resource limitations such as the lack of qualified healthcare professionals serving rural areas. Further literature confirms that users of social media deem information as more credible when it comes from others' lived experiences. While the drawbacks of misinformation and

disinformation on social media are significant, the advantages of social media may outweigh its disadvantages. The advantages are that it is wide reaching, quick in real time (e.g., could address whether there is a doctor in the emergency room today), operates as multi directional communication (user to user or user to many users), and might be a solution to a rural area lacking the financial resources and human resource capacity to reach a wide audience in a short period of time.

There is a significant gap in Canadian academic literature concerning social media use and healthcare communication in rural areas. There is little specific research on what healthcare communications are like in rural areas and if the local healthcare service providers integrated any social media aspect into their communications efforts. Given these evident gaps, I chose to focus my Capstone research on the rural area I presently live in. I build on the research of the U&G and public goods theories and the trend of digital volunteerism while covering an aspect of healthcare communications based on research I did in my rural community.

Research Design and Methodology

Cold Lake, a rural town in northern Alberta, has seen a rise in residents using social media to seek information about healthcare. As stated above, the literature on the use of social media in rural areas, along with the use of social media in healthcare communications, is severely lacking. A Facebook group titled *Cold Lake Questions and Answers* has seen frequent questions about whether doctors are present at the Cold Lake Hospital emergency room, whether family doctors are available in Cold Lake clinics, and what alternatives are available if residents cannot have their immediate health care needs met locally. The increase in the use of social media to seek information about healthcare could be primarily due to compensate for missing the

frequent press releases on the Alberta Health Services (AHS) website about the lack of doctors in the emergency room.

If local healthcare is not available when needed, some options include travelling to Bonnyville (45 minutes to 1 hour from Cold Lake by car) to seek medical treatment. Some residents might turn to online applications, including TELUS Health or Maple Health application. These applications allow users to consult with a nurse or doctor online, and have prescriptions sent directly to the pharmacy for pickup. As such, further understanding of how and why rural residents are increasingly using social media to find information about healthcare is critical and can potentially change the way rural residents receive information about healthcare.

Methodology and Research Questions

My research uses an exploratory approach. It applies both quantitative and qualitative methods to analyze social media content. Exploratory research is used to gather data to determine if a topic is worthy of further investigation (Elman et al., 2020). The research questions guiding this inquiry are:

- How are residents in rural communities using social media to help them make informed decisions about doctors and the availability of healthcare services?

- Why are residents in rural areas using social media to help them make informed decisions regarding healthcare?

Hence, this research contributes to future learning or research opportunities in the context of social media use in rural communities.

Sample

The sample community was members of the Facebook group *Cold Lake Questions and Answers*. The quantitative data collection was done within the Facebook group and the

qualitative data collection involved using purposeful sampling to recruit participants from the Facebook group.

Quantitative Data Collection and Analysis

Given that the Facebook group that I studied is a closed group, extracting data consisted of manual calculating. There are no external Facebook Application Programming Interfaces that can extract data from a private Facebook group. As such, I manually searched the *Cold Lake Questions and Answers* Facebook group using several key words including, 'emerge', 'emergency', 'ER', 'hospital', 'Doctor', 'walk-in', and 'Dr' (see Figure 1). The analysis was restricted to only English posts within the group. I then took note of how often the posts and comments appeared over the course of four years, 2019 through 2022. These years were pre- and post-Covid and were chosen to determine if there was an increase in rural residents utilizing the group and the need for more information about healthcare availability during the COVID-19 pandemic. I also took note of the nature of the questions. For example, I noted if questions were concerning the wait-times at emergency, or if the posts were asking whether the emergency department was open. I tracked the number of responses in comments to the posts to determine how members contributed to providing information. The quantitative data collection was completed by the end of May 2023 with 303 posts identified.

Quantitative content analysis then followed which involves "examining the number of times words or themes are expressed in texts and has been used extensively to examine communications" (Schwartz & Ungar, 2015, p.78). Using quantitative content analysis to dissect how often members of the *Cold Lake Questions and Answers* Facebook group posted, the nature of the content, and whether their posts increased since 2019 (pre-pandemic), establishes if there has been increased usage of this Facebook group and on what specific healthcare topics.

Figure 1

Screenshot of Question in the Cold Lake Questions and Answers Facebook Group

I used Rosa and Sens' (2019) quantitative content analysis model using the 303 posts on healthcare in the Facebook group. The model is as follows:

- Step one: I manually tagged the dataset looking for various words that were relevant to the topic at hand, which is related to the healthcare options in Cold Lake.

- Step two: I identified the words that were more frequent and grouped them together to form a category. I also added an 'alternatives' category as I realized that there are posts seeking alternatives to the walk-in clinic, for example, online doctors.

- Step three: I listed the words in a table and manually counted the number of posts and noted the nature of the questions surrounding each category.

Table 1 provides a description for each category of post. I charted the number of posts and comments against the years posted dating back four years to when COVID-19 just began from 2019 to 2022.

Table 1

Categories of content shared in Cold Lake Questions and Answers *Facebook Group*

Category	Description
Information about the Emergency Department	Questions asking if the emergency department is open, how long is the wait at emergency, if there is a doctor in emergency and if it is recommended to go to the Cold Lake emergency, or if they should go to the Bonnyville emergency department, or what their plans should be if they skip the emergency department.
Information about doctors in the area (including reviews, and asking if there are doctors present)	Questions asking about if certain doctors are good, if there are any family doctors taking new patients, if there are specialized doctors in the area (e.g., OBGYN), if available doctors do certain procedures (e.g., colonoscopy), or if they need to head to the city (i.e.,., Edmonton).
Overall healthcare information (alternatives to doctors)	Questions pertaining to online doctors (e.g., the Maple app is free for military), if they can see the Primary Care Nurses (PCN) instead of doctors.

As data analysis progressed, posts of each year concerning the same category were further analyzed for tone, choice of words, and which members were posting; there was a sharp increase in the number of posts asking about doctors in the area during the year 2020. Manual analysis also ensured that the posts were unique (i.e. that there were not just a handful of members posting over and over). I determined that the information about doctors took up the greatest number of posts amongst the healthcare related posts. I also collated all the comments concerning these posts to measure engagement.

Qualitative Recruitment, Data Collection, and Analysis

Using purposeful sampling, I invited seven members of the *Cold Lake Questions and Answers* Facebook group to participate in one-on-one semi-structured interviews. Specifically, I invited four non-administrators and three administrators from the Facebook group to gain detailed knowledge about the specific phenomenon of Cold Lake residents using social media to access healthcare information. For the first group, I posted in the Facebook group requesting participation in the study by individuals who had asked the group for health information, but did not receive any interest. I then offered a $15 gift card and had four participants respond and indicate that they were interested in participating in the research. For the administrators, I privately messaged them to ask if they would participate in an interview. The administrators replied and refused the interviews because, out of three administrators, one had moved away and the other two were a couple. The couple recently had medical emergencies with their children so were unable to participate in any interviews at this point. Hence, I left my post in the Facebook group to see if I obtained more responses. In the end, a total of seven participants responded.

I then privately messaged the non-administrative participants who indicated that they were interested to obtain their emails and send them the introductory message approved by the University of Alberta ethics review board and my supervisor (see Appendix A).

After all the potential participants gave me their emails, I emailed them the link to a Google form that had the online consent form (see Appendix B). This allowed the participants to review what they were consenting to, and a copy was sent to them after they signed the form. All participants were sent a reminder before the interviews.

Semi-structured one-on-one interviews were conducted and allowed research participants to openly share their unique experiences. A semi-structured interview helped me stay focused on specific topics while encouraging research participants to share experiences and thought

processes around their use of social media in Cold Lake (Edwards & Holland, 2013). The interviews took place in person. It is noted that while these interviews might provide the opportunity for residents in Cold Lake to share how they feel about the present state of healthcare communications, it is also possible that the contributions made may be influenced by others in the Facebook group (Breen, 2006). Interviews took place between May 25 and June 15, 2023.

