FACTORS INFLUENCING INFORMATION ADOPTION FROM SOCIAL MEDIA

THE CASE OF HEALTH INFORMATION IN SAUDI ARABIA.

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Abstract

The current study aimed to further understand attitudes toward source credibility by studying it in the context of social media use as a health information source among social media users in Saudi Arabia. During COVID-19 outbreak, the social isolation that people experienced led to social media being widely used as a medium for disseminating health information, and this has now become increasingly prevalent. Specifically, this study set out to identify which factors influenced the positive adoption of health information from social media platforms during the COVID-19 pandemic. The study adopted a mixed methods design through using an online questionnaire, incorporating a novel vignette design, to gather quantitative data, and follow-up interviews for collecting qualitative data. The designed vignettes were a set of verified and unverified profiles on social media belonging to medical and non-medical experts. Based on collecting data from 397 participants to the questionnaire and 23 interviews, interesting findings were revealed. The study provides empirical support for the influence of source characteristics as heuristics to guide information adoption. Characteristics including sources' knowledge, qualifications, verification mark and similarity between receiver and sender influence people's attitudes towards source credibility. Furthermore, the findings confirmed that characteristics of information/content have a significant influence on participants' use of social media platforms as a health information sources. Timeliness, completeness, relevance and accuracy, are confirmed to influence people's attitudes toward adopting health information from social media platforms.

It is believed that the current study is one of the few empirical studies to have examined the factors influencing the adoption of social media information by implementing a novel vignette design within a questionnaire. Hence, this study might make a methodological contribution with regard to using vignette design within quantitative methods. Furthermore, there also practical contributions can be made to policy makers with regard to employing social media to convey health and other types of information to the Saudi population..

Key words: social media, information adoption, vignettes, verification mark, mixed-methods, health information, Saudi, COVID-19 pandemic.

Dedication

This thesis is dedicated to my beloved Mom & Dad; I would not be where I am today without your love, support and prayers, thank you for believing in me and thank you so much for everything you have done for me !

Publications

The quantitative findings of this thesis has been presented and published as following:

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WHO	World Health Organisation
ELM	Elaboration likelihood model
IAM	Information adoption model
GASTAT	General Authority for Statistics
HSM	Heuristic- Systematic Model

Chapter 1: Introduction

1.1 Introduction

The present study aims to understand people's attitudes toward using social media as a health information source during the COVID-19 pandemic among social media users in Saudi Arabia. Particularly, it investigates the influence of different factors (source, information, and individuals' demographics) on using and trusting health information on social media platforms.

This chapter begins by providing an overview of the research background on evaluating information credibility, as well as adopting information from online environments, such as social media. Following that, it discusses the focus of the current research, including the study population and what type of information is used as the research's core foundation. Finally, it concludes by identifying the research questions, objectives, and purpose.

1.2 Research background

Over the years, human behaviour has received great interest among researchers in different fields of science. It refers to "*physical and emotional activities that describes the 'what', 'when' and 'why' of human's daily happenings*" (Omolade, 2020, p.27). Human behaviour is subject to various cultural, demographical, social and biological factors influencing people's attitudes and behaviours. Focusing on human behaviour and evaluating information credibility in the online environment (social media or online websites), it is important to understand the individuals' perceptions and behaviours towards evaluating information credibility. Tseng & Wang, (2016) and Khoa, (2021) argued that information credibility would play an important role on individuals' decision makings towards the information, such as the decision to adopt and accept the information. For instance, Kol et al (2021) study found that intentions of Facebook users to seek information and use social media as an information source are impacted by the credibility of information. In other words, the greater the perceived credibility of social media information, the greater the intent to utilise these platforms as a source of information. In this regard, the high volume of published information on the internet and social media beside the increased usage of such platforms led researchers to investigate the credibility of information on these mediums. Hence, numerous studies (e.g., Fanoberova & Kuczkowska, 2016; Kol et al., 2021) have been conducted to understand the human behaviour and individuals' perceptions towards evaluating information credibility, as well as adopting information from internet and social media.

The term information adoption is defined as the extent to which the veracity of information is evaluated and accepted as meaningful (Zhang & Watts, 2008). Researchers have done a significant amount of work in the field of information adoption in different contexts such as online environment (e.g., Arumugam & Omar, 2016; Hussain et al., 2018) and social media (e.g., Erkan & Evans, 2016; Coursaris & Van Osch, 2016). These studies aimed to understand individuals' behaviours towards evaluating, adopting and processing information from different sources as social media or the online websites. In the light of prior studies (e.g., Yin & Zhang, 2020, Daradkeh, 2021), it was found that information adoption is influenced by different factors as source credibility and argument quality. Characteristics of source, such as expertise and knowledge beside information timeliness, relevance and accuracy were found to play a positive impact on individuals' attitudes and adopting information from websites and social media (Di & Luwen, 2012; Fanoberova & Kuczkowska, 2016; Sirithanaphonchai, 2017; Zhang et al., 2020; Jiang et al., 2021). Since source credibility and information quality were found to be the most influential factors in information adoption, the present study focused on these factors as main dimensions of the information adoption process.

Other factors as individuals'/ information seekers' demographic characteristics should also be taken into consideration. It is believed that with the universal availability of today's internet technology, information is likely to be interpreted differently by users from a wide range of backgrounds and demographic characteristics. So, individuals of different ages, gender groups and backgrounds etc might generate varied opinions about how credible a given piece of information is, and then they would evaluate the credibility of information differently. For instance, the findings of Stern et al., (2012) study revealed that females are more likely than males to utilise the health information they obtain online. Furthermore, when it comes to the purpose of seeking health information, the study found that men are more prone to look up health information for their own purposes whereas women are inclined to do such jobs for others. Such differences clearly indicate that there are demographic differences among individuals with regard to using and evaluating information credibility. Hence, individuals' demographic characteristics need to be taken into consideration when examining information credibility and adoption from the internet or social media.

Focusing on health information, there are numerous health-oriented blogs, platforms, and websites that dedicate their attention specifically to provide health-related content including advice and consultations. Furthermore, many government and health-related organisations use social media to disseminate updates and information to the public. For example, @WHO account on X (known as Twitter) and Instagram which belongs to the World Health Organisation. The growing adoption of social media by government organisations and

professionals has increased the probability that individuals may turn to these platforms when searching for information. As an example, during COVID-19 pandemic, social media was found to be one of the most used platforms for seeking up to date information (Cinelli et al., 2020; Drouin et al., 2020). For instance, the findings of a web-based survey of Neely et al, (2021)s' study revealed a high use of social media among U.S. adults (aged ≥18 years) during the COVID-19 pandemic. Nearly 76% of the respondents reported using social media during the pandemic, and over half (59.2%) said they often read information about the virus on social media at least once a week. Also, the study revealed that the likelihood of getting vaccinated increased among people who followed scientific sources (i.e., World Health Organisation & Disease experts). In addition, a recent study by Gruebner et al., (2022) found that health-related applications and medical websites besides social media were among the most used platforms by parents of disabled children, for seeking social support and retrieving information. In light of these results, it is possible that people are more likely to believe information that has been published by a scientific or official source, or provide a health-related content.

Furthermore, another study by Allington et al (2021) focused on using social media as an information source about conspiracy theories[1] about COVID-19 or general health information. Their study revealed two interesting findings: 1) there is a negative relationship between using social media as an information source about COVID-19 and following health behaviours (e.g., hand-washing). 2) Social media use influences positively on believing in conspiracy theories about COVID-19. The Findings of Neely et al (2021) and Allington et al (2021) relate to the present study, as the use of social media as a health information source may lead to the adoption of false information. Also the findings indicate that there is a high use of social media and internet technologies for getting and looking for health information, especially during pandemics as COVID-19.

Although previous studies examined individuals' attitudes towards adopting information from online websites and social media, most of the existing studies, especially studies on evaluating health information credibility, have been conducted in non-Arabic countries, such as the United States, the United Kingdom and China. In this regard, Almaiman et al., (2015) and Iftikhar & Abaalkhail (2017) argued that little research had been done regarding people's attitudes toward using social media as a health information source in the Middle East countries. Therefore, there is still a need to fill the literature gap on evaluating information credibility by expanding the research scope. This can be achieved by conducting more studies in Arabic, and developing countries such as Middle East countries. For instance, Saudi Arabia is one of

[1] *The conspiracy theories refer to a set of beliefs about the virus's origin or beliefs that it is just a 'big trick' (Allington et al., 2021).*

the largest countries in the Middle East, with the highest rate of internet usage in the world (Statista, 2023). During COVID-19 pandemic, Saudi Arabia was globally ranked as 17th in terms of internet use, with around 32 million internet users of the total population of 34 million (GAF Stats, April 2020). Also, social media users was approximately 25 million with the vast majority of 76% users were using YouTube, WhatsApp with around 71%, followed by Instagram (65%), Facebook (62%) and Twitter (58%) (Hammad & Alqarni, 2021).

The Saudi Arabian population was chosen for this study's focus for several reasons. Firstly and most importantly, Lin & Ho (2018) consider that cultural differences among individuals play an influential role in examining the use of social media as a health information source. Their study found that cultural dimensions such as collectivism and high uncertainty avoidance in Taiwan make individuals more cautious with new ideas/ technologies. Thus, it decreases trust in online technologies, such as health information sources. According to Hofstede's insights (2022), Saudi Arabia is characterized as a collectivist society with high levels of uncertainty avoidance. Hence, conducting more studies in such society that have different cultures compared to developed countries could lead to different findings concerning evaluating the information credibility of social media. Consequently, the study findings hope to add to the knowledge of information credibility among internet and social media users in Eastern countries. It is important to highlight that the current study is not a comparative study, nor does it discuss the influence of culture dimensions on evaluating information credibility. It only focuses on Saudi Arabia as another scope of the literature that still needs to be investigated with regard to adopting information from social media platforms.

Secondly, most studies on users' behaviours and adoption of online information in Saudi Arabia focused on marketing research, e-commerce and e-government services, (e.g., Alothman, 2013: Abed et al., 2015; Radwan & Radwan, 2016; Althunayan et al., 2018). Also, most of these studies focused on a single social media platform (e.g., Facebook) or a single sample such as undergraduate students or patients in a specific hospital. Hence, the current study aims to go further and expand the target sample by focusing on different types of social media platforms, as well as expanding the target sample which could be achieved by sampling different populations with different social media experiences and different education levels from diverse age groups.

Regarding the information type for the current study, health information on social media platforms was considered a fundamental base of the study for several reasons. Firstly and most importantly, health information is a highly sensitive topic, and it associates with human health in all societies. Secondly, health information has been found to be the most frequently

investigated topic among internet users around the world (Connolly & Crosby, 2014; Kartiwi et al., 2021). Furthermore, the extent of trust in health information sources has been found to play a crucial role in the information-seeking behaviours of individuals (Xiao, 2014). In other words, people's attitudes towards the perceived and provided health information might differ based on the level of trust in the information source. As found previously in Xiao et al. (2014)s' study, Korean internet users were more likely to trust online health information provided by a non-profit or public organization, as they consider them highly trustworthy sources. Moreover, other studies (e.g., Paunisaari, 2019) indicated that individuals from feminine societies show a high tendency towards life quality, trusting information from a close source (e.g., friends) and adopting healthy behaviours and habits such as buying and consuming healthy food. Also, individuals from such societies show more caution towards trusting online health information and reviews, and tend to make more efforts to verify the perceived health information and check its validity before using it (Khosrowjerdi,2019). Furthermore, according to Hofstede Insights (2020), Saudi Arabia is classified as a feminine society that significantly values life quality (e.g., following healthy habits) and prefers human interaction to materialism. Hence, it is worth considering health information as a fundamental base for the current study.

Based on the above discussion, it is worth to investigate the attitude of social media users in Saudi Arabia towards adopting health information from social media platforms. Particularly, understanding which factors influence people' attitudes towards adopting health information from social media, and whether the individuals' demographics influence their attitudes towards adopting health information. Therefore, the following research questions have been identified:

Q1. Which factors influence adopting health information among social media platforms users in Saudi Arabia?

Q2. How do demographic factors affect adoption of health information among social media platform users in Saudi Arabia?

1.3 Research aim and objectives

The current study aims to understand better what factors affect people's willingness to adopt information, using health information on social media as a case-study. Particularly, it examines which factors positively influence the adoption of health information about COVID-19 pandemic among social media users in Saudi Arabia. Also, it investigates how different characteristics of source and information, as well as demographic characterises might influence people's attitudes towards evaluating the credibility of health information about

COVID-19 pandemic on social media platforms. The present study focused on three characteristics of information sources: source expertise, verification feature and homophily status. Each characteristic is deeply discussed in the following chapter.
In order to achieve the research aim, the following objectives have been identified:

- **Objective 1:** Identifying the gaps in the literature of information adoption and social media use as a health information source.

- **Objective 2:** Determining the influence of different factors, namely information quality, source characteristics and individuals' demographics on adopting health information during COVID-19 pandemic among social media users in Saudi Arabia.

- **Objective 3:** Using an experimental design (vignette) to examine which characteristics of information source influence positively on adopting health information.

- **Objective 4:** Employing qualitative interviews to gain a further understanding of the use of social media platforms to seek health information, as well as which sources are used by the participants as a health information source.

- **Objective 5:** Providing theoretical, methodological and practical contributions to the field of evaluating information credibility, information adoption and social media use by the Saudi population as an information source.

In the next chapter, a comprehensive review of the literature on information adoption, and which factors influence such adoption, social media definition and types, the study population and the literature gaps will be provided.

Chapter 2: Literature review

The discussion of Ch.1 highlighted that information adoption is influenced by different factors as source characteristics, information quality and demographic characteristics. Therefore, **the current study focuses on** four dimensions; information adoption, source characteristics, information quality and demographic characteristics. The literature review is divided into two sections; the first one discusses social media since it is the core context of the current study. Then it provides an overview of the study population, and highlights the cultural dimensions with relating to information credibility. The second section reviews the literature in information adoption and information credibility, and then it outlines the study hypotheses. Finally, it concludes with addressing the found gaps in the literature.

- LITERATURE REVIEW, SECTION 1

As stated earlier, social media is the core context of the current study. Hence, this section starts by defining social media and outlining the different types of social media. It also discusses the extent of using social media as a health information source. Then it concludes by providing an overview of the study population.

2.1 Social media

Although there are different definitions of social media among researchers, all definitions agree that social media refers to technology used to exchange user-generated content (e.g., video, text…) between internet users. Kaplan & Haenlein (2010) and Bertot et al. (2012) define social media as creating a 'social interaction' among a group of people through exchanging user-generated content with other users via internet. A comprehensive and broad definition of social media was proposed by Sloan & Quan-Haase (2016, p.17) as "*web-based services that allow individuals, communities, and organizations to collaborate, connect, interact, and build community by enabling them to create, co-create, modify, share, and engage with user-generated content that is easily accessible*". Various types of social media differ in their purpose, design and features, but each type ultimately depends on internet technology.

2.1.1 Social media types

Previous studies have addressed several classifications of social media based on different criteria. For instance, Kaplan & Haenlein (2010, p. 62) identified six types of social media based on '*social presence/media richness'*. Social presence refers to '*the extent to which a*

medium allows users to experience others as psychologically present' (Hassanein & Head, 2005), while media richness refers to the amount of produced information from a particular media source (Dao, 2015). Kaplan & Haenlein (2010, p. 62) identified the following types of social media: '*social networking websites (e.g.,Facebook), vlogs (e.g.,YouTube), collaborative projects (e.g., Wikipedia), virtual social worlds (e.g., Second Life), blog (e.g.,) and virtual game worlds (e.g., World of Warcraft)*'. Kietzmann et al. (2011) developed a honeycomb framework of social media types based on seven functional blocks (identity, conversations, sharing, presence, relationships, reputation and groups) (Figure 1). Their model was found to be useful for researchers and organisation managers as a way of showing the different functions of social media and the value of social media as a medium for '*collaboration and communication among various users*' (Sajjad & Ruhi, 2013, p. 8).

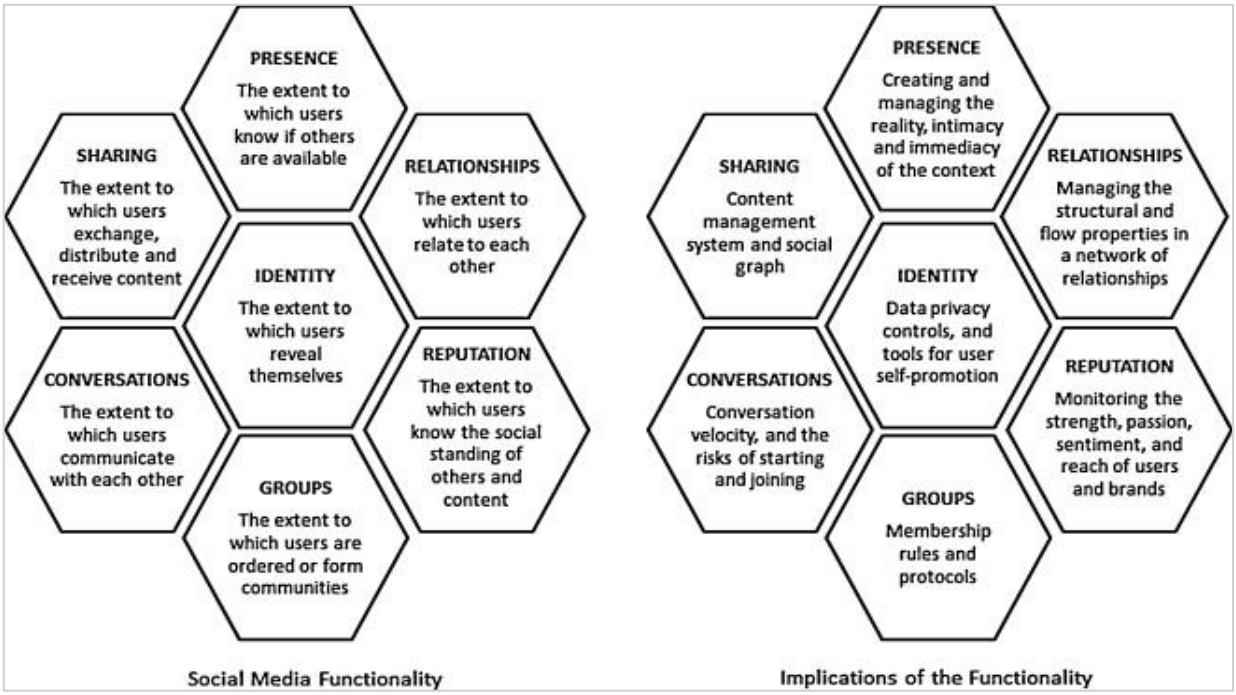

Figure 1:Honeycomb framework of social media functions and implications (Kietzmann et al., 2011)

A recent, comprehensive classification of social media types as summarised by Sloan and Quan-Haase (2016) is shown in Table 1. Sloan and Quan-Haase (2016) outlined 10 main types of social media based on reviewing the different literature on social media types. Then they integrated the different classifications of social media by Grahl (2013) and Nicholas & Rowlands (2011) into one table.

Social media type	Definition	Examples
Social networking sites	These sites are defined as '*online spaces in which individuals can interact with each other through the use of Multi-User Domains and chat facilities*' (Marsh and Bishop, 2013, p. 133).	Facebook, WhatsApp, Snapchat & Instagram.
Blogging and forums	These refer to the use of an online diary to share daily events or thoughts with other users (MacBride and Luehmann, 2008).	Blog: WordPress Forum: TripAdvisor
Micro-blogging	Micro-Blogging is a combination of blogging and social networking via the sharing of limited-size messages (Grahl, 2012).	X (known as Twitter)
Social bookmarking	Social bookmarking is '*a method for Internet users to organize, store, manage and search for bookmarks of resources online'* (Al Rasheed & Berri, 2014).	Diigo and Google
Social news sites	Social news sites are web-based services that display user-generated news articles and allow users to vote on these articles (Grahl, 2012).	Quora and Reddit
Multimedia sharing	These sites allow users to post, upload or share different forms of media (e.g., images, videos) with other users (Grahl, 2012).	YouTube, TikTok & Instagram
Collaborative authoring sites	These sites allow authorised users to exchange or edit different documents with other team members in an online environment (Archambault et al., 2003).	Google docs, Box
Web conferencing	Web conferencing sites are web-based sites that enable collaborative meetings among team members or multiple users.	Teams and Zoom
Geolocation sites	Geolocation sites are web-based sites that enable users to share their geographical locations with other users.	Google Maps
Schedule-organising sites	These web-based sites help organise and schedule meetings among team members (Reinecke et al., 2013).	Doodle

Table 1:Social media types of Sloan & Quan-Haase (2016) (edited by the researcher)

The classification of social media types as it is shown in (Table 1) will be used in this study because it is comprehensive for several types of social media, and it also includes the most frequently used social media applications in the Saudi community. For instance, a study was conducted among patients at King-Abdelaziz Hospital, Jeddah, on the use of social media platforms to seek health information (Iftikhar & Aba-Alkhail, 2015). The study found that WhatsApp was the most used platform, followed by Facebook and Twitter (known as X now). Another study found that WhatsApp, Twitter, Snapchat, Instagram and Facebook are the most frequently used platforms among Saudi undergraduate students at Hail University (Alsaqri et al., 2018). The popularity of using WhatsApp among the Saudi community may be attributed to several features, such as ease of use, provision of instant messaging in different forms (e.g., images, audio..) and usefulness for "*private communication"* (Tang & Hew, 2017, p. 100).

Individuals use social media for various purposes, such as seeking information, communicating with others or entertainment. However, the credibility of the published information on social media is an important topic across fields such as marketing, politics, economics, education and health. The high volume of published and shared health information on social media beside the increased usage of social media led people to utilise these platforms as a source of information.

2.1.2 Web and social media health information credibility

With the high usage of internet and social media around the world, a tremendous amount of work in assessing information credibility have been done throughout the years. In terms of web credibility, it is defined as the extent of the believability of website information (Mcknight & Kacmar, 2007). In the context of information adoption and information credibility, information adoption is likely to be impacted by the degree of information credibility. In this regard, Uthaisar, (2021)'s study found a strong relationship between information credibility and information adoption, and he claimed that people are more likely to act on information and use it if they believe it to be credible. Previous research (e.g., Cheung et al., 2008; Erkan & Evans, 2015) has focused on investigating the credibility of published information on the web and social media sites. Additionally, various factors have been defined to examine how people evaluate and adopt the web information. For instance, a study by Zhao & Mao, (2019) was conducted on adopting online medical consultations from physicians on the most popular online health community in China called "120 ask.com". 120 ASK, is a Q&A platform that provides physician-user interactions and enables users to reach physicians from different regions/experiences and areas of specializations. These physicians are real people who have been authenticated by the website management. The study found that users' adoption of

doctors' responses is significantly affected by the information relevance and completeness. The study also revealed that the longer the doctors' responses, the less likely participants to adopt his/her information, which indicates the importance of timeliness of information availability to participants.

The high volume of published and shared health information on social media beside the increased usage of social media worldwide led researchers to investigate the credibility of health information on social media platforms. Online and social media health information have become one of the most important topics among researchers. For instance, Li et al., (2018) s' study aimed to investigate which factors influence users' intention to adopt health information from social media platforms. Using an online survey was conducted on two samples; Chinese and Italian participants, the study revealed that Chinese individuals are less likely to seek or share health information on social media compared to the Italian sample. Moreover, the Chinese sample reported that they prefer to visit doctors when they have a significant health concerns. Such findings were attributed to a cultural dimensions called "uncertainty avoidance" which is found to be high in Italy whereas Chinese culture has a low uncertainty avoidance according to Hofstede et al., (2010) index.

2.1.3 Social media use as a health information source

In the internet era, people use social media platforms to seek, share, publish a wide variety of information. Nowadays, with the huge revolution on internet and social media, it has become easy to access and search for information in different platforms from different sources. Focusing on health information, there are a variety of blogs, platforms, and websites that provide a wide range of health-related content, including advice and consultations. Also, there are a huge number of official and health organisations that have social media accounts on multiple platforms. For instance, *@who* account on X and Instagram which belongs to the World Health Organisation, and *@Saudimoh* account on X , Facebook and Instagram which belongs to the Ministry of Health in Saudi Arabia.

So it is very likely that people might use or depend on such platforms to get or find a piece of information. For instance, Thackeray & Crookston (2013)s' study revealed that around 30% to 40% American participants reported that they use social media for obtaining health-related information. Also, it has been found that patients and healthcare consumers rely heavily on social media to find health-related information, as shown by a recent systematic literature review by Cordoş et al., (2017). Moreover, Zhong et al, (2021)' s study revealed that during the COVID-19 pandemic, social media platforms such as WeChat were found to be the primary source for obtaining information among Chinese.

It is clearly that there is a high reliance on social media as a source of health information around the world. The credibility of published information on such platforms, however, is questionable. Since anyone can create, post and share information with other via social media platforms, it is possible for false, misleading, or incorrect information to be spread via these mediums. For instance, Allington et al (2021) s' study was conducted among UK residents to investigate attitudes towards conspiracy beliefs about COVID-19 on social media, (e.g., COVID-19 was created in a laboratory). The study revealed that, frequency of using and checking social media influences positively on holding conspiracy beliefs about COVID-19. Moreover, the study found a negative relationship between using social media and following health protective- behaviours (e.g., hand-washing). The findings of Allington et al (2021) indicate that using social media might lead to people misleading or circulating inaccurate health information. Consequently, it is important to evaluate the credibility of disseminated health information on social media platforms, and determine to which extent such platforms might affect individuals' propensity towards utilising these platforms as information source.

The present study will focus on using social media as information source of health information. So, disseminated health information on social media will be the fundamental focus of the present study for several reasons. Firstly and most importantly, health information is a highly sensitive topic, and it associates with human health in all societies.

Secondly, online health information has been found to be the most frequently investigated topic among internet users around the world (Connolly & Crosby, 2014; Kartiwi et al., 2021). For instance, Marar et al., (2019) conducted a cross-sectional study investigating seeking health information from social media among Saudi patients in Riyadh city. The study revealed that the majority of the participants, 85%, used social media such as YouTube and Facebook for obtaining health-related information. Moreover, about half of the participants found the health-related content shared on social media to be credible, and an even larger percentage, around 81%, reported that the content had a positive impact on increasing their health consciousness.

Thirdly, the extent of trust in health information sources has been found to play a crucial role in the information-seeking behaviours of individuals (Xiao, 2014). In other words, people's attitudes towards perceived health information might differ based on the level of trust in the information source. As found previously in Xiao et al. (2014)s' study, Korean internet users were more likely to trust health information provided by a non-profit or public organization, as they consider them highly trustworthy sources. Hence, it is important to understand which characteristics of the source impact people's attitudes towards accepting health information

on social media. It is believed that focusing on health information might provide helpful insights and practical contribution to health organisations regarding utilising social media platforms to convey health information to the individuals.

Fourthly, there is an increasing trend among health institutions and professionals to communicate with the public using social media platforms. The use of social media as a means of public outreach by medical professionals is on the rise. For instance, the World Health Organisation, one of the largest health organisations in the world, has accounts on X , Instagram, Facebook, and YouTube, that are known as *@who*. Through these accounts, the World Health Organisation focuses on providing regular contents and update information to the public. It is also worth noting that, a lot of the health ministers, famous health professionals and experts around the world have accounts on social media platforms. Furthermore, the prevalence of health-related blogs is rising rapidly; these blogs serve a variety of purposes, including but not limited to consulting, social support, and creating online communities. Examples of these blogs are; WebMD website[2] and WEGO Health[3] platform. It is possible that people's reliance on social media and internet has led health professionals and organisations to implement such platforms to communicate with the public.

In conclusion, health information is a sensitive topic and there is a high use of social media platforms to seek for or convey health information to the individuals. The high volume of published health information on social media beside the increased usage of such platforms worldwide led researchers to investigate the credibility of information on these mediums. Therefore, it is important to understand people's attitudes towards evaluating the credibility of health information on social media and investigate which factors influence their attitudes towards accepting such information.

2.1.3.1 Social media use during COVID-19 pandemic

In late 2019, the world faced the national pandemic "COVID-19". Coronavirus disease (COVID-19), *which " is caused by severe acute respiratory syndrome, was first identified in December 2019 in Wuhan, China, and has since spread rapidly, evolving into a full-blown pandemic"* (European Centre for Disease Prevention and Control, 2020).

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[2] WebMD is an American corporation known primarily as an online publisher of news and information pertaining to human health and well-being (Google, 2023).

[3] WEGO offers health activists the chance to advise consumers about their health by reviewing and linking tools on one site (Keckley & Hoffmann, 2010,P5)

During COVID-19 pandemic, social media was found to be one of the most used platforms for seeking up to date information (Cinelli et al., 2020; Drouin et al., 2020). For instance, the findings of a web-based survey of Neely et al, (2021)s' study revealed a high use of social media among U.S. adults (aged ≥18) during COVID-19 pandemic. Nearly 76% of the respondents reported using social media during the epidemic, and over half (59.2%) said they often read information about the virus on social media at least once a week. Also, the likelihood of getting vaccinated increased among people who followed scientific sources on social media (i.e., World Health Organisation & Disease experts). In light of these results, it is possible that people are more likely to believe posted information by a scientific or official source online.

Furthermore, Allington et al (2021) s' study focused on using social media as an information source about conspiracy theories about COVID-19 or general health information. In terms of COVID-19, the conspiracy theories refer to a set of beliefs about the virus's origin or beliefs that it is just a 'big trick' (Allington et al., 2021). Their study revealed two interesting findings: 1) there is a negative relationship between using social media as an information source about COVID-19 and following health behaviours (e.g., hand-washing). 2) Social media use influences positively on believing in conspiracy theories about COVID-19.

Another study by Hammad & Alqarni, (2021) was conducted in Najran city, Saudi. The findings revealed that around 64% of the study sample used social media platforms during COVID-19 pandemic. In this regard, Saudi Arabia was ranked 17th in the world in terms of internet use during COVID-19 pandemic, with around 32 million internet users of the total population of 34 million (GAF Stats, April 2020). Also, social media users was approximately 25 million with the vast majority of 76% users were using YouTube, WhatsApp (71%), followed by Instagram (65%), Facebook (62%), Twitter (58%) and Snapchat (45%) (Hammad & Alqarni, 2021).

Findings of the above studies are related to the present study, as the use of social media as a health information source may lead to the adoption of false information. Also Hammad & Alqarni, (2021)'s findings indicate that there is a high use of social media and internet technologies among Saudi population, which will be deeply discussed in the following section.

2.2 Overview of the Saudi community

2.2.1 Internet and social media use in Saudi Arabia

Saudi Arabia's use of internet and social media has increased swiftly throughout the years. In Feb (2022), 'We Are Social' stats reported that **internet use** in Saudi Arabia has been risen dramatically to reach around 34.8 million users, which is more than double the rate in 2012 that was equal to 13.6 million users (Figure *2*).

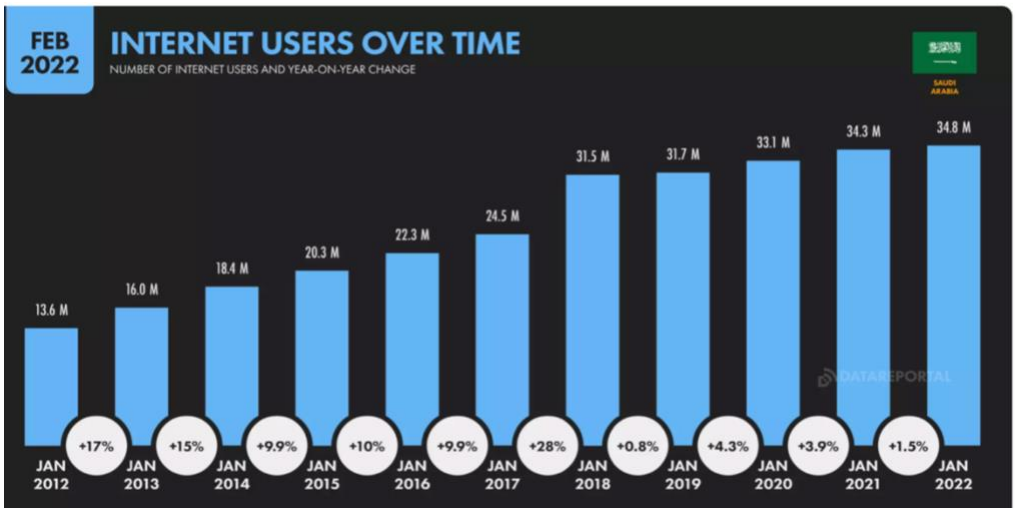

Figure 2:Internet users growth in Saudi (2012-2022) (source: We Are Social)

Also, according to the most recent statistics from Global Media Insights (March, 2023), the number of **social media users** in Saudi reached around 29.5 million in 2022, which is more than double the rate in 2014, which was 7.60 million (Figure *3*).

