CAPSTONE PROJECT

ACTIVE SOCIAL MEDIA USERS ASSESS ONLINE HEALTH INFORMATION CREDIBILITY

BA (Hons) in Business – BAHBMD3

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Submission of Thesis and Dissertation

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Introduction

The rise and landscape of social media in the health industry today can be dated back to the early 1900s, where not long after the invention of the radio, people started thinking of ways doctors could attend to patients over the radio, this was illustrated in a radio magazine in 1924 where a doctor was shown attending to a patient through the medium of radio transmissions. As technology progressed through the medium of telephones, fax machines it was the introduction by the government of the successful, STARPAHC PROJECT, in the 60s and 70s, which allowed important medical information to be shared to and from public health service hospitals (eVisit, 2023). The involvement of communication technologies was providing more efficient ways to search order and progress the exchange of goods services, ideas and information. Now we live in a world of instant communication through the internet, this powerful tool provides important information, which empowers the consumers themselves to gather information and make the correct decision on their purchases or the information they have gathered relating to their enquiries.

Nevertheless, this stream of information itself is creating a stronger demand for secondary sources of information, where clarification is required in the gathering of independent and individual sources through software engines such as Google. This provision of cheap information between the consumer and the provider, which allows full interaction, is the pinnacle in two way communication, however unless the social media websites are properly designed, maintained and regulated the information and content that you want to communicate and wish to get across can be open to manipulation (Donaldson, 2007, pg124). The financial global digital health market size was valued at USD 211.0 billion in 2022, and is anticipated to grow at a compound annual growth rate (CAGR) of 18.6% from 2023 to 2030, (Grand View Research, 2023). With so much competition for a slice of this huge financial cake, the credibility of providers to the health market industry on social media is a very important factor for any consumer and one which this dissertation will analyse. In addition, with the growing age of social media and its involvement in the health care space, the effects on people's health are at an all-time high from dissemination of disinformation. A survey conducted in the united states found a concerning 38.2% of people admitting having accidentally sharing fake news or

information on social media (Statista, 2023). With the growing concern of misinformation this research project objectives will also explore the perspective off the consumer, how they interact with sources they come across online, and if they assess the credibility of online health information specifically.

RQ: ACTIVE SOCIAL MEDIA USERS ASSESS ONLINE HEALTH INFORMATION CREDIBILITY

This study will examine the online health information's credibility by asking and analysing three questions,

The research questions and hypothesis are clearly stated below:

Firstly, with the internet and social media being one of the primary sources of healthcare information, people have great power with just a few clicks to control their health and wellbeing, however with this power comes great risk and does the consumer check the reliability of the information.

RQ: Do active online users check the reliability of online health sources?

Null Hypothesis (H0): Active online users do not check the reliability of online health sources.

Alternative Hypothesis (H1): Active online users check the reliability of online health sources.

Secondly, when assessing the validity and credibility of online health information can be a major challenge, is the source respected in their field and is the content legally honest with clear communication.

RQ: Do active online users check the validity of online health sources?

Null Hypothesis (H0): Active online users do not check the validity of online health sources.

Alternative Hypothesis (H1): Active online users check the validity of online health sources.

Finally, are consumers assessing the comments of the social media posts they come across for consistency, and is there a reason to believe that the comments are constant or trustworthy.

RQ: Do active online users check the consistency of online health sources?

Null Hypothesis (H0): Active online users do not check the consistency of online health sources.

Alternative Hypothesis (H1): Active online users check the consistency of online health sources.

In addition, this study will use a chosen variable asking consumers do they find using social media easy, which will be compared to reliability, validity and consistency to see if there's any correlation to someone who would be more inclined to check the credibility of the source, depending on their online literacy capabilities. This study takes a quantitative methodological approach in form of a survey asking 112 participants 13 questions on their social media use, in relation to their health. This study conducted various tests including single sample test of a population proportion and independent samples test of the difference between two population proportions using SPSS (Statistical Package for the Social Sciences), which is a software tool used for data management, statistical analysis, and graphical presentation of research data.

Review of the Literature

The rise and landscape of social media in the health industry

This study will proceed to analyse a quantitative peer reviewed article by Farsi (2021), a literature review of social media use by health care providers. The article reviewed a total of 158 studies from 2007 on social media (SM) use in healthcare-by-healthcare providers (HCPs) in various roles in business such as marketing, recruitment, networking, and telemedicine. The study showcases social media's expanding significance in the modern healthcare industry utilizing methods across four search engines including Google Scholar. This study embodies a wide range of HCP and SM usage across several SM platforms including WhatsApp, Facebook and Twitter showing their impact in healthcare settings. This study also goes beyond patient care allowing for a wider range view of the subject. Analysis of this research allows this study to gain knowledge into the field of how social media is implemented into the healthcare system, supporting the study's goal of the influence of SM in the health industry. However, consideration has to be given to the economic climate and consumers' use of SM in relation to their purchasing decisions and the amount of time they research HCPs. Nevertheless, the critical strengths of the Farsi (2021) report lie in the study's ability to span across multiple platforms and medical journals which is very important for understanding the SM relationship with HCPs, while also being a very credible source. One weakness of the report would be its exclusion of non-English studies, which hinder different perspectives in the medical field whereas we will see the Markham, Gentile and Graham (2017) study incorporates a more cumulative global perspective, about social media for networking, professional development, and patient engagement. This section also covers the multifaceted role of SM in health care, focusing on physicians and the impact on dissemination, networking, professional development, and patient engagement within the oncology field. Markham *et al*. (2017) allow for unique contributions in the field this study tends to research, as in giving insights on SM assistance on platforms such as Twitter, Facebook and giving a platform for online discussions that boosts professional development, the impact of patient

interaction on the outcome of their health, and networking. Knowing why social media has such an impact on the health industry will allow this study to further develop its understanding of its influence on the industry. A strength of the Markham *et al*. (2017) article is that it takes a qualitative methodological approach and includes real life examples and experiences of physicians and healthcare professionals using SM. One fault of the Markham *et al*. (2017) research would be its lack of evidence for the claims about the relationship between social media engagement and oncology. Credibility wise, it uses various studies and surveys amongst oncology physicians but lacks that extra bit of data to back up its claims which might affect the credibility. Both studies recognize social media's multifaceted impact on the health care industry, but they differ in their methodological approaches, Farsi (2021) being quantitative and reviewing numerous studies, while Markham *et al*. (2017) adopts a qualitative perspective. Both consist of great insights into the expanding world of SM in health but lack that comprehensive evidence to back it up.