At the start of the interview, I introduced myself again and explained the value and reason behind my research. I reminded the research participant that I was recording the interview conversation with my phone and briefly reviewed the consent forms that were previously signed.

After obtaining the consent to proceed and the participants' acknowledgement that the interview's audio would be recorded, I gave some context to the research topic, and using semi-structured questions (see Appendix C) I asked about the nature of healthcare communications in rural areas. I employed interview techniques as cited in Edwards and Holland (2013) by allowing the research participant to have some silent reflection of their answers, reiterating main points, and giving positive affirmation. This allowed me to have some time for notetaking, though I took care to limit these silent periods to facilitate the interview flow. My interview questions helped guide the interview effectively and if the participant was willing to extend the conversation, I accommodated where necessary. I concluded each interview by checking if the research participants had any final thoughts or comments about the topic and let them know that I will contact them with the final study when its published and thanked them for their time. Finally, I reminded them of where to find my contact information if they have any questions or concerns.

Qualitative content analysis consists of looking closely at the characteristics of the language with attention to the content or contextual meaning (Hsieh & Shannon, 2005). The

purpose of using qualitative content analysis is to "provide knowledge and understanding of the phenomenon under study" (Downe-Wamboldt RN, 1992, p. 314). Qualitative content analysis is a research method that supports the subjective interpretation of "content of text data through systematic classification process of coding and identifying themes and patterns" (Hsieh & Shannon, 2005, p. 1278).

Data were read word for word to capture exact words that appear to be relevant to the key thoughts concerning the issue (Hsieh & Shannon, 2005). I sorted the data into categories.

A drawback of this method of analysis is the lack of complete understanding of context (Hsieh & Shannon, 2005). This drawback is minimal because I am a member of the Facebook group and living in Cold Lake. Having been a longtime member of the group, I experienced firsthand the context of why rural residents are frustrated with the lack of healthcare information. Finally, the results from the quantitative and qualitative data were compared to each other to inform similarities and differences.

Knowledge Mobilization

I will send a summary of this paper to the city of Cold Lake and will post the findings in a graphic format in the Facebook group. This will allow the city to have in-depth knowledge about how social media is being used to communicate healthcare information. It is hoped that by establishing the answers to the research questions, rural communities will know how to best leverage technology to potentially improve the quality of healthcare and reduce a significant amount of time spent traveling to access healthcare resources.

Quantitative Findings

   The following table illustrates the percentage for posts for each category that I had

manually extracted. Out of a total of 303 posts over the years 2019 through 2022, there were

posts asking about addiction concerns (e.g., how to stop smoking), or if there is an Alcoholic

Anonymous in Cold Lake. I classified this as medical advice given the people who posted them

were looking for some form of medical help. In this section I will elaborate on 1) percentage of

Facebook posts per category for the period 2019 through 2022, 2) a more in-depth analysis on

each of the category including comments and if the posts had increased over the years, and 3)

examples supporting the analysis.

Table 2

Percentage of Facebook posts per category for the period 2019-2022

Category	Percentage
Medical advice	30.3% (92/303)
Information about doctors in the area	19.8% (60/303)
Information about the emergency department	12.5% (38/303)
Specialists/virtual doctors	11.2% (34/303)
Dental care/emergencies	10.6% (32/303)
Information about walk-in clinics	8.6% (26/303)
Information about the hospital (bloodwork, xray appointments)	4.62% (14/303)
COVID-19	2.3% (7/303)

Medical Advice

   With the sample size of 303 posts over the four-year period, 2019 through 2022, the most

discussed topic is medical advice (30%). Some posts asked about what to do for the particular

condition, others included asking where to head to for medical help, and some asked for

experiences with certain medications or doctors. Some individuals wanted to know if their condition was serious enough to go into emergency and others wanted to ask if they were seeking the right medical advice for their condition. After investigating this category further, I found that there are posts concerning addiction, pregnancy, and skin conditions, and that most posts are made by unique individuals rather than the same person posting multiple questions. Amongst the posts, most of them are looking for medical advice themselves, yet some are posting for their loved ones including spouse or children. An example of such a post is shown as follows.


Anyone know if the dispensaries have any good edibles? My husband has
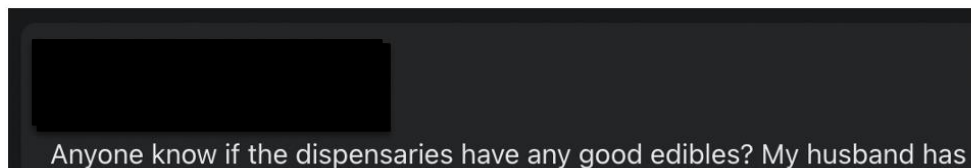
Information About Doctors In The Area

The second most frequent type of posts were those of information about doctors in the area (19.8%). Some of the posts asked for new doctors because their original family doctor had moved away and some said they recently moved to Cold Lake and were unable to locate a family doctor taking new patients. There were also instances where family doctors move away, and individuals were hoping to find a better alternative than who they were offered (if they were offered an alternative doctor). However, while 2019 saw 15 posts asking about doctors and their reviews, 2022 had only 10 posts. The following chart shows the slight spike in 2021. This was about a year into COVID-19.

Figure 2

Number of Facebook Posts about Doctors from 2019-2022
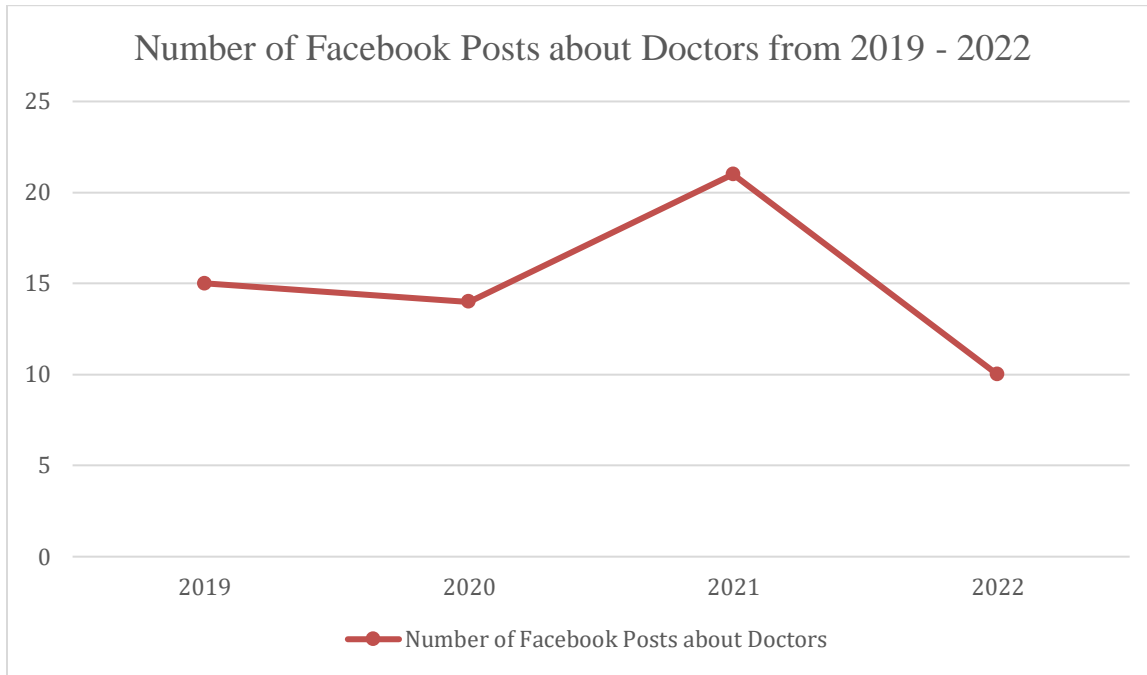
An example of posts concerning virtual doctors are as follows.