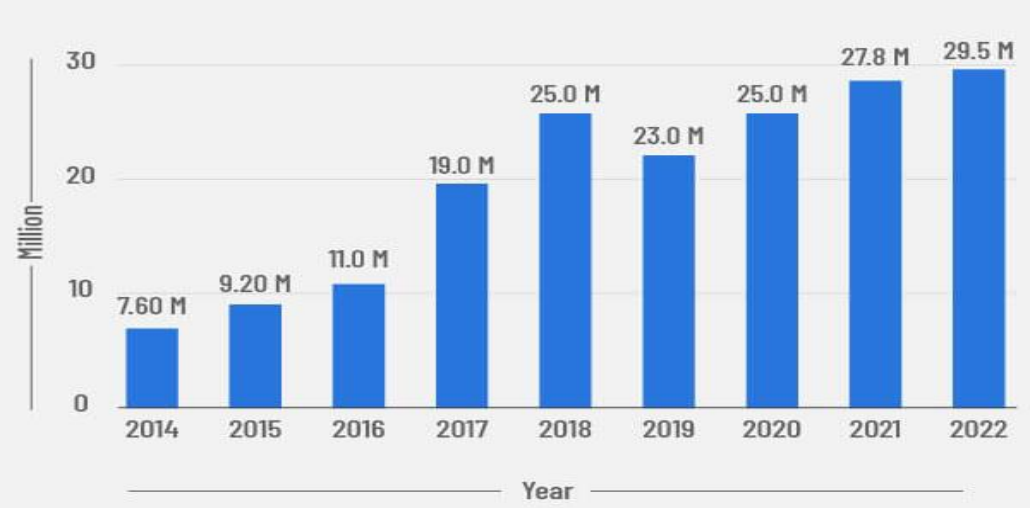

Figure 3:Social media users growth in Saudi (2014-2022) (source: Global media insights)

Focusing on 2022, the latest report of Global Media Insights (March, 2023) in internet and social media use in Saudi Arabia revealed that there is an intensive use of the internet among Saudi population with around 35.09 million of the total population 35.84 million. It was also found that approximately 29.5 of the population are internet users (Table 2).

Total population	35.59 million
Internet users	35.48 million
Social media users	29 million

Table 2:Internet and social media use in Saudi Arabia in 2022

Furthermore, according to the report of Global media Insights (March, 2023), the most used social media platforms among Saudis was WhatsApp (87%), followed by Instagram (78%) and Twitter (71%). Furthermore there was a high level of device ownership, where around 98% of the population have smartphones and around 54% of them have laptop or desktop computer. Regarding the audience characteristics; around 65% of them are male and 34% female. For the age groups of the audience; they were as follows: 25-34 (47%), followed by 18-24 (20%), 35-44 (19%), 45-54 (5%) and only 2% of the age group 55+.

Alsuraihi (2019, p.51) attributed the high use of internet and social media among Saudis to several reasons as the widespread of using smartphones and "the high-speed internet where around 84% of Saudis are living in cities where the internet is available easily". Also, Destiana (2013) and Omar (2014) stated other reasons of social media use popularity, as ease of use and its ability to provide an interactive environment of sources to users. The interactive environment refers to enabling users to share and seek different types of information from different sources in different forms (e.g., audio, video, text, images and hyperlinks).

2.2.2 Cultural dimensions of Saudi Arabia

In order to address the different cultural dimensions of Saudi Arabia, Hofstede's (2001) cultural dimensions index was used. Hofstede's index was developed to understand the national cultural aspects and differences across countries and groups. It focuses on various dimensions such as uncertainty avoidance, power distance, masculinity and femininity, short/ long term orientation and collectivism and individualism. While the Hofstede model has been widely used in cross-cultural research, it has faced valid critique regarding its limitations. For instance, Juslin (2018) claimed that "four to six dimensions are not enough to properly discuss cultural differences". In addition, Zanganeh, (2020) argued that the model overlooks cultural diversity within countries, since it stands on specific cultural dimension. To properly capture the complexity and nuances of cultures, the model needs to be improved and further dimensions (e.g., fear of failure as suggested by Bojadjiev et al., 2023) need to be considered and added to the model.

Furthermore, the Hofstede paradigm has been critiqued for focusing on cultural values rather than cultural activities (Kent, 2024). Thus, it could fail to take into account the subtleties of people's behaviours as well as the concepts they support, whereas a more comprehensive understanding of a society can be obtained by comprehending both cultural practices and values. Although such limitations existed, the model remains popular and has been found to be the most effective, well-known, widely used, and applied national cultural model in different

social science fields such as marketing, organization, psychology …etc. (Dhillon et al., 2011; Kumar et al., 2019). In this regard, Richardson (2008) attributed the significance and usefulness of Hofstede's model to its frequent usage in the social sciences. Furthermore, the model validity was assessed and performed by Taras & Kirkman (2012) using a meta-analysis of 451 articles from 49 countries. According to Kumar & Dhir (2020, p.3), the meta-analysis of Taras & Kirkman (2012) indicates that "Hofstede's model of culture would remain valid for at least three more decades". Hence, this assures that the model could be relevant to be referred to in the current study.

The Hofstede model is used in the current study in order to understand and highlight the key cultural aspects of Saudi Arabia, as well as to determine how such dimensions influence people's attitudes towards evaluating information credibility and adopting information. It serves a useful starting point for identifying the major cultural dimensions of Saudi Arabia with compared to western countries where most of the studies are conducted.

According to Hofstede's Insights (2020), Saudi Arabia was characterised with following cultural dimensions: high context, collectivism, high uncertainty avoidance, short-term orientation, high power distance and femininity. A comprehensive discussion of these cultural dimensions and their relationship to information credibility will be provided below.

2.2.2.1 Cultural differences and media and information credibility

1. **High context**

The term was simply defined by Beer (2011) as cited in Mukherjee & Ramos (2014, p.22) as "societies or groups where people have close connections over a long period of time". This strong connection between individuals makes them know what to do and how to act, which leads to the implicit and indirect communication between members. Ahmed et al. (2009) argued that the implicit communication among individuals in high-context cultures makes them pay more attention to symbols, signs, animations and images. This was supported by Teng et al. (2017), which revealed that people from Malaysia, a collectivistic society with a high context culture, are more likely to believe and use online reviews combined with visual images. Also, the high interaction among individuals in high-context cultures makes them less likely to accept information from an acquaintances. Xue & Zhou., (2011) found that social media users from high-context cultures such as China are more likely to seek online information from their network ties (e.g., family or friends). The findings of these studies indicate that communication among individuals in the high context culture is affected by two prominent characteristics: implicit communication (e.g., using symbols) and network ties. These characteristics are more

important in the current study, which aims to investigate if the homophily status, similarity/ dissimilarity among individuals impact people's attitudes towards the information. It will also try to find out if the verified accounts - which are those accounts' whose owners have been authenticated by the site' (Twitter, 2017) and denoted with a verification seal beside the account holder's name (e.g., the blue check in X, Instagram, Facebook and Snapchat) - influences people's attitudes toward information credibility on social media platforms.

2. Collectivism

Hofstede et al. (2010) argued that a society with a high context culture is more collective than a society with a low context culture. The term collectivism refers to "the orientation where the individual emphasizes the interdependence and the priority of group/collective goals over individual goals" (Zeffane, 2014). In a collectivist culture, there is a degree of importance to group achievement over personal achievement. Also, the social ties among group/ society members are strong (Duggins, 2005; Zeffane, 2014). Examples of countries with a collectivist culture are Japan and Middle East countries.

Focusing on online sources of information, such as social media, previous studies found differences in using information sources among cultures. Boase et al. (2006) and Goodrich & Mooij (2013) confirmed that individuals from individualist cultures are more likely to use online sources for seeking opinions from other or searching for information that satisfy their needs, while individuals from collectivist cultures are more likely to use these sources for idea/ information sharing.

Regarding information credibility, Luo et al. (2014) consider that source credibility plays an important role in assessing information credibility for individuals from collectivistic culture orientations. Also, Han and Kim (2018) argued that people from collectivist culture are more willing to accept and trust information from in-group members, which has been supported in several studies (e.g., Lim et al., 2006; Meyer, 2009; Sawyer& Chen, 2012). Hence, people from a collectivist society might become reluctant to accept information from unknown or out-society members (e.g., from a different nationality or region). This point is important in the current study, which investigates if receiving information from a source of a different nationality to the receiver will influence his attitude toward accepting this information.

3. High uncertainty avoidance

High uncertainty avoidance is defined as the degree to which society members cope with the uncertainty and try to avoid unpredictable and unknown situations (Vitell et al., 1993). In other words, people of high uncertainty avoidance cultures feel threatened by unknown situations,

so they prefer to be committed to society's rules and norms (Hasan et al., 2020). The prominent characteristic of uncertainty avoidance culture is low tolerance to new ideas and change resistance (Brosdahl & Almousa, 2013). In this regard, Lin & Ho (2018) and Pookulangara & Koesler (2011) argued that the level of perceived risk is relatively high in societies with a high uncertainty avoidance, which makes individuals in such societies more cautious toward trusting online information sources and online technology tools (e.g., e-commerce). This might assume that people from uncertainty avoidance culture, as Saudi Arabia, might show resistance to using social media as an information source or trusting published information on the internet and social media.

Regarding information credibility, Pornpitakpan & Francis (2000) found that individuals from cultures with a high uncertainty avoidance (e.g., Thailand) are more affected by source expertise than cultures with a low uncertainty avoidance (e.g., Canada). Also, Bhayani (2017)'s study found that people from a country with a high uncertainty avoidance, such as Emirates, showed a high level of trust for information from people with a strong tie (e.g., friends or family) compared to an unfamiliar or unknown source. Such findings indicate that assessing information credibility is influenced by the level of uncertainty avoidance among cultures.

4. Short-term Orientation

Short-term orientation is simply defined by Ceci et al. (2016, p.226) as "past-present oriented values". Also, Tata, (1999) defined the short-term orientation as "values-oriented toward the past and present such as the expectation of quick results, respect for tradition, and personal stability". In the short-term orientation society, people respect traditions and fulfil social obligations. According to Hofstede's insights (2022), countries as the United Kingdom scores 60; which indicates that such a society has a long-term orientation, whereas Saudi Arabia scores 27; this low score indicates that such a society has a short-term orientation. In addition, this low score indicates that Saudi society tends to respect and value their traditions, respect social codes and focus on achieving fast results (Hofstede 2001).

Focusing on information credibility and short-term orientation cultures, Mooij & Goodrich (2014) found that individuals from short-term orientation cultures such as Malaysia and Pakistan are more likely to trust information delivered by in-group members (e.g., family and friends). They also found that cultures with a long-term orientation would prefer to use and trust the information on social media and search engines. This point is more relevant to the current study, which will ultimately determine the degree of using an online source such as social media as an information source among Saudi citizens belonging to a short-term orientation culture.

5. Masculinity and femininity

Masculinity has been defined as the society's orientation and preference of cultural values such as competitions, power and achievements or life quality and social relationships among individuals (Song & Thieme, 2006; Hofstede, 1980 as cited in Tsegaye et al., 2019). Rather than focusing on the gender role in a community, masculinity and femininity terms are also related to the social value of society. In a masculine society, individuals value success, achievement, money, competition and power (Wiberg & Månsson,2019). On the other hand, feminine societies place emphasis on "life quality", caring for others and social relationships between individuals (Hofstede et al., 2010). According to Hofstede Insights (2020), Saudi Arabia scored 43 on the scale of masculinity and femininity index. This low score reflects that society values and has a tendency towards the quality of life over other goals and places an emphasis on interpersonal relationships and caring for others (Sridhar et al., 2018).

Regarding the behaviours of social media users and levels of masculinity and femininity in societies, most studies focused on the information sharing among employees in organizations (e.g., Flores et al., 2014; Boateng & Agyemang, 2015). Although some studies discussed the behaviours of internet users, most of them have been conducted on masculine cultures (e.g., Singh et al., 2005; Lam et al., 2009; Ma, 2013).

So, focusing on the feminine societies, previous studies outlined several behaviours of social media users and information sharing among individuals in these societies. For instance, individuals in feminine cultures are characterized by a high interconnection among people, and there is a tendency to value the personal relationship among individuals. As a result of this high interconnection among people in feminine cultures, individuals were found to be more likely to exchange opinions with others (Kim, 2019), provide online reviews about services or products (Fang et al., 2013) and tend to "share experience and advice with others" (Bjorndalen, 2014, p58). Also, Paunisaari's (2019) study revealed that feminine societies (i.e. Finland) place emphasis on health behaviours, such as having a high attitude toward buying and consuming healthy food. This attitude could be considered one of the most prominent characteristics of life quality in feminine societies. Other studies argued that individuals in feminine societies show more caution towards trusting online information and reviews. A study by Khosrowjerdi (2019) investigated evaluating the credibility of online health information among different cultures. The study found that Korean users who belong to a feminine society are more likely to trust online health information if it is provided by personal sources (e.g., friends or family members). They also tend to make more efforts to verify the information and check its validity before using it.

6. Power distance

The last cultural dimension is power distance, defined by Ojeh (2017, p.25) as "the extent to which a group expects an equal or unequal distribution of power". It was simply defined by Hofstede (2001) as the extent of expecting and accepting the different levels of power. It mainly focuses on the hierarchical levels of power among society. According to Hofstede's Insights (2022), Arab countries such as Saudi Arabia were classified as one of the highest countries in power distance (score= 72). This score implies that, in such a culture, superiors have more centralization in decision-making and more authority than subordinates.

Regarding information credibility and power distance, Goodrich & Mooij (2013) argued that personal sources (e.g., friends) are more preferred sources by individuals from a high-power distance culture, whereas other sources (e.g., websites) are more preferred by cultures with a low power distance. Also, previous studies suggested that source credibility is significantly impacted by the country's power distance level. For instance, A recent study aimed to explore the influence of source credibility on perception and behavioural intention toward buying food online (Sun & Meng, 2022). The study conducted on different samples of internet users by comparing two different cultural contests: China (a high-power distance culture) and the U.S. (a low power-distance culture). The study found that Chinese customers are more likely to trust provided information from scientists and government-owned units compared to social media influencers and food companies. While for the U.S. sample, source credibility had a less effect on individuals' perception and behavioural intention toward buying food online. The reason for that difference is that in high-power distance cultures, the praise to authority figures is highly valued and therefore, the high influence of authority (Jung & Kellaris, 2006). Whereas in low power distance cultures, individuals are more likely to question the authority figures' validity and hence they are less influenced by them (Hornikx & Hoeken, 2007).

2.2.2.2 Culture and media credibility

As been addressed previously, there are diverse cultural differences between the Middle East countries and western countries. People from the Middle East value social relationships among community members and tend to have long-term relationships and close connections with each other. Therefore, societies in such cultures tend to be collectivist and prefer to have strong social ties with in-group members (Duggins, 2005; Zeffane, 2014). Also, they value their traditions, respect social codes and focus on achieving fast results. Moreover, they prefer to be committed to society's rules and norms and feel threatened by unknown situations (Hasan et al., 2020), increasing uncertainty avoidance in such cultures. Besides, superiors in such cultures have more centralization and authority in decision-making than subordinates.

In fact, it has been found that media credibility perceptions are significantly affected by the cultural differences among individuals. For instance, a study by Teng et al. (2017), which revealed that people from Malaysia, a collectivistic society with a high context culture, are more likely to believe and use online reviews combined with visual images. Also, Goodrich & Mooij's (2013) study revealed that personal sources (e.g., family) are more preferred sources by individuals from a high-power distance culture, whereas other sources (e.g., websites) are more preferred by cultures with a low power distance. Another study by Bhayani (2017) found that people from a country with a high uncertainty avoidance, such as Emirates, showed a high level of trust for information from people with a strong tie (e.g., friends) compared to an unfamiliar or unknown source. Furthermore, Boase et al. (2006) and Goodrich & Mooij (2013) studies concluded that people from individualist cultures are more likely to use online sources for seeking opinions and seeking information for personal needs, while individuals from collectivist cultures are more likely to use these sources for ideas/ information sharing.

It can be concluded that individuals' conceptions of the information credibility vary greatly depending on their cultural background. Therefore, it is advised to conisder the cultural dimensions of individuals when examining people's attitudes towards evaluating information credibility. However, in needs to be clear that the cultural dimensions and their impact on information credibility judgement are not the primary focus of this research. Discussions of these cultural characteristics have been provided to show that there are significant cultural differences between the West, non-Arabic nations and the East and Arabic countries. Since most studies of information credibility have been undertaken in the West and non-Arabic nations, it was important to highlight the cultural dimensions of these regions compared to East and Arabic countries. It is believed that evaluating individuals' attitudes towards information credibility in the East and Arabic countries needs to be carried out.

As been discussed, the high usage of internet technologies and social media led researchers to investigate the credibility of published information on the internet and social media platforms. Furthermore, there are various factors could influence information credibility and information adoption from the internet and social media. Therefore, the second section of the literature review is going to discuss the conceptual foundations of the current study. In addition, it will present the study framework, and outlines the study hypotheses.

- LITERATURE REVIEW, SECTION 2

This section begins by introducing the concept of information credibility, and highlighting the key theories that evaluate information credibility among individuals. Next, it moves to discussing the factors that influence information adoption from the internet and social media platforms, and also develops the research hypotheses. After that, it presents the framework that shows the conceptual foundations of the current research. Finally, it concludes with addressing the found gaps in the literature.

2.3 Information credibility

Information credibility refers to the classification of messages as '*true or believable'* regardless of their nature ('*newsworthy or a personal detail'*) (Sikdar et al., 2013, p. 22). Furthermore, Zhao et al, (2015, p.162) defined information credibility as "the objective evaluation on information quality and precision beside the measurement on information sources". According to Zhao et al, (2015) and Chang & Wu (2014), information credibility stands on two main dimensions; information quality and source credibility. Information credibility mainly focuses on believing in the message content and judging it as credible information. Credibility can be assessed through three core dimensions: medium, message and source credibility (Kiousis, 2001; Eysenbach, 2007; Metzger et al., 2003). Under each dimension, several factors could be used to investigate information credibility, such as accuracy, objectivity and believability (Rieh et al, 2010), as well as trustworthiness and expertise (Hovland et al., 1953). However, as most researchers agree, credibility can be assessed by combining multiple dimensions and evaluating them simultaneously (Rieh et al, 2010).

2.3.1 Key theories to evaluate information credibility among individuals.

Based on the literature, the following theories, as shown in Table 3, are the most used to evaluate information credibility. These theories are also used to investigate how different factors might influence receivers' judgements of information credibility.

Theory	Overview
Source credibility	According to this theory, receivers of given information will be more persuaded if the information comes from a credible source. Hence, the theory assumes two dimensions of information effectiveness: the expertise level and trustworthiness of the source (Hovland & Kelly, 1953).
Elaboration likelihood model (ELM)	This theory focuses on the process of individuals' attitudes towards a given message and how it influences their persuasion (Cyr et al., 2018). Based on ELM, there are two main determinants of individuals' attitudes towards a piece of information, which are 'the central and peripheral routes of information processing' (Petty and Cacioppo 1986). Petty and Cacioppo (1986) identified argument quality as the central route of ELM, while source credibility is the peripheral route.
Information adoption model (IAM)	IAM focuses on information adoption by receivers; mainly, it focuses on adopting information published on computers and communication platforms. It assumes that the extent of information usefulness influences information adoption, and the usefulness of information is determined by two factors: source credibility and information quality (Sussman & Siegal, 2003).

Table 3:The Key theories to evaluate information credibility among individuals.

2.3.1.1 Information adoption model IAM

As shown in Table 3, different theories have emerged to explain and understand individuals' behaviours and attitudes towards information credibility. Focusing on information adoption, it is a related concept to seeking and using information. The word adoption is referred to in the Oxford dictionary as "*choose to take up, follow, or use*" and in the Cambridge dictionary as "*to accept or start to use something new*". Zhang & Watts (2008) defined information adoption as the extent to which the veracity of information is evaluated and accepted as meaningful. It mainly focuses on the process in which information receivers use, evaluate and accept information. The word "adoption" has been used widely with information credibility and researchers have done a tremendous amount of work in information adoption in different contexts such as online environment (e.g., Hussain et al., 2018), social media (e.g., Erkan & Evans, 2016) and information technology (e.g., Schillewaert et al., 2005). Moreover, various theories have been posited to examine how information receivers seek and adopt information. For instance, the information adoption model (IAM) by Sussman & Siegal (2003) and the revised IAM by Cheung et al. (2008).

In the online environment, information adoption was introduced initially by Sussman and Siegal in 2003. It focuses on how the adoption of information on communication platforms

could be affected by individuals' attitudes and behaviours (Wang, 2016). It was originally applied to business organisations to investigate how the workers in those organisations assessed information received via email. IAM proposes that information adoption depends on the extent of the usefulness of the information, and information usefulness can be determined through two primary components: argument quality and source credibility. In other words, the information could be described as useful if it has a high argument quality and comes from a credible source (Shen et al., 2014). Hence, the more the information is perceived as useful and sufficient for individuals' needs, the more likely individuals are to adopt it. Sussman and Siegal (2003) consider that information quality and source credibility play a great impact on information usefulness which in turn affects information adoption. In summary, IAM contains two essential components to evaluate message credibility, information quality and source credibility, which are considered by researchers as the most influential factors in information credibility (Davy, 2006; Hong, 2006; Sundar et al., 2007; Zhang and Watts, 2003).

Although IAM initially applied by Sussman and Siegal (2003) to information sharing in organisations, it was also found to be applicable in other fields, such as social media and the internet. IAM is one of the most used theories to study individuals' attitudes toward information adoption on social media platforms and the internet. It has witnessed growing use by researchers in various fields of information sharing (e.g., social and marketing research). The IAM model has been used and revised by researchers to assess how different factors influence adopting information (e.g., Cheung et al., 2008; Watts & Zhang, 2008; Tseng and Kuo, 2014). According to Wang (2016), IAM has been used in previous studies in three different ways: using the original IAM (e.g., Christy et al., 2008), extending it by adding other variables to the original variables (e.g., Zhu et al., 2016) or developing new models based on the original IAM (e.g., Gunawan and Huarng, 2015). Previous studies have also used IAM in different contexts, such as online forums and social media. For instance, Cheung et al. (2008) used IAM to investigate the adoption of online reviews among users of a social network site called "OpenRice"[4]. The study was conducted on Chinese users of the OpenRice platform, utilising an online questionnaire. The findings revealed that, among various factors such as information timeliness, accuracy and source expertise, the information quality factor had a significant effect on adopting online reviews. These findings match with a study conducted among Chinese students to investigate how they process information on social media (Shu & Scott, 2014). The study found that content quality plays a more influential role in adopting online information than source credibility. The findings of those studies revealed the vital

[4] *"OpenRice.com (www.openrice.com) is an online virtual opinion platform about food and restaurants. It shares information about 10,000 restaurants in both Hong Kong and Macau" (Cheung et al.,2008)*

influence of argument quality on adopting online information. This could explain the reason for using information quality as an essential dimension in IAM.

As addressed above, the IAM model has been widely used among researchers, particularly in information systems studies (e.g. social media usage), to assess the users' attitudes towards adopting information. Hence, it could be a useful base for this research as it will focus on social media platforms, which comes within the information systems field. Moreover, IAM contains two essential components to evaluate message credibility, information quality and source credibility, which are considered by researchers as the most influential factors in information credibility (Davy, 2006; Hong, 2006; Sundar et al., 2007; Zhang and Watts, 2003). Furthermore, regarding the information process exchange, which refers to '*information transmission and feedback through various means and channels*' (Yang and Jiang, 2016, p. 529), the process of information exchange or sharing is affected by several factors, such as social factors (e.g., the relationships between individuals), or technological factors (e.g., internet access) (Treglia, 2013; Zailani et al., 2008; Tinto and Ruthven, 2014). In this regard, IAM was found in related studies (e.g., Zhu et al., 2016; Shu and Scott, 2014) to be a flexible model that can be built from several types of variables that impact information adoption among individuals. Hence, it may help this research to investigate which factors influence users' attitudes towards information adoption from social media platforms.

2.3.2 Factors influencing information adoption from online environment

In reviewing the literature, it was found that information adoption is affected by different factors such as source credibility and argument quality. For instance, a recent study by Daradkeh (2021) found that adopting online forums information is mostly affected by source credibility, information timeliness, relevance and accuracy. Likewise, Yin & Zhang (2020) s' study revealed that source credibility and information quality are the significant factors on microblog information adoption. Since source credibility and information quality were found to be the most influential factors in information adoption, this study will focus on these factors as main dimensions of the information adoption process. Each factor will be separately discussed in the following sections.

1. Information quality

In related studies that focused on information adoption in online environment, argument quality term has been known and used as another name for information quality (Sirithanaphonchai, 2017). Quality of information focuses on the content quality from the receivers' perspectives. It is defined in a simple way by (Todoran et al., 2014) as "the information fitness for use" and

it refers to the information usefulness to meet the receipts' needs (Muslichah,2018). In previous studies (e.g., Cheung et al., 2008) receivers' attitude was found to be greatly affected by the level of information quality. The more strong and valid information, the more positive attitude by receipt to use this information (Fanoberova & Kuczkowska, 2016).

The theories of information adoption hold that information quality is a crucial determinant in information adoption; furthermore, this factor is presented as the central dimension on the theories of information adoption (e.g., Filieri & McLeay, 2014; Effendy & Bakhri, 2022; Mensah et al., 2023). Moreover, as has been cited by different studies (e.g., Jiang et al., 2021 & Effendy & Bakhri, 2022), a significant relationship was found between information quality and information adoption. Based on these studies, it was found that information quality influences positively on information adoption from social media platforms. To measure information quality, characteristics as timeliness, accuracy, relevance and completeness were used by researchers. The findings of previous studies revealed that these characteristics play a positive influence on adopting information from social media platforms (Filieri & McLeay, 2014; Ogunsola & Ojebola., 2017; Zhang et al, 2020; Shang, 2021).This might indicate that users of social media would adopt information if they found it relevant, up to date and accurate. Therefore, the following hypothesis is proposed:

H1: Information quality influences positively on information adoption.

As stated above, Information quality can be assessed using different characteristics of information such as, '*accuracy, integrity, consistency, completeness, validity, timeliness, accessibility'* (Laudon & Laudon, 2012, p. 460), as well as precision, reliability, and relevance (Alshikhi & Abdullah, 2018, p. 38). However, this research focuses on 4 characteristics of information: '*relevance*, *timeliness, accuracy, completeness'* because they are found to be the critical dimensions of information quality as agreed upon by different authors in information credibility literature (Alshikhi & Abdullah, 2018, p. 38). Each dimension will be discussed in the following sections.

1.1. Relevance

Information relevance refers to the extent to which the information is appropriate, applicable and related to the intended purposes of the recipients (Cao et al, 2005; Hong, 2006). In related studies, Information relevance was found to have an influential role on using social media information. For instance, a recent study was done by (Nguyen & Le, 2021) to investigate using social media as information source among social media users in Vietnam during the COVID-19 pandemic. The study found that, relevance of information significantly influences trusting the information source. Another study by (Sirithanaphonchai, 2017) was done on

examining the factors that affect adopting online reviews by social media users. The study found that, relevance of information has a positive significant impact on using online reviews. These findings might indicate that, individuals are more likely to trust information source if it has relevant information that cover their needs.

1.2 Timeliness

Timeliness of information is one of the characteristics of information quality. It refers to the availability of sufficient current and up to date information at times of need (Cheung et al., 2008; Laudon & Laudon, 2012). It mainly focuses on providing latest and timely information that meets information seekers' needs or helps them in making decisions. Naumann & Rolker (2000) and Jensen (2012) argued that timeliness of information is a critical measure of information quality, while Liu et al., (2008) consider it as one of the critical factors to drive reuse and revisiting of websites by online users. Related studies have been used the timeliness factor to measure information sources' usefulness. For instance, a study by Wangpipatwong et al. (2005) was done on Thailand to investigate adopting Thai e-government websites and found that timeliness of information has a positive great impact on adopting information from e-government websites. Similarly, Ogunsola & Ojebola (2017) found that frequency of use of Facebook pages in Nigeria is greatly affected by the timeliness of the provided information on such pages. In other words, the extent to which Facebook pages provide up-to-date and current information influences their frequency of use. Hence, information timeliness is an important factor for adopting information or using social media as information source.

1.3 Accuracy

Another characteristic of information quality is accuracy which is defined by Matsumura & Shouraboura (1996) as "information that is correct, free of errors and relevant for information consumers". It refers to the degree in which the provided information is valid, reliable, correct and precise to satisfy user's needs (Paasonen, 2020). Fanoberova & Kuczkowska, (2016) claimed that information usefulness is significantly affected by the level of its accuracy. In their study, they found that usefulness of online retail sources is positively influenced by the ability of the source to provide accurate and reliable information. Furthermore, adopting information from online reviews was found to be affected by the degree to which the information is accurate and credible. For example, the findings of an online questionnaire of 565 participants in Italy revealed that the information accuracy factor has a significant impact on the adoption of online reviews (Filieri & McLeay, 2014). In their study, Filieri & McLeay, (2014,P.47) described the reviews accuracy based on "travellers' perceptions that information is accurate, correct,

believable, candid and free from bias comments". Such findings suggest that adoption of online reviews is likely to be affected by the users' perceptions of the information accuracy.

1.4 Completeness

Information completeness is another characteristic of information quality. It was defined by Bonson et al., (2011, p.231) as "high-quality information, which is comprehensive enough to serve the intended purpose". It also refers to "information that present all necessary data" (Laudon and Laudon, 2012, p. 460). Adoption of information is influenced by the extent of its comprehensiveness and breadth to meet the information seekers needs. So, the completer and more comprehensive that information, the more useful it should be. Previous studies have found a significant relationship between adopting online information and information comprehensiveness. For instance, a study by Shen et al. (2013) aimed to investigate which factors influence adoption of online information on Wikipedia among university students. The study found that, among several dimensions of information quality, only information completeness was found to have a significant influence on using information from Wikipedia. A similar finding was revealed in a study done on adopting online reviews among users of a social network site called "OpenRice" (www.openrice.com) in Hong Kong (Cheung et al., 2008). The study found that, users of OpenRice are more likely to adopt comprehensiveness reviews that have detailed information (e.g., location, price, services… etc).

2. Source credibility

The second component of IAM is source credibility which mainly focuses on the information sender/ communicator characteristics. It is defined as " the extent to which an information source is perceived to be believable, competent, and trustworthy by information recipients" (Sussman & Siegal, 2003). It focuses on evaluating the message/ information source from the receivers' viewpoints.

There is a suggestion that source credibility and content credibility have a reciprocal relationship, the more credible the source, the more credible its information is perceived to be and vice versa (Taylor & Thompson, 1982). Previous studies proved that information credibility is highly affected by the level of source credibility (e.g., Cheung et al., 2009; Yin et al., 2018; Yin & Zhang, 2020). Furthermore, Di & Luwen, (2012) found that, adopting information of social network sites is positively affected by the source credibility. In their study, the researchers found that source characteristics, as expertise and knowledge have a significant influence on adopting reviews of a shopping social network sites called "Taobao" among Chinese. In addition, A recent study by Dinh & Doan, (2020) found that source credibility has

a positive impact on perceived online information usefulness and acceptance which in turn affects users' decision making. Previous studies used different dimensions to measure source credibility, such as; expertise, trustworthiness and attractiveness (Farr, 2007; Fanoberova & Kuczkowska, 2016).

2.1 Expertise

Expertise focuses on a set of characteristics of the message source, such as skills, knowledge, experiences and qualifications (Rieh et al, 2010; Metzger et al., 2003). The availability of these features in a message source could have an influence on evaluating the accuracy and validity of the message information (Rieh et al, 2010). For example, a piece of medical information would be more credible if it was provided by a doctor or an expert in medicine. Syn and Kim's (2013) study revealed that source expertise was the most important factor on evaluating health information credibility on Facebook among undergraduate students. Moreover, source expertise was found to have a positive relation with adopting online information. For instance, Lis (2013) study revealed that source or reviewer's expertise was found to have a significant effect on the credibility of online recommendations. The more knowledge and expertise the reviewer has, the more quality of information he/ she provides which in turn increases the credibility of perceived reviews by this source. Thus, the following hypothesis was formulated:
H2. Source expertise is predicted to have a positive influence on information adoption.

2.2 Homophily

Homophily is one related concept to similarity between a group of people or things. It is defined by Shamhuyenhanzva et al. (2016, p. 440) as "the tendency of individuals to associate and bond with similar others who possess the same attributes and characteristics". It can be derived from various aspects: perceived attributes (e.g., values, preferences, behaviours and beliefs) or demographic factors (e.g., race, gender, religion, educational level or occupation) (Block and Grund, 2014; Ismagilova et al., 2020). Having a high level of interaction between individuals who share similar characteristics (e.g., same gender) or attributes (e.g., same beliefs) could influence individuals' attitudes while sharing information with others. It also results in a high level of trust and interpersonal interaction among individuals (Brown et al., 2007& Wu, 2013). Hence, the more the receivers of information feel similar with a specific source, the more they feel attracted to and trust that source.

Previous studies examined the effect of homophily status among internet users on information credibility and found that information adoption and users' attitudes towards information are significantly affected by homophily status among internet users (e.g., Jalees et al., 2015;

Saleem & Ellahi, 2017; Steffes & Burgee 2009; Lis, 2013; Ayeh et al., 2013). In this regard, Steffes and Burgee (2009) and Wang et al., (2008) found that credibility and adopting of online information is significantly influenced by the similarity between information source and receiver. For instance, Wang et al., (2008) study they found that receiving information/ advice form similar others (e.g., thinks like me/ has concerns like me) leads to the likelihood to act or use health information and advice of online discussion groups. Another study by Ayeh et al., (2013) revealed that individuals were very likely to adopt travel information from TripAdvisor platform when it comes from source that shares similar interests with them.