This study will look at a piece of research by Olof Lagrosen and Grundén (2014) which discusses social media marketing in the wellness industry. This analysis was done through a qualitative method of in-depth interviews and a workshop with the marketing sector in seven leading Swedish spa-hotels. They used the constant comparative method which is a process used in grounded theory where you sort excerpts of raw data into groups according to attributes and structure it in a way to formulate a new theory (Delve, Ho and Limpaecher, 2023). Research found that SM platforms such as Facebook, Twitter, blogs, and YouTube were used in gathering clientele, content and customer feedback and thus played a big role in their marketing campaigns and were essential for their brand's image and future interaction with their customers. This journal article offered a comprehensive overview of the strategies used by a sector, spa hotels, within the health industry, and shows the importance of how understanding SM with solid research and utilising it correctly can impact and advance the business side of HCPs within the health industry. In addition, the strength of Olof Lagrosen and Grundén's (2014) research shows the understandings into how spa hotels used SM to their advantage by listening to their customers feedback through engagement by extensive interviews. A weakness could be the generalised approach of

understanding how the industry works through its qualitative method asking the biggest seven spa providers instead of the wider market.

Consumers relationship with checking reliability of online health sources

For this study and research to progress it must specifically discuss the meaning of credibility and how it is broken down to fully comprehend and understand its meaning. To do this, the study will first look at reliability in this section and how the consumer interacts with online health sources and is affected by checking the reliability of the source there reading. This study will explore if consumers check for reliability when they read online health sources. In order to navigate through the peer review articles and discuss what the greater body of knowledge is saying in the health care space, this study will define reliability as "Reliability means that something is consistent time and time again" (Questionmark, 2022). Is the source reliably in the fact that they produce the same answer repeatedly, or do they tend to contradict what they say to fit an agenda or status quote. This section will analyse, evaluate and compare five peer reviewed articles on the theme of reliability.

When first tackling the idea of if online health users' assess the reliability of health information, this study must explore Batteneni *et al*. (2020) an investigation into the reliability of online health information and its impacts on health related decisions by assessing trends on health websites in order to evaluate their quality and reliability. Batteneni *et al*. (2020) conducted a qualitative review of 24 out of 212 studies that aligned with their objectives using 4 digital data bases including the British medical journal, searching for terms such as "trustworthy medical information online" over the span of 2003 to 2019 checking the quality through the Newcastle Ottawa scale categorizing studies as poor, moderate, or good, this method approach can be compared to Salbas (2023) where they aimed to evaluate the reliability, content, and quality of Turkish websites providing information on facial paralysis. Methods used included readability formulas such as Discern scale and Jama criteria. With the large data base used and the span of 16 years of literature their methodological approach is significant to this study. Hesse *et al*. (2005) can be compared in that both studies take a comprehensive and wide range approach to their field, Although Hesse uses a quantitative approach, there similar

as the data collected was from sample of 6,369 through a reputable source of the health information national trends survey (HINTS). One disadvantage to Hesse work is that it was published in 2005 where online searches mightn't off been as prevalent as they were today, but still worth considering as the study does factor in a vast number of consumers and showcase their decisions at the time. Hesse found that trust levels in physicians were the most trusted source of health information at the time with 62.4% expressing high trust, Batteneni *et al*. (2020) found that most user have concerns about the reliability of online health information and believe physicians could improve the safety of these sites. This can conclude that users are conscious of the fact that there are problems with reliability when it comes to online health sources, in turn meaning that they do check and are concurred about reliability. To further expand on the point Lee *et al*. (2014) talks about the role of health care providers and the importance for health literacy amongst consumers compared to Adams (2010) paper on the exploration of reliability concerns in context to user generated content facilitated by web 2.0 applications. Lee having a more systematic methodological approach compared to Adams multifaceted approach allows for the complexity of reliability issues to be seen from different angles, although there were positive outcomes in each case, they lack large sample sizes compared to Hesse and Bastteneni which is a limitation.

Consumers relationship with checking Validity of online health sources

For this study and research to progress it must specifically discuss the meaning of credibility and how it is broken down to fully comprehend and understand its meaning. To continue, this study will discuss validity, this section will hope to progress the studies full understanding of creditability and how consumers interact with online health sources, and how consumers are affected by checking the validity of the source they are reading. This study will explore if consumers check for validity when they read online health sources. To navigate through the peer review articles and discuss what the greater body of knowledge is saying in the health care space, this study will define validity as "the quality of being based on truth or reason, or of being able to be accepted" or "the state of being officially true or legally acceptable" (Cambridge Dictionary, 2024). With these

definitions it can be assumed that validity in terms for checking online health sources means that someone is “officially true” or “legally accepted” are the sources respected in their fields of work, are they a doctor on social media telling you about heart disease or a qualified nutritionist telling you what’s good to eat, or is it your average joe unqualified bringing to your attention that eating vegetables causes cancer. This section will analyse, evaluate and compare four peer review articles on the theme of validity.

The research papers that will be discussed are Thackeray, Crookston and West (2013), who conducted a qualitative telephone survey with 1,745 adults who seek health information online which is a similar quantitative approach as this study will conduct. It said that 60% of internet users seek health information online and there is limited understanding how consumer’s use social media for health information. Similarly, Fergie, Hilton, and Hunt (2015) focused on investigating young adults’ engagement on social media with regards for health information regarding diabetes and common mental health disorders (CMHDs). Although Thackeray *et al*. and Fergie *et al*. share similar backgrounds and objectives what will benefit this study in particular, their differences is in terms of their methodological approach as Fergie *et al*. conducted a qualitative approach with 40 semi- structured interviews compared to the survey. In both cases there was evidence to suggest that people checked for validity. Thackeray *et al* found high levels of online engagement with 41.15% of people consulted rankings/reviews and 15.19% posted health-related comments/questions, correspondingly amongst the interviews Fergie *et al* directed, data was analysed using thematic networks to identify key themes. Information seeking was a common practice amongst participants and consumption of health-related content was a part of everyday social media use, Participants used heuristic strategies to evaluate content, such as consistency and endorsement heuristics. One limitation is the participants interviewed all have experience ither diabetes or CMHDs as the sample size being niched which could not represent the full population.

Zhao and Tsang (2022) showcase the behaviours of how people consume crisis information from multiple channels and sources, specifically fact checking Covid-19 information. Brodsky *et al*. (2021) also investigates fact checking ability in college students but would disagree with a lot of the studies discussed, with the view that college

students lack fact-checking skills and that students do not attempt to seek out the original sources of claims on social media or verify the accuracy of the claims using fact checking websites. With the growing scholarly interest regarding misinformation and its correction, Zhao and Tsang (2022) found that the number of English facts checks rose more than 900% from January to March 2020 which would indicate that people are checking the validity of the sources they are checking when it comes to important health related problems like Covid-19.