Information About The Emergency Department

       There was also a sharp increase in the number of posts concerning the emergency department in 2022. 2019 saw about five questions about the emergency department to 30 posts in 2023. The first post asking about wait times at emergency and if there was a doctor present was in 2021. This six-fold increase in four years could mean that more individuals were

increasingly using Facebook to ask about medical facilities. I noted the individuals who were

asking questions were almost all unique individuals, except for one who asked twice about the

wait times for the Cold Lake Emergency department. Then in 2022, individuals started asking

about whether they should head to Bonnyville (about 45 minutes away by car) instead of trying

to get seen at the Cold Lake hospital.

Figure 3

Number of Facebook Posts Concerning the Emergency Department in Cold Lake
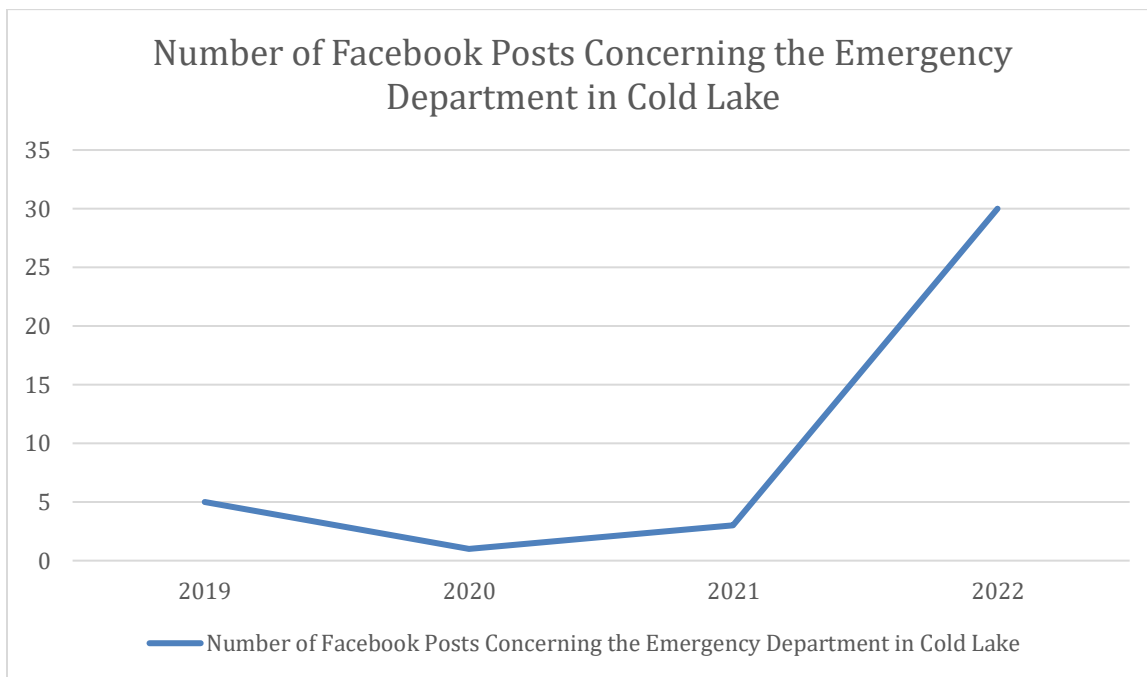
The following is an example of such posts.

Does any know if there is a doctor at the hospital today or this evening I need to take my daughter in but work until 3:30 so just want to know if I should even bother here or take her to b ville?

5 comments

👍 Like   💬 Comment   📨 Send

Top comments ▼

Is there a Dr shortage there, always seeing posts such as this.

Like   Reply   1y

there is. The emergency department is getting periodically shut due to it

Like   Reply   1y   😢

We've had doctor shortages for about two decades

👍😮 3

Like   Reply   1y

Yes there is a doctor today

Like   Reply   1y

Go to bonnyville

Like   Reply   1y

I keep telling my kids. Become a doctor!

Like   Reply   1y

Go to bonnyville

Like   Reply   1y

If everyone goes to Bonnyville the wait time there will be 16 hours too

👍 4

Like   Reply   1y

6h plus

Like   Reply   1y

We have a medic working bingo tonight he's from bonnyville. You should come here. I hope you are okay.

Like   Reply   1y

Specialists/Virtual Doctors

The fourth most frequent type of posts are asking about specialists or virtual doctors (11.2%).

Some of the questions asked about various reviews of doctors including doctors who performed

certain surgical procedures (such as colonoscopy) and if there were any OBGYN doctors in the

area. Questions about virtual doctors also appeared first in 2020 with just one query, and that

increased to three in 2022. There were other posts about virtual doctors were not questions but

statements informing others about this option that they can take. An example of posts concerning

virtual doctors are as follows.
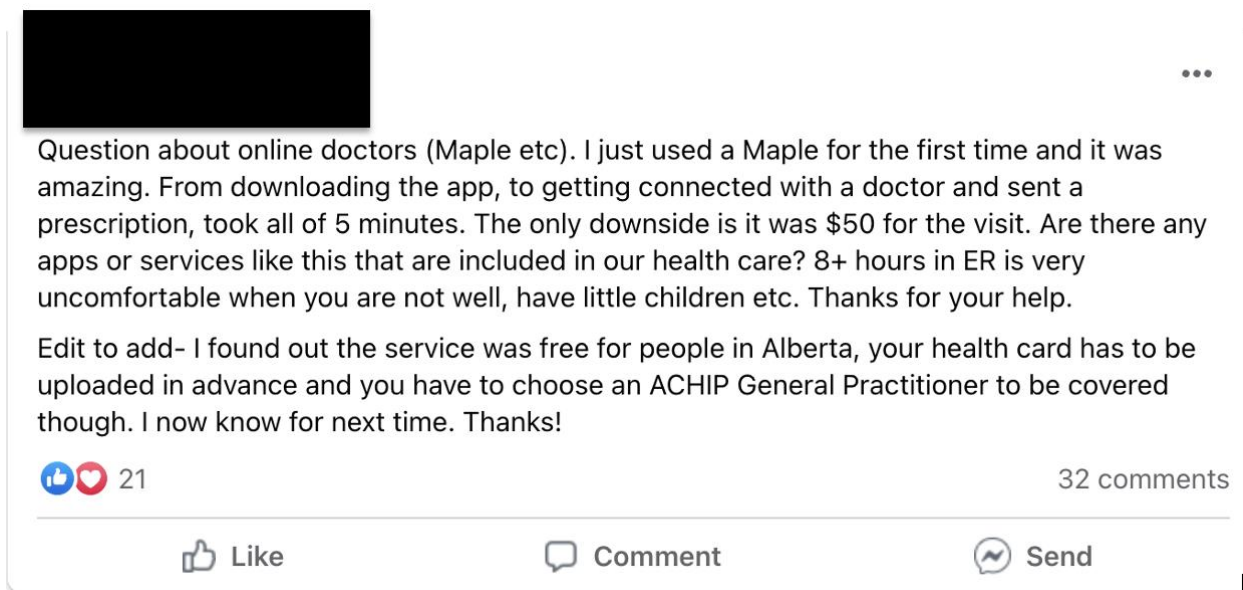
With a total of 55 comments between the two posts, these are considered higher interaction posts. A post in the group usually receives 10-15 comments at most. Some have no reply. Both posts have comments that directly answered the questions that they were asking, and there were also alternative solutions suggested. Another type of posts related to doctors are reviews as mentioned earlier. Upon in-depth analysis, it was found that these posts, having only begun in 2021, saw a high level of engagement as well. One way to measure this level of engagement and interaction is the number of comments that came with the post. The following post saw 47 comments giving their personal reviews of how they found the doctor.