Homophily can be measured using different aspects, such as similar demographic characteristics (e.g., same gender, same nationality and same age) or similar attributes (e.g., values, preferences, behaviours and beliefs). Previous studies on the homophily status among internet users, information credibility and information adoption, (e.g., Steffes & Burgee, 2009*;* Bracamonte & Okada, 2015; Hirvonen et al., 2018; Al-Daowd et al., 2021) found that users' attitudes towards accepting information are significantly affected by homophily status/ similarity among internet users. Focusing on similarity on demographic characteristics (e.g., same nationality), studies found that receiving information from people who share the same nationality is found to be more credible and influential in sharing information and trusting online reviews (Bracamonte & Okada, 2015; Al-Qadhi et al., 2015). Based on that, the following hypothesis was formulated:

H3. Source_receivers being similar in nationality is predicted to have a significant positive influence on information adoption.

Focusing on the demographic characteristics of social media and internet users is worthwhile research, particularly for cultures that place a high value on interpersonal social ties as Saudi Arabia. As an example, the strength of interpersonal bonds in collectivist cultures tends to be higher than in individualistic ones, which could result in varying levels of trust being placed in the information source in each culture (e.g., findings of Han & Kim; 2018; Mooij, 2013).

2.3 Verification feature

With the ease accessibility to social media and the possibility of using it for sharing information with other around the world, it has become difficult to determine if the account holder is real or fake. As a result, in 2009, Twitter (known as X now) implemented a technological feature known as the "verification mark," which has since been subsequently adopted by other platforms (i.e., Google and Instagram). Authenticity on social media or verified accounts, which are those 'whose owners have been authenticated by the site and denoted with a verification

seal (e.g., ); such denotations are granted only to those account holders whose identity is verified by the site management, and they cannot be granted to fictitious accounts (Twitter, 2017). This mark is given to users following a rigorous process of confirming and verifying their identification, indicating that the account holder is a real person or organisation. Hence, it would increase the credibility of the account, or making it a trustworthy source. With the recent development of social media platforms, account verification has become one of the influencing factors in the credibility of information published on verified accounts. Moreover, it has been found that the verification feature plays a significant role in obtaining users' trust in the information published on verified accounts. For instance, Morris et al. (2012) and AlMansour & Iliopoulos, (2015) found that the account verification feature on Twitter significantly affects user acceptance of the information published by a verified account, and could have a positive impact on information credibility. This indicates that the technical features such as verification stamp could have a great impact on adopting information among social media users these days. Thus, the following hypothesis has been formulated: **H4. Verification mark on social media influences positively on information adoption.**

Other studies, however, have found no relationship between information credibility and the account verification feature; for example, in one study, Vaidya et al. (2019) found that only 5% of 100 participants evaluate information published through verified accounts on Twitter as credible information. Indeed, it remains unclear whether the verification mark can be associated with source credibility or not. Hence, understanding social media users viewpoints towards this mark is still needed[5].

- Elon Musk's acquisition of Twitter (known as X now)

While discussing the verification mark on social media, Elon Musk's acquisition of Twitter and the regulations he brought to this feature are worth considering. Starting with his tweet "the bird is freed" in late October 2022, Elon musk announced the acquisition of Twitter platform. Since then, a number of significant modifications have been made to the platform, including rebranding Twitter as "X," creating new policies for the verification mark, and improving the timeline by adding personalised "for you"/ recommended tweets that are based on the user's interactions. Focusing on the blue check or the verification feature, it was previously granted to celebrities and public figures whose identity has been verified by the platform management. However, "in Nov,2022, Elon Musk declared announcing a plan to offer verified badges to any user who paid a monthly fee ($8/month)" (CNN, April, 2023). Even though these policies were

[5] *It needs to be clarified that the changes in the status of verification mark on Twitter post the 1st data collection method of the present study. "Musk declared in Nov,2022 announcing a plan to offer verified badges to any user who paid a monthly fee ($8/month)" (CNN, April, 2023).*

made after the data collection phase, it is worth noting that the basic concept behind this technical feature remains essentially the same; it indicates that platform management has checked the account owner's identity. However, and despite the extensive presence of the verification mark across various social media platforms, a little attention has been paid by researchers to examine its influence on credibility. Investigating the influence of the verification mark on evaluating information credibility on social media is still needed. Therefore, one of the current study's objectives is to determine whether such factor might be used as credibility cues among social media users in Saudi Arabia.

As been discussed previously, there are different factors that influence information credibility on the internet technologies and social media platforms. However, Lucassen & Schraagen (2011), Lucassen et al. (2013) and Wathen & Burkell (2002) argue that information characteristics (e.g., information quality) are not the only factors to evaluate information credibility. Other factors such as user characteristics (e.g., age, education, skills and experiences) should also be taken into consideration. These factors will be discussed in the following sections.

3. The influence of demographic factors on information adoption and information credibility evaluation

Demographic factors refer to a population's characteristics, such as gender, race, age, religion, culture, education, income and other factors (Salkind, 2010). Demographic factors have been widely used in different types of research (e.g., marketing, social or human sciences) to provide information about study participants. In terms of research on information credibility, previous studies have focused mostly on identifying the factors that affect information credibility rather than focussing on the individuals' demographic differences and their effect on credibility judgment. In this regard, it is believed that with the universal availability of today's internet technology, information is likely to be interpreted differently by users from a wide range of backgrounds and demographic characteristics. So, individuals of different ages, gender groups and backgrounds… etc might generate varied opinions about how credible a given piece of information is, and then they would evaluate the credibility of information differently. For instance, the findings of Stern et al., (2012) study revealed that females are more likely than males to utilise the health information they obtain online. Furthermore, when it comes to the purpose of seeking health information, the study found that men are more prone to look up health information for their own purposes whereas women are inclined to do such jobs for others. Such differences indicate that there are demographic differences among individuals with regard to adopting information or evaluating its credibility.

The impact of the demographic factors; gender, age and educational background on information credibility assessment will be discussed in detail in the following sections. Other demographic factors as income and health status have been excluded from this study. As this study aims to target Saudi population aged 18 and above, and by assuming that not all the participants are employed or have a monthly income, therefore income was excluded. Moreover, the current study mainly focuses on people perceptions of seeking health information from social media, so it is believed that income has nothing to do with such perceptions. It is possible that income might have a significant influence in studies of individuals' purchasing behaviours and information credibility. For the health status, it is a sensitive topic and might lead to participants avoiding completing the study, hence this factor was excluded from the study.

3.1 Gender

Gender has been used by researchers to investigate the differences between individuals in evaluating online information. For instance, a study by Flanagin and Metzger (2003) focused on evaluating a personal web page known as 'Julie's site' by the web visitors. The study found that males rated both message credibility and site credibility significantly higher than females. Additionally, female sources' sites and messages were rated more favourably by males and less favourably by females. Likewise and by focussing on health information, Kim and Syn (2016) examined the credibility and usefulness of health information on Facebook among students of two colleges in the United States. Using an online survey, the study found that females tendency to trust medical and health organisations, government agencies and friends is higher than males. The study also revealed that females are less likely to trust medical professionals, broadcasting and media, family and patients and caregivers. The findings of these studies clearly indicate that there are gender differences in evaluating information of the web or social media platforms.

Furthermore, other studies have revealed that women are more likely than men to use the internet for searching for health information (Rice, 2006; Chung, 2013). Indeed, there is some evidence that the level of engagement in seeking health information is high for women compared to men, as found in the studies of Hallyburton & Evarts (2014) and Myrick & Willoughby (2019).

Wathen & Harris (2007) and Rowley et al., (2017) found that females tend to seek health information from a larger variety of sources, including other health professionals, family members and friends alongside using the internet. In this regard, Stern et al., (2012) justified

women's engagement in seeking health information to their traditional social role in the society as parenting and taking care of the family health.

On the other hand, further studies have claimed that there are no gender differences in evaluating Internet-based health information. For instance, Magnezi et al. (2014) found that there was no significant effect of gender on the perceived usefulness of health information among users of the health platform called "Camoni" among Israelis. Likewise, Koch-Weser et al., (2010) study concluded that there were no gender differences relating to seeking health information from the internet among U.S. adult population.

3.2 Age

Age differences between individuals could also play an influential role in assessing information credibility. Methods for assessing information credibility may differ between people from different age groups**.** This difference may be due to the differences in the experiences of individuals in dealing with the internet and social media (Dutta-Bergman, 2004). Previous studies revealed a significant difference between older and younger people in evaluating information credibility, particularly heath or medical information. For instance, a study by Liao & Fu (2014) focused on investigating the differences in evaluating online health information between older people (ages 58- 80) and younger people (ages 19- 26) in the U.S. Based on presenting different two pages of professional health websites (e.g., Mayo Clinic) to the participants, the study found that older people were less affected by customers' reviews or online health information on the web. The study also revealed that older individuals were more likely to go straight and read the website's content instead of evaluating the websites or the content features as "design look or source identity". On the other side, younger people were found to pay attention first to the website features and evaluate the contextual cues before reading the content. Likewise, the findings of a cross-sectional questionnaire of Magnezi et al. (2014) study revealed that the social network platform known as "Camoni" is perceived to be a useful source for health information for younger people (aged 20-29) more than older people (aged 50-64). Notably, there are age differences between internet users regarding using online health information. According to a study was conducted among internet users in the U.S., interesting findings were found regarding using online health information among adults and older people (Chung, 2013). The study found that people who looked for health information online were most likely to be between 30 and 49 years old (middle aged). Also, the Middle-aged group compared with older people (65+) were found to be more inclined to share their online search results with a health care consultant. It can concluded that there are age differences between internet users regarding evaluating information credibility on the internet, which in turn affect their ways of evaluating information credibility.

3.3 Educational background

Educational background is another influencing variable in evaluations of information credibility. Previous studies have found that there is a positive relationship between individual educational level and evaluations of the credibility of online information (e.g., Cotten & Gupta,2004; Chung,2013; Kim & Syn, 2016). In this regard, Deursen & Dijk (2015) argued that the more education users have, the more internet skills they acquire, which, in turn, impacts their attitude toward evaluating online information. Therefore, studies on information credibility have used the educational level of respondents to investigate its effect on credibility assessment among internet users. For instance, a recent study by Vlad (2019) found that Romanian individuals with higher educational levels (e.g., PhD) described social media platforms as less credible sources for information, unlike high school students, who considered social media as a credible source of information.

By focussing on seeking health information online, the results of the survey on 358 adults in the U.S. revealed that seeking health information is found to be affected by the individuals' educational level (Cotten & Gupta,2004). According to the data, those who look for health information online are more likely to have greater levels of educational (a bachelor's degree or more) compared to those who are less educated (high school or less). This finding may suggest that people's attitudes on looking up health information online vary with their educational backgrounds. Furthermore, differences were found regarding the preferred source of health information and individuals' educational level. For instance, a study by Kim and Syn (2016) found significant differences in evaluations of online health information among college students in the U.S. The study found that students with higher educational levels were more likely to rely on information from governmental organisations as credible, while students with lower educational levels mentioned other sources (e.g., families or media podcasts).

A logical explanation was presented by Vlad (2019, p.161) regarding the relationship between individual educational level and assessing the credibility of online information. He assumed that such difference is expected and commonplace, given the high levels of technology adoption and internet use among today's youth who also have "less life experience". On the other side, people with higher education (i.e., PhDs) have greater knowledge and ability to distinguish between authentic and sponsored content, which make them more sceptical of trusting online information (Vlad, 2019, p.161).

Based on the above discussion, demographic factors of individuals and information seekers are likely to impact their attitudes towards evaluating information credibility and adopting information, Thus, the following hypothesis has been formulated:

H5. Demographic factors are predicted to have a significant influence on information adoption.

2.4 The literature gaps

Based on reviewing the literature, several contextual gaps have been identified. First, although previous research has focused on investigating the ways by which individuals evaluate information and what makes them trust it, Aldhamer (2023) claimed that there is a lack of studies that empirically examine what factors impact how consumers evaluate the credibility of information. Furthermore, Li and Suh (2015) argued that it remains unclear which factors affect information credibility concerning social media. With the rapid development of social media, several new technical factors as verified accounts feature on X, Snapchat and Facebook was found to play a role in the judgement of information credibility in this media (e.g., AlMansour & Iliopoulos, 2015; Chen et al., 2020). Indeed, it remains unclear whether the verification mark can be associated with source credibility or not. Hence, conducting more empirical studies, and examining social media users' viewpoints towards the verification mark is still needed. Furthermore, Yin et al. (2018) stated that other factors, such as individuals' differences (e.g., gender) could be considered one of the most influential factors in processing and evaluating information credibility (Yin et al., 2018). Hence, Moin et al. (2017) and Yin et al. and Verma et al. (2018) argue for the need for more studies to examine the role of gender differences and other demographic characteristics in credibility judgement, in shaping the trust of internet users or trusting online news sources.

Therefore, the current study aims to fill the gap in the literature by examining the impact of factors as verification mark on adopting health information on social media platforms. Also, one of the objectives of this study is examining how demographic characteristics of individuals impact their attitudes towards adopting health information from social media platforms.

Second, as found in previous studies, consumers' information-seeking behaviours and decisions are greatly affected by their cultural backgrounds (e.g., El-Maamiry, 2017; Zimmerman & Shaw., 2020). Thus, King et al. (2014) argue for the need for more studies to examine how the use of social media as an information source differs between cultures, in addition, Jia (2021) argued for more cross-countries studies to compare the behaviours of online health information seekers. Therefore, more research on the role of individual differences (e.g., gender or culture) in judging information credibility is still needed. In this regard, Sbaffi & Rowley (2017) argued for the need to conduct more studies about online information credibility in non-Western countries. Through reviewing the literature, it has been found that most of the existing studies, especially studies of online health information credibility, have been conducted in Western and non-Arabic countries as the United States, the United Kingdom and China. Moreover, Almaiman et al., (2015) and Iftikhar & AbaalKhail.,

(2017) argued that there is a little research have been done regarding people's attitudes towards using social media as health information source in Saudi Arabia. Literature suggests it is reasonable to assume that the way people are communicating in one context is different than in other; Hence their ways of dealing with information and evaluating its credibility are likely to be different. For example, people from collectivist culture were found to be more willing to accept and trust information from in-group members, which has been found in several studies (e.g., Lim et al., 2006; Meyer, 2009; Sawyer& Chen, 2012; Han & Kim, 2018). In addition, Liu & Park (2015) suggest that there is a high tendency to believe and trust online reviews written by people with similar backgrounds and attitudes.

Besides, the Middle East countries, in particular Saudi Arabia has very high rates of internet and social media usage, but the existing literature is lacking in analysing which factors, particular to Middle Eastern societies, influence online information adoption and online behaviours. Hence, replicating and extending previous research within the Middle Eastern will allow for a more comprehensive and globally-representative understanding of information adoption and online activities in such culture. In addition, findings of the current study could be compared with those from other countries or methods could be replicated to different types of information or different population.

The shortage of studies specific to the Middle Eastern and Arabic region underscores the importance of this research. Hence, conducting more studies in developing Arabic countries that have different cultures such as Saudi Arabia, could lead to different findings concerning judgement of the health information credibility of social media.

It can be concluded that media credibility perceptions are significantly affected by the cultural differences of individuals around the world. Focusing on Saudi Arabia, it is one of the Middle East countries that is characterized by prominent cultural dimensions such as a collectivist society, high uncertainty avoidance, high context, short-term orientation and high-power distance. As addressed previously, individuals from countries with such cultural dimensions differ in their attitudes toward assessing information credibility compared to individuals from other countries with different cultural dimensions. It is believed that evaluating individuals' attitudes towards information credibility in the East and Arabic countries needs to be carried out. Therefore, the current study aims to fill this gap by focusing on Arabic country as Saudi Arabia, which is characterised with different cultural dimensions as been discussed previously.

Third, previous studies (e.g., Tian et al., 2015; Jalees et al., 2015) revealed that the source attributes (e.g., familiarity & homophily "similarity") play an important role in evaluating information credibility among different cultures. Focusing on the homophily , it is believed that

examining homophily or the similarity/ dissimilarity between information source_receivers is still needed. Most of the studies on the impact of source_receivers similarity on evaluating information credibility and adopting health information have been conducted on non-Arabic countries, (e.g., Jalees et al., 2015; Saleem and Ellahi, 2017 & Berry et al., 2018). Even though these studies examined the impact of homophily on information credibility judgement, no research has examined the impact of homophily on Saudis' adoption of health information from social media. It is hypothesised that individuals from cultures like Saudi Arabia, considered a collectivist and feminine society with a high context and high uncertainty avoidance, would pay more attention to source characteristics such as having strong ties or similarities with the source or receiving information from unknown sources. Therefore, filling this gap is one of the main objectives of the current study as it aims to provide different sources of information with different characteristics (e.g., same/ different gender and nationality, expert/ non-expert).

Fourth, focusing on Saudi Arabia, the recent studies and stats (e.g., Hammad & Alqarni, 2021; Global media Insights, March, 2023) shown that there is a high use of social media and internet technologies among Saudi population. Also, studies (e.g., Marar, 2019) revealed that there is a positive attitude towards published health information on social media among Saudi residents. However, Marar, (2019)'s study examined social media use as health information by focusing on a small sample of participants who were Saudi patients at Riyadh city. Therefore, the current study aims to increase the sample size by targeting Saudi population (aged 18 and above) from the whole country (Saudi).

Furthermore, although Hammad & Alqarni, (2021) study focused on social media use during COVID-19 19 pandemic, it did not examine social media use for accessing health information by the Saudi residents. The study mainly focused psychosocial aspect by examining the effect of social media use on individuals' mental health during COVID-19 19 outbreak. However, the present study aims to focus on social media use by Saudis as health information source during COVID-19 pandemic. Particularly, it will examine which factors influence positively the adoption of health information about COVID-19 pandemic on social media platforms. Also, it will investigate how different characteristics of sources might positively influence people's attitudes towards evaluating the credibility of health information on social media platforms.

To sum up, reviewing the literature revealed a gap in the literature regarding social media use for accessing health information by the Saudi population. Moreover, studies indicated that individuals from feminine societies, as Saudi Arabia, show a high tendency towards life quality, trusting information from a close source (e.g., friends) and adopting health behaviours and

habits such (Paunisaari, 2019). Also, individuals from such societies show more caution towards trusting online health information and reviews, and tend to make more efforts to verify the perceived health information and check its validity before using it (Khosrowjerdi,2019). As been addressed previously, Saudi Arabia is classified as a feminine society that greatly values life quality (e.g., following healthy habits) and prefer human interaction than materialism (Hofstede insights, 2020). Hence, for the current study it is worth considering health information on social media as a fundamental base of this study. Also, it is worth investigating the attitude of social media users in Saudi Arabia towards adopting health information on social media platforms. Therefore, the following research questions have been identified:

Q1. Which factors influence adopting health information about COVID-19 among social media platforms users in Saudi Arabia?

Q2. How do demographic factors affect adoption of health information among social media platform users in Saudi Arabia?

1.4 Research aim and objectives

The current study aims to understand better what factors affect people's willingness to adopt information, using health information on social media as a case-study. Particularly, it examines which factors positively influence the adoption of health information about COVID-19 pandemic among social media users in Saudi Arabia. Also, it investigates how different characteristics of source and information, as well as demographic characterises might influence people's attitudes towards evaluating the credibility of health information about COVID-19 pandemic on social media platforms. The present study focused on three characteristics of information sources: source expertise, verification feature and homophily status. Each characteristic is deeply discussed in the following chapter.

In order to achieve the research aim, the following objectives have been identified:

- **Objective 1:** Identifying the gaps in the literature of information adoption and social media use as a health information source.

- **Objective 2:** Determining the influence of different factors, namely information quality, source characteristics and individuals' demographics on adopting health information during COVID-19 pandemic among social media users in Saudi Arabia.

- **Objective 3:** Using an experimental design (vignette) to examine which characteristics of information source influence positively on adopting health information.

- **Objective 4:** Employing qualitative interviews to gain a further understanding of the use of social media platforms to seek health information, as well as which sources are used by the participants as a health information source.

- **Objective 5:** Providing theoretical, methodological and practical contributions to the field of evaluating information credibility, information adoption and social media use by the Saudi population as an information source.

To achieve the research aim and answer the research questions, a theoretical framework is developed to identify the influencing factors on adopting information from social media platforms.

2.4.1 The conceptual foundations of the present research

Based on the discussion above, a thorough review of the literature was conducted on the influencing factors on evaluating information credibility and adopting information among internet and social media users. Following that, different gaps have been identified and two research questions were addressed.

Previous studies in the literature, (e.g., Effendy & Bakhri, 2022; Dinh & Doan, 2020) revealed that information quality and source characteristics are found to have a significant impact on evaluating information credibility and adopting information. In addition, other factors as the verification mark and the homophily status of information seekers and providers are found to influence peoples' attitudes towards information adoption among internet and social media users (Bracamonte & Okada,2015; Chen et al., 2020).

However, there is a need to examine the influence of these factors in the context of health information on social media platforms. Particularly, in the context of social media usage in Middle East countries which have been under researched compared to western countries. In addition, further attention is needed to other factors as the individuals' demographics of information providers and receivers. It is believed that with the universal availability of today's internet technology, information is likely to be interpreted differently by users from a wide range of backgrounds and demographic characteristics. So, individuals of different ages, gender groups and backgrounds etc might generate varied opinions about how credible a given piece of information is, and then they would evaluate the credibility of information differently. Hence, beside source credibility and information quality, the individuals' demographics need to be taken into consideration when examining people's attitudes towards adopting information.

Based on the information adoption model of Sussman & Siegal (2003), the theoretical framework of the current study is developed to explore the influencing factors on adopting information from social media platforms. As shown in Figure 4, the study's framework stands on the following main conceptual foundations (factors) ; information quality, source credibility, information adoption and demographic characteristics.

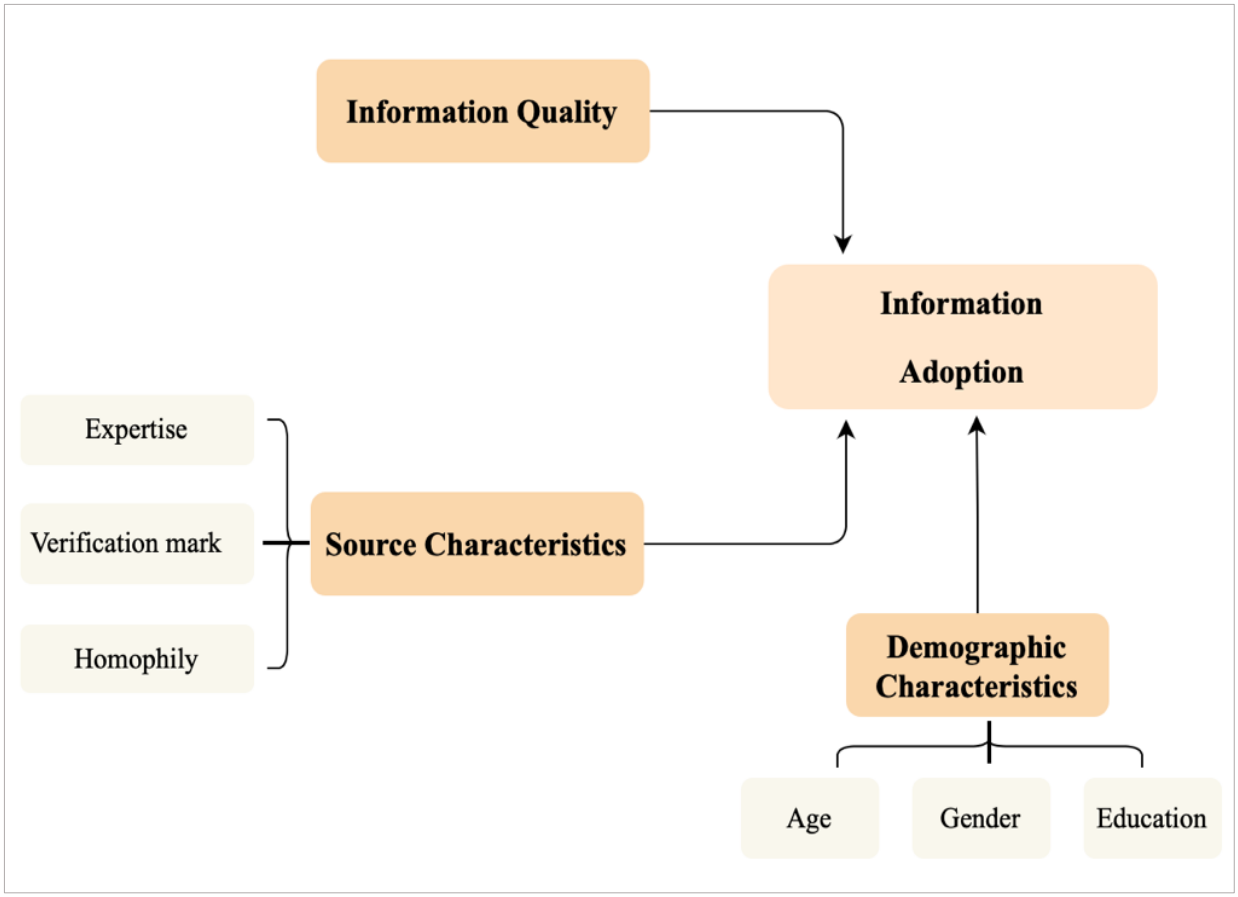

Figure 4:The conceptual foundations of the current study

As seen in Figure 4, the key constructs of the current study are information quality, source credibility, information adoption and demographic characteristics. From the figure above, and based upon the review of the literature, the following hypotheses are proposed:

H1: Information quality influences positively on information adoption.

H2. Source expertise is predicted to have a positive influence on information adoption.

H3. Verification mark on social media influences positively on information adoption.

H4. Source_receivers being similar in nationality is predicted to have a significant positive influence on information adoption.

H5. Demographics factors are predicted to have a significant influence on information adoption.

To answer the research questions, a mixed methods approach particularly an online questionnaire followed by semi structured interviews were used as data collection methods. Details of the research methods will be discussed in the following chapter.

Chapter 3: Methodology

3.1 Introduction

This chapter is going to present the philosophical and methodological aspects of the current study. It started by discussing the research paradigm, design and approach. Then, the research methods, study population, ethical considerations and data collection procedures were explained.

The current study aims to understand which factors influence adopting health information from social media platforms, by defining the significance among variables (source and content quality with information adoption). Particularly, it aims to investigate which characteristics of source and content influence information adoption, and also examine the individual differences in adopting information from social media platforms. To answer the research questions, a theoretical framework was developed upon IAM of Sussman & Siegal (2003); where various hypotheses are proposed, as previously mentioned in p ().

To effectively investigate the research problem and determine the most suitable research methods that can contribute to answering the research questions, it is crucial to first define the research paradigm.

3.2 Research paradigm

Thomas Kuhn (1962) as cited in Bhatia (2019,p.12) identified the word research paradigm as "*the philosophical way of thinking*". Research paradigm refers to a set of philosophical beliefs, perceptions, and assumptions that guide the research direction and help understand and address the research problem (Jonker & Pennink, 2010). There are different types of research paradigms: "*positivism, realism, interpretivism, and pragmatism*" (Wahyuni, 2012). The research paradigm for the current study is a pragmatic design, which is defined as "*utilizing the best methods to investigate real-world problems, allowing for the use of multiple sources of data and knowledge to answer research questions*" (Allemang & Dimitropoulos, 2022, P.39). The pragmatic paradigm is also known as a "problem-centred approach," in which a significant amount of importance is placed on the research issue, and the instruments and procedures are determined in accordance with that (Mokiwa, 2009, & Al-Ahmadi & King, 2022). The present study started with assuming that information credibility is evaluated differently by the users of social media, depending on different factors, such as source or content characteristics. Hence, understanding what makes people trust and use a specific source of information is the core base of this research. This aim can be achieved by implementing "vignettes" that help in presenting different sources of information and then asking participants

to indicate to which extent they trust these sources. Afterward, the reasoning behind the participants' answers could be further explored through carrying out deep discussion/ interviews with participants. Thus, it can be concluded that the current study falls under the pragmatic paradigm.

Furthermore, the pragmatic paradigm holds that through using different methods and different approaches, reality can be derived (Adesokan, 2019). Also, according to the pragmatic approach, real knowledge can only be obtained through integrating deductive (objective) and inductive (subjective) approaches as stated by Stene (2020). According to Kafunda, (2021, p.44), combination of methods in pragmatic approach "*can shed light on the actual behaviour of the participants, their beliefs behind those behaviours and the consequences that follow those behaviours*". As this study started with a quantitative approach (questionnaire) to examine participants' attitudes towards different sources of information, then a qualitative method (interviews) were carried out to gain a deep understanding of seeking information from social media platforms, and what and why specific sources are used as information sources, a pragmatic paradigm is suited for this study.

According to the discussion above, the pragmatic paradigm stands on prioritising the research problem where methods are selected based on what will best help understand the research problem. Furthermore, this paradigm assumes that reality can be achieved by combining deductive (objective) and inductive (subjective) methods. In order to get a more comprehensive understanding of the research problem, the current study employed a mixed method approach. Initially, the questionnaire instrument is administered to examine the relationships between variables within the theoretical framework and to present participants with different source types. The quantitative data obtained from the questionnaire provides numerical evidence to test hypotheses and establish statistical associations among the variables. However, quantitative data alone may not fully capture the research phenomenon. Consequently, follow-up semi-structured interviews are conducted to gather qualitative data that attempts to answer the question "why" of the participants' responses to the questionnaire. The qualitative interviews assist in investigating the study's findings in greater depth, probing for further insights and perspectives that may not have been fully captured by the quantitative data alone. By employing semi-structured interviews, the researcher can engage in an open-ended dialogue with participants, allowing for the emergence of unanticipated themes and a richer understanding of lived experiences related to the research topic.

3.3 Research design

Research design is a plan for conducting a project or collecting data. This plan focuses on describing "*how, when, and where the data of research will be collected and analysed* " (Parahoo, 1997 as cited in Draper, 2004, p. 13). According to Akhtar (2016), there are four main types of research designs: exploratory, descriptive, explanatory and experimental. The design of this study is an explanatory experimental design, which aims to answer the question "why" by conducting in depth investigation of the phenomenon under study. This type of designs usually uses different methods to deeply understand the study problem; hence it is considered as "*a two-phase mixed method design*" as stated by (Maforah et al., 2018, p. 9711). In such design, a quantitative method is followed up by a qualitative method (Asenahabi, 2019). In other words, the study starts with a quantitative method to define the significance among variables and analysing and interpreting the results, then a qualitative method will be used to reasoning/ deeply exploring these results.

Furthermore, the explanatory design is defined as the approach aiming to examine the relationship between variables through using hypotheses, and therefore it is also known as "*causal or correlation design*" (Harsono, 2016). It also refers to a design in which the study participants are assigned to different conditions in an experiment to investigate the relationship between variables (Wang et al., 2017). As the current study aim to present vignettes of different profiles on social media to examine which characteristics of source influence information adoption, and respondents were randomly allocated to different conditions, thus an experimental design is employed.

In the current study, the explanatory experimental design follows a mixed methods approach. In the first stage of data collection, the study employed an online questionnaire incorporating a novel vignette design in which participants were presented with various information sources. The questionnaire helps in examining the theoretical framework of the present study, and investigating the relationship between variables. After carrying out the quantitative questionnaire, and to investigate the study's' findings in more details, follow-up interviews were conducted in order to deeply investigate the research problem from different perspectives. Hence, a mixed method approach is employed in the current study.

3.4 Research approach

Research approach refers to a set of procedures followed by the investigator for conducting research, such as identifying the problem, the needed information and how it will be collected and analysed (Davis, 2014). It can be either inductive or deductive or both (Saunders et al.,

2016). The inductive approach is generating or developing a theory based on collecting and analysing qualitative data, and it is commonly connected to interpretivism research (Bryman & Bell, 2011; Laine, 2018; Fetisova, 2015). Conversely, the deductive research approach is "*a testing approach where a theoretical frame will be built and a hypothesis will be tested* " (Gneist et al., 2009, p.5). It starts with a theory, then formulates a hypothesis based on that theory, after that testing the hypothesis and finally analysing the results. It is often linked to quantitative research data collection and the positivist paradigm (Ghauri & Grønhaug, 2005; Kovács & Spens, 2007).

As previously mentioned in the previous section, the present study employed a mixed methods approach, including both qualitative and quantitative techniques. Consequently, a combination of inductive and deductive methods is utilised. The study started with formulating a set of hypotheses based on the related theories, then these hypotheses were tested by interpreting the collected data; hence a deductive research approach is applied to this research. For instance, different theories of information adoption as the information adoption model by Sussman & Siegal (2003) proposed that *information* adoption is influenced by source credibility and information quality. Based on this suggestion, and in order to understand people's attitudes towards social media credibility, different hypotheses of source credibility and information quality were established in the current study. These hypotheses were tested using an online scenario-based questionnaire. After that, semi structured interviews were used to deeply understand the reasoning behind the participants' answers in the questionnaire. Then the collected data of those different methods (questionnaire and interviews) could be used for generating theories or building models; so an inductive research approach is also applied to this research.

3.5 The research method

Regarding the instruments used with information credibility, previous studies have used different types of methods, such as experiments (e.g., Shuang, 2013; Shu & Scott, 2014), questionnaire (e.g., Dai & Van, 2017; Jiang et al., 2021) and interviews (e.g., Sussman & Siegal, 2003: Erkan & Evans, 2018). However, one of the observed gaps in the literature on information credibility of social media platforms pertains to data collection methods. Particularly, it was observed that few studies (e.g., Luo et al., 2013 s' study) used a qualitative approach, which allows for in-depth investigation of study phenomena. On the other side, a majority of the studies followed a quantitative approach where it was found that there is a high use of web-based questionnaires as a data collection method, (e.g.,Arumugam & Omar, 2015; Peng et al., 2016; Fard, & Marvi, 2019; Zhang et al., 2020; Cho & Chan, 2021).