Consumers' relationship with checking the consistency of online health sources

For this study and research to progress it must specifically discuss the meaning of credibility and how it is broken down to fully comprehend and understand its meaning. To do this, the study will approach consistency in this section and how the consumer interacts with online health sources and is affected by checking the consistency of the comments they are reading. This study will explore if consumers check the consistency when they read online health comments. To navigate through the peer reviewed articles and discuss what the greater body of knowledge is saying in the health care space, this study will define consistency as the relationship and similarity between conversations in online comment sections. Can we see that people are consistent with opinions when talking about a post they come across, or can we justify that it is inconsistent amongst opinion and therefore not a credible source. This section will analyse, evaluate and compare three peer reviewed articles on the theme of consistency.

Firstly, we will introduce the first peer reviewed paper, a longitudinal study by Sillence *et al*. (2007), following 15 menopausal women aged 41-60 from north-east England investigating how women decide to trust online health advice. Another qualitative peer reviewed paper was conducted by Sun *et al*. (2019), a more recent study that included 37 empirical studies where consumers explicitly described their evaluation of online health information quality. Lastly, we will discuss Dalmer (2017) on the reliability of online health information retrieved through social media with a focus on consumers' unique contexts, virtual relationships, and social network trust levels. When first looking at Sillence *et al*. (2007) and Sun *et al*. (2019), they both share the importance and role of design and personalization when it comes to a consumer trusting in a source they come across.

Sillence *et al*.'s (2007) data analysis when identifying trust patterns of consumers found that trust perceptions improved when they read stories from likeminded individuals. Sun *et al*. (2019) found 165 indicators mostly on trustworthiness, expertise, and objectivity with 114 positive indicators, 35 negative indicators and 16 mixed indicators. Amongst these examples, consumer-generated content (for example, personal blogs) indicates low objectivity and low level of expertise to some consumers but among the majority of positive indicators, consumers found that consumer-based content to be highly practical and relatable. It is consistent in both studies that the consumer depends on content from their peers in order to trust and view the source as credible. This study can assume that people do check the consistency when it comes to health-related content on the internet/ social media. Although both studies benefit and progress this study's knowledge of the subject matter, there are some limitations to be noted. In Sillence *et al*. (2007), the methodological approach in diary entries did not provide long-term trust relationships which might have hindered their overall research. In Sun *et al*. (2019), consumer evaluations could have been subjective and contextual due to their personal experience towards their health evaluation. Dalmer (2017) discusses various reliability assessments establishing key concepts and understanding reliability markers of health websites specifically to web 2. Dalmer (2017) describes social media as a place for people to openly communicate, a place to share, reuse or remix and allow people to learn easily from the knowledge of others. *"Medicine 2.0 or Health 2.0 are terms related to social media that imply openness and transparency"* (Eysenbach cited in Dalmer, 2017, p. 62). Dalmer (2017) notes the importance of reliability, quality, and accuracy of online health information, *"86% of online health information users [are] concerned about the veracity of information on the Internet"* (Pew Internet & American Life Project cited in Dalmer, 2017, p. 62). Dalmer (2017) goes on to discuss what makes consumers' perceptions and trust increase in health websites, for example, similarity of information, understandability and clear navigation. Finally, Dalmer (2017) discusses the idea that trustworthiness comes from the participation of users on social media and a decreased focus on more traditional assessments of reliability such as the specific facts. All these points point back to the main point of the importance and consistent behaviours of consumer engagement with online health information and progress this study's

knowledge of consumers' relationship with checking the consistency of online health sources.

Consumers' use of social media and assessing the credibility of sources depending on their online literacy capabilities

For this sub-section this study will explore consumers' relationship with assessing the credibility of online health sources from a different angle. This study will explore if social media/online internet literacy affects consumers' ability to check the credibility of sources they come across. This sub-section will analyse, evaluate and compare three peer reviewed papers about the difference in generations such as millennials and baby boomers and how they interact with the internet and social media for checking for credibility. There is reason to believe that younger generations are more comfortable engaging with technology due to their upbringing in the digital age, compared to their counterparts (Norton, 2021). This helps this study define who would generally find using social media easier compared to other generations.

Fisher, Magee and Mohammed-Baksh (2015) looked specifically at millennials aged 18-22 years old with an experiment exploring whether they cared about the source of credibility in radio broadcast news. Herrando, Jimenez-Martinez and Martin-De Hoyos (2019) conducted a quantitative survey with 715 participants across different generational cohorts aged 16-55 exploring the impact of user-generated and company generated information. Finally, we will evaluate Obal and Kunz (2013) who conducted an experimental study comparing 197 millennials and 201 baby boomers as participants and how different generational cohorts develop trust in e-commerce websites. Both Herrando *et al*. (2019) and Obal and Kunz (2013) discuss the trust generations have when it comes to online use. In the findings both studies came to the same conclusions for the older generations of Gen X and baby boomers, prioritizing privacy and relying on generated information by companies to build trust. Similarly, the younger generations of millennials and Gen Z in both studies prioritized feedback mechanisms, vendor advice and navigation and millennials relied on company-generated information even more than

Generation X. Fisher *et al*. (2015) found a number of t-tests revealed that young people's manners varied little when evaluating external sources or journalist sources These observations could suggest that the older generations are more reserved with who they trust when it comes to their source whereas the younger generation are more inclined to trust in sources generated by users and companies they are familiar with.

The impact of social media for consumer health care concerns

The expansion of SM in the health industry comes with both its advantages and disadvantages, especially in this study SM allows for many benefits and is of huge importance to the industry. SM allows for updates on new technologies and allows individuals to access the latest information and communicate it to others. It allows for them to compare their methods and services to their competitors and improve upon them; some have also implemented it into their training process (University of Scranton, 2024). With great power comes great responsibility, which begs the question: is it a good thing to be able to spread mass information online, especially when it comes to health? If social media does have such a vast landscape of people that find their health information online, is dissemination of health information an importance or a challenge?