Hello everyone! Son with the broken arm is seeing Dr. Ashok Baburam on Wednesday and I had googled him and saw many poor reviews. Now wondering if I should just head to Bonnyville emerge instead, which was amazing with him when we went on Saturday, has anyone been treated by him recently? Please feel free to pm me! 🙂

👍😮😢 7   47 comments

Dental Care/Emergencies

The fifth most frequent type of posts are posts asking for more information about dental emergencies (10.6%). These were mostly posts asking where to go if they needed an emergency dentist or if they have some special needs that required additional care from the dentists, and who in Cold Lake provided that dental service. The following is an example of such posts.
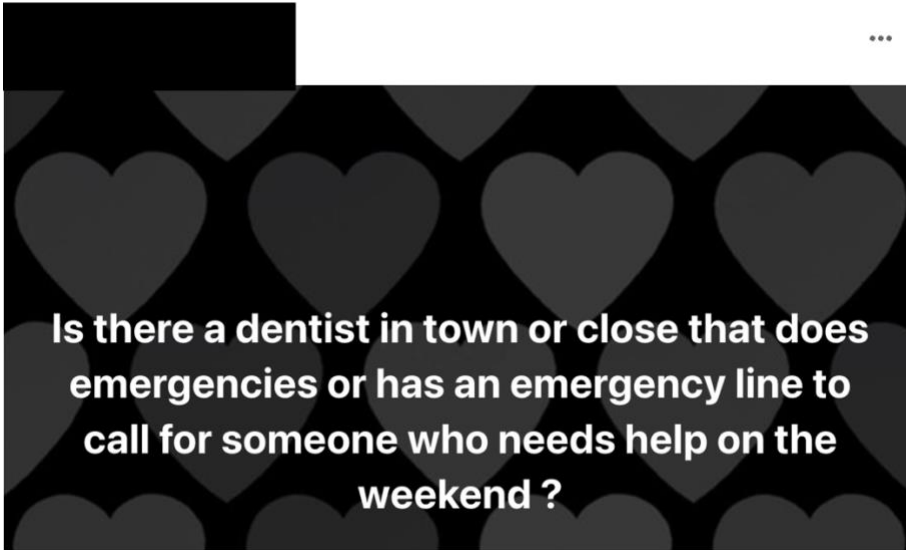
Information About Walk-In Clinics

The sixth most frequent type of post are questions about walk-in clinics, the hours they

operate, and if they were opened during COVID-19 (8.6%). An example of the post is as follows.

Information About the Hospital

The seventh most frequent type of posts were asking about the hospital services including

bloodwork, x-rays, and appointments. These posts are fairly straightforward, and sometimes also

includes waiting time at the laboratories for bloodwork. The following is an example of such

posts.

How do you book bloodwork at the hospital. Is there a number I can call?

9 comments

Like · Comment · Send

COVID-19

The last category is questions about rapid testing and procedures if in contact with COVID-19 (2.3%). Despite the increase in healthcare posts over the global pandemic, there are only seven posts of COVID-19 during these four years. All of them were asking about the protocol concerning COVID-19, and if or where they can be seen if they present symptoms. This was interesting to note and could be attributed to either information saturation of COVID-19 on Facebook feeds, or the fear of misinformation/disinformation when checking COVID-19 information via social media. The following is an example of such posts.

October 19, 2022 · ☺

Are you able to be seen at the walk-in clinic with Covid symptoms? Or is that all dealt with through emerg still? Thanks!

4 comments

Like · Comment · Send

It is important to note that there were keyboard warriors commenting on these posts concerning the emergency department, reminding the public that there is a triage process, and that it depends on if you have a cold or if you have something very serious. However, posts start to surface explaining why people are still asking about the wait times at the emergency department despite knowing the triage process.

Please don't make the comment " if you need to ask it isn't a emergency " some of us can't get into the walk in.
But, has anyone went into the emergency department today? Long wait?
I tried to get into the walk in clinic but no luck! 😫

👍 7   36 comments

👍 Like   💬 Comment   ⊘ Send

Please don't make the comment " if you need to ask it isn't a emergency " some of us can't get into the walk in.
But, has anyone went into the emergency department today? Long wait?
I tried to get into the walk in clinic but no luck! 😫

👍 7   36 comments

👍 Like   💬 Comment   ⊘ Send

Qualitative Findings

A total of seven interviews were conducted. All interviews were conducted face-to-face. As this research is one of the first studying the use of social media to answer healthcare related questions, qualitative content analysis was used.

Table 3 *Categories of Qualitative Data*

Categories
Quick and Reliable Information
Possible Trustworthy Source
Sources of present healthcare information commonly used by research participants
More needs to be done for rural residents

Quick and Reliable Information

First, it was important to understand the reasons why rural residents are taking to social media. Overall, research participants cited "quick" and "reliable" as some of the reasons why they used the Facebook group to acquire information. One of the participant's shared, "I always call in but I don't always get an answer. It is hard because accidents happen, and I find myself looking for the information once every few months", and cited the lack of information as the main reason for turning to social media.

One research participant shared how "if you want to know something, it is always on [that] Facebook group first". According to one person interviewed: "It is instant gratification. I don't have to wait very long or work very hard to find the information I need". All research participants mentioned the word "quick", citing that the response to the question posed in the group will not "take hours". Another research participant added that "you can always find someone with the information [you require]". The information was thus readily available and not subject to office hours or having someone physically answering you.

Possible Trustworthy Source

An interesting observation made here is that a few of the research participants were confident in indicating that they will believe what the group says when it comes to healthcare availability because "there is no reason to lie", whereas other participants said "no" and "sometimes" when being asked if they trusted the responses on the group. There is a disparity when it comes to trust accorded on social media. A research participant shared that it was "a starting point" where information can be sought to help make decisions. This is so that evaluation can be done with the information given to make the most informed decisions.

Cross-Checking Information Concerning Healthcare Availability

Research participants indicated social media as their first source of information when they want to know more about the state of healthcare and the options available in Cold Lake. To overcome the possibility of receiving the wrong information, three research participants mentioned that they will try to cross check the information they obtained on the group whereas other participants mentioned that they had "no reason to doubt" the comments posted concerning options when it comes to healthcare availability. Some means of cross checking mentioned including going to the Alberta Health website or visiting other channels of social media (e.g., the walk-in clinic or the Lakeland Connect page, which is local news) as compared to the *Cold Lake Questions and Answers* group. Two research participants spoke of how they tried calling the primary care and the emergency department to obtain information and either cannot find anyone who would pick up their call, or that the Cold Lake hospital does not give out emergency department wait times. One research participant did speak of how the *Cold Lake Questions and Answers* group gave the quickest responses and allowed her to make decisions quickly for her

health. It allowed her to travel to Bonnyville to seek medical attention given the long hours at the emergency department.

Course of Action Amidst Lack of Information

According to the participants, most of them adopted a habit of waiting, if possible, in the event they are unable to secure reliable information concerning the emergency department or the availability of doctors. Two research participants mentioned that if the situation is dire, they will drive to the hospital to physically look at the board that is hung outside the department. There is presently a board that is placed outside the emergency department in Cold Lake that states the average wait times (e.g., 4-6 hours). In Edmonton, for example, you can Google the wait times for the emergency department of every hospital.

When asked if this system could be useful for Cold Lake, the answers were unanimous. Participants felt that yes, if there was a website or somewhere that they can obtain information without having to physically go there, or calling the department over and over, it will take the load off everyone involved in the communications/information seeking process. One research participant shared that once in Edmonton her husband was feeling sickly, and upon using Google to search the wait times in Edmonton, she made the decision of driving back to Cold Lake and visit the emergency department since the wait times in Edmonton were "7 hours, so we might as well drive back, at least we are near our home". Another research participant shared that triage information is so important because sometimes they have preferences against certain doctors.

More Needs To Be Done

When asked what advice or comments these research participants might have for the City of Cold Lake, there was acknowledgement and criticism. The acknowledgement was that Cold Lake is situated in a rural area and the challenge to attract qualified healthcare professionals is

not new, resulting in many residents without family doctors. The criticism was that Cold Lake is the busiest fighter base in Canada and, with the influx of military personnel, is still unable to support the growth the city desires. One research participant cited how "rural areas shouldn't be left out" and there is greater need for facilities in these areas given the communities it serves and the present lack in resources. Healthcare in Cold Lake has been on a general decline, and it became obvious that not everyone has access to equitable healthcare. The research participants felt that the city should do more than simply "putting money to get doctors", but also to explore other avenues of overcoming the challenges that comes with the healthcare system. Some suggest that the Cold Lake emergency department should start sharing emergency wait times, given that this information is not confidential in Edmonton or other major cities.