In this regard, a systematic review by Khan et al., (2022) revealed a high use of questionnaires for studies of information credibility and social media information adoption. Although such a technique is a useful tool to reach a wide variety of participants, using it as a single method for collecting data has some drawbacks. First, it is possible that people's answers would vary depending on whether they were asked questions in person, over the phone or virtually (Saczynski et al., 2013). Secondly, Evans et al., (2015) suggest that bias may occur when asking participants direct questions or using closed-ended questions with predetermined answers. Thirdly, Hodeib (2021) argued that obtaining a comprehensive view of the participants using a single study method is challenging. It might be difficult to cover each aspect of the research problem through using one tool for collecting data.

To avoid such drawbacks, it is important to develop a detailed plan outlining the research's questions, purpose and objectives and how they can be achieved. In addition, the researcher must specify the population of interest, when, where and how the data will be collected, and how it will be used and analysed. Furthermore, implementing other research methods such as using vignettes within questionnaires, may aid in preventing or reducing participants bias. In other words, rather than asking direct questions, involving participants in hypothetical scenarios as vignettes may encourage them to carefully think and evaluate the situation, resulting in more realistic responses. Moreover, when is it possible, it is recommended to use different data collection methods which "*provide the opportunity for presenting a greater diversity of divergent views*", as stated by Molina-Azorín, (2011). An example of using different data collection methods is following a mixed methods approach which refers to the practise of integrating qualitative and quantitative approaches in a study. Hodeib (2021,p.120) claims that three advantages can be obtained from combining different research methods; "*a more valid research design, more reliable results and a deeper understanding of the investigated phenomenon*". Thus, a more comprehensive understanding of the research problem can be attained through applying mixed approaches. In addition, using mixed methods might help in identifying "*new ways to answer research questions*" or overcoming the weakness or limitations of using a single method (Molina-Azorin, 2016, p.38; Azorín, & Cameron, 2010).

Based on the discussion above and in order to achieve the research objectives, a mixed method design is adopted in the current study. As stated previously, this study has identified two research questions:

(1) Which factors influence adopting health information about COVID-19 among social media platforms users in Saudi Arabia?

(2) How do demographic factors affect adoption of health information among social media platform users in Saudi Arabia?

In order to answer those questions, the following kinds of data are needed: demographic data, social media platforms usage, and factors that influence information credibility on social media platforms. To collect these data, a mixed methods approach specifically an online questionnaire followed by semi structured interviews were used as data collection methods. **Error! Reference source not found.** below shows a summary of the study design.

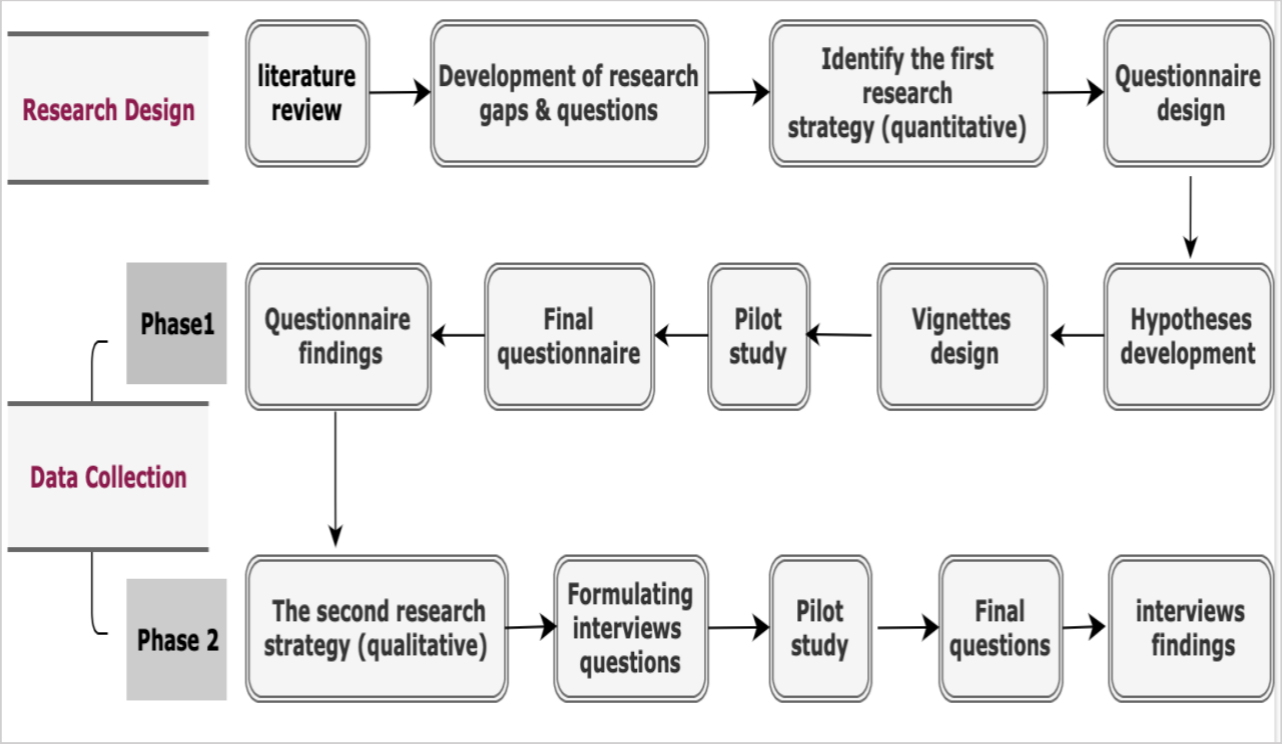

Figure 5: A brief summary of the study design

As seen in **Error! Reference source not found.**, data was collected following two phases: quantitative and qualitative. In the first stage, an online questionnaire incorporating a novel vignette design was used where different sources of information were presented to the participants. Then follow up interviews were conducted to gain a better understanding of the study's findings.

The context of this study is Saudi Arabia; therefore the targeted population was the Saudi social media users (both genders) and aged 18 and up. The participants were reached using the snowball sampling technique for the questionnaire, then follow up interviews were conducted with the same participants. Details of the study methods and sampling are provided in the following sections.

3.5.1 First data collection method: Questionnaire

In the present study, an online questionnaire was used as a first tool for collecting data. The online questionnaire is a method of collecting data by delivering the questionnaire to respondents via the Internet (Saunders et al., 2009). With regards to data collection tools in related studies that discuss information adoption (e.g. Cheung et al, 2008; Shen et al., 2014; Zhu et al., 2016 and Li, 2012), the online questionnaire method was found to be the most frequent method among researchers for collecting data. This might be as a result of the several advantages of online questionnaire, such as reaching a wide variety of respondents, or ease of distributing the questionnaire online via email or social media platforms.

In the current study, the online questionnaire was used as data collection technique for various reasons. First, Saunders et al. (2012) and Benedic & Granjon (2017) consider the online questionnaire as an appropriate method to reach computer literate users such as social media users. As a result, considering that this study is aimed at those who utilise social media, distributing an online questionnaire could be an effective way for reaching participants.

Second, this research aims to target social media users in Saudi Arabia, which is one of the largest countries in the Middle East (Central Intelligence Agency, 2019). According to Saunders et al. (2012), an online questionnaire could be a useful tool for reaching respondents from geographically separated areas. Hence, distributing the questionnaire online might help in reaching as many audiences as possible from different regions in Saudi Arabia.

Third, as pointed out by Saunders et al. (2012), questionnaires could be the most suitable method for examining and interpreting relationships between variables. This could be achieved through using tools such as Likert scales. For instance, participants in the current study could be provided with different sources of information, and then be asked to evaluate the degree to which they would trust those source. Hence, using questionnaire in the current study could help in investigating the significance among factors such as source credibility, information quality and information adoption from social media. Furthermore, the influence of demographic characteristics of the participants on adopting information could be examined.

3.5.1.1 Constructing the questionnaire

Questionnaire construction refers to a set of processes followed in designing the questionnaire measurements, such as identifying questionnaire language, length, question types, and response choices formats (Oosterveld et al., 2019: Adnan et al., 2008). As the current study aims to present a variety of information sources to the participants, a self-administered

questionnaire (see App1) is developed. It was made up of 23 close-ended items and one open-ended question. The close-ended questions are questions that can be answered by choosing from a list of predefined options such as "yes/no", while the open-ended questions are questions that are designed to get a detailed response from the participants without restricting them to specific answers (Vance 2020).

In order to build the questionnaire, the following key constructs are taken into consideration; information quality, source credibility, information adoption and demographic characteristics. As was addressed in the literature review (2.3.2), the following hypotheses were established:

Construct	Hypothesis
Information quality:	
H1. Information quality influences positively on information adoption from social media.	
Source credibility:	
H2. Source expertise has a significant positive influence on information adoption. H3. The verification symbol on social media influences positively on information adoption. H4. Source_receivers being similar in nationality has a significant positive influence on information adoption	
Demographic characteristics:	
H5. Demographic factors are predicted to have a significant influence on information adoption.	

Table 4:The study hypotheses

The first hypothesis is related to information quality which seeks to assess users' perspectives towards the quality of content/ information on social media platforms. The remaining hypotheses concern the demographics, as well as source credibility as they aim to examine how different characteristics of source influence information adoption from social media.

In order to test the hypotheses, the questionnaire was developed. It consists of five sections: 1) the introduction part, which addresses information about the research topic and aim, informed consent of participation and researcher contact information, 2) the demographic characteristics of participants such as age, gender and educational level, 3) the third section contains various questions about use of social media by participants in their daily life, such as the amount of social media usage, 4) the fourth part focuses on the information quality through asking various questions about evaluating information credibility on social media platforms,

and section 5) focuses on the vignette experiments which present different profiles on social media platforms. Details of each sections are provided in the following section. The questions were written in English and then translated into the Arabic language (the target sample language). Then, it was revised by two experts in the Arabic language and translation field from Taif university, Saudi Arabia. After that, various pilot studies were conducted with people representing the study sample from different ages and different educational levels. Their feedback and suggestions were taken into consideration; some of the questions have been modified and new questions were added based on their feedback. Finally, after revising it, the questionnaire was developed electronically using (Qualtrics) software. The Qualtrics platform was used since it has various features *"that allow for a large range of question types, offer customizable designs and appearances for questionnaires, and provide the ability for complex experimental designs (if needed)*" (Assaad, et al., 2022, p.5). Since this study aims to present different vignettes to the participants, Qualtrics software was found a helpful tool that can achieve this aim.

3.5.1.2 Questionnaire items measurements

A) Demographic questions

As discussed in the literature review, information credibility assessment is found to be impacted by the demographic factors of individuals, such as gender, age and educational background. It is assumed that information is likely to be interpreted differently by users from a wide range of backgrounds and demographic characteristics. So, individuals of different ages, gender groups and backgrounds might generate varied opinions about how credible a given piece of information is, and then they would evaluate the credibility of information differently. Therefore, demographic questions were added to the questionnaire, including gender, age, and educational level. The gender item was categorised into male and female, and the age item was grouped into six categories in line with the latest statistics of We Are Social (2020) on using social media by age in Saudi Arabia: 18-24, 25-34, 35-44, 45-54, 55-64 and 65+.

The educational level which was categorised into five categories according to the schooling system in Saudi Arabia: illiterate (no formal education), primary, intermediate, secondary and college or higher (Saudi Ministry of Education, 2020). In addition, participants were asked to indicate the level of experience of using social media, items used are expert, very good, good and beginner. They were also asked about the most used resources for getting health information, which were categorised as websites, news channels, social media and other.

B) Social media usage questions

To measure social media usage, a SONTUS (Social Networking Time Use Scale) scale developed by Olufadi (2016) was used. He categorised the time usage on social media into four groups: Categorical measures of time (e.g., About once a day), time spent per day (e.g., 3–5 hours), daily/weekly diary, and time spent yesterday on social media sites. However, the current study only used the first category and excluded the other categories. The reason is that the second and fourth categories disregard the daily variation of the time spent on social media usage by users, while the third category assumes that the participants wrote down a daily/weekly diary of how they used social media sites (Olufadi, 2016). Therefore, two questions were formulated; **1) How often do you use social media?** which was categorised as: Several times a day, Once a day, 3–5 days a week, Every few weeks and less often (adapted from Auxier & Anderson, 2021), **2) How many years have you used the social media platforms?** which ranged from: More than 2 years, 1-2 years, 6 months- 1 year, Less than 6 months and other (from Raina et al., 2014).

C) Information quality on social media questions

As discussed previously in the literature, it was found that information quality influences positively on information adoption from social media platforms (Jiang et al., 2021 & Effendy & Bakhri, 2022). Characteristics of information as timeliness, accuracy, relevance and completeness were found to influence positively on adopting information from social media platforms (Ogunsola & Ojebola., 2017; Zhang et al, 2020; Shang, 2021).This might indicate that users of social media would adopt information if they found it relevant, up to date and accurate. Therefore, the following hypothesis is proposed:

H1. Information quality influences positively on information adoption from social media platforms

The literature highlighted different dimensions to measure information quality as: timeliness, accuracy, relevance and completeness. So to measure participants' attitudes towards information quality on social media, the following items (in **Error! Reference source not found.**) below, were used.

Construct	Items	Source
Information Timeliness	• In social media, I tend to use the most recent information.	(Wixom &Todd, 2005) (Hsu et al., 2016)

	• In social media, I tend to use information that is available at times of need.	
Information Accuracy	• In social media, I tend to use accurate information.	(Sulaiman et al.,2020)
Information Relevance	• In social media, I tend to use information if it is relevant.	
Information Completeness	• In social media, I tend to use information if it covers my needs.	(Dai & Van, 2017).
Homophily	• I feel more willing to trust information if it comes from people share interests with me.	(Steffes& Burgee,2009).

Table 5: Items of the questionnaire for information quality construct

As shown in **Error! Reference source not found.**, different dimensions used to measure information quality. The first dimension; information timeliness refers to "*the ability to provide information at the appropriate time for its maximum impact*"(Nguyen et al., 2016, p.545). Among researchers, this dimension is measured using different items such as availability of current and up to date information. However, from the users' or information seekers' perspectives, timeliness of information could be also measured by the availability of information at times of need. For instance, a study by Halim et al (2016) found that availability of the needed information was found to have an influential impact on quality of online websites information. Hence, the following item was added: (I tend to use information that is available at times of need) to measure information timeliness beside the item (In social media, I tend to use the most recent information). Then, one item was used to measure the other constructs: accuracy, relevance and completeness, as shown in **Error! Reference source not found.**.

Furthermore, according to DeLone & McLean (2003), information quality could be also affected by another factor called personalisation, which is defined by Liu et al, (2022, p.7) as "*the practice whereby systems utilise information from a certain user (e.g. demographics and preferences) to offer personalized services for the user*". In this regard, Liu et al, (2022) interpreted the concept of personalisation as the "*matching of a message with a user's characteristics, needs, and interests*". A related concept to this matching could be described as the homophily, which simply defined as "*love of the same"* (Oduro, 2018.p.113). In this regard, Steffes and Burgee (2009) study concluded that adoption of information by online users is found to highly affected be the level of similarity with information source. Based on that, it is assumed that social media users would be more likely or prefer to use information if the information provider shares similarities with them. As with timeliness, accuracy, relevance

of information, information quality could be also measured by the homophily status between sender and receiver. Therefore the homophily item was added to the information quality measurements. Furthermore, this item was added to introduce the participants to the homophily concept as it will be also used in the vignettes and the interviews.

After constructing the items as shown in **Error! Reference source not found.**, a Five-point Likert scale (1: strongly agree; 5: strongly disagree) was used with each question (see Appendix 1, part 3). Likert scales are used to measure individuals' attitudes, opinions, feelings, and perceptions about a given statement (Vagias, 2006). Five-point Likert scales, in particular, help "*increase response rates and response quality*" (Babakus and Mangold 1992, p771). They are also considered to be "*less confusing*" tools compared with other Likert scales, and less of the participants' time is consumed in comparing the options and making decisions. Also, a Five-point Likert scales have a middle value such as neutral or unapplicable option which "*accommodate respondents who felt unable to respond to a particular construct*" (Selby, 2004). Some of the questions may not apply to some participants because they are irregular users of social media or other reasons, so the neutral or unapplicable option helps avoid response bias.

E) Vignettes experiments designing

In order to achieve the research aim and examine the factors that influence information adoption from social media platforms, an experimental design (vignettes) has been adopted in this study. Particularly, the hypotheses of the source credibility factor were tested using a vignette-based experiment approach. It is one of the well- established examples of questionnaire experiments, and it is defined as a collection of brief descriptions that can simulate the real world through presenting "*a hypothetical situation that demands action or judgment from the respondents* " (Wason et al., 2002; Evans et al., 2015). It focuses on obtaining the participants' opinions, thoughts, decisions, or 'intended behaviour' toward multiple scenarios (Atzmüller & Peter, 2010, p. 129). In addition, vignette-based experiments can reveal individuals' attitudes and opinions towards a particular issue or event (Pierce, 2000). Hence, using a vignette experiment in this research would aid in examining the attitudes and perceptions of social media users towards the credibility of information. Moreover, Atzmüller et al. (2016) describe vignette experiments as flexible methods for researching because they can be used in different forms (e.g., audio or text vignettes). Hence, implementing this method in this research could help reach the participants by adding/developing vignettes from different sources (e.g., video, audio or text). Furthermore, Evans et al. (2015) and Atzmüller et al. (2016) consider vignette experiments one of the most efficient methods to capture the real world since its questions are built upon realistic situations.

The vignette scenarios in this research were simulated/ built based on an existing situation. Particularly, the vignettes are a set of different profiles for different accounts on social media platforms. Rather than presenting a piece of information to the participants (e.g., published tweet), for which it is assumed that people would evaluate the information based on their past knowledge, the current study focused only on the source characteristics for designing the vignettes. Particularly, different profiles of social media accounts were designed, where each profile contains different information such as the account holder expertise or account purpose. As has been discussed in the literature review, there are three characteristics of source that influence on assessing information credibility in social media: expertise, verification mark and homophily. Through the literature, it is highlighted that these features, expertise, verification mark and homophily, are found to impact people's attitudes towards adopting information from social media platforms. First, previous studies found that individuals are more likely to seek and trust information from verified accounts than unverified accounts (e.g., AlMansour & Iliopoulos, 2015). This indicates that such technical features as verification stamp could have an impact on adopting social media information among social media users. Thus, the following hypothesis has been formulated:

- **The verification symbol on social media influences positively on information adoption.**

Based on the above hypothesis and assuming that the accounts on social media platforms could be verified - has the verification stamp near the account holder, (e.g. blue check) or unverified, hence; the verification feature was used as a main factor for designing the vignettes' patterns. Specifically, two patterns of vignettes were designed: **pattern A** for a verified account, and **pattern B** for an unverified account. Furthermore, studies found that information from homophilous sources that share the same demographics/ interests, is more likely to be used by online users (e.g., Steffes & Burgee, 2009; Bracamonte & Okada, 2015; Hirvonen et al., 2018). So the gender status and the nationality for each account/ profile were defined to investigate if the participants will respond differently if the account holder has the same/ different gender/ nationality. **Error! Reference source not found.** below shows a summary of the vignettes design.

Groups	Patterns		Produced vignettes
	A (Verified account)	B (Unverified account)	
1)Medical expertise	Measurements: medical expertise, same nationality and same/ different gender.		**2 accounts**

2) No medical expertise	Measurements: no- medical expertise, same nationality and same/ different gender.	**2 accounts**
3) Different nationality	Measurements: medical expertise, different nationality and same/ different gender.	**2 accounts**

Table 6:Summary of the designed vignettes (6 profiles)

As shown in **Error! Reference source not found.**, there are three groups of vignettes (profiles) under each pattern: for each group, the following factors were considered for designing the vignettes: the verification feature, expertise, gender type and nationality. Details of each group will be addressed below.

- **Group 1: expertise in medicine:**

As was addressed in the literature, it was found that source expertise is one of the most influential factors on information credibility, usefulness and adopting information among internet users (Ismagilova et al., 2020). Thus, the following hypothesis was formulated:

- **Source expertise is predicted to have a significant positive influence on information adoption.**

Based on the above hypothesis, two profiles of accounts on social media platforms were designed; one is verified and the other one is unverified. Both have a medical expertise and the same nationality as the participants (Saudi). Samples of accounts are shown below:

Figure 6:Samples of two vignettes of medical experts accounts.

- **Group 2: Non-medical expertise:**

In order to make a comparison with group 1, two accounts for non-medical people, both from the same nationality as the participants, were designed. In this regard, the pilot study suggested that people are more likely to trust the verified accounts whether they share similar demographic characteristics with them or not, so here the factors were manipulated by combining the verified account with different gender account, and the unverified account with account from same gender to participants. Samples of accounts are shown below:

Figure 7:Samples of two vignettes of non-medical expert accounts.

- **Group 3: Different Nationality:**

As was highlighted in the literature on the homophily status among internet users and information credibility, it was found that users' attitudes towards accepting information are significantly affected by homophily status/ similarity (e.g., same nationality) among internet users (Bracamonte & Okada, 2015; Al-Qadhi et al., 2015). Based on that, the following hypothesis was formulated:

- **Source_receivers being similar in nationality is predicted to have a significant positive influence on information adoption.**

Based on the above hypothesis, and in order to make a comparison with group 1 (the same nationality accounts), two accounts for non-Saudi people, and both have a medical expertise were designed. Samples of accounts are shown below:

Figure 8:Sample of two vignettes of non-Saudi accounts.

Summary of the designed vignettes

In total, 6 samples of vignettes (6 profiles) were produced. To avoid participants' distractions with various samples of vignettes, the questionnaire was designed in such a way that only two sets of profiles will be shown to each respondent. Vignettes of Group 1 were presented to all participants while those of Groups 2 & 3 were manipulated. For instance, groups 1 and 2 of vignettes were presented to participant A, whereas groups 1 and 3 of vignettes were presented

to participant B. **Error! Reference source not found.** below shows illustrative structure for the designed vignettes.

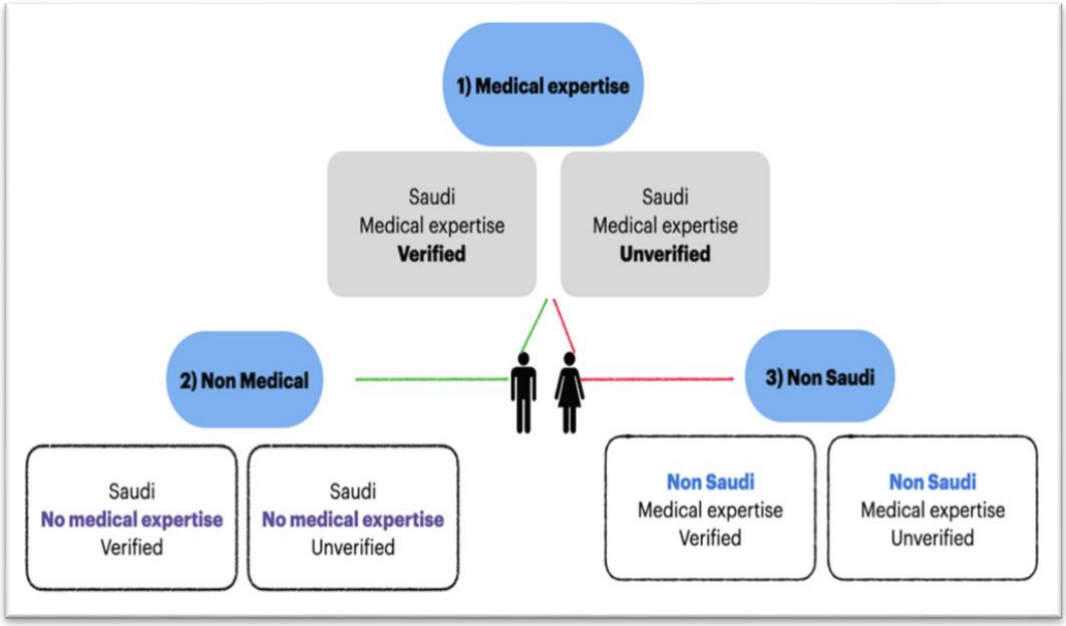

Figure 9:Structure for the designed vignettes (6 profiles) in the experiment.

- **Vignettes questions:**

To measure information adoption of the designed profiles, two dimensions were used: use and trust (e.g., Chen et al.,, 2018; Sussman & Siegal, 2003). The word use refers to "*the action of using something or the state of being used for a purpose*" (Stevenson, 2010, p. 612). So for using information, the word use means the extent to take or apply a perceived piece of information by receivers. Whereas trust is defined as "*confidence in or reliance on some quality or attribute of a person or thing, or the truth in a statement*" (Ibrahim et al., 2010, p.269). So for trusting information, it means the perceiver is willing to rely on or believe the source of a perceived piece of information. In addition, studies revealed that there is an association between use and trust of information (e.g., Heravi & Harrower, 2016; Dobele et al., 2017; Khan & Fatma., 2019). This might indicate that people are more likely to use information if it is provided by sources they highly trust. Based on this assumption, the following questions were formulated to examine adopting the information from the designed vignettes:

1. *How likely are you to **trust** the information provided by this source?*
2. *How likely are you to **use** the information provided by this source?*

Then a scale of 5 points from 1) very likely to 5) very unlikely by (Martin et al., 2016; Goldsmith & Horowitz, 2006) was utilised to measure information trust and use. For the vignettes of group 1: there are 8 items (questions) where variables as (verified/ unverified), (same gender/ different gender) were used for the whole vignettes. For the vignettes of the 2nd and 3rd groups, there are 4 items, as different gender source was combined with the verified account while same gender source was combined with the unverified account. An example of the asked items under vignettes is "*if the account A belongs to a Saudi doctor, he/she has same gender as you, how likely are you to use/ trust the provided information from this source*?".

3.5.2 Second data collection method: Interview

As a second research method, follow up interviews were used for collecting data for this study. It refers to a form of interaction between two people: interviewer and interviewee, to obtain information about a specific topic. The main objective of conducting an interview in research is to get a deeper and better understanding of the studied topic. It also helps the researcher in understanding participants' attitudes, thoughts, knowledge and opinions of the phenomena or topic being investigated. Through interviews, participants can flexibly express their views while the interviewer can get "*immediately received feedback*" from respondents (Simanskiene et al., 2015. P.99). Moreover, unlike quantitative methods (e.g., questionnaires) participants can reveal their perceptions and personal experiences through interviews (Shah & Alvi, 2010), and ask for clarification for vague or unclear questions. Also, the nature of interaction in interviews, especially face-to-face interviews, helps in observing participants' reactions which are hard to measure through using other instruments (e.g., online questionnaire).

Despite the various advantages of using interviews in research, they have some drawbacks. For example, it is time-consuming to conduct interviews, record and transcribe data and analyse findings (Shrestha, 2017; Cairns & Cox, 2008). Moreover, conducting interviews might produce a large amount of data which requires time for analysis and documentation by the researcher (Kaur, 2014). However, these disadvantages can be minimized by following a good time management strategy for transcribing and analysing the data. Also, the researcher should try to take control of the interview to keep it to the agreed timeframe. In fact, it is assumed that the various advantages of utilising interviews as a research method outweigh its drawbacks, as the method might help in providing valuable and rich insights into the research problem. There are different types of interview structures; structured, semi-structured, or unstructured.

Since the current study followed a semi-structured interview approach, it will be discussed separately in the following sections.

3.5.2.1 Semi- structured interview

Semi-structured interview, also known as an in-depth interview (Corbin, 2008), is a combination of the characteristics of structured interviews with those of unstructured interviews. Bloom & Crabtree (2006, P314) defined semi-structured interviews as using "*open, direct and verbal questions*" to gain more detailed information from the participants. They focus on preparing predetermined themes that can help the interviewer to manage the interview in an organized way, rather than focusing on specific questions (Mason, 2002). Therefore, Rubin (2005) & Choak (2012) have described the semi-structured interview as a *"flowing conversation"* between the interviewer and interviewees. Hence, under each theme, there will be planned open-ended questions that are not restricted to specific answers, which gives the participants the full freedom to express their viewpoints about a particular theme. Although this type of interview is guided by a set of prepared themes and questions, those questions might be adjusted, changed or new questions could be added based on the interview's direction and conversation flow (Kajornboon, 2004). Semi-structured interview is considered more suitable for cases or studies requiring more "*follow-up enquiries*" about specific topics, such as understanding the respondents' thoughts of a specific phenomenon (Adams, 2015).

Due to the nature of semi structured interviews, the interviewer needs to cover basic pre-planned themes/ questions, but the order of the questions can vary, or change based on the participants' answers. Hence, each participant might be asked different questions based on his/her answers. However, consistency can be achieved in semi-structured interviews by ensuring that the basic questions are covered by all the participants (Cray, 2017).

A) Advantages of semi-structured interviews

Semi-structured interviews depend on conducting a deep and flexible conversation with the participants; therefore, this type of flexibility in expressing feelings could be considered a strong point of semi-structured interviews for various reasons (Hofisi et al., 2014). Firstly, they give the participants the full freedom to express their opinions on a particular theme. Secondly, they help investigate the underlying motivations behind individuals' decisions (Buytaert et al., 2016). Thirdly, they could lead to getting "*subjective viewpoints*" from the participants (Flick, 2009). Fourthly, they help in uncovering unknown information or issues about the subject under study (Buytaert et al., 2016). Accordingly, they provide the researcher or interviewer with "*rich and detailed*" information about the subject under study (Buytaert et al., 2016).

Moreover, a good feature about semi unstructured interview is that it combines the styles of structured and unstructured interviews. Like structured interviews, questions in semi-structured interviews are predefined, but they are not following a specific order (Naz et al., 2022). This kind of interview provides room for raising/ asking additional questions (follow-up), which might lead to discovering new themes/ knowledge of the topic being studied (Noronen, 2009). It also provides an opportunity for participants to feel free to share their experiences or answer the questions without being constrained to limited answers or options. So participants in semi-structured interviews can freely express their opinions/ views and personal experiences, which is similar to unstructured interviews (Howse, 2010).

B) Disadvantages of semi-structured interviews

Adams (2015) stated the following disadvantages of using semi-structured interviews: they are "*time- consuming, labour intensive and require interviewer sophistication*". Time and effort are required to arrange meetings with the interviewees, record the interviews and summarise the findings. Also, the interviewer needs to have knowledge about the topic under study, besides having good communication and questioning skills for controlling the interview. Thus, a lack of those skills could negatively affect the completion of the interview. Furthermore, although semi-structured interviews are considered to be an effective method for collecting reliable data with effective costs and time, they could produce a huge amount of information which in turn means that more time is required for analysing that information. Hence, it may not be a suitable method for studies that need to be conducted in a short time.

C) Justifications of using semi-structured interviews

The fundamental point of using interviews in this study is to get a deep understanding of participants' responses to the first data collection method (the questionnaire). For example, the questionnaire responses revealed interesting findings regarding the verification mark on social media; where the verified accounts were found to be a credible source of information compared with the unverified accounts. Such findings may suggest that social media users are paying attention to the verification feature on social media. Also, the questionnaire results did not reveal sufficient information regarding social media use as information source by the study participants, and their ways of evaluating information credibility on social media. Therefore, there was a need to seek such information which can be obtained through conducting interviews. Participants need to be encouraged to openly express their opinions/ views regarding the verified accounts on social media and why they think such accounts are believable. Also, further information is needed regarding what types of accounts they are following on social media and how they evaluate the credibility of content on social media.

3.5.2.2 Interview guide and protocol

As mentioned earlier, the follow up interviews were conducted with a subset of the questionnaire participants. The participants had previously participated in the first stage of data collection (online questionnaire) and some gave their approval to participate in the interview. Based on that, a reminder email of the interview was sent to the participants, and they were asked if they are still willing to participant in the study. Also, they were asked to provide a preferred time/ day to conduct the interview.

Then at the early stage of data collection, a reminder email and invitation were sent to the participants before the interview day. On the scheduled date of the interview, each participant was given a consent form to sign and return to the interviewer before conducting the interview. Then, the researcher introduced herself and presented the study's aim and objectives to the interviewee. Also participants were informed about recording and storing the data, and also informed about the process and the expected time frame, which was estimated to take approximately 30-50 minutes. The interviews were held in Arabic and conducted virtually using Zoom software, since it was the most preferred/ suggested platform by the participants.

3.5.2.3 Population of the questionnaire

Howe & Robinson (2019, p.2) defined the study sample or population as "*a subset of the target population that is obtained by sampling from the target population and used to make inference about the target population*". Since this research was conducted in Saudi Arabia, the targeted participants were Saudi social media users (both genders) and aged 18 and up.

Researchers have used a variety of approaches to determine the sample size or the number of respondents to include in the questionnaire, including formulas, software, published tables of sample size calculating, and repeating the sample sizes of previous studies. The sample size for questionnaire was determined using the following methods:

1) **Krejcie & Morgan's sample size calculation:**

For the calculation of the sample size for a given population, Krejcie & Morgan (1970) constructed a sample size table based on the total population. Based on Krejcie & Morgan's sample size calculation, 384 is the minimum number of samples required for a population that exceed 100,000, within 95% confidence level and a 5% margin of error (for social science research). Another table as shown in **Error! Reference source not found.** for calculating the sample size was simplified by Uma Sakaran (2003) based on the confidence level and margin of error. Sakaran consider 384 as the required number for a sample size for population that exceed 100,000.