This study will analyse a piece of research by Al-Dmour *et al*. (2020), regarding the influence of social media platforms on public health protection against the COVID-19 pandemic. This article is a quantitative piece of research that collected data via a questionnaire from a total of 2555 users sampled in Jordan. This research examines the impact of SM platforms on public health protection against COVID-19 while also highlighting the positive impact of SM influence. In another part of this research's quantitative methodology, a structural equation modelling (SEM) was used; this is a complex statistical technique that helps analyse structural relationships amongst multiple variables (Statistics Solutions, 2024), calculating the relationship between public health awareness, behavioural changes, SM use, and protection against Covid-19. This article offers statistical research to back up this study's aim to showcase the

influence of social media on health protection in a positive light, and answers the question on whether dissemination of health information is good or bad? A strength of this research is that the study uses a large sample size in its quantitative approach and uses recent events such as the pandemic to investigate SM influence, whereas a weakness of this study could be its cross-sectional data approach meaning its data refers to observations of many different individuals at a given time with each observation belonging to a different individual (Statistics.com, 2024); therefore, it allows insights into social media use and its effects on the public health awareness but does not allow for follow ups or future developments.

This study will review Scanfeld, Scanfeld and Larsen (2010) on the dissemination of health information about antibiotics through the social network Twitter. This article is a quantitative piece of research where one thousand Twitter status updates, mentioning antibiotics, were taken randomly with the intention to examine the potential for misunderstanding or misuse of information in the status update. The status updates were also categorized into eleven categories, some being on general use, advice/information, side effects/negative reactions, diagnosis, resistance, and misunderstanding and/or misuse, with some cases of misuse occurrences to do with flu and cold with antibiotics. This article demonstrates with examples that in fact there can be cases of misunderstanding when it comes to dissemination of health information, which is a very concerning challenge when it comes to the influence of SM, and one this study tends to understand. In addition, a strength of the study is how the use of a SM platform such as Twitter can be used for health information analysis and to identify misuse examples. A weakness of the study could be in terms of its sample sizing making a broad statement on the findings. The article by Scanfeld *et al*. (2010) is once again a credible source with its systematic content analysis methodology used in its research. Both studies utilize quantitative methodologies each exploring the impact of social media on health information dissemination. The Al-Dmour *et al*. (2020) study focuses on Covid-19 and social media's role through a larger sample of questionnaires and SEM, the article by Scanfeld *et al*. (2010) demonstrates social media's potential for health information analysis through a smaller sample of status updates.

The impact of social media on consumer healthcare concerns is a multifaceted and complex issue, as evidenced by recent research in the field. Three peer-reviewed articles shed light on various aspects of this topic, providing valuable insights for understanding and addressing the challenges and opportunities presented by social media in healthcare contexts. Lau *et al*. (2012) discusses safety concerns related to consumer health information technology (IT) on social media platforms, focusing particularly on YouTube. The authors identify several key areas of concern, including the dissemination of harmful health material, the public display of unhealthy behaviours, tainted public health messages, psychological impacts from accessing inappropriate content, and the potential distortion of public policy and research funding agendas. Through examples and case studies, the article highlights the need for regulatory frameworks, e-health literacy skills among consumers, and responsible content production to mitigate these safety concerns.

Hanson *et al*. (2014) delve into the use of social media for health-related purposes among medically underserved primary care patients. Their cross-sectional survey reveals patient preferences for communication with healthcare providers, including email, texting, Facebook, and mobile apps. The study emphasizes the importance of understanding barriers to social media use among underserved communities, such as perceived lack of benefit and technological challenges. The findings underscore the potential value of social media in improving healthcare access and communication, particularly among minority populations, while also highlighting the need for culturally sensitive approaches. Jaravaza *et al*. (2023) investigate the influence of social media and indigenous religious beliefs on public health promotion initiatives, specifically COVID-19 vaccination, among rural consumers in Zimbabwe. Their qualitative research identifies WhatsApp as a primary source of healthcare information for rural consumers, but also highlights indigenous religious teachings as significant barriers to vaccination acceptance. The study underscores the importance of understanding local contexts and collaborating with community leaders to address these challenges effectively, advocating for culturally sensitive approaches to public health promotion.

RESEARCH QUESTION AND HYPOTHESIS

RQ: ACTIVE SOCIAL MEDIA USERS' ASSESS ONLINE HEALTH INFORMATION CREDIBILITY

Null Hypothesis (H0): Active social media users do not assess the credibility of online health information.

Alternative Hypothesis (H1): Active social media users assess the credibility of online health information.

Online health information should be relevant, up to date, truthful and clear for the online user, it should be easy to understand. For online users to exercise self-management of their health they need to be able to decipher what is miscommunication and what is real, this helps with gaining knowledge and understanding in deciding what choices they are going to make with their health concerns. Nevertheless, all human beings are different, we all have a different inherited makeup, so this might lead one person's understanding of an issue, which might be recognised as something totally different to someone else, not all data is factual or useful which leads to misunderstanding (Jones, 2023, pg.8) this is why deciphering the credibility of a source is crucial. As we have seen, Lagrosen and Grunden seem to have taken for granted that the participants were all active SM and IT savvy which might be true in 2024, fortunately anyone under the age of thirty will have encountered IT at school and in their general lives, and even finding anyone under fifty that does not use IT would be very rare (Nickson, 2007, pg100). Another problem facing online users is the ethical and moral issues facing both SM users and online health providers, this can cause huge debate especially around the issue of free speech. As Donaldson states "*What might be seen as unethical to one person can be seen as normal practice to another, business and individual ethics are a complicated area that have to be considered"* (Donaldson, 2007, pg267). The qualities of being credible are trust, convincing and believable, however as the saying goes, if it is too good to be true, it usually isn't. These are only some of the problems facing online consumers in their attempt to access health information in an ever evolving technological age, that is why it

is important for on line users to educate themselves with the credibility of what they are consuming.

METHODOLOGY

In this section this study will discuss various elements of this study's quantitative methodological approach. The overall question underlining the direction of this study is:

RQ: ACTIVE SOCIAL MEDIA USERS ASSESS ONLINE HEALTH INFORMATION CREDIBILITY

Specifically, reliability, validity and consistency with the hypothesis stated:
Null Hypothesis (H_0)
Active social media users do not significantly assess the credibility of online health information.
Alternative Hypothesis (H_1)
Active social media users do significantly assess the credibility of online health information.

The main goal and purpose of the research is to assess how people check for the credibility of their sources, and to ultimately find out how many are actually checking the legitimacy of misinformation, which is a problem as noted in this study. This study focuses on mainly active users of social media, and if the variable of using social media is easy to the participant and is it a factor effecting their capacity to check the credibility of a source. This study falls under the Positive paradigm as the majority of the research undertaken was empirically based, which relies on observable and measurable data like a survey. This study aims to provide a definitive answer to the research question through measurable variables. The research employs three main control groups, reliability validity and consistency, the data will be collected through dichotomous survey scale with multiple choice questions. The analysis will involve comparing individual groups scores using statistical methods to determine if there is a significant difference. Further analysis will be conducted by subdividing each group into two further groups comprising

of yes and no sets that found the use of social media to be easy or not. This will allow for comparison's, and to show if there is a statistical difference between the groups, by adopting the positivist paradigm this research ensures a systematic and objective approach to investigating the research question.