During the interviews, there were two research participants who shared that they are nurses, and one is presently still working part-time at the emergency department. Both agreed that they see this trend of people using social media to ask questions relating to doctor availability and wait times as a good indication although it does come with risks. It is good because "people are asking questions to make decisions," and that this could lead to a more "efficient way of allocating resources." One research participant shared that she always thought about using the Facebook group as a means to explain to the public why the Cold Lake hospital is often without doctors, especially during the holiday season, when she sees posts harshly criticizing healthcare staff about the lack of resources. It is also noted that while research participants feel that they don't necessarily search for the information concerning healthcare options often, it is often either not available or difficult to find when they require it.

Discussion

Quantitative Data

My research seeks to understand the how and why rural residents have taken to social media to make informed decisions concerning their healthcare options. Overall, the data shows that the number of posts concerning healthcare related issues increased slowly from 2019 to 2022. It is possible to deduce that social media was gaining popularity through the years, the members of the group were also increasing, although the exact figures are unknown.

My first research question was, 'How are residents in rural communities using social media to help them make informed decisions about doctors and the availability of healthcare services?'

Residents in Cold Lake have been using the *Cold Lake Questions and Answers* Facebook group to enable them to make informed decisions by either posting, or by reading the posts of others. Since there are no data available on how many members the group had year on year, the fact that there is an increase in these posts indicates that members are more inclined to use the group to ask questions.

First, the data extracted from the group informs the U&G theory where individuals have specific reasons and motivations when they engage in social media. In this phenomenon, data have showed that the members of this Facebook group selected the social media platform as a way of obtaining the end goal—which is to find help for themselves or their loved ones when it comes to their health (McQuail, 1984). The value of social media, as Blank and Reisdorf (2012) suggest, is that members of this Facebook group had realized how this Facebook group could be helpful to them. Through this information seeking process, members of the Facebook group were able to acquire and dispense information with Facebook as the venue for providing the feedback,

and participate in community (Stassen, 2010). Because of the increase in posts in the Facebook group asking for information concerning healthcare and how each post was made by a unique individual, it can be inferred that there is an increasing number of people taking to social media to seek information, which directly corresponds to the second greatest motivation individuals take to social media (LaRose & Eastin, 2004; Ancu & Cozma, 2009). During the process, individuals who make posts have human-human interaction when other members of the group comment on their posts (whether it is to confirm or seek clarifications), on top of content gratification where individuals obtain content from the Facebook group.

Second, the U&G theory posits that interactivity and user activity share a linear relationship. The more interactive the platform is, the higher the user activity (Ha & Lincoln, 1998). This is evident as the number of posts concerning healthcare has increased during the study period. When 2022 saw the surge in posts concerning the emergency department, unique individuals were asking the same question (i.e., "what is the wait time for emergency") and saw higher amounts of interactivity. There is also a possibility that people have become more dependent on social media to provide accurate information for the questions they are asking (Rubin & Windahl, 1986).

The limitation concerning the U&G theory is also relevant here. I It is hard to predict the implications of social media use for society. This remains a smaller study with a rural community and reflects what individuals face, which is possibly unique to this community compared to Edmonton.

Next, while the U&G theory indicates the possible motivation behind why the members of the Facebook group started using social media, the reason behind why these members started contributing to the Facebook group can be explored further using the public goods theory. In

2019, there were only a total of 67 healthcare related posts. It increased steadily until reaching 90

posts in 2022. As indicated earlier, while posts asking about the emergency department's wait

times are not the majority, these posts garnered the most comments. These average about 15

comments per post. As such, this informs the public goods theory mentioned earlier in literature.

Members of the group contribute to the creation and maintenance of the information concerning

healthcare, this information is free (Schofield, 2019). There is little to no cost for the members to

extract this information from the group.

The public goods theory could explain why residents in rural areas are turning to social

media to help them make these important healthcare decisions. People in the select collective

contribute to the creation and the maintaining of these public goods. Applying this to the context

of social media, information within the Facebook group, for example, can be considered the

public good. The first condition of the public good is met because if you are a member of the

group, you will not face exclusion. There is no way to hide the post unless the administrators did

not approve it. Members who did not contribute to the post will be able to see it. The other

condition is non-rivalry, and this condition is met when people not in the group are not able to

enjoy the benefits (i.e. information). The only possible reason for exclusion is choosing not to be

part of the Facebook group. There is no cost in sharing the information. This is relevant when it

comes to Cold Lake residents asking about doctors' availability in the Facebook group. Once the

post is created, some members who have been to the said doctor comment about the doctor's

availability and quality of care. Others who are keen to take up the same doctor will ask

clarifying questions and some who have received care by the doctor in discussion will contribute

additional information.

While seeking information about healthcare is not the only factor that pushes rural residents to take up social media, it is a big contributing factor.

The advantage to asking healthcare related questions on social media is quicker responses, given that there is a large number of members in the Facebook group (presently at 10,000 members). Given that the population of Cold Lake stands at 15,546 (Government of Alberta, 2023), more than 60% of the population is in the Facebook group. During the course of data collection, it has been noted that every healthcare related post was responded to. Given the presence of trolls in the group, it is also challenging therefore to pose questions without being shamed. This could be one of the disadvantages of using social media to obtain information, that there is no control over the audience within the group although the administrators are expected to moderate.

Digital volunteerism can be witnessed in the Facebook group where the members have started to obtain and distribute information on their own. For the *Cold Lake Questions and Answers* Facebook Group, the social environment, and the availability of resources, in which in this instance is information, is created with the social media platform, the perceived threat is the lack of information concerning the healthcare options available. The network of social relationships was formed when the Facebook group came together to ask and answer each other questions. Unknowingly, the Cold Lake and Questions Facebook group has become a supportive network where individuals can hope to find answers to the questions that they have while living in Cold Lake. Rural residents are working together to help each other make informed choices by sharing the information they know to avert the potential disaster (which could mean driving to the hospital and realizing that there is no doctor on site). It is emphasized that city councils in rural areas can consider officially appointing digital volunteers given that this trend is already

present in the group. The Facebook group could possibly be used as a tool to reach out to members of this community to equip them with information to make better decisions. The digital volunteers can be given 'official titles' to help disseminate accurate information/correct inaccuracies.

While there have been no cases of disinformation in the Facebook group, there have been fake advertisements, spam, and misinformation largely due to misinterpretation of information.

Limitations

One limitation of using quantitative analysis for the Facebook group is that the inference is based on numerical values and might not reflect a more detailed picture of what is happening in the community. There are less insights into the motivations and drivers of the posts, and one way to overcome this was to compliment this research methods with semi-structured interviews conducted with members of the group. Another limitation is the lack of data, as only the administrators of the group will be able to see how many members the group gained year on year, and it is not known if other healthcare related posts were rejected or archived and why.

Qualitative Data

The purpose of the qualitative data was to understand the gap in healthcare communications and the phenomena of rural residents 'taking matters into their own hands' by trying to bridge that gap with social media.

The reasons why residents use social media to help them make informed decisions about healthcare corresponds to the U&G theory where content and social gratifications are met when members of the Facebook group take to the group to acquire information (Stafford et al., 2004). The primary motivation that the research participants indicated was that they use social media to seek information. There is a strong indication from the research participants that there is

dependency on social media to satisfy their need for information. When asked why they joined the Facebook group, research participants shared that there is 'little information' about Cold Lake that they can possibly find by using Google. They had tried Google as their first option but was unsuccessful. And having moved here instead of growing up here, most research participants felt the need to know the community better, and that the Facebook group was a means of them connecting with the community, it also accorded them other information such as if there were fires in the city, or if there were major accidents outside of town so they might have to reroute, or even the safer neighborhoods to live in. This cites strong content and social gratifications being met (Gan & Wang, 2015). According to one research participant, she felt that "there is a lot of information in the group and sometimes you find (make) friends". The interactions as a social media community, where members try to render help for each other, increases process gratifications as well.