N	S	N	S	N	S
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	1000000	384

Table 7:Uma Sakaran table for calculating sample size, (2003)

2) Using a statistical software calculator for sample size:

There are various statistical software such as Raosoft, G*Power and PASS to calculate the sample size. Raosoft software is "*a useful statistical software, which allows the researcher to establish the sample size by considering the confidence level, the marginal error, and the total population*" (Geqeza, 2019, p47). Raosoft is a powerful software that determines the required sample size based on 4 factors: "*margin of error, the confidence level, the population and the response distribution*" (Fatoki & Patswawairi, 2012, p.136). Based on using the Raosoft software, with a margin of error (5%), and confidence level (95%), population sample and the response distribution, the recommended sample size for the current study is (385).

3) Referring to related studies to the current study context:

By referring to a study of Baazeem (2020) which was conducted on how the user's religion influences their use of social media. The study was conducted on social media users in Saudi Arabia aged 18 and over. The researcher determined 400 as the sample size based on Isaac & Michael, (1995) & Krejcie & Morgan, (1970).

In conclusion, it was interesting to see that the required number for the sample size was similar across different approaches. Hence based on these different calculations, it may be deduced that a sample size of at least 385 is the required for the questionnaire of the current study.

3.5.2.4 Sampling

Sampling is defined as “the process used to select a portion of the population for study” (Ploeg. 1999. P.36). It refers to a set steps for defining and reaching the targeted population of the study. In this research, sampling was carried out using snowballing technique, which is defined as “the use of existing participants to share study information with other potential participants” (Etowa et al., 2020, p.5). It is a useful strategy that help in reaching as many potential participants as possible through circulating the questionnaire among the targeted audience. Since this study was conducted in Saudi Arabia, the targeted population was Saudi social media users (both genders), aged 18 and up, with a minimum of 385 participants. As was discussed earlier, Saudi Arabia is one of the largest countries in the Middle East, hence it was challenging to reach the targeted audience around the country. Although the questionnaire was posted online on different platforms as Twitter (X) and WhatsApp, the received responses were less than the required sample size. Therefore; in the first phase of data collection (questionnaire), participants were asked to share/ circulate to with their friends and acquaintances.

Since snowball sampling technique mainly stands on using current participants to identify/ recruit other participants, it is criticised for sampling bias and lack representative data (Roberts et al., 2014 & Moore & Cahill, 2013). However, to avoid such bias, the researcher tried to target diverse participants with different characteristics (e.g., age, education...). Also, participants were asked to share the questionnaire even with those with less close relationships, to achieve sample diversity. In addition, Cohen & Arieli (2011) argued that snowball sampling's limitations can be reduced by combining it with other sampling techniques as random sampling, and stratified random sampling.

By the end of the first phase of data collection, the questionnaire was filled out by 397 participants of different ages, educational levels and from both genders. The findings of the questionnaire are discussed in the next chapter. However, after analysing the questionnaire responses, interesting findings were revealed regarding the verification mark on social media for example. Therefore, there was a need to deeply understand the participants’ viewpoints of some of the study dimensions, such as trusting received information from verified accounts and what they think about the verification mark on social media. Therefore conducting in-depth

or follow up interviews with the same participants was needed. Specifically, semi structured interviews were used as a second research method.

For the current study, it is believed that there is an integral relationship between questionnaire and interview in align with the pragmatic design. As discussed previously, the pragmatic paradigm prioritises addressing the research problem using "what works," which led to the choice of a method that could reach sufficient participants efficiently while enabling quantitative and qualitative analysis of the data. Thus, using an online questionnaire as a first research method allows for a convenient data gathering from participants across geographic locations and backgrounds, and facilitating a heterogeneous sample. In addition, using the questionnaire assists in investigating the study's research questions through following a quantitative analysis of the relationships between variables. Also, it helps in collecting quantitative data regarding social media use, participants' preferences of information sources and how they evaluate information quality on social media platforms.

On the other hand, open-ended interviews were conducted in addition to the online questionnaire, which aligned with the pragmatic paradigm's flexible use of methods. The interviews served several purposes; such as collecting qualitative and in-depth exploration of participants' perspectives on key topics like the verification mark and homophily. The open-ended nature of the interviews enables a deeper investigation of the reasoning behind questionnaire responses. Furthermore, the interviews help in capturing attitudinal and emotional reactions that are difficult to fully measure quantitatively, providing richer subjective insights. Finally, employing mixed techniques; including both open-ended interviews and closed-ended questionnaires, provide complementary strengths, allowing for a thorough investigation of the research problem from many perspectives. The use of mixed methods approach helps in producing generalizable, quantitative and qualitative data, allowing for a more in-depth understanding of the study questions.

Population of the interview

Although there is no specific rule for the required sample size for qualitative studies, researchers agreed upon a range of approximately 20-50 participants (e.g., Al-Busaidi,2008; Vogt et al., 2012; Dworkin, 2012), while Trigwell (2006) stated that a considerable qualitative interview can be achieved by meeting a maximum 30 participants with a length of 60 minutes. Thus, the present study initially settled on 30 participants as a maximum sample size.

There are several determinants of participant number in qualitative studies, such as; interview time, depth, and study purpose (Al-Busaidi, 2008). However, Cronin (2013) argues the

importance of data quality over quantity for qualitative studies. Therefore, researchers and experts used two criteria to decide the needed sample size and achieve data quality in qualitative studies; sufficiency and saturation. **Sufficiency** refers to the number of participants representing the target population (Seidman, 2006). It can be achieved through meeting diverse participants with different characteristics that reflect the actual population (Coetzee, 2020). In the current study, the researcher planned to conduct interviews with participants from both genders, different age groups and different educational levels to achieve data sufficiency. **Saturation** refers to the point when "*the new information does not contribute anything significant to the study*" (Olivas, 2020. p.588). It can be achieved when the study can be replicated and when no "*new data, themes, and coding*" are revealed (Guest et al., 2006 as cited in Fusch & Ness, 2015. p.1409). In the present study, the sampling was stopped when meeting new interviewees did not provide additional information.

In summary, the sample size for the interviews of this study was determined based on the data sufficiency and saturation. It initially targeted 30 participants of different ages, genders and educational levels. In the course of the data collection, the sample number was reviewed to ensure the quality of the data. A decision was made to stop collecting further data after interviewing 23 participants because it was believed that saturation point had been reached since no further new data/ information were revealed from the participants.

3.5.2.5 The demographic characteristics of the interview sample

In the current study, there were general requirements that need to be checked before conducting the interviews. For instance, all the participants must be Saudis (males and females), aged 18+ (the oldest participant available was in the 45-54 age range), and have access to the internet to conduct the interview. The participants had previously participated in the first stage of data collection (questionnaire) and gave their approval to participate in the interview. However, this study initially aimed to interview 30 participants; hence, the selection of participants was based on the number of people who responded to an invitation to participate in the interview.

As seen in **Error! Reference source not found.** below, a total of 23 interviews were conducted with Saudi participants from different demographic characteristics. All the interviewees stated they use social media platforms several times a day. Based on the interviewees profiles, a total of 10 males and 13 females have been interviewed. Most of the participants are from the age group 25–34 with around (10) participants, followed by (9) from the age group 35–44, (3) from the age group 18–24 and only one participant from the age group 45-54. For the educational background, most of the participants have a bachelor's

degree, with a total of 12 participants, followed by 9 participants that have a postgraduate degree and only 2 participants have a secondary education. For level of expertise using social media, most of the participants classified their level as very good (N=15), expert (N=5), and only 3 participants classified their level as good. Lastly, all the interviewees stated they use social media platforms several times a day. For the data anonymity and analysis purposes, each participant was given a unique code as A, B etc as shown in the last column **Error! Reference source not found.**. Also, to identify the gender, (F) letter was added beside the participant code which refers to female and (M) which refers to male.

No	Gender	Age	Education	Level of expertise	ID
1	Male	35-44	Postgraduate	Very good	A_M
2	Female	18-24	Secondary	Very good	B_F
3	Male	25-34	Postgraduate	Expert	C_ M
4	Female	25-34	Postgraduate	Very good	D_F
5	Male	35-44	Bachelor	Very good	E_ M
6	Female	25-34	Bachelor	Very good	F_F
7	Male	35-44	Postgraduate	Very good	G_ M
8	Female	25-34	Postgraduate	Very good	H_F
9	Male	35-44	Postgraduate	Expert	K_ M
10	Male	35-44	Postgraduate	Very good	L_ M
11	Male	25-34	Bachelor	Very good	M_F
12	Male	45-54	Bachelor	Very good	N_ M
13	Female	25-34	Bachelor	Expert	O_F
14	Female	25-34	Bachelor	Very good	P_F
15	Female	18-24	Secondary	Expert	Q_F
16	Female	25-34	Bachelor	Very good	R_F
17	Female	35-44	Postgraduate	Good	S_F
18	Female	18-24	Postgraduate	Expert	T_F

19	Female	35-44	Bachelor	Very good	U_F
20	Male	35-44	Bachelor	Very good	V_ M
21	Male	25-34	Bachelor	Very good	W_ M
22	Female	25-34	Bachelor	Good	X_F
23	Female	35-44	Bachelor	Good	Y_F

Table 8:The interview sample profile

3.5.2.6 Ethical considerations

Ethical considerations are defined as "*the protection of the participants' rights (right to self-determination, right to privacy, right to autonomy and confidentiality, right to fair treatment and right to protection from discomfort and harm), obtaining informed consent and the institutional review process (ethical approval)"* (Sudheesh et al., 2016, p.633). It refers to a set of the followed policies by the researcher/ investigator to protect the above rights of the study participants. Such policies include getting the participants' consent, informing them of the study procedures and how their data will be used and stored. It is an important stage and should be done before collecting data. In the present study, participants were provided with two files: a consent form and a participant information sheet for both interview and questionnaire (see Appendix 4 & 5). The consent form is needed to get the participant's permission to participate in the study, whereas the participant information sheet is used to inform the participants of the study aim, objectives, what their participation will involve and how data will be stored. The following points were addressed for the participants:

- Participants were informed that collected data will be stored electronically on a secure encrypted mobile device, password- protected server or secure cloud storage device.
- Participants were informed about recording the interview, also they were informed that the records will be only used by the researcher for transcribing the answers and will not be shared with anyone else.
- Participants were informed that any personal information will not be transcribed or used in the research. Participants were also informed that any future research or follow-up papers will be written based on the thesis data, and data will be anonymised.
- For the interview, each participant have been given a specific code, so that withdrawing/ referring to their interviews will be easily accessible.
- At the end of the interview, participants were provided with a copy of the interview transcript and were asked to review their answers.

3.5.2.7 *Interview analysis: thematic analysis*

The interviews were analysed following a thematic analysis approach. It is “a method for identifying, analysing and reporting patterns (themes) within data” (Braun & Clarke, 2006, p79). Through this technique, investigator/ analyser can address patterns for collected qualitative data and summarize it in a clear and understandable way. With compared to other approaches, such as discourse analysis and discursive psychology, thematic analysis approach was found to be one of the most used techniques for interpretating qualitative data. For instance, the discourse analysis approach focuses on “studying written or spoken language in relation to its social context, and it aims to understand how language is used in real life situations” (Shamsiddinovna, 2021, p.214). In contrast, the discursive psychology analysis is “a way of focusing on talk and text as social practices” (Potter, 2010 as cited in Mabon, 2013, p.7447). In other words, it aims to examine how peoples’ actions get affected by their ways of talking and writing. On the other side, thematic analysis focuses on interpreting the participants’ answers and categorising them into themes which is unlike the discourse and discursive approaches that mainly focus on analysing the written or spoken language. In this regards, Kirby, (2015, p.49) sees thematic analysis approach as one of the effective methods “in allowing the discovery of phenomena in the data”, while Schroeder et al, (2020) argued that this technique “identifies the themes that emerge as being important to the description and characterisation of a phenomenon”. In other words, it helps in revealing the underlying meaning of participants’ answers, experiences and perspectives. This can be happened through following a deep analysis of the collected data, grouping them into codes and identifying a meaningful themes for them.

According to Braun & Clarke, (2006), there are six phases of thematic analysis; familiarizing oneself with data, generating initial codes, searching for themes, reviewing and defining them and lastly writing the analysis. Each phase is defined in **Error! Reference source not found.** below:

Phase	Description of process
1. Familiarising self with the data	Transcribing data; reading and re-reading the data and noting ideas
2. Generating initial codes	Coding for interesting features of the data, systematically across the data set
3. Searching for patterns and themes	Reviewing codes and beginning to collate these into potential themes across the data set
4. Reviewing themes	Checking whether the data supports the themes i.e. at the level of the coded extracts and across the data set; generating an initial map of themes
5. Defining and naming themes	Refining the thematic map in relation to specific themes and how these link to tell a story; generating clear definition and names of themes
6. Writing the analysis	Selecting vivid extracts to illustrate themes; analysing these in relation to the research questions

Table 9: Thematic analysis phases (source: Braun & Clarke, 2006)

As was addressed above, there were predetermined topics and a set of prepared questions that need to be covered, hence; following a semi-structured interview technique was found to be the recommended and suitable method for this study. An overview of the interview topics and questions are provided in **Error! Reference source not found.**, the interviews questions are provided in (App3).

Topic	Example of questions
Verification mark	• What do you know about the verification mark on social media? • Is there a relationship between verified accounts and information credibility?
Homophily	• When you receive health information from someone on social media, is it more important that this person to be similar/ different from you (e.g., in gender, age, thoughts ..) to trust this information? Why?
Sources of health information	• What kind of sources you used to get information about COVID-19 pandemic?

Social media platforms usage	• What is the most social media platform you used? Why? • Do you see social media as a credible source of health information?

Table 10:An overview of the interview topics and questions

Chapter 4: The Findings

4.1 Data Description of the quantitative method (questionnaire)

This study aims to understand people's attitudes towards using social media as information source among social media users in Saudi Arabia. Specifically, it aims to find which factors influence adopting information from social media platforms. It also examines the influence of different demographic factors as gender, age, and education on adopting information on social media platforms. To achieve this aim, an online questionnaire and semi-structured interviews were conducted. The questionnaire was distributed online through different social media platforms from September to November 2021. By November 2021, the questionnaire was filled out by 397 participants of different ages and educational levels. Then, 23 interviews were conducted. The findings of each method are provided in the following sections.

In this section, frequencies & descriptive statistics for summarizing study variables were calculated: Part 1) for the demographic data, part 2) for social media usage, part 3) for information quality assessment and finally part 4) which about the designed vignettes.

A) Distribution of respondents by gender, age, and education

Table 11 below shows the demographic data off the participants.

Category	Frequency	Percentage
Gender		
Male	200	50.3%
Female	197	49.6%
Age (years)		
18-24	111	28.9%
25-34	135	34.0%
35-44	107	27.9%
45-54	28	7.1%
55-64	15	3.8%
65+	1	0.3%
Educational level		
Primary	1	0.3%
Intermediate	6	1.5%

Secondary	77	19.4%
Bachelor / Diploma	208	52.4%
High studies	105	26.4%
TOTAL	**397**	

Table 11:Descriptive statistics for demographic data

- The demographic characteristics of the participants

It is believed that this is an appropriate sample for this current study, as it includes diverse people of different ages and educational levels. Although different social media platforms were used to try to reach a variety of the participants of different ages and educational backgrounds, the majority of the respondents, around 62 %, were from the age group (18–34), followed by 27% from the age group (35-44), while a few of them from the age group (45-54) with around 7% and only 3% from the age group 55+. This might reveal that the questionnaire was mostly reached and filled by people of a young age. This could be attributed to the high use of social media platforms by people aged 18 to 44 and less by people aged 55+, as found in the latest statistics on using social media in Saudi Arabia (We Are Social statistics, June 2021).

Regarding the educational background, a majority of the participants has a university degree, (Bachelor or Diploma) or higher studies (Master/ PhD) and the rest of them have secondary and intermediate school level. Since most participants are 18 and above, it is assumed that most of them have a university degree (Bachelor/ Master/ PhD). In fact, Pew Research Centre (2015) reported that internet and web-based technologies are highly used by younger generations and people with higher education. Also, studies have shown that online questionnaires are mostly filled out by younger people with a high education level (Barentsz et al., 2014; Mlikotic et al., 2016). This is consistent with the current study sample, where that the majority of participants, approximately 90% are from a young age and around 79% have a higher education level.

While discussing the study sample, it is worth to highlight an important related concept known as “sample representativeness”. It is defined as “the extent to which the studied participants reflect characteristics of the target population” (Watt & Parker, 2020). Scholars have agreed that a sample can be considered representative if it accurately captures the key characteristics of the population being studied, (Chandio et al., 2021; Artiste, 2014). In order to achieve sample representativeness, Elagrebi et al. (2020) & Bos (2017) suggest that employing methods such as following "snowball sampling" and reaching a sizable or adequate sample size. In other words, a larger sample enhances the likelihood of including individuals from various demographics, backgrounds and characteristics, increasing the study population's

diversity and variability. Furthermore, the snowball sampling enables researchers to reach populations that may be difficult to identify or access, which can capture a more diverse range of participants, which in turn enhances the sample's representativeness. These two strategies has been employed in the current study to ensure sample's representativeness, whereas using the snowball technique helped in reaching a sufficient and large sample size (N=397) involving participants of different demographics. In align with the current situation of social media use in Saudi Arabia, the sample is found to be representative of the **current** social media users in Saudi Arabia, and it also reflects the **current** demographic characteristics of Saudi Arabia. Firstly, the sample concludes diverse characteristics of people; both genders, different age groups and different educational levels. Secondly and most importantly, it reflects the current demographic characteristics of the Saudi population. As found by the latest statistics of the General Authority for Statistics (Nov, 2021), the majority of the Saudi population is within the age of 15-54 years which represents 65% of the total population. Another report by Colliers.com (2022) revealed that Saudi Arabia is characterized with a young population where there is a high demand for education among population.

Furthermore, majority of the participants were from the age group (18–44), which align with the latest statistics on using social media in Saudi Arabia. According to We Are Social statistics (June 2021), it was found that, in Saudi Arabia, social media platforms (e.g., YouTube, WhatsApp, Instagram, TikTok…) are mostly used by people aged 18 to 44 with around 51% of the age group 25-34 years, followed by 21% of the age group 18-24 years. Figure 10 below shows the latest statistics on using social media in Saudi Arabia according to the users age groups in January, 2021.

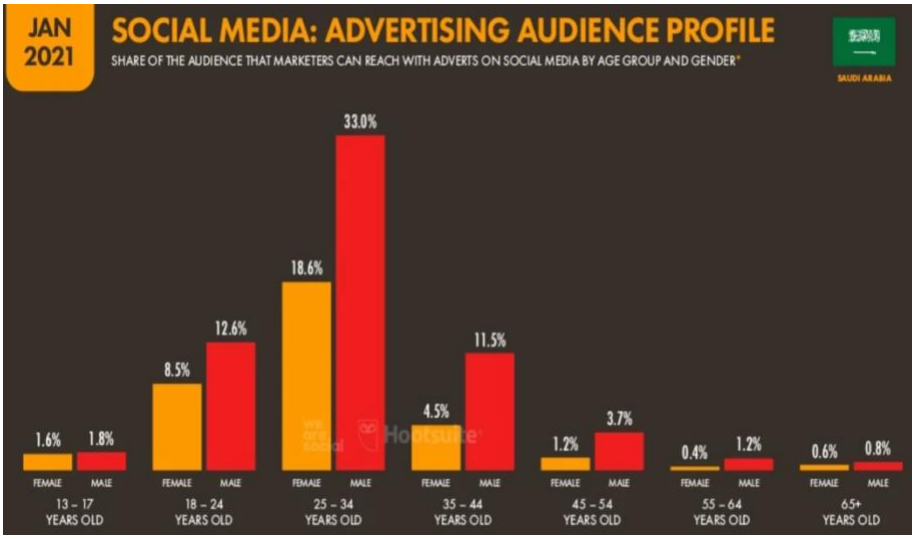

Figure 10:Statistics on social media use in Saudi Arabia according to the age groups, (We Are Social,2021)

Also, according to the latest report by GASTAT in Nov (2021), the number of the current higher education students (Bachelor/ Diploma/ Master/ PhD) in Saudi Arabia in 2021 was around

1,982,722 students enrolled in 42 universities around the country. This number nearly represents 6% of the total population which approximately 34,813,871 people. However, it is assumed that the sample of the current study does not precisely reflect the number of higher education students in Saudi Arabia. This might be due the fact that some of the participants are studying abroad and others are graduates. So, it is assumed that the study sample represents more than 6% of the general population in Saudi Arabia. Also, studies of Barentsz et al., (2014) and Mlikotic et al., (2016) found that participants younger in age and with higher levels of education were more likely to fill out the online questionnaires. This is in accordance with the findings of the current study which found that the majority of participants are of a young age and have a university degree. These findings may be explained by the widespread adoption of computer and internet technologies among people in younger age groups; hence, these individuals considered online questionnaires to be convenient and easily accessible. In addition, higher educated people are aware of the significance of contributing to research and the data collection process; as a result they would like to help other researchers by participating in their studies.

Based on the above discussion, it can be concluded that this research findings cannot be generalised to the whole population in Saudi Arabia. Rather, the sample could be considered a representative sample of the current situation of social media use among Saudis.

B) Distribution of respondents' social media usage

Category	Frequency	Percentage
Years of using social media platforms		
More than 2 years	381	96.0%
1-2 years	11	2.8%
6 months- 1 year	1	0.3%
Less than 6 months	3	0.8%
Other	1	0.3%
Time spent on social media platforms		
Several times a day	378	95.2%
Once a day	10	2.5%
3–5 days/week	4	1.0%
Every few weeks	2	0.5%
Less often	1	0.3%
Other	2	0.5%
Level of expertise using social media platforms		

Beginner	10	2.3%
Very good	60	15.1%
Good	201	50.6%
Expert	126	31.7%
The most used sources as health information sources		
Websites (e.g., google)	285	49.5%
News channels	96	16.7%
Social media (e.g., Twitter)	168	29.2%
Other	27	4.7%
TOTAL	**397**	

Table 12: Descriptive statistics for social media usage

As shown in Table 12, For the period of using social media platforms: a majority of the respondents, around 96%, stated that they have used the social media platforms for more than two years, only 2.8% of respondents stated that they have used social media platforms between a year and two years. Regarding the time spent on using social media, 95% of respondents stated that they often use social media platforms several times a day, only 2% of respondents stated that they often use social media platforms about once a day. Regarding the level of expertise using social media; 50% of respondents rated their level of expertise in using social media platforms as Good, 31% as Expert, and 15% as Very good. Based on these findings, the sample can be considered experienced in the use of social media.

Lastly, regarding the most used sources as health information sources among participants, 49% of respondents stated that they use websites (e.g., Google), 29% of them chose social media platforms, 16% chose news channels and 4 % of them stated other sources such as referring to advice from friends/ family or consulting specialists or doctors.

C) Information Quality

To test the hypotheses for a non-normal distributed data, Fadhilah & Prasetyo, (2021) recommend using Wilcoxon sign test. This test can be used to “compare individual ordinal questions such as those asking for opinions on understanding the condition, or overall scores if the paired differences are not normally distributed” (Marshall & Marquier, 2016). Specifically, Wilcoxon sign test is used to determine if there is median differences between groups (Anderson et al., 2017). In the current study, the Wilcoxon signed-rank test was utilized to investigate whether the five-point Likert scale scores differed statistically and significantly from the default neutral score of 3.

The following Table 13 summarize the participants' answers to the questions that aim to measure information quality based on five dimensions: timeliness, completeness, relevance, accuracy and homophily (similarity with information source). In the following table, SA refers to Strongly Agree, A= Agree, N=Neutral, D=Disagree and SD= Strongly Disagree.

Items		SA	A	N	D	SD	Sign test
I tend to use the most recent info.	n	161	145	69	16	6	2766**
	%	40.6	36.5	17.4	4.0	1.5	
I tend to use information that is available at times of need.	n	250	124	22	1	0	63**
	%	63.0	31.2	5.5	0.3	0	
I tend to use info. that covers my needs.	n	197	150	35	13	2	1592**
	%	49.6	37.8	8.8	3.3	0.5	
I tend to use info. if it is relevant.	n	225	144	23	4	1	559.5**
	%	56.7	36.3	5.8	1.0	0.3	
I tend to use accurate info.	n	309	70	15	3	0	111**
	%	77.8	17.6	3.8	0.8	0	
In social media I feel more willing to trust info. if it comes from people share similar interests with me.	n	144	157	70	23	3	2843.5**
	%	36.3	39.5	17.6	5.8	0.8	

Table 13:Descriptive statistics for Information Quality

In the current study, the Wilcoxon signed-rank test was utilized to investigate whether the five-point Likert scale scores differed statistically and significantly from the default neutral score of 3. The results of the sign test indicate that there are differences in the participants' attitudes towards the information characteristics on social media platforms. In other words, the results revealed that the median score was lower than 3, suggesting a positive inclination among the responses. Also, the p-value shows the significance difference.

According to the previous table, the results show that:

- There is a positive propensity towards information timeliness (I tend to use the most recent info; I tend to use information that has all necessary data.) where p-value for sign test is less than 0.05. 40.7% of the respondents strongly agree on "I tend to use the most recent info", and 63% of the respondents were strongly agree on "I tend to use information that is available at times of need".

- There is a positive propensity towards information completeness (I tend to use information that covers my needs.) where p-value for sign test is less than 0.05. 49.6% of the respondents strongly agree on “I tend to use information that covers my needs”.
- There is a positive propensity towards information relevance (I tend to use information if it is relevant) where p-value for sign test is less than 0.05. 56.7% of the respondents strongly agree on “I tend to use information if it is relevant”.
- There is a positive propensity towards information Accuracy (I tend to use accurate information) where p-value for sign test is less than 0.05. 77.8% of the respondents strongly agree on “I tend to use accurate information”.
- There is a positive propensity towards similarity with information source (In social media I feel more willing to trust information if it comes from people who share similar interests with me.) where p-value for sign test is less than 0.05. 36.3% of the respondents strongly agree and 39.5% agree on “In social media I feel more willing to trust information if it comes from people who share similar interests with me”.

D) Vignettes of group 1

Items		Very Likely	Somewhat Likely	Neutral	Unlikely	Very Unlikely	test
How likely are you to use the provided information by account A? (verified and medical experience and similar in gender and nationality)	n	142	204	26	20	5	3740**
	%	35.8	51.4	6.5	5.0	1.3	
How likely are you to trust the provided information by account A? (verified and medical experience and similar in gender and nationality)	n	66	207	91	27	6	4795.5**
	%	16.6	52.1	22.9	6.8	1.5	
How likely are you to use the provided information by account A? (verified and medical experience and different in gender and nationality)	n	123	193	53	20	8	4372**
	%	31.0	48.6	13.4	5.0	2.0	
How likely are you to trust the provided information by account A? (verified and medical experience and different in gender and nationality)	n	60	207	6	99	25	23921.5**
	%	15.1	52.1	1.5	24.9	6.3	
How likely are you to use the provided information by account B? (unverified and medical experience and similar in gender and nationality)	n	67	159	57	26	88	44130.5**
	%	16.9	40.1	14.4	6.5	22.2	
How likely are you to trust the provided information by account B? (unverified and medical experience and similar in gender and nationality)	n	43	120	148	61	25	10938.5**
	%	10.8	30.2	37.3	15.4	6.3	
How likely are you to use the provided information by account B? (unverified and medical experience and different in gender and nationality)	n	61	143	106	61	26	12700.5**
	%	15.4	36.0	26.7	15.4	6.5	
How likely are you to trust the provided information by account B? (unverified and medical experience and different in gender and nationality)	n	42	108	153	66	28	11641**
	%	10.6	27.2	38.5	16.6	7.1	

Table 14:Descriptive statistics for vignettes of group 1

In the above table, a sign test was used to evaluate participants' attitudes towards adopting information from sources in vignettes of group 1. The results show that:

- There is a positive propensity towards using information from verified & similar in gender and nationality accounts that had medical experience where p-value for sign test is less than 0.05. 35.8% of the respondents were very likely to use this type of account.
- There is a positive propensity towards trusting information from verified & similar in gender and nationality accounts that had medical experience where p-value for sign test is less than 0.05. 52.1% of the respondents were somewhat likely to trust this type of account.
- There is a positive propensity towards using information from verified & different in gender and nationality accounts that had medical experience where p-value for sign test is less than 0.05. 48.6% of the respondents were somewhat likely to use this type of account.
- There is a positive propensity towards trusting information from verified & different in gender and nationality accounts that had medical experience where p-value for sign test is less than 0.05. 52.1% of the respondents were somewhat likely to trust this type of account.
- There is a positive propensity towards using information from unverified & similar in gender and nationality accounts that had medical experience where p-value for sign test is less than 0.05. 40.1% of the respondents were somewhat likely to use this type of account.
- There is a positive propensity towards trusting information from unverified & similar in gender and nationality accounts that had medical experience where p-value for sign test is less than 0.05. 37.3% of the respondents were Neutral to trust this type of account.
- There is a positive propensity towards using information from unverified & different in gender and Nationality accounts that had medical experience where p-value for sign test is less than 0.05. 36% of the respondents were somewhat likely to use this type of account.
- There is a positive propensity towards trusting information from unverified & different in gender and nationality accounts that had medical experience where p-value for sign test is less than 0.05. 38.5% of the respondents were neutral to trust this type of account.

E) Vignettes of group 2

Items		Very Likely	Somewhat Likely	Neutral	Unlikely	Very Unlikely	Test
How likely are you to use the provided information by account C? (verified and no medical experience and different in gender and similar nationality)	n	41	79	30	22	10	2392**
	%	22.5	43.4	16.5	12.1	5.5	
How likely are you to trust the provided information by account C? (verified and no medical experience and different in gender and similar nationality)	n	26	60	58	30	8	2225**
	%	14.3	33.0	31.9	16.5	4.4	
How likely are you to use the provided information by account D? (unverified and no medical experience and similar in gender and similar nationality)	n	17	65	41	40	19	4466.5**
	%	9.3	35.7	22.5	22.0	10.4	
How likely are you to trust the provided information by account D? (unverified and no medical experience and similar in gender and similar nationality)	n	11	44	70	42	15	3319.5**
	%	6.0	24.2	38.5	23.1	8.2	

Table 15:Descriptive statistics for vignettes of group 2

In the above table, a sign test was used to evaluate participants' attitudes towards adopting information from sources in vignettes of group 2. The results show that:

- There is a positive propensity towards using information from verified & different in gender and similar nationality accounts that had no medical experience where p-value for sign test is less than 0.05. 43.4% of the respondents were somewhat likely to use this type of account.
- There is a positive propensity towards trusting information from verified & different in gender and similar nationality accounts that had no medical experience where p-value for sign test is less than 0.05. 33% of the respondents were somewhat likely to trust this type of account.

- There is a positive propensity towards using information from unverified & similar in gender and nationality accounts that had no medical experience where p-value for sign test is less than 0.05. 35.7% of the respondents were somewhat likely to use this type of account.
- There is a positive propensity towards trusting information from unverified & similar in gender and nationality accounts that had no medical experience where p-value for sign test is less than 0.05. 38.5% of the respondents were neutral to trust this type of account.

F) Vignettes of group 3

Items		Very Likely	Somewhat Likely	Neutral	Unlikely	Very Unlikely	Test
How likely are you to use the provided information by account E? (verified and medical experience and different in gender and nationality)	n	54	107	30	19	5	1986.5**
	%	25.1	49.8	14.0	8.8	2.3	
How likely are you to trust the provided information by account E? (verified and medical experience and different in gender and nationality)	n	35	93	65	19	3	1468**
	%	16.3	43.3	30.2	8.8	1.4	
How likely are you to use the provided information by account F? (unverified and medical experience and similar in gender and different in nationality)	n	32	91	43	38	11	4131**
	%	14.9	42.3	20.0	17.7	5.1	
How likely are you to trust the provided information by account F? (unverified and medical experience and similar in gender and different in nationality)	n	26	59	82	37	11	3059.5**
	%	12.1	27.4	38.1	17.2	5.1	

Table 16:Descriptive statistics for vignettes of group 3

In the above table, a sign test was used to evaluate participants' attitudes towards adopting information from sources in vignettes of group 3. The results show that:

- There is a positive propensity towards using information from verified & different in gender and nationality accounts that had medical experience where p-value for sign test is less than 0.05. 49.8% of the respondents were somewhat likely to use this type of account.
- there is a positive propensity towards trusting information from verified & different in gender and nationality accounts that had medical experience where p-value for sign test is less than 0.05. 43.4% of the respondents were somewhat likely to trust this type of account.
- There is a positive propensity towards toward using information from unverified & similar in gender and different in nationality accounts that had medical experience where p-value for sign test is less than 0.05. 42.3% of the respondents were somewhat likely to use this type of account.
- For trusting information from unverified & similar in gender and different in nationality accounts that had medical experience where p-value for sign test is less than 0.05. 38.1% of the respondents were neutral to trust this type of account.

4.2 Data analysis

In this section, statistical techniques for checking the study hypotheses were applied. Cronbach`s Alpha was used for measuring reliability, Pearson Correlation coefficient for measuring validity, Kolmgrov-Smirnov for normality test and Mann-Whitney test for measuring the differences in information adoption of the study vignettes. Sign test for measuring information quality in social media platforms. The statistical techniques were conducted in SPSS software.