Active social media users significantly assess the credibility of online health information. This study assumes that consumer's note the importance of reliability, validity and consistency of online health information, and therefor assess the credibility off the source they come across. Assumptions made from others included Hesse et al. (2005) highlights that users are aware of reliability issues with online health sources and that they do check for reliability which is influenced by their trust in physicians. Sillence et al. (2007) found that the perception of trust improved when consumers read stories from likeminded individuals, indicating that uniformity in comments can build trust. This study has adopted a online survey using survey swap, a free online service which allows surveys to be created and shared. The survey is designed in a format that uses a, Yes or No, response, also known as dichotomous survey scale, that provides multiple choice questions measuring frequency of behaviours. When sharing the survey, the method used was by a direct email, secure survey share links, social media, embed survey in website and QR code. The data will be processed through an excel file which will be downloaded and transferred into Statistical Package for the Social Sciences (SPSS) for further data analysis. A Survey will help this study gather insight into consumers behaviours and relationships by giving them a selective line of questioning allowing the study to narrow down specifically what consumers are thinking. The survey aims to understand the extent to which users check for reliability, verify health information and check consistency in online health sources and how the ease of using social media influences this behaviour. This supports the research by identifying key factors in the credibility assessment process. Out of the thirteen questions asked in the survey the only questions that will be analysed are questions two, five, eleven, twelve and thirteen. Question two askes the participant if they are an active social media user. It is crucial to note that any participant that says no to this question will not have their data analysed due to this study specifically looking at active online users only. Question 5 examines whether the participant finds using social media to be easy or not, this will be the chosen variable to compare in the data analysis section. Finally questions eleven, twelve and

thirteen all address reliability, validity and consistency, the focal point study. The spacing of the questions allows for a flow with introductory questions at the start such as asking about age, more probing questions then come into play towards the end. The order in which questions are asked can influence how people respond. The order is designed to build rapport and context before addressing more detailed questioning, safeguarding participants so their comfortable providing responses. The expected answers this study can expect is that a significant proportion of respondents will report checking the reliability, validity, and consistency of online health information, with differences based on the ease of social media use. Each question builds on the previous one, establishing a logical flow from general social media use to specific behaviours related to health information.

SPSS is a software tool used for statistical analysis in research. It allows users to perform a wide range of statistical tests and generate comprehensive reports with visual representations such as bar charts, cluster charts, and frequency distributions. SPSS assists this study by conducting a single sample test of a population proportion and an independent samples test of the difference between two population proportions. To conduct a single sample test of a population proportion in SPSS, the user must firstly enter analyse, compare means and proportions, use one sample from the proportions within your chosen variables and press ok. Similarly to test for the independent samples for the difference between two population proportions in SPSS, you must first enter analyse, compare means and proportions and independent samples proportion with your chosen variables. To produce a bar/cluster chart, the user selects graphs, then choses their chosen bar chart.

For ethical purposes this study does not face any major ethical dilemmas that might prohibit any future research. It does border on somewhat personal information about participants health information and behaviours, but due to the confidentiality aspect of the survey, participants remain anonymous. Limitations to be noted include sample bias, participants might not represent the full population. Online health information changes rapidly, which can make it difficult to ensure the up-to-date relevance and accuracy of the data collected. Lastly differences in technology and literacy capabilities can affect how users evaluate the accessed online health information's credibility.

ANALYSIS AND FINDINGS

Results/ Findings

This section presents our study's findings on the behaviours and perceptions related to the reliability, validity, consistency and ease of use of using social media for health information when it comes to credibility. We analyse whether respondents check for reliability and validity and consistency of health information found online. This study examines differences in behaviour between those who find social media easy versus difficult to use. The results are illustrated through statistical tests such as single sample test of a population proportion and independent samples test of the difference between two population proportions. Visual representations including bar charts, cluster charts and frequency tables were conducted to provide a comprehensive overview of the data. 112 participants participate in the survey with 104 participants data being analysed as the 8 were not active social media users.

Is Reliability checked for when consumer check online health sources?

In this section this research focusses its analysis on understanding the degree to which participants check the reliability of online health sources. Reliability can be described as "Reliability means that something is consistent time and time again" (Questionmark, 2022). We primarily focus on the research question:

RQ: Do active online users check the reliability of online health sources?

This study first presents a descriptive overview of the distribution of responses to the question of if respondents check actual reliability of online health sources. We then inferentially assess to see if the proportion of those that check for reliability is greater than the proportion that don't check for reliability.

In Figure 1 this research presents a bar chart depicting the proportion of responses associated with the reliability assessment of both the yes and no group of respondents. The horizontal axis lists all levels of measurement associated with the reliability item, and the vertical axis indicates the percentage of respondents indicating percentage level. In Table 1 we present a more detailed overview of the reliability results. Predominately (68.3%) respondents indicated that they do check for the reliability associated with the health information that they find from searches.

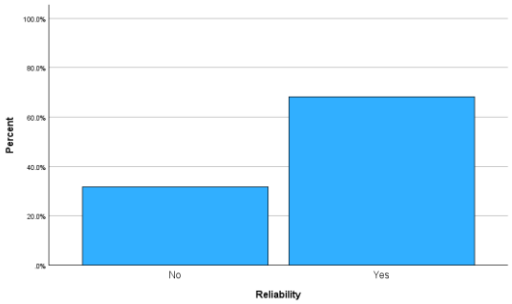

Figure 1: Bar Chart depicting the distribution of Reliability Perception

Table 1: Frequency table listing the frequency and proportion of respondents indicating whether they consider the reliability of health sources.

Reliability	Frequency	Percent
No	33	31.7
Yes	71	68.3
Total	**104**	**100**

To assess if the proportion of respondents indicating that they would check the reliability of online health sources was different to the proportion of respondents that indicated that they would not check the reliability of online health sources, a single sample test of a population proportion was undertaken. The results of the single sample test of a population proportion indicated that there was a statistically significant difference between the proportion of respondents that indicated that they do check for reliability ($\pi = .679$) compared to the proportion that do not check for reliability ($\pi = .321$), $z = 3.780$, $p < .001$. There was a greater proportion of respondents that indicated that they do check for online health source reliability.