All the research participants mentioned that they did not post to the group, but rather used the group to read the posts of others because "you can always find posts or someone asking about the wait time at the Cold Lake emerge". This informs the public goods theory that posits that the information found in this Facebook group could be considered public goods (Samuelson, 1954). And while the research participants did not contribute to the posts, they benefited from the information shared as people answer the questions asking about doctor availability or emerge wait times. The members of this Facebook group contribute by creating and maintaining these public goods. The idea of how knowledge (information) is a public good (Kaul et al., 1999), in this case correlates to the responses from the research participants. In utilizing Facebook, all the conditions of information being the public goods are met.

Digital volunteerism was also identified from the responses despite it not being directly mentioned. Research participants shared how "there will always be someone asking about.." and how "there will also always be people who answer or share the information I need", and this is heard from six out of seven participants. The Facebook group was used to connect those who need help (information) and those offering it (Kaufhold & Reuter, 2016). Besides questions, there were members of the group sharing their personal and unsolicited experience at the Cold Lake hospital, this includes new processes, wait times, the absence of doctors, etc.

As suggested earlier in the literature review, social media thus remains a strong conduit of information despite the risk of misinformation or disinformation. It is noted in the literature review that individuals recognize Facebook as a more useful tool when it comes to crisis communication. This is indicative as to how these research participants look to the Facebook group to find information concerning healthcare resources. One participant shared that although many "youngsters have moved on from Facebook, for the older folks, Facebook is still very much something [they] use". It is interesting to note that Facebook still has a perceived amount of credibility (Westerman et al., 2014) since out of the seven research participants, majority indicated that they will trust the information (comments/posts) that they see in the group, and that there "is no reason to lie about such things". Being able to trust the information that they received via the group on social media could be one of the reasons as to why rural residents are using social media to answer their healthcare queries. This differs slightly from the literature citing that social media has become trusted and credible sources of information.

It is interesting to note that there was a disadvantage cited by one of the research participants who identified herself as a nurse working part-time in a hospital's Emergency department. She shared that her concern was how people might start to triage themselves instead

of going into the Emergency after knowing the long wait times through the Facebook group. This could lead to "serious complications" as they are not qualified to decide if they should stay home or go to emergency and basing their decisions on the wait times conveyed via a Facebook group "still does not seem like the best option". It also informs the theory that experience-based health information and leveraging social media to convey that information has been increasing well received by the public (Metzger & Flanagin, 2011). There is also confirmation through the interview responses that the shift to using social media to obtain information remains a common and easy option. Because the members of the Facebook group all live in Cold Lake, there is a common shared experience that allows them to relate to each other given that all the members are facing similar issues with the gap in healthcare communications. Despite research participants sharing the advantages of using social media for themselves, it is also noted that there is disinformation within the group. There were posts complaining about the lack of doctors in the hospital and commentors were coming up with their own theories and spreading rumors about how the situation came to be. There were many assumptions on the same post, none of which were verified by an authority. This adds to the negative public sentiment of how the healthcare system is being handled and leads to possible fake news. It is important to note that the literature surrounding rural healthcare communication is very limited and effective health communication is critical in helping the efficient allocation of resources; hence, information sources such as Facebook are double-edged swords when it comes to reaching rural residents. The data reveals that there is uptake in the usage of social media among rural residents and there presents opportunity for Facebook to be used more than simply to socialize, but also to inform and aid. Clearly, the need to seek information is one of the factors that encourages rural residents to pick up social media.

Limitations

One of the limitations is that my sample size of seven participants is small, and thus these findings should be tested, and validated with a larger reference group, perhaps even considering expanding to other rural locations. Second, the study was unable to include rural residents not on Facebook and hence unable to provide an accurate depiction of the situation for residents who do not use social media or have limited access to the Internet. Given that the population of Cold Lake is approximately 15,000 and there are around 10,000 members in the Facebook group, and provided that these 10,000 are unique individuals, there are still about 5,000 rural residents that are either unaware or chose not to be part of this group. The interviews, while informative, were still shorter than desired length despite numerous prompts.

Integration of Quantitative and Qualitative Findings

There are similarities when comparing quantitative and qualitative findings. When studying the *Cold Lake Questions and Answers* Facebook group in detail, and interviewing the research participants, both sets of data indicate the increasing trend of Cold Lake residents using social media to seek information about healthcare. The quantitative data set saw an increasing number of posts and the qualitative data set saw research participants sharing that they joined the group to seek information. Another similarity is that neither data set had much information about COVID-19 – the posts concerning COVID-19 from the quantitative data set were the least and the research participants did not mention COVID-19 during their interviews when they were sharing why they had joined the Facebook group. This is interesting to note as there was an assumption that COVID-19 could have been the reason why there was an increase in the number of posts related to healthcare, but when studying the group, the number of posts asking about COVID-19 were fewest in number. It could be possible that individuals were not on social media

yet or they had perceived that social media had too much misinformation and disinformation about COVID-19.

The qualitative data set also informed and complimented the quantitative research conducted because through the interviews, the reasons for certain trends were established. The interviews also shed light on the course of action members will take after obtaining information from the Facebook group.

Summary

The methods used to analyze data allowed me to answer my research questions focusing on how and why rural residents are using social media to bridge the gap in healthcare communications. Without social media, it takes a longer amount of time to find the information they require to make the decision they need to about their health or the health of their loved ones. Through quantitative and qualitative content analysis, I identified categories surrounding how and why rural residents were using social media to look for information concerning doctors, reviews, emergency wait times, walk-in hours, walk-in wait times, and how social media had helped them. I then developed the findings through examining the literature concerning the phenomena. However, due to the sample size (seven research participants) and the period studied (four years) compared to the years the Facebook group has been active), more study is required to understand the impact the gap in healthcare communication have on rural communities and if social media is the best way forward in bridging that gap.

Conclusion

My research gives an introductory explanation of how rural residents in Cold Lake are using social media to bridge the gap in healthcare communications, allowing them to obtain their information in a timely manner and make informed decisions about their healthcare options. Prior to this research, this phenomenon would have been unknown to others outside of the *Cold Lake Questions and Answers* Facebook group and one would have to make assumptions about how rural residents decide whether to head to the emergency department to wait, or about how they become aware of whether there is a doctor present at the emergency department. Urban data concerning social media usage and uptake are not reflective of the social media adoption and usage in rural communities.

In summary, my studies indicate that residents in rural communities are using social media to help them make informed decisions about doctors and availability of healthcare services by first, reading the posts of others within the Facebook group, and if unable to find the required information, the members of the group create the posts themselves. This is because rural residents are not able to obtain the information they require concerning healthcare options in a timely manner. The Cold Lake Emergency department is also at present unable to provide the length of wait time via phone. The data shows that posts asking about wait times at the emergency department or whether there was a doctor on duty steadily increased during the study period.

While most participants indicated the usefulness of the Facebook group in providing them required information, there was hesitation in completely trusting the information in the group. It is uncertain if COVID-19 played a part in rural residents adopting social media since the data was not very indicative of that. However, it is certain that information seeking is one of the contributory factors for the adoption of social media. Tracking if there was a continued

increase in posts, if the nature of the posts were similar, and if the posts were made by unique individuals would be an interesting area for further study to identify if the trend is gaining more traction as time passes.

It is important to note that at present, there are ways of rural residents obtaining the information in question without social media. These methods were not timely; often, rural residents were unable to use the internet to find the information. I discovered that while the information shared in the group was not shared by any city officials, members still deemed it to be credible and would base their future actions on the information they obtained from the group. It is important for a rural community to have access to timely information to make decisions that could mean life or death.