- **Reliability**

Reliability is defined as "the extent to which a measure yields the same number or score each time it is administered" (Hays & Revicki; 2005; p.25). To measure the reliability of the questionnaire, Cronbach`s Alpha Coefficient is used. It is one of the most widely and effective methods for measuring the correlations between the scale items (Ghrayeb, 2023). In this study, Cronbach`s Alpha Coefficient is used for measuring reliability of the 5-point Likert scale questions. It ranges from 0 to 1, values greater than 0.6 reflect a good reliability while values greater than 0.7 are more favourable (Saunders et al., 2012; Kikiet al., 2020).

Dimensions	Number of Items	Cronbach`s Alpha
Information Quality	6	0.600
Information adoption of (Group 1)	8	0.869
Information adoption of (Group 2)	4	0.839
Information adoption of (Group 3)	4	0.848

Table 17:Cronbach`s Alpha for Reliability

According to the previous table, the numbers show that there is an acceptable degree of reliability of study dimensions: Information Quality, information adoption of vignettes of group 1, 2 and 3, since Cronbach`s Alpha Coefficients are greater than 0.6.

- **Validity**

Validity refers to "the extent to which a concept is accurately measured in a quantitative study" (Heale, & Twycross, 2015; p.66). Pearson correlation coefficient was used for measuring validity. Okonkwo & Ekwueme, (2022; p.112) state that *"Pearson correlation coefficient is a good measure of relationship between two variables, tells us about the nature and strength of the relationship between the study variables*". To analyse the correlations between study constructs for Likert scales questions, Mehboob & Khan (2021) recommended using Pearson correlation coefficient. As the questionnaire of the current study used five-points Likert scale, Pearson correlation coefficient is used. It ranges from -1 to 1, values with sign (+) reflect a positive correlation, 0 reflects no correlation while values with sign (-) reflect a negative correlation (Williams et al., 2020). Values range from 0.1 to 0.4 reflect a weak correlation, 0.4 to 0.6 reflect a moderate correlation, and higher than 0.6 reflects a strong correlation (Swinscow & Campbell, 2002). Correlation test reflects "there is correlation" when P-value <0.05, and "there is no correlation" when P-value >0.05. The item is valid when the correlation coefficient is significant (p-value<0.05) and Pearson correlation coefficient value is higher than 0.4.

1. **Validity of Information Quality scale:**

Items	Pearson Correlation
I tend to use the most recent info.	.584**
I tend to use information that are available at times of need	.626**
I tend to use information that covers my needs.	.636**
I tend to use information if it is relevant.	.601**
I tend to use accurate information.	.418**

In social media I feel more willing to trust information if it comes from people who share similar interests with me.	.569**
**. Correlation is significant at the 0.01 level (2-tailed).	

Table 18:The validity of information quality measurements

According to the previous table, the values of Pearson correlation coefficient show that there is a high validity in the information quality`s items where correlation coefficients are significant (p-value<0.05) and Pearson correlation coefficient value is higher than 0.4.

2. **Validity of vignettes of Group 1:**

Items	Pearson Correlation
How likely are you to use the provided information by account A?	.646**
How likely are you to trust the provided information by account A?	.709**
How likely are you to use the provided information by account A?	.676**
How likely are you to trust the provided information by account A?	.697**
How likely are you to use the provided information by account B?	.721**
How likely are you to trust the provided information by account B?	.848**
How likely are you to use the provided information by account B?	.831**
How likely are you to trust the provided information by account B?	.847**
**. Correlation is significant at the 0.01 level (2-tailed).	

Table 19:Validity of vignettes of group 1

According to the previous table, the values of Pearson correlation coefficient show that there is a high validity in vignettes of group 1's items where Pearson correlation coefficients are significant (p-value<0.05) and higher than 0.4.

3. **Validity of vignettes of Group 2:**

Items	Pearson Correlation
How likely are you to use the provided information by account C?	.809**
How likely are you to trust the provided information by account C?	.823**
How likely are you to use the provided information by account D?	.833**
How likely are you to trust the provided information by account D?	.825**
**. Correlation is significant at the 0.01 level (2-tailed).	

Table 20:Validity of vignettes of group 2

According to the previous table, the values of Pearson Correlation Coefficient show that there is a high validity in vignettes of group 2's items where Pearson correlation coefficients are significant (p-value<0.05) and higher than 0.4.

4. Validity of vignettes of Group 3:

Items	Pearson Correlation
How likely are you to use the provided information by account E?	.806**
How likely are you to trust the provided information by account E?	.772**
How likely are you to use the provided information by account F?	.870**
How likely are you to trust the provided information by account F?	.865**
**. Correlation is significant at the 0.01 level (2-tailed).	

Table 21:Validity of vignettes of group 3

According to the previous table the values of Pearson correlation coefficient show that there is a high validity in vignettes of group 3's items where Pearson correlation coefficients are significant (p-value<0.05) and higher than 0.4.

5. Normality and hypotheses testing for Source Characteristics in the experiments

In this section, the researcher has conducted Kolmgrov-Smirnov tests for checking normality distribution of the data sample. D'Agostino & Stephens (1986) as cited in Alrashoud, 2020, p.89) recommend using Kolmogorov–Smirnov test to check the normality because it is "superior in power for detecting significant deviations from normality". In addition, this test is suitable to test the normality for a large dataset (>50) (Sulaiman & Aprianingsih, 2023). The Kolmgrov-Smirnov test has two hypotheses, the null hypothesis "there is normality" while the alternative hypothesis "there is no normality". The table below show the results of Kolmogorov-Smirnov tests for the study experiments (vignettes).

Items		Statistic	df	p-value	Normality
Information adoption * verification	Unverified	0.138	397	0.000	Not normal
	Verified	0.117	397	0.000	
Information adoption * medical expertise	No-Medical	0.112	182	0.000	
	Medical	0.167	397	0.000	
	Different	0.084	397	0.000	

Information adoption* gender	Similar	0.131	397	0.000	
Information adoption * nationality	Non-Saudi	0.128	215	0.000	
	Saudi	0.167	397	0.000	

Table 22:Kolmogorov-Smirnov test results

According to the previous table, it is notable that there is no normality in adoption variable according to (Verification, Gender, Medical, Nationality) where all p-value <0.05.

Since the sample is large (>50) and the data is not normally distributed, a non-parametric statistics using Mann-Whitney is the appropriate test for measuring differences between samples. According to Benjankar et al., (2016), Mann-Whitney test is one of the most powerful, common and highly used tests to assess the significance difference between the means of two samples. Also, it is recommended for a large set of data (Juszkiewicz, 2004). Hence, to test the hypothesis and investigate if there is significant differences between groups, Mann-Whitney test was carried out to compare the means between different groups.

In the present study, Mann-Whitney test is used for checking the difference in (using / trusting) according to (gender, nationality, medical expertise, verification) accounts in the case of non-normality assumption. This test has two hypotheses, the null hypothesis “there is no difference” while the alternative hypothesis “there is difference”. Based on P-value the researcher may accept the null hypothesis “P-value >0.05” or reject the null hypothesis “p-value<0.05”.

Mann-Whitney test for measuring information adoption for experiments (vignettes of group 1,2 & 3):

In the experiments, the aim was understanding what factors influence peoples’ attitudes towards adopting social media information. There are different factors that might influence people’s attitudes towards adopting social media information on social media platforms. These factors are verification mark, medical expertise, gender similarity and nationality similarity. So a comparison between different groups have been made as following:

- **Comparison 1:** Adopting information from verified accounts with unverified accounts.
- **Comparison 2:** Adopting information from accounts that have medical expertise with accounts that have no medical expertise.
- **Comparison 3:** Adopting information from accounts that have same gender with participants with accounts that have different gender with participants.

- **Comparison 4:** Adopting information from accounts that have same nationality with participants with accounts that have different nationality with participants.

Based on using Mann-Whitney test, the results were as following:

Group		N	Mean Rank	Sum of Ranks	z	p-value
Information adoption * Verification	Unverified	397	346.35	137499.50	-6.302	0.0001
	Verified	397	448.65	178115.50		
Information adoption * Medical expertise	No Medical	182	229.23	41949.50	-6.006	0.0001
	Medical	397	318.74	126540.50		
Information adoption * Gender	Different	397	384.65	152705.00	-1.58	0.113
	Similar	397	410.35	162910.00		
Information adoption * Nationality	Non-Saudi	215	276.84	59520.00	-3.073	0.002
	Saudi	397	322.56	128058.00		

Table 23:Mann-Whitney test for measuring adoption

According to the previous table, the findings of Mann-Whitney test show that:

- **There is a significant difference** in information adoption according to the verification feature (verified) where p-value= 0.0001 <0.05. the mean rank for verified accounts (448.65) is higher than the mean rank for unverified accounts (346.35).
- **There is a significant difference** in information adoption according to the medical expertise (medical) where p-value= 0.0001 <0.05. The mean rank for medical accounts (318.74) is higher than the mean rank for non-medical accounts (229.23).
- **There is no significant difference** in information adoption according to the gender similarity where p-value= 0.113 >0.05.
- **There is a significant difference** in information adoption according to the nationality where p-value= 0.002 <0.05. The mean rank for Saudi accounts (322.56) is higher than the mean rank for non-Saudi accounts (276.84).

6. Relationship among information adoption and demographic characteristics

The next analysis aims to examine the influence of demographic characteristics of the participants on the following types of accounts: verified account, medical expertise account,

same gender account and same nationality account. For this analysis, gender, age, education and frequency of use are used. Since the data have two groups for gender; male and female, the Mann-Whitney test was performed. For the other demographic variables, Kruskal – Wallis test was performed. The Kruskal – Wallis test is one of the commonly used tests for comparing three or more groups for non-normal distributed data (Liu, Y., & Chen, 2012; Halalau & Sanchez, 2018). The Kruskal – Wallis is suitable for the analysis, since it does not require a normal distribution and will help in measuring differences between demographic characteristics and several samples of information adoption. The results will be discussed in the following sections.

6.1 Gender

To measure the differences between gender groups male and female with relation to adopting information from different sources: verified account, medical expertise account, same gender account and same nationality account, the Mann-Whitney test was performed.

Information Adoption	Gender	N	Mean Rank	Sum of Ranks	z	sig
Information adoption *Verification feature	**Male**	200	182.66	36531.50	-2.87	0.004
	Female	197	215.59	42471.50		
Information adoption * Medical expertise	**Male**	200	192.72	38544.50	-1.1	0.26
	Female	197	205.37	40458.50		
Information adoption * Same gender	**Male**	200	186.23	37245.00	-2.243	0.025
	Female	197	211.97	41758.00		
Information adoption * Same nationality	**Male**	200	192.72	38544.50	-1.1	0.269
	Female	197	205.37	40458.50		
	Total	397				

Table 24:Mann-Whitney test for comparing adoption according to gender

According to the previous table, the results show that:

- **There is a significant difference** in information adoption from verified accounts according to gender where p-value= 0.004 <0.05. The mean rank for female (215.59) is higher than the mean rank for male accounts (182.66).
- **There is no significant difference** in information adoption from medical expertise accounts according to gender where p-value= 0.26 >0.05.

- **There is a significant difference** in information adoption from same gender accounts in gender according to gender where p-value= 0.025 <0.05. The mean rank for female (211.97) is higher than the mean rank for male accounts (186.23).
- **There is no significant difference** in information adoption from same nationality accounts according to gender where p-value= 0.269 >0.05.

6.2 Age

To measure the differences between age groups for 18-34 years and more than 35 years old with relation to adopting information from different sources: verified account, medical expertise account, same gender account and same nationality account, the Kruskal –Wallis test was performed. According to the age groups of the participants, the number of participants was small in some categories (e.g.,55-64) and high in other categories as (e.g.,18-25). Therefore, for the analysis purposes, age was grouped into two categories: 18-34 for the first category and 35 and more for the second category.

Adoption	Age	N	Mean Rank	Sum of Ranks	Kruskal Wallis	P-value
Information adoption *verification	18-34 years	246	200.63	49354.50	-0.362	0.717
	35 and more	151	196.35	29648.50		
Information adoption * Medical expertise	18-34 years	246	198.82	48910.00	-0.04	0.968
	35 and more	151	199.29	30093.00		
Information adoption * Gender	18-34 years	246	204.08	50203.00	-1.129	0.259
	35 and more	151	190.73	28800.00		
Information adoption * Nationality	18-34 years	246	198.82	48910.00	-0.04	0.968
	35 and more	151	199.29	30093.00		
	Total	397				

Table 25:Kruskal – Wallis for comparing information adoption according to Age

According to the previous table, the results show that:

- **There is no significant difference** in information adoption from verified accounts according to age where p-value= 0.71 >0.05.

- **There is no significant difference** in information adoption from same gender accounts according to age where p-value= 0.25 >0.05.
- **There is no significant difference** in information adoption from medical expertise accounts according to age where p-value= 0.96 >0.05.
- **There is no significant difference** in information adoption from same nationality accounts according to age where p-value= 0.968 >0.05.
-

6.3 Education

To measure the differences between education level groups for primary, intermediate, secondary, bachelor and postgraduate with relation to adopting information from different sources: verified account, medical expertise account same gender account and same nationality account, the Kruskal–Wallis test was performed.

Information Adoption	Education	N	Mean Rank	Kruskal - Wallis	p-value
Information adoption *verification	Primary	1	367.00	3.64	0.45
	Intermediate	6	185.17		
	Secondary	77	189.54		
	Bachelor	208	197.04		
	Postgraduate	105	209.01		
Information adoption * Medical expertise	Primary	1	386.00	8.58	0.07
	Intermediate	6	128.83		
	Secondary	77	177.54		
	Bachelor	208	205.68		
	Postgraduate	105	203.73		
Information adoption * Gender	Primary	1	389.00	3.16	0.53
	Intermediate	6	188.67		
	Secondary	77	192.06		
	Bachelor	208	199.51		
	Postgraduate	105	201.86		
Information adoption * Nationality	Primary	1	386.00	8.58	0.07
	Intermediate	6	128.83		
	Secondary	77	177.54		
	Bachelor	208	205.68		
	Postgraduate	105	203.73		

Table 26:Kruskal – Wallis for comparing information adoption according to education

According to the previous table, the results show that:

- **There is no significant difference** in information adoption from verified accounts according to education where p-value= 0.45 >0.05.
- **There is no significant difference** in information adoption from same gender accounts according to education where p-value= 0.53 >0.05.
- **There is no significant difference** in information adoption from medical expertise accounts according to education where p-value= 0.07 >0.05.
- **There is no significant difference** in information adoption from same nationality accounts according to education where p-value= 0.07 >0.05.

6.4 Frequency of use (Time spent) on social media

To measure the differences between frequency of use social media with relation to adopting information from different sources: verified account, medical expertise account same gender account and same nationality account, the Kruskal –Wallis test was performed.

Information Adoption	How often do you use social media?	N	Mean Rank	Kruskal - Wallis	P-value
Information adoption *Verification	Several Times a day	378	201.26	3.9	0.63
	Once A Day	10	156.75		
	3-5 Times/week	4	187.00		
	Every few weeks	2	144.25		
	Less often	1	97.00		
	Other	2	112.25		
Information adoption * Medical expertise	Several Times a day	378	200.95	2.6	0.75
	Once A Day	10	153.70		
	3-5 Times/week	4	186.13		
	Every few weeks	2	160.25		
	Less often	1	171.00		
	Other	2	136.00		
Information adoption * Gender	Several Times a day	378	200.87	3.5	0.55
	Once A Day	10	165.20		
	3-5 Times/week	4	177.13		
	Every few weeks	2	158.50		
	Less often	1	229.50		
	Other	2	84.50		
Information adoption	Several Times a day	378	200.95	2.6	0.75

*** Nationality**	Once A Day	10	153.70		
	3-5 Times/week	4	186.13		
	Every few weeks	2	160.25		
	Less often	1	171.00		
	Other	2	136.00		

Table 27:Kruskal – Wallis for comparing information adoption according to social media use

According to the previous table, the results show that:

- **There is no significant difference** in information adoption from verified accounts according to "how often using social media" where p-value= 0.63 >0.05.
- **There is no significant difference** in information adoption from same gender accounts according to "how often using social media" where p-value= 0.75 >0.05.
- **There is no significant difference** in information adoption from medical expertise accounts according to "how often using social media" where p-value= 0.55 >0.05.
- **There is no significant difference** in information adoption from same nationality accounts according to "how often using social media" where p-value= 0.75 >0.05.

7. Relation between trusting and using information from accounts

In this section, simple linear regression was conducted for measuring the effect of trusting information on social media platforms on using this information. Those variables (trust & use) appeared to be correlated, therefore; the simple linear regression is a suitable test to check if the independent variable affects the dependent variable (Devault, 2017). There are three important tests in the regression model:

- **R-Square** is a statistical measure that represents the proportion of explained variance of the dependent variable by the independent variable. Based on P-value the researcher may accept the null hypothesis "P-value >0.05" or reject the null hypothesis "p-value<0.05".
- **F-test** is a statistical test that is used for checking if the model significance by measuring if the independent variable has a significant or insignificant impact on the dependent variable (Biby et al., 2022). Based on P-value the researcher may accept the null hypothesis "P-value >0.05" or reject the null hypothesis "p-value<0.05".
- **T test is used** for assessing the effect of the independent variable on dependent variable. T test has two hypotheses, the null hypothesis "there is no effect" while the alternative hypothesis "there is an effect". Based on P-value the researcher may accept the null hypothesis "P-value >0.05" or reject the null hypothesis "p-value<0.05".

7.1 Relation between trust and use across Group 1

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	5.677	0.417		13.606	0.000
Reg1_Trust	0.734	0.030	0.779	24.723	0.000
R Square = 77.9% , F-value = 611.23, P-value=0.0001					

Table 28:Regression model for experiment 1

According to the previous table, it is notable that

- The model is significant where p-value for F test = 0.001 <0.05.
- There is acceptable goodness of model fit where R-Square = 77.9% which means that the independent variable managed to explain 77.9% of the variations in the dependent variable.

Based on the result, there is a significant effect for trusting information from accounts on using this information where p-value for t test = 0.0001 <0.05. Any increment in trust by one unit will cause increment in use by 0.734 unit where unstandardized coefficient =0.734.

7.2 Relation between trust and use across Group 2

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0.764	0.262		2.921	0.004
Reg2_Trust	0.949	0.040	0.871	23.823	0.000
R Square = 87.1% , F-value = 567.55, P-value=0.0001					

Table 29: Regression model for experiment 2

According to the previous table, it is notable that

- The model is significant where p-value for F test = 0.0001 <0.05.
- There is acceptable goodness of model fit where R-Square = 87.1% which means that the independent variable managed to explain 87.1% of the variations in the dependent variable.

Based on the result, there is a significant effect for trusting information from accounts on using this information where p-value for t test = 0.0001 <0.05. Any increment in trust by one unit will cause increment in use by 0.949 unit where unstandardized coefficient =0.949.

7.3 Relation between trust and use across Group 3

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.191	0.298		4.004	0.0001
Reg3_Trust	0.888	0.042	0.823	21.153	0.0001
R Square = 82.3% , F-value = 447.45, P-value=0.0001					

Table 30: Regression model for experiment 3

According to the previous table, it is notable that

- The model is significant where p-value for F test = 0.0001 <0.05.
- There is acceptable goodness of model fit where R-Square = 82.3% which means that the independent variable managed to explain 82.3% of the variations in the dependent variable.

Based on the result, there is a significant effect for trusting information from accounts on using this information where p-value for t test = 0.0001 <0.05. Any increment in trust by one unit will cause increment in use by 0.888 unit where unstandardized coefficient =0.888.

7.4 Relation between trust and use across the whole vignettes

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	6.705	0.555		12.072	0.0001
Reg Trust	0.792	0.027	0.831	29.635	0.0001
R Square = 83.1% , F-value = 878.23, P-value=0.0001					

Table 31: Regression model for the whole experiment

According to the previous table, it is notable that

- The model is significant where p-value for F test = 0.0001 <0.05.
- There is acceptable goodness of model fit where R-Square = 83.1% which means that the independent variable managed to explain 83.1% of the variations in the dependent variable.

Based on the result, there is significant effect for trusting information from accounts on using this information where p-value for t test = 0.0001 <0.05. Any increment in trust by one unit will cause increment in use by 0.792 unit where Unstandardized coefficient =0.792.

In conclusion, the results of simple linear regression indicate that trusting an information source has a significant effect on using the information provided by this source. These findings may suggest that once information receivers believe that the information source is trustworthy, they will be more inclined to apply or use the information that was provided by this source.

After analysing the questionnaire, interesting findings were revealed. For example, it was found that there is a positive attitude towards adopting health information from verified accounts on social media. Moreover, the results showed that females are more likely than males to adopt health information from verified accounts on social media platforms. Furthermore, the results indicated that similarity in nationality would positively influence participants' attitudes towards adopting health information. Moreover, no significant differences in adopting social media health information according to the participants age, education and the frequency use of social media. Consequently, it was important to get a comprehensive understanding of the participants' perceptions towards the published health information on social media. For instance, what they think of the verification mark on social media and whether or not they trust published information on verified accounts. Also, there is a need to understand if whether the demographic characteristics of participants influence their attitudes towards perceived health information on social media. These questions required follow-up interviews with the same participants, therefore a second study approach, semi-structured interviews, were employed.

4.3 The findings of the qualitative method (interview)

As was mentioned earlier, an online questionnaire was used as a first data collection method. It was completed by 397 participants of different demographics, and interesting findings were revealed. Therefore, it was needed to conduct follow-up interviews with the same participants, to get a further understanding of the study's findings.

As stated in section (3.5.2.5), semi structured interviews were conducted with 23 participants from different demographic groups. The interviews were conducted from August to November 2022. Collecting data was stopped when data sufficiency and saturation were achieved. In this study, the researcher conducted interviews with participants from both genders, different age groups and different educational levels to achieve data sufficiency. Saturation was reached at a point where new participants failed to provide new information, therefore collecting data was finished after 23 participants were interviewed. After collecting data, a thematic analysis approach was used to interpret the responses of the interviewees. The findings are provided in the following sections.

4.4 Interview analysis

As stated in section **Error! Reference source not found.**3.5.2.7, thematic analysis approach was used to analyse the interviews. Starting with the first phase of thematic analysis approach which is familiarising self with data, the researcher prepared a copy of two files transcripts: Arabic and English files. As mentioned previously, interviews were conducted in Arabic language using Zoom software. After that, recordings of the interviews were transcribed in Arabic and then translated to English. Also as highlighted in the ethics forms, a copy of the original and translated files were shared with two Academic staff to check the accuracy of the transcripts.

The analysis started by inputting each transcript in NVivo software, reading it precisely and taking notes. After that, researcher began with extensively reading each transcript and highlighting words and quotes with different colours. For instance, words like “trust, use, depend, believe, accept and take” were highlighted as they refer to using information or adopting information. Also, words like “Twitter, Instagram and Google” were highlighted as they referred to the platforms used by participants. Such highlighting process helped the researcher in generating initial codes in order to categorising them into themes as shown in Figure 11. After generating the initial codes, another reading of the transcripts was carried out and matching the highlighted words and quotes with codes have been done manually for each interview. Lastly, codes and themes were reviewed and revised in order to write the findings. Figure 11 shows the initial thematic analysis map of codes and themes.

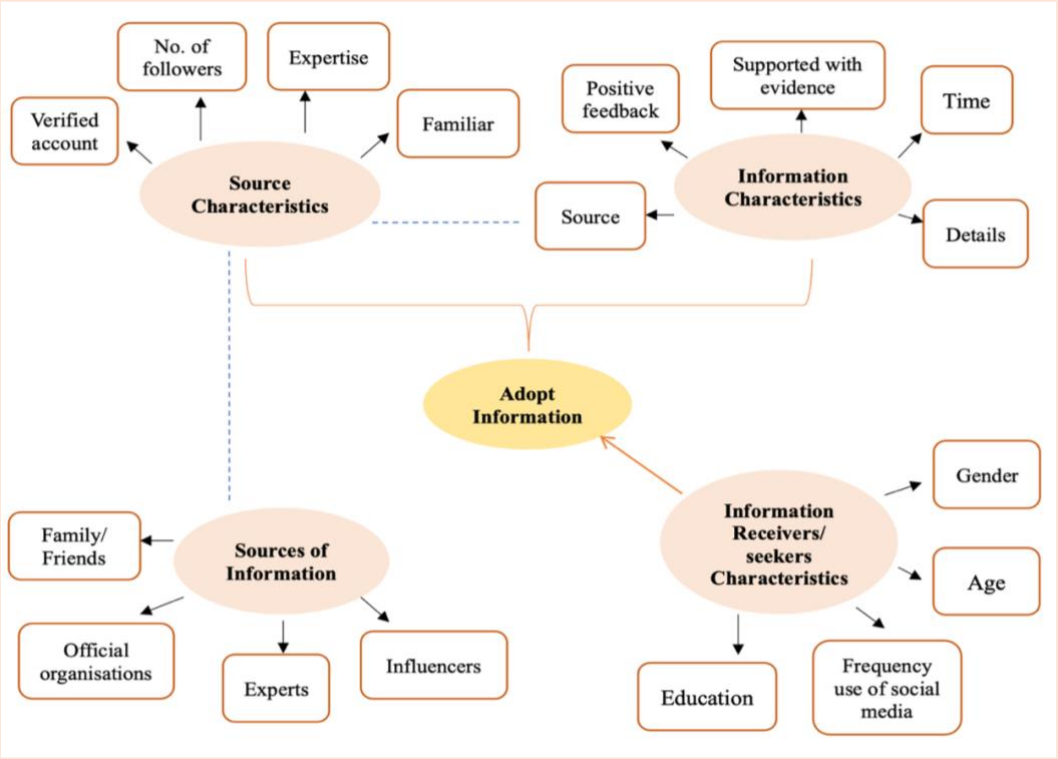

Figure 11: Thematic map of codes and themes

4.5 The interview analysis findings

During the analysis of interviews, interesting findings and new themes emerged regarding adopting information from social media platforms. Based on the thematic analysis, different codes were grouped into different themes and the following themes are developed: (1) sources of health information during COVID-19 pandemic; (2) the most used social media platforms among the participants; (3) the verification mark and verified accounts on social media platforms; (4) source characteristics; (5) information characteristics; (6) sender – receiver similarity in demographic characteristics/ beliefs/ interests and lastly (7) information adoption. The main findings of the interview analysis will be presented in the following sections.

4.4.1 Sources of health information during COVID-19 pandemic

Regarding sources of health information about COVID-19, the participants mentioned official organizations, experts and specialists, verified accounts of doctors, and Saudi doctors on social media platforms. The official organizations, experts and specialists on social media are the most mentioned trustworthy sources among participants. Most of the participants mentioned they trust information from official organizations accounts as Ministry of in Saudi, and the World Health Organisation on Twitter. For instance, one of the participants reported that:

“For me, my main sources during the pandemic were the official sources. I relied on the website of the Ministry of Health, the account of the Saudi Press Agency on Twitter and the Ministry of Interior account on Twitter”, participant (C,M).

Another participant reported that:
“Basically, I relied on the official sources on Twitter, specifically the authorised sites in publishing information about Corona. For instance, the website or account of the World Health Organisation, which I mainly relied on to obtain news or information about Covid-19-”, participant (H,F).

Also another participant reported that:
“In google, I used to check the website of Ministry of Health and take the information from there”, participant (Q,F).

Beside official organizations, one of the participants the spokesman of Saudi Ministry of health as a source of information, he stated that:
“Most sources I relied on were the Ministry of Health website and any statements/ reports made by the Ministry of Health spokesman on Twitter”, participant (S,F).
Regarding the reasons of referring to official organizations, participants mentioned different reasons as following:
“Basically I referred to the official authorities because I know they do not issue a decision until a careful study of the subject or the information they going to publish”, participant (L,M).
Another participant stated that:
“I personally consider the WHO website a reliable source because it belongs to a government agency, not individuals. That gives it more credibility as I feel that government sources will not publish wrong information or mislead people”, participant (H,F).

It is also found that there is a high attitude towards using information from experts and specialists on social media among the study participants. One of the participants said that:
“I may accept the information and take it seriously if the account belongs to someone who is expert or has expertise in a particular field”, participant (E,M).

Another participant stated that:
“Always I try to find accurate information by referring to an official or reliable source such as experts or scientists”, participant (B,F).

Furthermore, some of the participants mentioned that they pay attention to the source specialization and other provided information in his/ her profile on social media. For instance, one of the participants made a comment that:
"I care about the source specialization. For example, I might trust information from doctor being a specialist in epidemiology and viruses if he would publish information about the Corona virus", participant (C,M).

Another participant stated that:
"Frankly when I look for or hear information from a doctor, I go and search about him/her; Who is he? What is his specialty? Where he works? Does he speak in his field or not? For me, when all these qualities are available in the source, yes I follow him and trust his information", participant (M,F).

And another participant stated that:
"One of the accounts I follow a lot and trust was on Instagram. It belongs to a medical expert, and he always posts a lot of medical information from known sources such as related studies or known universities", participant (Q,F).

Beside official organizations and experts, participants reported that they referred to medical sites in google to get additional information about the virus, one of the participants stated that: *"For health information, I go back to some medical sites (e.g., Midwest- med and Oxford University website).* He justified his words saying: *"In these websites there are sufficient organized information that are documented by references or studies of well-known bodies" , participant (N,M).*

It is clear that there is a high level of trust in governmental and authorised sources among the study participants. Also, source expertise is found to have a great impact on adopting information among the study participants. Participants are found to be more likely to trust and use information from experts and medical specialists.

4.4.2 The most used social media platforms among the participants

Among the interviewees, Twitter platform was the most mentioned used platform as information source during COVID-19 pandemic followed by google. The following statements about using Twitter were reported by the participants:

“In fact, I relied only on social media platforms, but Twitter was a main source of information”, participant (M,F).

“I only used Twitter and the verified account such as the Saudi news and Ministry of Health”, participant (R,F).

“Twitter was my first source of information during the pandemic”, participant (U,F).

“During the pandemic I mostly used Twitter . For me Twitter is trustworthy since most of the accounts have the verification mark and also most of the news channels and government organizations have accounts on Twitter ”, participant (V,M).

“I used Twitter frequently. I go back to Facebook and Snapchat but rarely, but in general my main reliance was on Twitter ”, participant (A,M).

“As a source of news and health information, I relied only on Twitter ”, participant (C,M).

“I used Twitter to know the latest developments and news regarding the virus and vaccines”, participant (B,F).

Other platforms as Snapchat, Instagram and YouTube have been also mentioned by the participants. For instance, one of participant stated that:
“In fact, I only rely on YouTube as source of information, I used to follow the accounts of news channels and doctors on YouTube. I did not use other platforms”, participant (O,F).

Another participant said that:
“On Snapchat platform, I followed information published by a doctor who is an expert in his field, an influencer has a large audience and a great interaction with followers. Also, I followed the instructions and recommendations posted by this person”, participant (F,F).

Since it was noticed that Twitter was frequently mentioned by the participants, they were asked about their reasoning for using Twitter. One of the participants stated the reason for using Twitter as following:
“*The reason of relying on Twitter is that doctors originally relied on Twitter as their primary source for reaching the public with compared to the rest of the platforms, Twitter was their first choice. So, I headed in the direction they follow. Also, Twitter has become the official channel*

for transmitting information and reaching the public, even for government agencies", participant (N,M).

Another participant reported that:
"Because it is more popular platforms for us as Saudis. I feel that it is the first communication platform to spread information. Also, through it the information can be accessed quickly at the time of publishing it, I mean, within approximately 10 seconds, the information is reached to a large number of people around the world", participant (A,M).

The features of Twitter such as providing short content, ease of use and variations of information sources were also mentioned as reasons of using it among the participants. For instance, the following statements were reported by the participants:

"The presence of the search box is a very great feature because it leads you to many results from different sources in a short time", participant (M,F).

"I only use Twitter. The reason is that it is characterized by providing the summary of the topic, especially for people who have limited time to search extensively for information. So, Twitter is the fastest way to access to a lot of information from multiple sources in a short or typical time", participant (L,M).

"Social media as Twitter is characterized by the fact that it shortens the topic/ information by providing different points of views, which helps in reaching these different points of view in a short time and in a brief format, as well as the possibility of comparing them", participant (G,M).

"*If we compare Twitter to WhatsApp, we receive news and information via WhatsApp, but we do not know who the main source of the information is. So, we must go and verify its credibility, But Twitter delivers the information to you from the source of the information itself", participant (M,F).*

"It has become the main source for the advertising and transmission information by most government and news agencies. For example, on Twitter we can find the official account of Ministry of Health in Saudi, the account of the World Health Organisation", participant (H,F).

"During the period of the pandemic, the Twitter interface was mainly dedicated and focused on COVID-19 news around the world. All the recent news appeared in this list/ trends and this contributed to the high use of Twitter during Pandemic period", participant (M,F).

"For me as a person with limited experience in technology, I see that Twitter is an easy-to-use platform and easy to reach specialists or different types of sources", participant (L,M).

The results show that there is a high tendency towards using Twitter among the Saudi population. The popularity of using Twitter among the study population could be also related to Twitter features.

4.4.3 Source Characteristics: 1) the verification mark on social media

The verified accounts on social media refer to accounts that have the verification mark beside the username (e.g., blue check on Twitter (X), Instagram and Facebook or yellow star on Snapchat). The verification feature/ mark was found to be recognizable by the participants and they were found to be familiar with it and aware of its function on social media platforms. It is clear that such signs are a recognizable feature for the sample of the current study. For instance, the following statements were reported by the participants:

"It attracts me more, it assures that the account is real, and its identity has been verified", participant (N,M).

"The idea of the verification mark is that the platform management does not give this mark easily until after scrutiny and verification of the identity of the person, also they check his interaction with followers and the nature of the content he provides", participant (A,M).