Does Ease-of-use impact consumers on checking for Reliability online?

In this sub-section this study focusses its analysis on understanding the relationship between participants that find using social media easy and if they don't find social media easy a factor in their action of checking for reliability. Is there any evidence to suggest that those that find using social media difficult are more risk-averse in their acceptance of the information that they gather from social media searches compared to those that don't find using social media difficult. We primarily focus on the research question:

> [RQ] Do active online users that find social media easy or not check the reliability of online health sources in proportion to people that don't?

In figure 2 this study presents a cluster bar chart depicting the proportion of respondents that check for reliability (or not) clustered based on there perception of ease of use. In table 2, this study presents a detailed numerical summary. Descriptively 80% of those that find using social media difficult indicated that they check for reliability. In contrast 67% of those that find using social media easy check for reliability. Is there evidence to suggest that those differences are statistically significant?

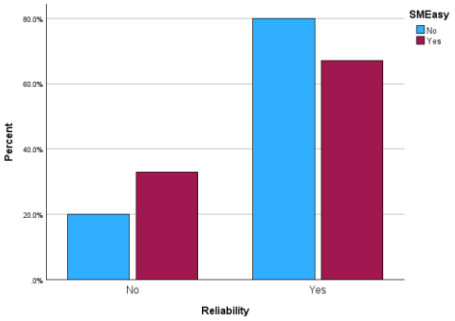

Figure 2: Cluster chart depicting the differences of yes and no respondents and the proportions of which considered the reliability of health sources.

Table 2: Frequency table listing the frequency and proportion of respondents indicating whether they found social media easy or not and if they considered the reliability of health sources.

Reliability	Ease	Frequency	%
Yes	Yes	63	67
Yes	No	8	80
No	Yes	31	33
No	No	2	20

Regarding checking for reliability of content gathered from social media searches, is the proportion of people who do check for reliability greater within the group of participants that find using social difficult compared to the proportion within the group that find using social media easy. In that regard, we conducted an independent samples test of the difference between two population proportions, testing if the proportion of those that check for reliability is different between the two groups composing the ease-of-use social media variable. The results of the independent samples test of the difference between two population proportions indicated that there was no statistically significant difference between the proportions of people that check for reliability within the easy-to-use social media group ($\pi = .670$) compared to the not easy to use social media group ($\pi = .800$), $Z = .838$, $p = .201$. The full set of results are presented in Table 1 and 2.

Is Validity checked for when consumer check online health sources?

In this section this study focusses its analysis on understanding the degree to which participants check the validity of online health sources. Validity can be described as "the quality of being based on truth or reason, or of being able to be accepted" or "the state of being officially true or legally acceptable" (Cambridge Dictionary, 2024). We primarily focus on the research question:

RQ: Do active online users check the validity of online health sources?

This study first presents a descriptive overview of the distribution of responses to the question of if respondents check actual validity of online health sources. We then inferentially assess to see if the proportion of those that check for validity is greater than the proportion that don't check for validity.

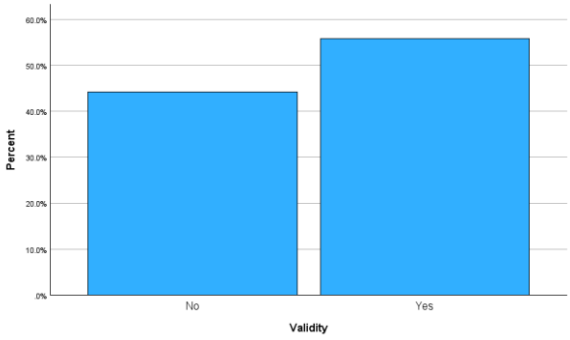

Figure3: Bar Chart depicting the distribution of validity Perception

Table 3: Frequency table listing the frequency and proportion of respondents indicating whether they consider the validity of health sources.

Validity	Frequency	Percent
No	46	44.2
Yes	58	55.8
Total	**104**	**100**

In Figure 3 we present a bar chart depicting the proportion of responses associated with the reliability assessment of both the yes and no group of respondents. The horizontal axis lists all levels of measurement associated with the validity item, and the vertical axis indicates the percentage of respondents indicating percentage level. In Table 3 we present a more detailed overview of the validity results. Statistically (55.8%) respondents indicated that they do check for the validity associated with the health information that they find from searches.

To assess if the proportion of respondents indicating that they would check the validity of online health sources was different to the proportion of respondents that indicated that they would not check the validity of online health sources, a single sample test of a population proportion was undertaken. The results of the single sample test of a population proportion indicated that there was not a statistically significant difference between the proportion of respondents that indicated that they do check for validity (π = .558) compared to the proportion that do not check for validity (π = .442), $z = 1.177$, p = .120. There was a greater proportion of respondents that indicated that they do check for online health source reliability**.**

Does Ease-of-use impact consumers on checking for Validity online?

In this sub-section this study focusses its analysis on understanding the relationship between participants that find using social media easy and if they don't find social media easy a factor in their action of checking for validity. Is there any evidence to suggest that those that find using social media difficult are more risk-averse in their acceptance of the information that they gather from social media searches compared to those that don't find using social media difficult. We primarily focus on the research question:

> [RQ] Do active online users that find social media easy or not check the validity of online health sources in proportion to people that don't?

In figure 4 this study presents a cluster bar chart depicting the proportion of respondents that check for validity (or not) clustered based on their perception of ease of use. In table 4, this study presents a detailed numerical summary. Descriptively 80% of those that find using social media difficult indicated that they check for validity. In contrast 67% of those that find using social media easy check for reliability. Is there evidence to suggest that those differences are statistically significant?

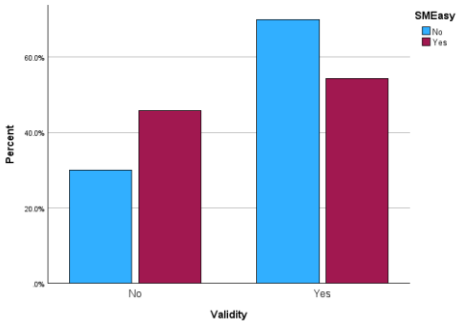

Figure 4: Cluster chart depicting the differences of yes and no respondents and the proportions of which considered the validity of health sources.

Table 4: Frequency table listing the frequency and proportion of respondents indicating whether they found social media easy or not and if they considered the validity of health sources.