This research is one of the first of its kind to be done for a rural community in Alberta; it remains a fact that the literature concerning rural communication is still limited. Rural residents are recognizing the need to move away from simply offering information through traditional media. Healthcare communications in rural areas can and should improve and change for the better because of the lack of healthcare availability these rural communities have. Understanding how social media is shaping rural health communications outlined in this research could provide authorities with the opportunity to leverage technology to better processes or spark ideas to improve efficiency for healthcare professionals and in turn, lessen the chances of burnout amidst a nationwide shortage of nurses and doctors post pandemic.

Reference List

Ancu, M., & Cozma, R. (2009). MySpace Politics: Uses and Gratifications of Befriending Candidates. *Journal of Broadcasting & Electronic Media*, *53*(4), 567–583. https://doi.org/10.1080/08838150903333064

Blank, G., & Reisdorf, B. (2012). The Participatory Web. *Information Communication and Society*, *15*(4), 537–554. https://doi.org/10.1080/1369118X.2012.665935

Breen, R. L. (2006). A Practical Guide to Focus-Group Research. *Journal of Geography in Higher Education*, *20*(3), 463–475. https://doi.org/10.1080/03098260600927575

Downe-Wamboldt RN, B. (1992). Content analysis: Method, applications, and issues. *Health Care for Women International*, *13*(3), 313–321. https://doi.org/10.1080/07399339209516006

Edwards, R., & Holland, J. (2013). *What is Qualitative Interviewing?* Bloomsbury Academic 2013. 10.5040/9781472545244

Elman, C., Gerring, J., & Mahoney, J. (2020). *The Production of Knowledge*. Cambridge University Press.

Ferguson, D. A., & Perse, E. M. (1994, April). *Viewing television without a remote: A deprivation study*. Broadcast Education Association, Las Vegas. https://www.researchgate.net/publication/301301311_Viewing_television_without_a_remote_A_deprivation_study

Gan, C., & Wang, W. (2015). Uses and gratifications of social media: A comparison of microblog and WeChat. *Journal of Systems and Information Technology*, *17*(4). https://www.emerald.com/insight/content/doi/10.1108/JSIT-06-2015-0052/full/html?casa_token=ygSyopLIivAAAAAA:p-JFkO0SZwSWGkxfxKncddsf-

wPvyCcCnmyiyvHoq2vIcUkiJIjPqTwdcUwlw8KQYK8-

5J1P3AGFRnZp3t02VQddAj1CpQE8DuQu00_zWqQSdAZdQKI

Government of Alberta. (2023, February). *Cold Lake—Population*.

https://regionaldashboard.alberta.ca/region/cold-lake/population/#/?from=2018&to=2022

Ha, L., & Lincoln, J. E. (1998). Interactivity reexamined: A baseline analysis of early business

web sites. *Journal of Broadcasting & Electronic Media*, *42*(4), 457–474.

https://doi.org/10.1080/08838159809364462

Hsieh, H.-F., & Shannon, S. E. (2005). Three Approaches to Qualitative Content Analysis.

Qualitative Health Research, *15*(9), 1277–1288.

https://doi.org/10.1177/1049732305276687

Kaufhold, M.-A., & Reuter, C. (2016). The Self-Organization of Digital Volunteers across Social

Media: The Case of the 2013 European Floods in Germany. *Homeland Security &

Emergency Management*, *13*(1). https://doi.org/10.1515/jhsem-2015-0063

Kaul, I., Grunberg, I., Stern, M., & Stiglitz, J. (1999). *Global Public Goods*. Oxford University

Press.

LaRose, R., & Eastin, M. (2004). A social cognitive theory of internet uses and gratifications:

Toward a new model of media attendance. *Journal of Broadcasting & Electronic Media*,

48(3), 358–377. https://doi.org/10.1207/s15506878jobem4803_2

Lowrie, M. (2022, March 18). *No moving on from COVID-19 for Canada's exhausted health

workers*. Global News Canada. https://globalnews.ca/news/8692384/canada-covid-

healthcare-workers-pandemic-exhaustion/

McQuail, D. (1984). With the Benefit of Hindsight: Reflections on Uses and Gratifications

    Research. *Critical Studies in Mass Communication*, *1*(2), 177–193.

    https://doi.org/10.1080/15295038409360028

Metzger, M., & Flanagin, A. (2011). Using Web 2.0 technologies to enhance evidence-based

    medical information. *Journal of Health Communication*, *16*(sup1), 45–58.

    https://doi.org/10.1080/10810730.2011.589881

O'Brien, M., Moore, K., & McNicholas, F. (2020). Social Media Spread During COVID-19: The

    Pros and Cons of Likes and Shares. *Irish Medical Journal*, *113*(4), 52.

O'Keeffe, G. S., & Pearson-Clarke, K. (2011). The Impact of Social Media on Children,

    Adolescents, and Families. *Pediatrics*, *127*(4), 800–804.

    https://doi.org/10.1542/peds.2011-0054

Rubin, A. M., & Windahl, S. (1986). The uses and dependency model of mass communication.

    Critical Studies in Mass Communication, *3*(2), 184–199.

    https://doi.org/10.1080/15295039609366643

Ruggiero, T. E. (2000). Uses and Gratifications Theory in the 21st Century. *Routledge Taylor &*

    Francis Gruop, *3*(1), 3–27. https://doi.org/10.1207/S15327825MCS0301_02

Samuelson, P. (1954). The Pure Theory of Public Expenditure. *The Review of Economics and*

    Statistics, *36*(4), 387–389.

Sawyer, R., & Chen, G.-M. (2012). The Impact of Social Media on Intercultural Adaptation.

    Intercultural Communication Studies, *21*(2), 151–169.

Schofield, J. (2019, March). *Is there a way to use Facebook without giving up my privacy?*

    [News]. The Guardian.

https://www.theguardian.com/technology/askjack/2019/mar/07/is-there-a-way-to-use-facebook-without-giving-up-my-privacy

Schwartz, H. A., & Ungar, L. H. (2015). Data-Driven Content Analysis of Social Media. *The Annals of the American Academy of Political and Social Science*, *659*(1), 78–94. https://doi.org/10.1177/0002716215569197

Stafford, M. R., & Stafford, T. F. (1996). Mechanical commercial avoidance: A uses and gratifications perspective. *Journal of Current Issues and Research in Advertising*, *18*(2), 27–38.

Stafford, T. F., Stafford, M. R., & Schkade, L. L. (2004). Determining Uses and Gratifications for the Internet. *Journal of Decision Sciences Institute*, *35*(2), 259–288. https://doi.org/10.1111/j.00117315.2004.02524.x

Stallings, R., & Quarantelli, E. L. (1985). Emergent citizen groups and emergency management. *Public Administration Review*, *45*, 93. https://doi.org/10.2307/3135003

Stassen, W. (2010). Your news in 140 characters: Exploring the role of social media in journalism. *Global Media Journal: African Edition*, *4*(1), 1–16.

Verschraegen, & Schiltz, M. (2007). Knowledge as a Global Public Good: The Role and Importance of Open Access. *Societies Without Borders 2*, *2*(2), 157–174. https://doi.org/101163/187219107X203540

Westerman, D., Spence, P., & Van Der Heide, B. (2014). Social Media as Information Source: Recency of Updates and Credibility of Information*. *Journal of Computer-Mediated Communication*, *19*(2), 171–183. https://doi.org/10.1111/jcc4.12041

Appendix A

Introductory Email to Recruit Participants

Subject line: Invitation to participate in a study on "Bridging the gap in rural health communications: a preliminary study."

Dear [Name],

The Internet and mobile devices have changed the landscape for communications. While previously accessing information through local newspapers and word-of-mouth, now social media is a handy tool for residents to obtain information.

Having lived in Cold Lake several years pre and post COVID, I have a keen interest in understanding the state of healthcare communications given that many are still unaware of how to access emergency room hours, availability of doctors and if you have used social media to help you answer these questions, I would like to know why.

I am contacting you in hopes to better understand how healthcare communications can be improved so that it is helpful moving forward and at present, we have limited understanding about how it is like in rural communities with the lack of facilities and healthcare staff. Your input will provide clarity on what rural communities need to make informed decisions about healthcare. I am conducting this research through the University of Alberta Master of Arts (Communications and Technology) program under the supervision of Dr. Maria Mayan, and the research ethics number is Pro00129224.