"Yes, I notice it, and I care about it when I receive any information on social media platforms", participant (D,F).

"I notice the verification mark and I know that it is granted to people who provide the account management with a picture of their identity to prove that this person is the actual user of this account., and it is not a fake account", participant (E,M).

"Yes, I notice it, it means that this person behind the account is a known person to the management of the platform. His identity has been verified, and they have or know his personal information", participant (K,M).

"I see it in Twitter, and I know that it is given for people who have a large number of followers", participant (O,F).

"I know that it is given to celebrities or famous people who provide an interesting content to the community", participant (Q,F).

"Of course I notice it, it is important feature since it means the account have been checked by the platform management", participant (W,M).

"It is given to the accounts that have a high interactions with followers and have a high number of followers", participant (X,F).
"I do not know about this mark on Twitter as I do not use Twitter, but I know it is the yellow star in Snapchat", participant (Y,F).

- **Participants' attitudes towards the verification mark and verified accounts**

The findings of the interviews revealed that there is a variation in participants' attitudes towards trusting health information from verified accounts on social media. Female participants were found to be more likely to get affected by such feature. For instance, a female participant said: *"I care about the verification mark; I mean if the account is verified then it will be more trusted for me".* She justified that: *"when the account is verified, the account holder will always make sure and care to publish accurate and credible information that is built on realistic and scientific bases" , participant (T,F).*

Moreover, this participant nearly classified verified accounts as a trustworthy source, she reported that:
"Since the account is verified it will be more closed to seen as trustworthy, I mean the verified account holder will care to appear in a real and credible way for the audiences. He will also try to avoid rumours and fake information", participant (T,F).

Another female participant said that:
"I feel relieved when the account is verified, because through it I can verify that this person is real and not fake", participant (D,F).

Also, another female participant stated that she trusts verified accounts and she said that:
"Because I know that the person is responsible for what he/ she says on social media", participant (U,F).

Furthermore, another female participant stated that she cares of the verification mark when receiving information, she said: "*I check if the account has the verification mark or not"*. She also sees such accounts as a trustworthy source and she justified her words saying: "*It means that the account holders of such accounts are trustworthy, they are not fake and their identity*

is verified, So I be comfortable and know that the account holder is real". She also believed that: "*the account will not get verified if he has no knowledge in his filed", participant (R,F).*

On the other side, only two male participants stated that they would trust verified accounts and they justified that as following:
"Because I know the account does not get verified if the information it publishes is incorrect", participant (W,M).

The other participant said that:
"I don't think someone would lose such a mark that he/she didn't get easily by spreading false information", participant (G,M).

Moreover, the verification mark was found to have a great impact on adopting health information if it is combined with other factors as source expertise and familiarity. One of the participants said:
"I would prefer the presence of this sign, but I do not consider it sufficient evidence of credibility, especially if the account was not previously known to me or not specialized in his/her field", participant (N,M).
Another participant stated that:
"As for health information, I care about other characteristics besides the authentication mark such as expertise, specialization or study field of the person", participant (D,F).
Furthermore, participants were found to care about the verification mark if the account belongs to an official organization, for instance a female participant stated that:
"For sources as the Saudi news account or any account that belongs to a government agency, of course I care about the authentication mark". She justified her words saying: *"as we see nowadays there are many fake accounts, so the authentication mark helps us to distinguish if the account is fake or real", participant (B,F).*

Also a male participant stated that:
"Whenever I receive news from a government account that has an authentication mark, I trust it directly and I do not need to verify it. I know it is a credible source since it belongs to an official body", participant (M,F).

Although few participants mentioned they prefer to use health information from a verified accounts on social media platforms, most of them stated that such feature plays no impact towards adopting health information. For instance, one of the participants said that:

"The presence of the verification mark does not mean that any information that comes from this person is correct information", participant (E,M).

Another participant stated that:
"I do not consider this mark a sufficient evidence of a person's credibility", participant (K,M).

Participants believe that such mark lost its value since it begins to be granted easily to social media users such as celebrities or users who have a large number of followers. One of the participants said that:
"For me in the past, this mark had a great value because it was not granted easily, while now it is given to so many accounts. So now I go back and check the bio or the profile of the person. The authentication mark does not only mean the person's experience, but it might be also granted to anyone who provides a specific content on social media", participant (C,M).

Another participant also said that:
"I am aware of this mark, but for me it is not the first thing that attracts my attention, or I care about it when I receive health information. The reason is that at the present time, this mark has become a product that can be bought, and it can be given to anyone", participant (H,F).
In fact, other characteristics of source were found to have an influential impact on adopting health information among the study participants. The source expertise, reputation and familiarity were reported as more important factors than the verification mark. For instance, the following statements were reported by the participants:
"Yes, the verification mark is very important for me but if the person is an expert and has certificates in his/her field, I naturally trust him/her even if it is not verified", participant (G,M).
"I think if the person is known to me, the verification mark is less important. So, I may accept the information he/ she publishes without the need to verify its credibility", participant (E,M).

"Well the verification mark is not very important for me; I am interested in the account holder itself. There are well-known people who have their social status, such as Dr. xx, but his account is unverified on Twitter. So, as long as the person is known, familiar to us and to the community and has a good reputation, I do not care about the presence of the verification mark next to his/her name", participant (K,M).

"Yes I prefer to be a verified account but if he is a doctor I do not care if the account is verified or not, being unverified does not destabilize my trust in the account", participant (P,F).

“ The presence of the authentication mark is not enough indicator to rely on the person as a source of information. Instead, I care about who the account holder is, and what his/her qualifications are”, participant (S,F).

This was also reported by another participant who stated that:
“I follow a Saudi doctor working at XX University and have been following him for a long time. His account is unverified on Twitter and Facebook, but I know him and know that he is the real owner of the account. So, I trust him, and I never care about the presence of the authentication mark next to his name”, participant (N,M).

It is clear that the participants pay attention to the verification mark on social media platforms, however a high ratio of the participants do not consider it sufficient evidence of credibility. They stated that they would prefer other characteristics of source as source expertise, reputation and familiarity.

4.4.4 Source characteristics: 2) source expertise

As was stated previously, source expertise was found to have a positive influence on adopting health information among the interview sample. When the participants were asked about which characteristics they prefer in the information source, most of them mentioned source expertise and qualifications. For instance, the following statements were reported by the participants:
“I also care about the source expertise, meaning that he is a specialist in his field, especially if I need to consult him about a specific prescription or medicine”, participant (A,M).

“I care about referring to the accounts of medical experts and specialists”, participant (H,F).
“Of course, I care about obtaining health information only from an expert person, a doctor and a specialist in his field”, participant (G,M).

“I care that the website is associated with an official organizations and what is the source expertise; where is he working and does he work or belong to the health sector. Also I care about the person’s qualifications”, participant (F,F).

“The reliable sources that I referred to and relied on were the accounts of experts or anyone who is authorized by the state to provide information to the community”, participant (K,M).

“First of all, I care about the person who said the information; does he have enough experience that qualifies him to say this information?”, participant (S,F).

“I mean when I want to use information related to a specific side, I care that the person has an expertise in this filed, such as qualification”, participant (T,F).

“The person or information source must have an expertise”, participant (U,F).

“I ask experts or people have knowledge in medical field, for instance my brother is a doctor, so I ask him”, participant (X,F).

On the other side, when participants were asked about using perceived health information from nonexperts, most of them stated that they would never use information from a nonexpert or advice from family member/ friends without verifying its credibility. The following statements were reported by the participants:

“It is impossible to take health information from a person who does not have any experience in the health field”, participant (G,M).

“Of course no, I do not believe it and I always try hard to verify its credibility and the any harms might be caused because of this information”, participant (E,M).

“No, even if he mentioned his personal experience or provided a positive feedback, I do not rely on his information, but I go and try to verify it and always I refer to experts who talk about that information”, participant (D,F).

“No, I don't trust it, because a lot of people spread false information without verifying its validity. For example, at the time of the pandemic, some people were providing information either by personal diligence or from unreliable sources, so certainly I do not trust these sources”, participant (G,M).

“Impossible even if it is based on personall experience. The experience may differ from one person to another from one body to another, so taking information based on the personal experiences is wrong and might lead to a very negative results”, participant (M,F).

“Never ... because I care about the person's experience. Receiving information from a person who has no expertise requires me to make an effort to verify its accuracy, so I prefer to go directly to an expert person and take the information from him”, participant (S,F).

“No, unless I asked the doctors about this information”, participant (Q,F).

“I won’t apply this information or use it until I try to verify its credibility”, participant (V,M).

Only three participants stated that they would use the perceived health information from nonexperts or friends. For instance, one of the participants stated that he might use the information if it is provided with a source or reference to the information source, he said:
"If I need information or advice, I ask the person to provide me with the source of the information and I go to verify its credibility", participant (N,M).

Also, other participants stated that they might use the information if it is based on personal experience and the has a positive feedback. Examples of their statements are provided below:
"If the information is based on personal experience, and the feedback was good, so I trust it and use it", participant (Y,F).

"Yes. If I see the result is good then I trust it but only if I know the person", participant (R,F).

"If it is based on past personal experience, I might get influenced and use it", participant (T,F).

Furthermore, one of the participants stated that she might use the information that based on personal experience if it is provided with a rich details and positive feedback. She said:
"It happens sometimes I use the information if the person gives me a lot of details about this information. Right now, I am using a product because I found the reviews about it are so positive. Also, users stated when, how, why they use it. I found a lot of information, so I used it. The result for me was also good so I do not mind use information if the source provides me with a rich and complete details", participant (O,F).

Other preferred source characteristics Beside verification mark and source expertise, participants mentioned various characteristics of sources, such as number of followers on social media, the way of providing content to audiences, source reputation and familiarity and his way of interaction with audiences on social media. For instance, one of the participants stated:
"I also care about the followers number; it should be a large number of followers because for me I think it is impossible for a person to get this huge number of followers if he is publishing false or inaccurate information", participant (A,M).

Another participant reported that:
"Whenever I want to use information I follow trustworthy sources such as known people or someone familiar to the community who have a good reputation", participant (O,F).

Another participant made the following comment:

“The person’s way of presenting and providing the information through using evidence and his ways of dialogue and interaction with the followers, all of these will clarify if this person is skilled and expert in his field or not. If all of these things are available, then yes I trust him and rely on the information he/she publishes ”, participant (A,M).

Another participant mentioned that he contacted a doctor on Twitter and found it a trustworthy source after talking with him, he said that:
“Frankly, I did not know this person, but one of my friends told me about him. When I talked with him I found that he is honest and he knows a lot about his field, so I trusted him”, participant (M,F).

The source familiarity was also found to play a great impact on adopting information, the findings of the interviews revealed that familiarity with the information source might lead users to trust information from this source. Here are examples of the participants’ answers:
“ I used to take information from doctors on Twitter, such as how to deal with the virus, and how to strengthen immunity. They were all doctors, and I knew them before the pandemic. I think I have a strong kind of confidence in such accounts because I followed them for a long time”, participant (N,M).

“If the account is familiar to me such as dr. XX, she is known for me so I trust it immediately”, participant (P,F).
“I know the person and have followed him for a while, and I can discuss with him some information. This plays a big role for me to accept his information and share it with others”, participant (N,M).

4.4.5 Source characteristics: 3) Similarity between information source and seekers

Based on the interviews, there is variation the regarding sender- receiver similarity and adopting health information. Most of the participants mentioned that such similarity does not influence their attitudes towards adopting information. Words as “never, not necessary and I don't care at all” have been said by the participants which show the low influence of sender-receiver similarity on adopting information. Examples of the participants answers are provided below:
“Social media is a big world, everyone has different opinions and beliefs, but on the other hand, some people have a great knowledge in their fields and are very qualified in their specialization. So I do not care about the difference or similarity with the information source. I mean It never affects my attitude toward the information, because I mainly care about the information itself and the source’s qualifications”, participant (H,F).

“I don't care if the information provider is from the same gender, older or younger than me, from the same religion or nationality or not”, participant (A,M).

“No, never. It does not influence my attitude toward using information or health information”, participant (B,F).

“No, it does not affect me. I always receive information from people who were different from me in terms of gender, age, nationality. I was never get affected by the nature of the difference with the source”. He justified his words saying: *“For me the information is something neutral regardless the information source characteristics”, participant (N,M).*

“For health information, no I do not care about the similarity with the source, it does have any influence”, participant (C,M).

“Never. For me the health information does not get affected by the person similarity or difference, ideas or thoughts”, participant (U,F).

One of the participants made the following statement: *“No. Science does not stand on male or female, similar to me or different”.* From her perspective, she believed that:*“ Science is an open world and if I restricted it to similarity I would miss a lot of good information”, participant (X.F).*

On the other side, a few number of participants mentioned that sender- receiver similarity and adopting information might influenced by the information type. On other words, they stated that they might get affected by the sender- receiver similarity if the information is related to **religious or political aspect or marketing**. For instance, one of the participants stated that: *“Depending on the type of information. For example, if it is related to religious or political affairs inside the country, of course I care about that the person, or the source of the information has to be from inside the country”, participant (C,M).*

Another participant said that:
“Yes I care about it but not for the health information. I mean when I want to do shopping or buy something, I prefer to take information from people who think like me, in my age and close to me in thoughts and interests”, participant (Q,F).

Another participant (aged between 25-34) made the following comment:

"For age, yes I prefer to take information form adult people not young, I mean they should be 25+", participant (M,F).

Also, other participants stated that they might get influenced by the source **beliefs** and **thoughts**, one of them said:
"*Of course, it has a great impact. If their beliefs or ideas are different from mine, yes I avoid their information because their ideas or beliefs may affect the nature of the information they provide", participant (G,M).*

Another participant made the following comment:
"I am very interested in that a person is similar to me in ideas and beliefs, I also care about having similar interests between us", participant (D,F).
Moreover, information source's **gender** was also found to have an influence on adopting information for one participant, he justified his answer to the bias affair among gender groups. He said that:
"Gender may affect my attitude toward information. I mean yes some people get affected by their gender and try to publish wrong information about the opposite gender, so I avoid such accounts", participant (M,F).

Furthermore, through conducting the interview, similarity in **nationality** was found to have an impact for some participants, one participant made the following comment:
"Frankly, yes similarity in nationality affects me. Sometimes some people have different personal/religious beliefs and ideas overshadowed by their opinions. So, I try to avoid the information they publish and look for it in other sources", participant (L,M).

Also, another participant made the comment:
"No, I don't care about similarity, but maybe I care about the nationality sometimes. For example, in some countries, people are against a particular vaccine or medicine, although they are doctors and specialists, but they are dominated by tendencies for a particular country or a certain aims. So I try to avoid some information from such people", participant (K,M).

4.4.6 Information characteristics

The participants were asked which characteristics of information might influence their adoption of information. Characteristics as information timeliness, accuracy and clarity were mentioned frequently by the interview sample. For instance, for information timing, the following statements were reported by the participants:

“I care about the timing; it should be up-to-date information”, participant (C,M).

“It should be up to date information that can cover the current situation”, participant (U,F).

“Of course, information should be up to date, I would never go and use old information that has been published a long time ago”, participant (B,F).

“I am interested in the date of the information: when it was published, is it a new information and what are the latest updates/studies regarding this information?”, participant (H,F).
“The time, I mean a recent information”, participant (P,F).

However, information timeliness was found to have no influence for some participants. For instance one of them said that:
“The timing is not very important because most of the information we got about the virus was a recent information. Therefore, I was greatly interested in the source of the information more than the information itself”, participant (E,M).

Another one stated that:
“I do not trust the recent studies, as they did not take a long time to implement”, participant (M,F).

Furthermore, providing a source of the information or adding a scientific reference of the information was frequently reported by the participants. Examples of their statements are provided below:
“If it is a study or research, I would prefer it if they were provided with sources or a link to the study”, participant (C,M).

“I am interested in the date of the information; when it was published? is it new information? What are the latest updates/studies regarding this information?”, participant (H,F).

“I am also interested in the presence of scientific evidence”, participant (M,F).
“It also should be provided with a link or reference to the study/ the source”, participant (D,F).

“I trust the health information when it is provided by experiments or studies. This leads me a lot to adopt the information as a source, or rather, believing this information”, participant (K,M).
“Adding a reference to the source of information that shows where it was taken from and whether it was built on a scientific basis or not”, participant (L,M).

“If the information is supported by logical evidence or based on scientific bases then I believe it, without even needing to verify the source of this information”, participant (V,M).

Beside information timeliness, the source of information was also mentioned by the participants as an important factor for adopting information. Examples of their statements are provided below:

“I care a lot of receiving or reading the information from the source itself than receiving it from someone else. I always go and make sure who is the source of this information”, participant (V,M).

“According to the information source itself. For example, the information may have been transmitted by a government agency, or the presence of the source logo such as Ministry of Health logo in the information poster”, participant (B,F).

“Is it accurate information? I mean taken from official/ well-known sources”, participant (H,F).

“In general, I care about the source of the information. Once I can trust the source, I trust any information provided by this source”, participant (F,F).

“I am interested in receiving or finding accurate and realistic information from reliable sources, whether specialists or experts”, participant (L,M).

Other participants mentioned information completeness and sufficiency, the following statements are reported by them:

“*I prefer to find a complete information that have a sufficient information. For example, why they recommend using this vaccine? What are the pros and cons”, participant (O,F).*

“The first important thing for me is providing a sufficient and complete information”, participant (G,M).

Accuracy of information also has been mentioned by some participants:

“I care about the accuracy of the information, meaning that it is logical, accurate and correct information”, participant (D,F).

“It should be a rational information; I mean accurate reliable and correct information that I can believe”, participant (M,F).

An interesting characteristic that was mentioned by one of the participants is information transmission, which simply means the extent of sharing information with other. He believed that the more circulation of information among people, the more likely for him to trust it. He said that:
"I remember information as exaggeration in sterilization and washing hands were widely spread among people, whether they were experts or not. So yes I trust it", participant (E,M).

4.4.7 Demographic factors of participants and using social media information

Based on the interviews, interesting findings were revealed regarding the participant age, gender, education, use frequency and level of expertise using social media with adopting information. Through conducting the interviews, it was found that the higher the use frequency of social media platforms, the more awareness people have of processing information and judging source credibility. This point was frequently highlighted by the interview participants. For instance, one of the participants stated that:

"Yes, my awareness changed. The more you read and use the platforms the more you know who to believe and how to cope with the information", participant (T,F).

A male participant aged 35 stated that his awareness of picking information has been changed, when he was asked about trusting information form social media he said that:
"I mean at the beginning of my using of social media; when receiving information from doctors for example, we used to believe it since it comes from a doctor. Now, this thing changed". He justified that his ways of processing information has been changed, and he said that:
"*I mean my awareness is increased now. If I go and look for information I find a lot of different information with different opinions from different sources, this makes me to try to find the main source of information. When we find that the source is trustworthy then of course we take this information", participant (V,M).*

Also, another participant reported that her ways of processing information improved alongside acquiring more education and getting older, she stated that:
"I have been using social media for 12 years. In the past I used to take information, or medical advice from social media. Now with getting older, more educated, more experienced using social media and most importantly being a mom make me more responsible towards picking information. I mean currently, I cannot trust anyone without verifying information or simply contacting a doctor to check the information credibility", participant (P,F).

Also, a bachelor's degree holder participant, aged 45 stated that:
"In the past I used to use published information on social media, but now I am not. I refer to more than one source who talked about the information to make sure that the information is correct. Also, I see the information time, is it new or old information. Also, I look at the references of this information, is it an organization or individual? Now I try to find and go back to the main source of the information before using or sharing it", participant (N,M).

A bachelor's degree holder participant, aged 25 stated that:
"*I am a person with a bachelor's degree, specializing in civil engineering, but it is not necessary for me to be a person working in the health sector or have experience in the field of medicine in order to assess the credibility of the information. I classify myself as a conscious person and I must verify the credibility of the information before I use, publish or trust it. I ask myself, is this information logical? correct? Then I decide to use it or not", participant (M,F).*

Also, one of the participants is aged 45 and reported that:
"I do not have a medical or technical background, but I think I am young enough to verify the information credibility on social media and internet. With the internet, it is easy for me to search for people, whether in their social media accounts or their work sites. For example, if someone mentioned that he works in a hospital, I go and check the hospital website to verify that before using his information". participant (N,M).

Another bachelor's degree holder, in the age group 18-24 mentioned that her bad experience with using social media information made her more cautious about using such information, she said:
" *It happened that I used information based on personal experience and the result was negative for me so that is why I decided to not use any information before verifying its credibility", participant (Q,F).*

A doctoral participant stated that being a specialized person in a medical field helps him in evaluating the credibility of health information on the internet, he said:
"*For me, as a person specialized in medical microbiology, I studied viruses, immunity and microbes. Being in-depth in this field makes me very interested in findings the field of the information source and also I have enough knowledge to determine whether this person is reliable source for me to use the information he publishes or not", participant (L,M).*

Furthermore, through conducting the interviews, differences were found among men and women in regard to processing information. Particularly, it was found that male participants

prefer to directly adopt the information as long as it delivered by an expert or a medical source, while female participants prefer to compare different sources of information before adopting or using this information. For instance, a female participant reported that:
"Sometimes I get health information/ advice from social media platforms, but this never prevents me from verifying its validity by referring to the experts or the official authorised sources as the Ministry of Health website", participant (H,F).

Furthermore, one of the female participants stated that she might use information that is based on personal experience if it is provided with rich details and positive feedback. She said:
"It happens sometimes I use the information if the person gives me a lot of details about this information. Right now, I am using a product because I found the reviews about it are so positive. Also users stated when, how, why they use it. I found a lot of information, so I used it. The result for me was also good so I do not mind using information if the source provides me with a rich and complete details", participant (O,F).
On the other side, a male participant reported that:
"For me, if the verified source has a certificate and high studies in the field, I will take this information and I will be reassured to use this information", participant (G,M).
Also, another male participant reported that:
"When we find that the source is trustworthy then of course we take this information", participant (V,M).

It can be concluded that the high experienced of using social media and internet technology among the study sample lead them to be more aware of adopting information and evaluating its credibility. Furthermore, when compared with men, the female participants were found to like following strategies for evaluating information, such as comparing information from different sources and looking for detailed information before adopting information. Lastly, no significant differences were found according to participants age or education.

4.4.8 Information adoption from a linguistic perspective

During the interview, it was noticed that participants used different words to express adopting information. Words which can be translated as depend, trust, believe, take up, follow, refer, use and accept have been mentioned frequently by the participants. Examples of participants statements are provided below:
"I also <u>followed</u> information published by doctors", "I <u>trusted</u> this information and <u>applied</u> it", and "I <u>trust</u> him/her and <u>rely</u> on the information he/she publishes", participant (A,M).

"I relied on social media also", "I feel comfortable to use and trust the information he published", "I might believe the information", participant (C,M).

"An account belonging to a doctor so that I can take health information from it", "I try to find and go back to the main source of the information before using or sharing it", participant (N,M).

"One of the accounts I follow, and trust was on Instagram, it belongs to a medical expert",
"I prefer to take information from people who think like me", participant (Q,F).

"I refer to experts", "I relied on Twitter to get information", participant (D,F).

"I cannot take information related to my health from an average person who is not an expert", participant (H,F).

"I was following authorised accounts", "I used Twitter", "My main reliance was on Twitter", "I do not trust the information from celebrities on social media", participant (B,F).

To sum up, information adoption has been expressed differently based on the participants and information users' perspectives. So it is believed that such differences should be taken into consideration among researchers. It is interesting that the used expressions by the participants agreed with the adoption definition of Oxford dictionary which is defined as "*choose to take up, follow, or use*" and Cambridge dictionary which is defined as "*to accept or start to use something new*". Furthermore, it would be a valuable point for researchers who conduct studies on information adoption especially in Arabic language, as the word "adoption" might need clarification from some of the participants. Hence, it might be useful to define the word adoption for participants as "use or accept", to make it simple and clear for them.

Chapter 5: Discussion

The current study aims to understand people's attitudes toward using social media as health information source among social media users in Saudi Arabia. Specifically, it aims to find which factors influence positively adopting health information on social media platforms during COVID-19pandemic. This study aims to answer two research questions:

Q1. Which factors influence adopting health information among social media platforms users in Saudi Arabia?

Q2. How do demographic factors affect adoption of health information among social media platform users in Saudi Arabia?

In order to answer the research questions, the discussion is framed as following:

1. Understanding the current situation of social media platforms use in Saudi Arabia.
2. Assessing which characteristics of information quality influence positively on adopting health information about COVID-19 pandemic among social media users in Saudi Arabia.
3. Assessing which characteristics of information source influence positively on adopting health information about COVID-19 among social media users in Saudi Arabia:
    A. *Evaluating the impact of verification feature on social media platforms on adopting health information about COVID-19 among social media users in Saudi Arabia.*
    B. *Evaluating the impact of source expertise on adopting online health information about COVID-19 pandemic among social media users in Saudi Arabia.*
    C. *Evaluating the impact of similarity / dissimilarity between information source-receiver on adopting health information about COVID-19 among social media users in Saudi Arabia.*
4. Evaluating the influence of individuals' demographic characteristics on adopting health information about COVID-19 pandemic among social media users in Saudi Arabia.

This study focuses on four dimensions; information adoption, source characteristics, information quality and demographic characteristics. To achieve the study aim, an online questionnaire, followed by semi-structured interviews were conducted. The questionnaire was filled out by 397 participants of different ages and educational levels, while the interviews were done with 23 participants from different demographic groups. The findings of both methods will be discussed in the following sections.

5.1 Understanding the situation of social media use in Saudi Arabia

The findings of the current study showed that social media has high use among the study participants. It was found that the majority of the respondents, around 96%, have been using social media platforms for more than two years. Also, their frequency of using social media was found to be high, where a majority of the respondents (around 96%,) stated that they are using social media several times a day. In addition, Twitter (X) was found to be the most commonly used platform for seeking information, getting news or communicating with experts.

In comparison to reported data on using social media in Saudi Arabia, the sample of the current study appears to be a typical population of social media users in Saudi Arabia. According to the latest statistics report by Statista (2021) it was found that there is a high usage of social media platforms among the Saudi population; and reports confirmed that, Instagram and Twitter were found to be the most used platforms by the Saudi population with around 71% for Twitter and 87% for Instagram.

Furthermore, social media platforms, specifically Twitter (X), and the Saudi Ministry of Health account on social media were mentioned as the most frequently used sources for health information by the participants. These findings are consistent with another local study was conducted in Saudi Arabia and revealed the high use of social media among Saudis to seek health information (Alhaddad, 2018). Also, interesting findings by Alshareef et al., (2021) were found regarding the sources used to obtain information about the COVID-19pandemic. The study was conducted in Saudi Arabia, and revealed that majority of participants referred to social media as a source of information, followed by the website of Saudi Ministry of Health.

From the results of the current study and related studies in using social media in Saudi Arabia, it is possible to draw the conclusion that there is a high use of social media platforms, in particular Twitter, as a source of health information by Saudi population. The high use of social media could be attributed to a number of factors as ease of use and its ability to provide an interactive environment of sources to users (Destiana, 2013 & Omar, 2014). The interactive environment refers to enabling users to share and seek different types of information from different sources in different forms (e.g., audio, video, text, images and hyperlinks). In addition, evidence of relying on social media as an information source during the crisis (e.g., COVID-19 pandemic) has been addressed previously by Veil et al. (2011). This might be attributed to social media features such as information dissemination speed, regularly updateable platforms (Zeng et al., 2016; Veil et al., 2011), the richness of information, free to access and use even by less- experienced users.

Focusing on Twitter, it is characterised with a number of features such as “wide-reaching capacity, simplicity and speed” (Canter, 2020). Other characteristics have been reported by the interview sample of the current study as: providing short content, ease of use, variety of information sources, the profile description and the verification mark. The profile description feature enables users to add personal or occupational information while, at the time of the study, verification mark showed that the account holder identity was verified by the website management. Consequently, it is assumed that the high usage of Twitter among the participants could be attributed to Twitter features, as revealed by the qualitative interviews.

Moreover, the widespread adoption of Twitter (X) as a mean of disseminating information by official organisations is another significant aspect of Twitter. In the recent years, a high number of official organisations around the worlds started utilising Twitter as the main channel for disseminating information/ news. For instance, the account (@who) on different social media platforms as Twitter, Facebook, Instagram and Snapchat, which belong to the World Health Organisation. Through these accounts, populations can get instant updates/ news that are published by a verified and well-known sources. In this regard, and by focusing on Saudi Arabia, Aldekhyyel et al, (2022) claimed that *“the popularity of using Twitter among the Saudi population was one of the drives for the Saudi government to utilise Twitter in sending different communication messages during the COVID-19pandemic”.* It is clear that a significant proportion of the Saudi population relies heavily on the Twitter platform. As a result, the Saudi government has taken note of this trend which prompted it to start using Twitter as a means of disseminating information to the Saudi public. For instance during COVID-19pandemic, Saudi government used official accounts on Twitter to convey updates/ news to the public. Examples of these accounts are the account of the Saudi Ministry of Health (@SaudiMOH), the Minister of Health, Mr. Tawfig AlRabiah (@tfrabiah) and the spokesman of Saudi Ministry of Health, Mr. Mohammed Abdul All (@spokesman_moh).

5.2 The influence of information characteristics on adopting health information

The first research question attempts to investigate the factors that influence positively on adopting health information from social media platforms. Particular attention was paid to two aspects of information credibility: the quality of the information itself, and the characteristics of the information source. Regarding the first factor (information quality), the findings of the current study revealed that characteristics of information/content play a significant influence in participants' use of social media platforms as a health information source. According to the results of the statistical analysis and interviews, timeliness, completeness, relevance and accuracy of information are found to have an influential role in people's attitudes toward adopting health information from social media. Participants have agreed that they tend to use

these factors to assess the information quality on social media platforms. In other words, individuals who are looking for health information are likely to use the information once it is found to be accurate. They interpreted the accuracy of information by the degree to which it is logical e and derived from a scientific or reliable source (e.g., experts, official organisations…). For instance, some participants said that they referred to medical sites (e.g., Midwest- med and Oxford University website),or official sites (e.g., Saudi Ministry of Health) to get additional information about the virus. They also stated that they would prefer to take information if it is built on a scientific basis or supported by scientific experiments. Furthermore, availability of up-to-date information at times of need as well as it is ability to cover information seekers needs are important factors for adopting information from social media platforms.

This finding regarding information characteristics is quite unsurprising, as it is expected that such characteristics might highly influence people's attitudes toward adopting information. These findings are in line with related studies that found the importance of information accuracy, completeness, timeliness and relevance in adopting information from different sources such as online reviews (e.g., Manthiou & Schrier, 2014; Filieri & McLeay, 2015), e-government websites information (e.g., Wangpipatwong et al., 2005), online purchase decisions (Dai & Van, 2017) and social media information (e.g., Shang et al., 2021). For instance, a study by Zhang et al. (2020) was conducted on adopting medical consultations from physicians on the most popular online health community in China called "120 ask.com[6]". These physicians are real people who have been authenticated by the website management. The study found that users' adoption of doctors' responses is significantly affected by the information relevance and completeness. The study also revealed that the longer the time of doctors' replies, the less likely participants were to adopt his/her information, which indicate the importance of information timeliness on information adoption. Another study by Le, (2023) found that adopting and usefulness of online health information was found to be strongly and positively affected by information accuracy, followed by other factors such as timeliness. Furthermore, the findings of Shang et al., (2021) study revealed that providing accurate information had a positive impact on the usefulness of social media health information. The findings of Le, (2023) and Shang et al., (2021) are consistent with the findings of the present study which found that accuracy of information is the strongest predictor of adopting health information from social media platforms among the study participants.

[6] *120 ASK, is a Q&A platform that provides physician user- interactions and enables users to reach physicians from different regions/experiences and areas of specializations.*

From the discussion above, it can be concluded that characteristics of information play a significant influence in participants' use of social media platforms as a health information source. Providing accurate, logical, correct information that can cover the seekers' needs are important factors for adopting social media health information. Thus, it shows the significance of the information quality dimension as a basic element of information adoption. In addition, such findings might tell that people are paying attention to information characteristics when looking for or seeking information from social media platforms. Therefore, it is important for information provider to take this point into consideration, especially when conveying a health message/ information to the Saudi population.

5.3 The influence of source characteristics on adopting health information

As stated previously, the first research question attempts to investigate the factors that influence positively on adopting health information from social media platforms. This study focused on two factors that were found to influence information adoption: source and information credibility. For evaluating the source credibility, three source characteristics—verification feature, source expertise and sender-recipient similarity—were investigated through the presenting different vignettes (Twitter accounts) to the participants. The findings of each characteristic will be discussed in the following sections.

5.3.1 Verification feature on social media platforms

Verification feature is a visible technical feature on social media platforms, and it appears as a small icon/symbol beside the account name (e.g., a yellow star or blue check). According to Twitter (2017), this feature "is granted to accounts holders whose identity is verified by the site management, and they cannot be granted to fictitious accounts". In Twitter, this feature was initially granted to limited users such as government accounts, influencers and journalists. So, such feature might give privilege to the account holder since it shows that the account belongs to a well-known and real person or organisation. Hence, social media users might rely on such a feature and consider the account as a reliable source of information since it is identity have been checked by the site management[7].