Validity	Ease	Frequency	%
Yes	Yes	51	54.3
Yes	No	7	70
No	Yes	43	45.7
No	No	3	30

Regarding checking for validity of content gathered from social media searches, is the proportion of people who do check for validity greater within the group of participants that find using social difficult compared to the proportion within the group that find using social media easy. In that regard, we conducted an independent samples test of the difference between two population proportions, testing if the proportion of those that check for validity is different between the two groups composing the ease-of-use social media variable. The results of the independent samples test of the difference between two population proportions indicated that there was no statistically significant difference between the proportions of people that check for validity within the easy-to-use social media group (π = .543) compared to the not easy to use social media group (π = .700), Z = .953, p = .170. The full set of results are presented in Table 3 and 4.

Is Consistency checked for when consumer check online health sources?

In this section this research focusses its analysis on understanding the degree to which participants check the consistency of online health sources. We can define consistency as the relationship and similarity between conversations in online comment sections. We primarily focus on the research question:

RQ: Do active online users check the consistency of online health sources?

This study first presents a descriptive overview of the distribution of responses to the question of if respondents check actual consistency of online health sources. We then inferentially assess to see if the proportion of those that check for consistency is greater than the proportion that don't check for consistency.

In Figure 5 this research presents a bar chart depicting the proportion of responses associated with the consistency assessment of both the yes and no group of respondents. The horizontal axis lists all levels of measurement associated with the reliability item, and the vertical axis indicates the percentage of respondents indicating percentage level. In Table 5 we present a more detailed overview of the reliability results. Predominately (51.9%) respondents indicated that they do check for the consistency associated with the health information that they find from searches.

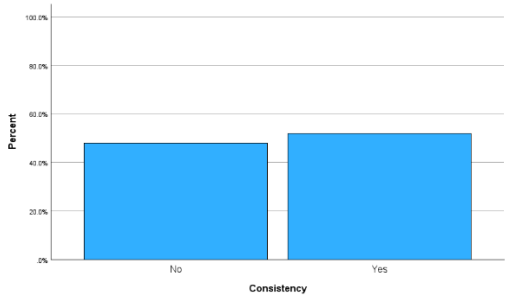

Figure 5: Bar Chart depicting the distribution of consistency Perception

Table 5: Frequency table listing the frequency and proportion of respondents indicating whether they consider the consistency of health sources.

Reliability	Frequency	Percent
No	50	48.1
Yes	54	51.9
Total	**104**	**100**

To assess if the proportion of respondents indicating that they would check the consistency of online health sources was different to the proportion of respondents that indicated that they would not check the consistency of online health sources, a single sample test of a population proportion was undertaken. The results of the single sample test of a population proportion indicated that there was not a statistically significant difference between the proportion of respondents that indicated that they do check for consistency ($\pi = .519$) compared to the proportion that do not check for consistency ($\pi = .481$), $z = .392$, $p = .347$. There was a greater proportion of respondents that indicated that they do check for online health source reliability.

Does Ease-of-use impact consumers on checking for Consistency online?

In this sub-section this study focusses its analysis on understanding the relationship between participants that find using social media easy and if they don't find social media easy a factor in their action of checking for consistency. Is there any evidence to suggest that those that find using social media difficult are more risk-averse in their acceptance of the information that they gather from social media searches compared to those that don't find using social media difficult. We primarily focus on the research question:

> [RQ] Do active online users that find social media easy or not check the consistency of online health sources in proportion to people that don't?

In figure 6 this study presents a cluster bar chart depicting the proportion of respondents that check for consistency (or not) clustered based on their perception of ease of use. In table 6, this study presents a detailed numerical summary. Descriptively 60% of those that find using social media difficult indicated that they check for consistency. In contrast 51.1% of those that find using social media easy check for consistency. Is there evidence to suggest that those differences are statistically significant?

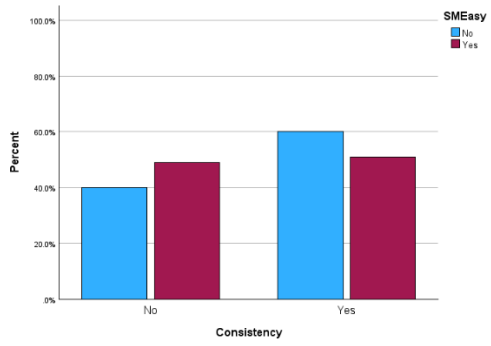

Figure 6: Cluster chart depicting the differences of yes and no respondents and the proportions of which considered the consistency of health sources.

Table 6: Frequency table listing the frequency and proportion of respondents indicating whether they found social media easy or not and if they considered the consistency of health sources.

Consistency	Ease	Frequency	%
Yes	Yes	48	51.1
Yes	No	6	60
No	Yes	46	48.9
No	No	4	40

Regarding checking for consistency of content gathered from social media searches, is the proportion of people who do check for consistency greater within the group of

participants that find using social difficult compared to the proportion within the group that find using social media easy. In that regard, we conducted an independent samples test of the difference between two population proportions, testing if the proportion of those that check for consistency is different between the two groups composing the ease-of-use social media variable. The results of the independent samples test of the difference between two population proportions indicated that there was no statistically significant difference between the proportions of people that check for consistency within the easy-to-use social media group ($\pi = .511$) compared to the not easy to use social media group ($\pi = .600$), $Z = .538$, $p = .295$. The full set of results are presented in Table 1 and 2.

DISUCSSION/CONCLUSION

Reliability

Is there evidence to suggest that the proportion of people in the population that check for reliability is greater than the proportion that don't. In the sample we viewed that 68.3% of participants checked for reliability which was measured to be statistically significant which is a good indicator of the population, which would suggest that this study is 95% confident that 68.3% of the population would check for reliability, The hypothesis that active online users check the reliability of online health sources was strongly supported by the data. If something is statistically significant what is observed in the sample is a good representation of the population, if it's not statistically significant what you observed in the sample has no bearing on the population. To know if a value is considered statistically significant the p-value must be less than 0.05. The findings of this study align well with the existing literature on the reliability of online health information. Batteneni et al. (2020) and Hesse et al. (2005) highlighted user concerns over the reliability of online health information, a concern mirrored by the significant proportion of respondents in this study who check for reliability

In regard to this study's sample the participants were asked a follow up question in relation to whether they find using social media easy or not and sub divided them into two groups. Is there evidence to suggest that there are differences in behaviors between those that find social media easy compared to those that don't regarding testing for reliability. Of the people that respond that they do find social media easy, this study observed descriptively 67% of the participants check for reliability. Of the people that indicated that they don't find using social media easy, 80% of them check for reliability, but there's no evidence to suggest that both figures are different regarding a population as it was not statistically significant. An unexpected outcome of the study was the lack of a statistically significant difference between the groups based on the ease of use of social media. It was initially hypothesized that those finding social media difficult to use would be more cautious and thus check reliability more frequently. Although the figures are not inferentially relevant to the population, from a sample perspective it is

descriptively relevant in the fact there was a 13% difference in the groups. This study contributes key insight to the broader discussion showcasing a significant degree of user caution in checking reliability of health information online, which is crucial in the digital age where misinformation is prevalent. While much of the study aligns with existing research, it diverges in some respects seen in Hesse et al. (2005), the current study reflects modern behaviours and concerns which are not comparative with the timeline of Hesse's study.