I would love to chat with you to understand what you think about using social media to know more about healthcare options. The interview will take approximately 30-45 minutes. I am very flexible to work around your schedule. The interview can take place face to face or via video conferencing depending on your preference. Your input will potentially contribute to an information gap present in rural communities, identify the best way forward and hopefully increase broader aware of the challenges rural communities face. There will be audio recording for this interview to ensure that important information will not be lost.

To participate, please reply to me in an email to discuss this study and next steps. Thank you for considering participating. If you have any questions, please do not hesitate to get in touch via email listed below.

Best,
Elizabeth Tan
University of Alberta
stan6@ualberta.ca

Appendix B

Consent Form

Bridging the gap in rural health communications: a preliminary study

Thank you for agreeing to participate in my study "Bridging the gap in rural health communications: a preliminary study". Please take a moment to fill up the following consent form and preliminary information. I will be in contact with you within 24 hours to arrange for an interview date and time. The following information will outline participation and confidentiality procedures, followed by providing consent.

stan6@ualberta.ca Switch account

* Indicates required question

Email *

☐ Record stan6@ualberta.ca as the email to be included with my response

UNIVERSITY OF ALBERTA

Information about Study and Consent Form

Please read through the following sections carefully. By submitting this form you agree to participate in the research study described in the following sections. If you do not consent, you may exit this form and your submission will not be recorded. If you have any questions or concerns, please do not hesitate to contact Elizabeth Tan using the following contact information.

Study Title: Bridging the gap in rural health communications: a preliminary study

Research Investigator:
Elizabeth Tan
stan6@ualberta.ca

Supervisor
Maria Mayan
mmayan@ualberta.ca

Purpose of Study and Procedures

The purpose of this study is to explore how and why rural residents in Cold Lake are adopting social media to help them make informed decisions concerning healthcare options.

Study Procedures
You will be interviewed either in person or over video conferencing, whichever you prefer. Your interview should take about 30-45 minutes and will contain 10 semi-structured interview questions. You have the option to turn off the video function as only audio will be recorded.

Six participants from Cold Lake will be interviewed and participants in this study will remain anonymized. Three participants will be administrators of the 'Cold Lake Questions and Answers' Facebook group, and the other three are members of the group.

Your interview responses will be recorded (audio only), transcribed and securely stored on a personal hard drive on a locked computer for 5 years (following University of Alberta Policy).

Should you wish to meet online instead of in person, you will require access to a computer. Please do not hesitate to reach out if these are not available to you.

Background Information

1. You are being asked to participate in this study because you are a member of the Facebook group 'Cold Lake Questions and Answers'.
2. The results of this study will be used to support my capstone project for COMM 900 in the Master of Arts (Communications and Technology) Program.
3. You are encouraged to ask clarifying questions if you have any doubts.
4. You will receive a Tim Hortons gift card with $15 in value to thank you for coming forward.

Benefits and Risks

An exploration study of how social media is being used in rural communities to convey healthcare information could potentially identify the rising trends that the City of Cold Lake can consider when disseminating information or addressing gaps in healthcare information. It may also raise public awareness of available options to obtain information to make informed decisions concerning their health. There may not be any direct benefits present for participating in this study.

There may be risks to being in this study that are not yet known. If there is anything that we learn of that might affect your willingness to continue being in the study, we will make that known to you without delay. There is no cost to participate in this study.

Voluntary Participation

You are under no obligation to participate in this study. The participation is completely voluntary.
You are not obliged to answer any specific questions even when participating in this study. You can choose to withdraw from this study at any time. To withdraw from the study, send an email to the researcher indicating your request (The email address is available at the end of the form), or speak to the researcher verbally. The researcher will subsequently remove your data from the study and destroy it by deleting electronic files. If you choose to withdraw from the study, you will still retain the $15 Tim Hortons gift card.

Confidentiality and Anonymity

This research will be published via the University of Alberta Education and Research Archive. Findings may also be presented in presentations, teaching seminars and articles.

Names of participants will not be personally identified in research findings.

Interviews will be recorded in audio format to ensure accuracy of data. Data will be encrypted and stored on a secured hard drive. Following the University of Alberta policy, the data will be retained for five years. Collected data will be kept confidential. Only the student researcher and capstone supervisor will have access to the data.

While efforts will be made to maintain the anonymity of research participants, it cannot be fully guaranteed. As the interviews are conducted within a small community, in the event that when direct quotes are used, it is possible that someone might perceive that they know who might have made the quote, although they might be incorrect.

Data will be kept secure on a hard drive for five years following the completion of the research project.
The participant will receive a copy of the report.

We may use the data obtained from this study in future research. This however will be subjected to approval by the Research Ethics Board.

If you have any further questions concerning this study, please do not hesitate to contact Elizabeth Tan at stan6@ualberta.ca.

The plan for this study will be reviewed by a Research Ethics Board at the University of Alberta. The research ethics ID for this study is Pro00129224. If you have any questions or concerns about your rights or how research should be conducted, please email reoffice@ualberta.ca. or call (780) 492-2615. The office is independent of researchers.

Consent Statement

Please accept the following statement. I will contact you within 24 hours of submission to arrange a date/time for the interview. This consent is applicable for implied consent if you accept the following statement by checking the box. You can also provide consent verbally, or sign this consent in person. Please keep a copy of this form for your own records by saving it as a PDF or printing it .

I have read this form and the research study has been explained to me. I have   *
been given the opportunity to ask questions and my questions have been
answered. If I have additional questions I am aware of who to contact. I agree to
participate in the research study described above.

☐ Yes I consent participate in the study "Using social media to fill the information gap in rural communities healthcare communications"

Date *

Date

yyyy-mm-dd ☐

Appendix C

<h2 style="text-align:center">Interview Questions</h2>

NOTE: These are semi-structured questions that are meant to guide the conversation. Questioning depth for each participant will vary, depending on their answers.

Thank you so much for taking time to talk to me today. I see that you have filled up the Google form that outlines the study procedures, confidentiality and gave your consent to participate. Do you have any questions and concerns about participating in this study?

This interview is being recorded and I will also be taking notes as we chat. I am going to be asking you some questions about your social media usage and awareness of the various channels you can use to obtain healthcare information. Please know that while my research is specific to social media use in rural areas, I am still interested to hear about other ways of obtaining information like perhaps through the local newspaper or word-of-mouth.

If you need to take a break, or wish to skip a question, please feel free to let me know. Do you have any questions before I proceed?

Section One: Present State of Healthcare Communications

1. How are you presently obtaining information concerning healthcare? i.e., if there are any available doctors taking in patients, wait time at the emergency departments etc.
2. How often do you find yourself looking for this information?
3. What happens when you are unable to find this information? (Do you still go ahead to go to the emergency department, or do you adopt a wait and see approach?)

Section Two: Social Media's Role in Healthcare Communications

1. I understand that you are in the Cold Lake Questions and Answers group, can I ask why did you join that group?
2. How has joining the group been useful to you so far?

3. If you ask questions about healthcare on the group, do you feel that the information given (commented on the post) is trustworthy?
4. Will you base your actions after on the information you had obtained from the Facebook group?
5. Are there any other channels of social media that you utilize to obtain the healthcare information you require?
6. Why do you think people are using social media to answer their questions?
7. In the city of Edmonton for example, there is a website that updates the wait times for all the emergency departments in the city, do you feel that Cold Lake can benefit from this? Why?

Section Three: Final thoughts

Thank you for sharing your experiences using social media to obtain healthcare information. Before we wrap up, do you have any advice for the concerning Government organizations or for rural residents when it comes to securing information to make well-informed decisions?

Signoff Script

Thank you very much for your time and sharing your experiences. I will be putting together the data and will have my final study completed by the end of August 2023. If you have any more questions or concerns, please do not hesitate to contact me.