Validity

Is there evidence to suggest that the proportion of people in the population that check for validity is greater than the proportion that don't. In the sample we viewed that 55.8% of participants checked for validity which was measured not to be statistically significant ($p = .120$) which is not indicative of the population. The hypothesis that active online users check the validity of online health sources was somewhat supported, while 55.8% of respondents indicated that they do check for validity, the difference from those who do not check was not statistically significant. Therefore, while there is a trend towards checking validity, it is not strong enough to convincingly prove the hypothesis. Although this study can't make an inference about the population there was a significant amount descriptively in 55.8%. The findings of this study align with themes in the existing literature on online health information validity. For example, Thackeray, Crookston, and West (2013) found high levels of engagement with online health information, similar to the current study's observation that a notable portion of users check for validity, similarly Fergie, Hilton, and Hunt (2015) also observed that information-seeking behaviour is common among users, both studies highlight that users are actively engaging with health information online and are aware of the need to verify the content.

Is there evidence to suggest that there are differences in behaviors between those that find social media easy compared to those that don't regarding testing for validity. Of the people that respond that they do find social media easy, we observed descriptively 54.3% of the participants check for reliability. Of the people that indicated that they don't find using social media easy 70% of them check for validity, but there's no evidence to suggest that both figures are different regarding a population as it was not statistically significant.

Validity's unexpected outcome follows reliability as it was initially hypothesized that those finding social media difficult to use would be more cautious and thus check validity more frequently. Although the figures are not inferentially relevant to the population, from a sample perspective it is descriptively relevant in the fact there was a 15.7% difference in the groups. This study showcases key insights both positive and negative, the study highlights a significant level of users verifying of health information, with the lack of statistical significance related to social media ease of use it suggests the need for future research to identify other factors that may influence validity.

Consistency

Is there evidence to suggest that the proportion of people in the population that check for consistency is greater than the proportion that don't. In the sample we viewed that 51.9% of participants checked for consistency which was measured not to be statistically significant which is not indicative of the population. The hypothesis that active online users check the consistency of online health sources was partially supported by the study's findings, although this study can't make an inference about the population there was a significant amount descriptively in 51.9%. The study's findings align with existing literature on trust and credibility in online health information. Similar to Sillence et al. (2007) and Sun et al. (2019), the study stresses the importance of consistency in shaping user perceptions and trust in online health sources. This consistency serves as a critical factor in determining the credibility of information, both studies highlight that users rely on consistent and reliable information to determine credibility.

Is there evidence to suggest that there are differences in behaviors between those that find social media easy compared to those that don't regarding testing for consistency. Of the people that responded that they do find social media easy, we observed descriptively 51.1% of the participants check for consistency. Of the people that indicated that they don't find using social media easy, 60% of them check for consistency, but there's no evidence to suggest that both figures are different regarding a population as it was not statistically significant. Consistency unexpected outcome follows both reliability and validity as it was initially hypothesized that those finding social media difficult to use would be more cautious and thus check the consistency more frequently. Although the

figures are not inferentially relevant to the population, from a sample perspective it is descriptively relevant in the fact there was an 8.9% difference in the groups.

Limitations/ Recommendations

This study conducted a sample population of 112 respondents in which 104 were analysed, with more resource's I would allocate more funding to conduct a larger wide scale survey in five different European cities, this would increase the sample size which would allow the study to be more representative of the wider population. A limitation this study found was in its survey design, where there might have been confusion due to some questions being comparable to one another. In an ideal arrangement I would cooperate with survey design experts to help polish the questioning thus conducting a clearer flowing survey. As discussed in this study, digital literacy varies amongst everyone, Herrando *et al* and Obal and Kunz noted that baby boomers' literacy was not as sufficient as millennials. Due to the survey being sent out as a link online, I would add different methods of allowing people access to the survey such as paper handouts for more inclusivity. To conclude, coming into this study SPSS was not an area of skill that the study could rely on immediately, if there were teams in place from the get-go the lining of questioning could have improved to enhance different types of statistical analysis. Recommendations for future studies would be to take a mix method approach in focus groups or interviews, this would give the study are more in-depth analysis of consumers relationship with assessing credibility of online health information. Another recommendation to improve future studies is to aim for a larger sample size to enhance a more stable set of results. The last recommendation would be to conduct cross cultural comparisons, if future studies wanted to expand their sample pooling to five Europe cities it would be a great idea to compare cultures to see if there's any significance.

In conclusion, social media platforms have played a significant role with the sharing of information, opinions, products and services. For healthcare providers, relevant contributors, and users of social media to have a successful engagement there is a need for them to interact on a basis of openness, cooperation and having core values and credibility, which crucially develops trust between users. This study has showed how

credibility, the reliability of the source and validity of the content, is a very important factor for online users when accessing online health information. Also, another contributing factor to these results was the worldwide pandemic crisis of 2020, which changed how we use social media and the internet forever, as Blomstrom states," *With our very lives at stake, humanity had to show its magnificently adaptive nature to survive"* (Blomstrom, 2021, pg 7). With the huge culture change on how people worked and exchanged information, social media and online health information was at the forefront in communicating the changing relationship between health awareness and human behaviour, which this study has demonstrated.

Nevertheless, when it comes to checking the consistency of the information, this study has shown that online users are not as concerned with other online user's feedback where the comments are not read or considered, they seem to trust only the source when using digital communications, maybe due to the significant impact which has been made by social media platforms, who now realise that trust is now a brand, and a very important part of their existence (Connolly, 2020,pg165). This study has collectively highlighted the complex interaction between social media, consumer healthcare concerns, and cultural factors. It has highlighted the importance users attribute to reliability, validity and consistency which is needed by online users when harnessing the potential of social media for healthcare communication and education. This study has endorsed that credibility is the key component for online users accessing health information, and that maybe further research and interventions are needed to develop such things as holistic strategies that increase the benefits of social media and the internet, while addressing its challenges in consumer healthcare contexts.

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Appendices

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