The findings of the current study revealed that, participants of this study are familiar with and aware of the verification mark and its function on social media platforms. It also found that the verification mark feature on social media significantly affected user acceptance of the health

[7] *The present study was conducted in 2020-2022, before and during the latest updates of Twitter where the verification mark became a paid feature, and huge changes were made to this feature by the site management.*

information, and would positively impact the adoption of health information by the participants. The statistical analysis results show that there is a positive attitude among participants towards adopting health information from verified accounts compared to unverified accounts on social media platforms. These findings are in line with other studies (e.g., Morris et al., 2012; Chen et al. 2020) that confirmed the importance of the verification stamp on social media in evaluating information credibility. For instance, the findings of Chen et al.,(2020) study confirmed that individuals are more likely to seek and trust health information from verified accounts compared to unverified accounts. In their study they found that college students are more likely to perform health behaviours such as using flu-vaccination when the information is delivered by verified accounts. A possible explanation of trusting information from verified accounts could be attributed to the "heuristic approach" of information processing. In the heuristic- systematic model, Chen et al (1999) suggested that there are two ways of information processing: systematic processing and heuristic processing. The systematic processing is based on making intensive efforts of deep thinking and comparison before judging information, whereas heuristic processing is based on following simple cues of information judgement (Hingmann, 2020). With the high volume of information disseminated on social media, individuals and social media users may make less efforts to judge information credibility. Hence, they might use cues such as the verification mark as a heuristic indicator of information credibility. In this regard, Gwynn, (2022. P.62) argued that "*because verification on Twitter is represented by a checkmark, some users may associate the feature with credibility without consciously realizing that they are doing so*". This suggest that a correlation between the verification feature and credibility might happen unintentionally among social media users.

However, the interview findings of the current study revealed a variation in the participants attitudes towards trusting health information from verified accounts on social media. Some participants reported that they do care about this mark and find it a credible source, while other stated that they do not see a relationship between source credibility and verification mark. The interview findings revealed that the verification mark plays a great impact on adopting health information if it is combined with other factors as source expertise and familiarity, or if the account belongs to an official organization. On the other side, other characteristics of the source were found to have an influential impact on adopting health information among the study participants. The source expertise, reputation and familiarity were reported as more important factors than the verification mark. Furthermore, the participants believe that the mark lost its value since it began to be granted easily to social media users such as celebrities or users who have a large number of followers. For instance, one of the participants said that:

"For me in the past, this mark had a great value because it was not granted easily. While now it is given to so many accounts. So now I go back and check the bio or the profile of the person. The authentication mark does not only mean the person's experience, but it might be also granted to anyone who provides a specific content on social media", participant (C,M).

Another participant also said that:
"I am aware of this mark, but for me it is not the first thing that attracts my attention, or I care about it when I receive health information. The reason is that at the present time, this mark has become a product that can be bought, and it can be given to anyone", participant (H,F).

These two responses might indicate that the verification mark could have been considered as an important factor in the credibility of social media information. However, it lost its value when "it started to be a product". Nowadays, different social media platforms offered the ability to get the verification mark and the process of getting a verified account is easier than before. For instance majority of the influencers and celebrities around the world have the verification feature (blue check mark) beside their usernames on social media. A high number of these users post different types of information in their accounts regardless their fields and knowledge, which makes the credibility of information on such accounts questionable. Therefore, investigating the credibility of verified accounts on social media platforms was one of the leading questions for conducting the current study.

It is clear that the verification mark would have a great impact on adopting health information when it is combined with other characteristics as source expertise or familiarity. This could suggest that the verification feature adds strength to the account since it shows that it belongs to a real person or institution. However, users of social media need to be aware that being a verified account does not certainly mean the account is a trustworthy and credible source. As was said earlier, nowadays social media users can get the verification mark easily. Therefore, information seekers should pay attention to other characteristics of the source of the information, such as source expertise, qualifications and knowledge.

5.3.2 Source expertise

Another important dimension of source credibility is expertise, which focuses on a set of characteristics of the information source such as knowledge, experiences and qualifications (Rieh, 2010; Metzger et al., 2003). Based on the findings of the present study, it is revealed that receiving health information from a source with a medical expertise would play an important role in adopting this information. Participants of the current study were found to be

more likely to use and trust perceived health information if it is provided by a medical expert source compared to a non-medical source. This finding is quite unsurprising, as it is expected that source expertise would positively impact peoples' attitudes towards adopting information. Also, the findings of the interviews revealed a high positive attitudes among the study participants towards using perceived health information from experts and doctors on social media. On the other side, when participants were asked about using perceived health information from inexperts, most of them stated that they would never use information from inexpert sources or advice from family member/ friends without verifying its credibility.

Based on the current study findings, it is notable that there is a high positive propensity towards using health information from experts and specialist doctors on social media among the study participants. This finding corroborates with the findings of a systematic review on individual behaviours and source characteristics of online information (Ismagilova et al., 2020). Using studies from different countries (e.g., Pakistan, China, USA..), the analysis revealed that source expertise is one of the most influential factors on information credibility, usefulness and adopting information among internet users. Another study of Mun et al., (2013) found that attitudes towards trusting web-based health information are significantly influenced by the perceived expertise of the source. In their study, participants were given information from a variety of sources, including professional and non-professional sources. The participants showed a high level of trust in information perceived to be from professional sources. Moreover, the study found that the source expertise has a significant impact on the information quality of web-based health information, which in turn influences the trustworthiness of this information. Accordingly and based on the findings of the current study and previous studies as Mun et al., (2013), it is noteworthy that delivered information from a professional source as experts may be perceived as high-quality information, leading to an increase in trust in such source.

Furthermore, interesting findings were found from conducting the interviews regarding source expertise on social media platforms. Particularly, it was found that expertise has a significant impact on adopting information when it is delivered by a verified account. In this regard, Lee & Sundar (2013,p.517) claimed that "*individuals seem to use all cues simultaneously for information judgment*". So, it is noteworthy to highlight that evaluating a source's credibility on social media is likely to be influenced by a combination of different factors, such as the verification mark and expertise field. It may also imply that information seekers pay attention to different cues from the information source when evaluating health information credibility on social media platforms. Hence, as with the verification mark, tendency towards trusting information from experts could be also attributed to heuristic information processing. In this

type of information processing, individuals follow simple cues of information processing. In fact, researchers consider source expertise as one of the dimensions of heuristic information cues (Xiao & Chan-Olmsted, 2018; Metzger & Flanagin, 2013). People might evaluate a piece of information as credible and believable when it is provided by someone who has knowledge and expertise in his field (Sundar, 2008). Thus, it is assumed that participants of the current study were following heuristic information processing. They were provided with different characteristics of information source, as verified/ unverified, expert/ non-experts, and Saudi-non-Saudi. They were found to be more likely to follow the visible cues such as source expertise and verification mark to trust or use social media health information. Such findings might indicate that participants pay attention to the source characteristics on social media platforms, such as the verification mark and profile information. Hence, it is suggested that for information providers, especially specialists and doctors, to add their qualifications/ certificates and area of expertise to their profiles on social media platforms. It is possible that, the availability of this information may assist information seekers in evaluating the credibility of the source, which in turn may result in an increase in the source's credibility.

5.3.3 Homophily (similarity / dissimilarity between information source-receiver)

In the present study, participants were asked the following question: " in social media, I feel more willing to trust information if it comes from people who share interests with me". The findings revealed that most of the participants stated that they would look for similarity cues with the information source when seeking information. However, interesting findings were revealed from the experiments (vignettes), when participants were provided with profiles from same gender/ different gender and profiles from Saudi/ non-Saudi. Then, they were asked how likely they are to adopt received health information from each source. The statistical analysis of the experiments revealed that similarity in nationality would positively influence participants' attitudes towards adopting health information, while no significance effect is found for similarity in gender. Participants of the current study are found to be more likely to use and trust perceived health information from Saudi source compared to a non-Saudi source, which is also mentioned by few interviewees.

The findings regarding nationality influence on adopting health information are in accordance with previous studies. According to prior research, information received from a source of the same nationality is found to be more credible and influential in terms of information sharing and believing online reviews (Bracamonte & Okada, 2015; Al-Qadhi et al., 2015). For instance, an empirical study by Bracamonte & Okada, (2015) was conducted on a number of 915 online users in Japan, and aimed to examine the influence of nationality on trusting and using online

feedback. The participants were provided with feedback from Japanese and Thai users, and they showed a high level of trust to information/ feedback from Japanese users. This should be attributed to a cultural dimension called “collectivism”, where the social ties among group/ society members are strong. According to Han & Kim (2018), people from collective cultures are more willing to accept and trust information from in-group members. As stated previously, countries as Japan and Saudi Arabia are classified as collectivist cultures. Hence it is assumed that in such cultures individuals might become reluctant to accept information from unknown or out- society members (e.g., from a different nationality or region). Furthermore, Racherla et al., (2012 as cited in Elsantil et al., 2022) attributed such behaviours to the "anonymous nature of the online environment" which may prompt individuals to seek out additional social cues (e.g., demographic characteristics of the information source) to evaluate information.

Furthermore, the findings of the experiments revealed no significant effect of similarity or dissimilarity in gender on adopting social media health information. The statistical analysis of the questionnaire responses showed no significant difference in adopting health information from similar or different gender. The findings of the current study are in line with the findings of Kamphuis (2017)’s study, which aimed to examine the influence of source’s gender on the perceived credibility of online information. Based on adopting an experimental design and presenting information from a male source and female source to the study sample, the findings of Kamphuis (2017) showed no significant difference between gender of information source and perceived credibility. In this regard, Wolin (2003) argued that the influence of source’s gender on information credibility is highly affected by the study/information context. A possible explanation for that could be related to the experimental context on the current study, which specifically focused on social media health information about COVID-19 situation. It is suggested that during times of crisis (e.g., national pandemic as COVID-19), people may evaluate information based on various cues of source/content other than demographic characteristics. For instance, a study by Olafsson (2021) revealed that information from experts (e.g., scientists, health experts and doctors) were found to be reliable and highly trustworthy sources during COVID-19 crisis. In Olafsson's study, approximately 95% of participants stated that they highly trust information from scientists and health experts about the COVID-19 pandemic. In such times, people prefer to find a reliable, timely and useful information that covers their needs, helps them to avoid panic behaviour and also make decisions about the crisis being faced. Therefore, they refer to people who have more knowledge or expertise in the situation/ crisis being faced, such as experts and scientists regardless of their demographic characteristics.

Although the statistical analysis shown that sender- receiver similarity (in nationality) would influence adopting social media health information, interesting findings were revealed from the interview sample on this matter. The findings revealed that adopting social media health information is less likely to be influenced by the sender- receiver similarity. In the interviews, participants stated that such similarities and differences could affect their attitudes if information is unrelated to health aspect, such as religious or political or marketing information. These findings contradict the results of previous studies, which indicated that sender-recipient similarity (e.g., similar thoughts or health background) positively influences the adoption of health information. For example, Wang et al. (2008) investigated the evaluation and utilisation of health information (cancer related information) on online discussion groups among adult internet users in the United States. Participants were asked questions as "think likes me/ concerns like me/ experiences like me", to examine their attitudes regarding receiving information from sources that shares their thoughts, experiences, and concerns. The study concluded that participants were more likely to adopt and use health information/advice if it is provided by sources that share similarities with them (e.g., same experience or concerns).

Based on the interview findings of the current study, the influence of sender-receiver similarity on information adoption is likely to be impacted by the information type. In other words, the interviews findings revealed that similarity between sender and recipient matters more in the context of religious, political, and marketing information than it does with health information.
It is assumed that people looking for medical information would take into account various characteristics of the information source when evaluating its credibility. In the current study, participants were asked about their attitudes towards health information perceived to be from different sources (medical experts/ non-medical, verified and unverified accounts… etc). It seems that participants of the current study pay more attention to other characteristics of the information source, such as the expertise and verification mark, regardless the similarity/ dissimilarity with the information source.

Just to clarify that, in contrast to the experiments, no significant effect of sender- receiver similarity on adopting health information was found among the interview sample . A majority of interviewees stated that such similarity in gender, age, nationality…etc does not affect their views towards adopting health information. However, by referring to the questionnaires responses of the interview sample, it was noticed that their responses are consistent. In other words, majority of interviewees stated that similarity has no effect on their attitudes of adopting health information which is consistent with their answers in the questionnaire. It is important to highlight that this bias is unintentional, as the majority of the participants who agreed to be interviewed happened to be those who had previously said in the questionnaire similarity

would not influence their attitudes towards adopting health information. Hence, it is presumed that a conclusion cannot be made in this ground until further investigation is carried out. For instance, it is necessary to conduct interviews with individuals who are influenced by sender-recipient similarities when receiving health information. Then the findings can be compared with the results of the current study.

5.3.4 Adopting health information from official government organisations

The findings of the interviews revealed that official government bodies are likely to be used as a trustworthy source of information during COVID-19 pandemic. In addition, delivering health information from scientific references/ websites were frequently stated by the interview sample. Following and seeking health information from official government bodies on social media or scientific websites were repeatedly mentioned by the interview sample. An example of these sources are Saudi Ministry of Health, the Minister of Health in Saudi and World Health Organisation. Referring to official government bodies' accounts on social media as an information source has been also reported by other studies. For instance, a recent local study was done by Alnasser et al., (2020) and aimed to investigate the role and impact of social media on the level of awareness of COVID-19 pandemic. The study was conducted in Saudi Arabia, using an online questionnaire among residents in Saudi Arabia, Saudis and non-Saudis. Their findings reported that most of the participants with around 83% (n=2677 of 3204) mentioned the official government accounts on social media as an information source of COVID-19. Also, another recent study by Almoayad et al, (2021) on using information on herbal treatments among Saudi women revealed that scientific websites are more preferred source compared with other sources such as social media or doctors. The findings of Alnasser et al., (2020) and Almoayad et al, (2021) are alongside with the findings of the current study, which show that there is a positive attitude among Saudis towards adopting health information from governmental organizations and scientific websites. The reason of referring to these sources could be that information in such websites are revised and delivered by well-known bodies such as official organizations or "professional associations" (Tuft Managed Care Institute as cited in Khechine et al., 2008). In addition, Safdari et al. (2022) note that people prefer to seek information from credible sources, so they return to scientific and government organisations as an information source. Trusting scientific, governmental, and official institutions could be also ascribed to what is known as the heuristic approach of information processing, in which individuals follow straightforward indicators of how information is being processed (see 5.3.1, part 2). The proliferation of information across social media platforms from different sources may lead people to make less of an effort to evaluate the information credibility. Hence, they may follow simple cues to assess information credibility, such as

trusting scientific and governmental sources. Therefore, the outcomes of the current study might indicate that participants of the present study were following the heuristic information processing.

Focusing on Saudi Arabia, trusting government organizations by Saudis could be attributed to a culture dimension called “power distance”. It refers to the extent of expecting and accepting the different levels of power. It mainly focuses on the hierarchical levels of power among society. According to Hofstede's insights (2022), Saudi Arabia were classified as one of the highest countries in power distance (score= 72). This score implies that, in such a culture, superiors have more centralization in decision-making and more authority than subordinates. Regarding information credibility and power distance, previous studies suggested that source credibility is significantly impacted by the country's power distance level. For instance, A recent study aimed to explore the influence of source credibility on perception and behavioural intention toward buying GM[8] food online (Sun & Meng, 2022). They study conducted on different samples of internet users by comparing two different cultural contests: China (a high-power distance culture) and the U.S. (a low power-distance culture). The study found that Chinese customers are more likely to trust information from scientists and government-owned units compared to social media influencers and food companies. The reason for that difference is that in high-power distance cultures, the applause of authority figures is high and, therefore, the high influence of authority (Jung & Kellaris, 2006). Whereas in low power distance cultures, individuals are more likely to question the authority figures' validity and hence they are less influenced by them (Hornikx & Hoeken, 2007).

Based on the above discussion, it can be concluded that there is a positive attitude towards health information from authorised and governmental organizations among the Saudi population, which positively influences adopting information from such sources. It is clear that, with the high use of social media around the world, official government bodies employed social media platforms as a tool to publish or disseminate information, updates and news. This could be attributed to the high use of social media by people around the world, which helps governments in reaching audiences easily and directly. The findings of the current study revealed that there is a high use of social media platforms, especially Twitter, as a source of health information among the study sample. Such findings might highlight the importance of

[8] *Genetically modified foods is defined as “organisms in which the genetic material (DNA) has been altered in a way that does not occur naturally by mating and/or natural recombination” (Food Standard Agency, 2018).*

employing social media by official organizations to reach audiences and disseminate health information to the Saudi population.

5.4 The influence of individuals' demographics on adopting information

Another aim of the current study is examining the influence of demographic characteristics of individuals on using and trusting social media health information. Reviewing the literature revealed that there are differences in age, education and gender regarding adopting information. The findings regarding the influence of demographic characteristics on adopting health information of social media platforms are discussed in the following sections.

5.4.1 Age

The findings of the statistical analysis revealed that there is no significant differences in adopting social media health information according to the age of the participants. This finding is quite surprising, as it was expected that adopting health information might be influenced by the information receiver's age. In other words, it was expected that evaluating information credibility and adopting information may differ between younger adults and older people. Previous studies found that the differences in the experiences of individuals in dealing with the internet and social media might vary based on their age, which hence influences information credibility evaluation (e.g., Dutta-Bergman, 2004 & Liao & Fu, 2011). In addition, the findings of Turner et al., (2018) revealed that there is a lack of trust in determining the quality of online health information among older adults aged 60+, while Zhang & Song (2020) argued that older adults tend to have low levels of trust in health information from online sources.

However, the findings of the present study showed that such differences in adopting information do not exist. This finding is in contrast with those results of Liao & Fu, (2014) and Magnezi et al. (2014),who found a significant age differences in assessing the credibility of online health information. Liao and Fu (2014)'s study focused on investigating the difference between older and younger people in evaluating online health information. The study found that older sample as compared to young sample were less affected by customers' reviews or health information on the web than younger people. The study also revealed that older adults were more likely to read the website's content instead of evaluating the websites or the content features as "design look or source identity". Such finding may be explained by the fact that older people, in comparison to younger people, pay less attention to the website's features since they have less experience utilising the internet and technologies. However, these findings of Liao & Fu, (2014) contrast the present study findings which showed that there was

no significant differences in adopting social media health information according to the age of the participants**.**

A possible explanation of the current study findings could be due to the relatively small difference in study participants' age. The questionnaire was mostly filled out by people in the age group of 18 to 44 years, around 90% of the total participants. According to the age classification of the World Health Organisation: people under 45 years old are categorised as young adults. The latest statistics on using social media in Saudi Arabia also reported that social media platforms are mostly used by people of a young age, around 72% of the total social media users (We Are Social, June 2021). It is assumed that people of a young age are more experienced with the social media and internet technology. Hence they are more familiar with website and platforms features and updates and more aware of evaluating information credibility. The high level of experience of social media and internet technology among young adults might lead them to be more aware of evaluating information credibility and adopting information. This point was frequently highlighted by the interview participants, for instance a 45-year-old participant reported that:

"I do not have a medical or technical background, but I think I am ***young*** *enough to verify the information credibility on social media and internet. With the internet, it is easy for me to search for people, whether in their social media accounts or their work sites. For example if someone mentioned that he works in a hospital, I go and check the hospital website to verify that before using his information". participant (N_M).*

It can be concluded that adults with extensive familiarity with social media and internet technology may be more adept at evaluating the credibility of information and adopting it. This finding is in line with Liao & Fu, (2011) study which revealed that level of experience with internet technology among adults and older people impacts their ways of evaluating online health information credibility. Their study found that during credibility judgement, young adults pay a high attention to the website features while older people directly focus on reading the content itself more than the looking at related cues or features of the website. To sum up, although the findings of the current study showed no significant differences in adopting social media information according to the age of the participants, it is suggested that more studies in this regard are still needed. This can be achieved by expanding the study sample to include more respondents from the old age group.

5.4.2 Gender

The findings of the statistical analysis revealed that there are significant differences in adopting social media information according to the gender of the participants. Particularly, it was found that there are gender differences in adopting information from two sources of information: the

verified account and similar gender source. The results of Mann-Whitney test showed that females are more likely than males to adopt health information from verified accounts on social media platforms. Such findings might indicate that platforms' features would play an influential role on adopting the disseminated information on the internet. The influence of website features on trust online information was previously done by Czaia et al, (2009), which found that website features such as "seal of approval" would increasingly influence the level of trust on the information. Moreover, the findings of the present study might suggest that females pay more attention to such features and found verified accounts on social media platform a trustworthy source. This contradicts with Abbas et al., study's (2018) who claimed that there is a lack of familiarity with core technical aspects among females. Indeed, findings of the interviews in the current study revealed that there is a high knowledge and awareness among the female participants of the verification mark on social media platforms.

Women's' awareness of the verification mark on social media platforms might also support the fact that during processing online information, women pay high attention to all the detailed and available information, as been suggested by previous studies (e,g., Immanuel & Merlin, 2022;. Akram et al., 2018). For instance, Immanuel & Merlin (2022) study revealed that female respondents were found to be more concerned with complete information and visual content during processing online information, whereas less useful information was found to be more considered by male respondents. Through conducting the interviews in the present study, such differences were found among men and women in regard to processing social media information. In particular, it was found that while male participants prefer to directly adopt the information as long as it is delivered by an expert or a medical source, female participants prefer to compare different sources of information before adopting or using this information. A female participant reported that:

"It happens sometimes I use the information if the person gives me a lot of details about this information. Right now I am using a product because I found the reviews about it are so positive. Also users stated when, how, why they use it. I found a lot of information, so I used it. The result for me was also good so I do not mind using information if the source provides me with a rich and complete details", participant (O_F).

Another interesting finding is that information from same-gender individuals was found to be more preferred by females. The results showed that females' inclinations towards adopting health information from same gender source are higher than male. These findings are in accordance with those of Steffes & Burgee (2009); Armstrong & McAdams (2009); Borghouts (2015) and Hirvonen et al., (2018) which found a significant impact of gender similarity on information credibility. For instance, the findings of Hirvonen et al., (2018) study revealed that

female users of online forums showed a high level of trust toward perceived health information from same gender sources. Also, Borghouts (2015) study found that reviews on Twitter were found preferable and reliable when they are provided by same-gender source.

To sum up, the difference between men and women towards adopting information is interesting. The findings of the current study revealed that information from a female source and a verified account on social media platforms were found to be more preferred by female participants. This might support the concept that women trust online information more than men as been found in previous studies (e.g., Lim & Kim, 2011; Dart, 2008). Furthermore, there is some evidence that the level of engagement in seeking health information is high for women when compared to men, as been found in the studies of Hallyburton & Evans (2014) and Myrick & Willoughby, (2019). In this regard, Stern et al (2012) attributed women's engagement in seeking health information to their traditional social role in the society of parenting and taking care of the family health. During the interview, one of the female participants said that she used social media platform to search for health information for her family, especially male members. She justified that "*my brothers are not tolerant to spend time searching for information on social media, so I do that for them*". So, as discussed previously, it is believed that there is a significant difference between men and women in processing information.

It should be noted that based on the comparison between adopting information from a similar gender source and different gender source, the findings of the Mann-Whitney test showed no significant effect of similarity or dissimilarity in gender on adopting health information. However when focusing on same gender source, the findings of the statistical analysis revealed that there are significant differences in adopting information from a similar gender source. The results also showed that females' attitudes towards adopting information from same gender source (female) is higher than males' attitudes towards male sources. So it can be concluded that, the lack of consensus about the impact of gender similarity/ dissimilarity on information adoption and information credibility needs to be taken in consideration for future studies. Also, Gieter, (2021) argued that in order to understand the impact of homophily (e.g., gender similarity) on credibility, a combination of various variables should be taken into consideration. These variables could be "profession, interests, writing style, tendency to write positive or negative reviews" (Gieter, 2021, p71.). He concluded that homophily cannot be only measured based on the demographic characteristics of individuals. Hence, more studies regarding homophily, health information credibility and usefulness are still needed.

5.4.3 Education

In prior studies, educational level was found to be another influencing variable in evaluation of information credibility. For instance, a recent study by Vlad (2019) found that individuals with higher education levels (e.g., PhD) described social media platforms as less credible sources for information, unlike high school students, who considered social media a credible source of information. The findings of the statistical analysis of the present study revealed that there were no significant differences in adopting social media health information according to the educational level of the participants. Moreover, through conducting the interviews it was noticed that there is a high awareness towards adopting online information among the participants regardless their level of education and study field. The findings of the present study are consistent with previous studies that reported that education level of internet/ social media users has no significant impact on adopting health information. For instance, Ye, (2010) study was conducted on a sample of 7674 participants from different educational levels and showed that no significant differences were found between participant' education level and trusting online health information.

However, there is some qualitative data of the current study to suggest that participants skills of evaluating information had improved over time. For instance, a male participant aged 35 stated that his awareness of adopting online information has been changed, when he was asked about trusting information form social media he said that: *"at the beginning of my using of social media; when receiving information from doctors for example, we used to believe it since it comes from a doctor. Now, this thing changed".* He justified that his ways of processing information has been changed, and he said that: "*I mean my awareness is increased now. If I go and look for information I find a lot of different information with different opinions from different sources, this makes me to try to find the main source of information. When we find that the source is trustworthy then of course we take this information", participant (V,M).*

From the above participation, it can be suggested that evaluating information credibility could be impacted by the individual's level of education. In this regard, Deursen & Dijk (2015) argued that the more education users have, the more internet skills they acquire, which, in turn, impacts their attitude towards evaluating online information.

Furthermore, the interviews of the current study revealed interesting findings regarding source of information and education level of participants. It was found that sources such as official government bodies (e.g., Ministry of Health, Ministry of Interior Affairs and World Health Organisation) were the most mentioned sources by postgraduate participants. On the other

side, sources as friends on social media, family members were mentioned by secondary school level and bachelor participants. For instance, a postgraduate participant stated that:
"I personally consider the WHO website a reliable source because it belongs to a government agency, not individuals. That gives it more credibility as I feel that government sources will not publish wrong information or mislead people", participant (H,F).

A secondary school level participant said that:
"When I receive a medical advice from someone I know and he/she has a previous personal experience, I trust this information and advice.", participant (B,F).

These differences among the study participants regarding the information source and education level are in accordance with the findings of prior studies. For instance, a study by Kim & Syn (2016) found significant differences in evaluating online health information among college students in the US. The study found that students with higher education levels were more likely to rely on information from governmental organisations, while students with lower education levels mentioned other sources (e.g., families or media podcasts) as a credible source of information. Such findings alongside with the current study results which suggest that the more education a user has, the greater his/ her knowledge to evaluate information which in turn lead the user to be more cautious regarding which sources to trust.

In conclusion, the education level of the participants was not found to have a significant impact on adopting health information, despite there being noticeable differences regarding the mentioned used sources of information by postgraduate, undergraduate, and secondary participants. Although there is a qualitative evidence to suggest that participants ways of evaluating information had improved over the time, the findings of the quantitative data revealed that education level has no significant impact on adopting health information. This finding is quite reasonable, given that majority of the study participants have a university degree (Bachelor or Diploma) and a high studies degree (Master/ PhD). In this regard, Alshati, (2017) argued that the highly educated people will have a better understanding and a greater ability to assess the credibility of social media health information. This might indicate that a user's skill and knowledge to judge the credibility of an information source increases proportionally when they acquire more education. However, it is suggested to conduct further studies by expanding the study sample to include participants of different educational levels. Also understanding how people's ways of evaluating information credibility change and improve over the time could be investigated in future studies.

5.4.4 Frequency use of social media

There is a suggestion that, the higher the frequency of use of information source, the higher is the familiarity with this source which in turn impacts the source usefulness (Xiao & Benbasat, 2007 & Balaban et al., 2020). Also, Stewart & Cunningham (2017) argued that there is a positive significant relationship between the frequency use of internet and trust in internet advertising. In this regard, the study of Golway, (2017) on 573 users of Twitter and Facebook showed that, as people spend more time on social media, they are more likely to trust it. He reasoned that individuals would form a favourable opinion of a source if they were repeatedly exposed to it. In contrast to the findings of Stewart & Cunningham's (2017) and Golway, (2017), the results of the current study showed that such a relationship between frequency of use of social media and adopting information does not exist. According to the statistical analysis, the results shown that there were no significant differences in adopting social media health information according to the frequency use of social media. The findings of the current study are in accordance with the findings of Sousa & Bates (2021) which found that the frequency use of Facebook was had no influence on perceived credibility of news source. Hence, it could be assumed that the higher is the frequency of use of social media, the higher the skills the users acquires, which in turn increase the user ability to judge source credibility.

Although Wang & Chen (2019, p.272) stated that "*the higher the frequency of use of a channel, the higher the loyalty of the channel, the stronger the dependence, and the more likely to collect and use the information issued or disseminated by the channel*", the researcher disagrees with this. It is assumed that loyalty, dependence and trustworthiness of information source are not associated with the time spent or use frequency of that source. On the contrary, frequency use of a platform might lead users to be familiar with it and become more aware of its features, pros and cons. Furthermore, through frequency of using a platform as information source, people gain a better understanding of how it works, when and how they can trust it and rely on it. So credibility of channel or platforms is influenced by a combination of factors such as source credibility, content quality, reputation etc…

The interviews of the current study provided a qualitative evidence to suggest that participants skills of using social media and evaluating information had improved over time. Through conducting the interviews, it was discovered that the higher the frequency of use of social media platforms, the more awareness people have of processing information and judging source credibility. For instance, one of the participants said:

" *It happened that I used information based on personal experience and the result was negative for me so that is why I decided to not use any information before verifying its credibility", participant (Q.F).*

Another female participant said that: *"I have been using social media for 12 years. In the past I used to take information, or medical advice from social media. Now with getting older, more educated, more experienced using social media and most importantly being a mom make me more responsible towards picking information. I mean currently, I cannot trust anyone without verifying information", participant (P,F).*

Based on the findings of the current study sample, the use frequency of social media platforms was found to have no significant influence on adopting information. It was found to raise the participants' awareness of processing information and judging source credibility. Furthermore, it is clear that regardless of the frequency use or time spent on social media, participants are found to be influenced by other important factors as source expertise, source reputation, familiarity and content quality. Hence it can be concluded that, frequency use of social media is not considered as an influencing factor on information adoption or information credibility of social media platforms among the study sample.

5.5 Trust and use information on social media platforms

In the current study, information adoption was measured using two terms: trust and use. The term trust simply means the perceiver is willing to rely on or believe in the perceived piece of information, whereas the term information use refers to the extent of utilizing a perceived piece of information by receivers. The findings of the statistical analysis and interviews showed that there is a high positive relationship between trust and use information on social media. According to the results of simple linear regression test, the P-Value of use and trust information was 0.0001 <0.05; which shows that a positive relationship exists between trusting health information source on social media platforms and using the provided information by this source. Such a finding indicates that participants are more likely to use information and apply it in their real life if it is provided by someone they trust. This point was also frequently mentioned by the interview participants.

It appears that the likelihood of adopting or using information is highly affected by the degree of trust in the information source. In other words, the greater the level of trust in an information source, the more likely to use the information provided by this source. These results are consistent with those of other research that found a strong connection between information source trust and information utilisation (e.g., Heravi & Harrower, 2016; Dobele et al., 2017 ; Khan & Fatma 2019). For instance, a study by Correa et al., (2020) found that use intention of YouTuber advertisements is highly affected by the level of trust in information source, i.e. the YouTuber. Furthermore, the findings of Liu et al, (2005) study demonstrated that behavioural

intention of internet users is positively influenced by the degree of trust in the information source. In their study, they found that individuals are more likely to perform actions such as repeating the purchase, revisiting the website and recommending it to others when they trust the information source. Accordingly, it is assumed that trust in the information source on social media could be considered as a key determinant of using the information from this source. It seems that once the participants or social media users find the source of information is trustworthy, they will be more likely to use, accept and adopt information from this source.

5.6 Information adoption from a linguistic perspective

During the interviews, which were held in Arabic, participants asked for a clarification for the word adoption and what does it exactly mean?. Therefore, the researcher had to refer to the definition of the word adoption in Cambridge dictionary which is defined as "*to accept or start to use something new*". Throughout the interviews, it was noticed that participants used different words to express adopting information. Words such as depend, trust, believe, take up, follow, refer, use and accept have been mentioned frequently by the participants. Table 32 below shows the words used by the participants and their corresponding translation to English.

Word in Arabic	Word in English
أصدّق	Believe
أقبل أو أتقبل	Accept
أعتمد	Rely
أطبّق	Apply
آخذ	Take
أستخدم	Use
أتبّع	Follow
أثق	Trust

Table 32:The used words to express info. Adoption in Arabic & English

Although each word in the table above would differ in meaning, they are eventually referring to the word adoption. Those words are found to agree with the adoption definition in Oxford dictionary which is defined as "*choose to take up, follow, or use*", and Cambridge dictionary which is defined as "*to accept or start to use something new*". Hence, an Arabic definition of information adoption can be derived as:

" مدى تقبّل و استخدام المعلومات وتقييمها كمعلومات قابلة للتصديق"

which in English means: “ The extent of using and accepting a piece of information as credible”. The Arabic definition could provide a valuable point for researchers, especially those who conduct studies on information adoption in Arabic language, as the word “adoption” might need clarification from some of the participants.

To sum up, it was found that information adoption concept has been interpreted differently by the participants. Thus, it is believed that such differences should be taken into consideration among researchers. It is interesting that the used expressions by the participants agreed with the definition of the word “adoption” in Oxford and Cambridge dictionary. Hence and based on the given definition above, it might be useful for future studies to define the word adoption for participants as “use or accept”, to make it simple and clear for them.

Chapter 6: Conclusion

This chapter provides a summary of the main findings of the current study. After that, it discusses the potential contributions of conducting this research. Finally, it outlines the limitations of the current study and provides recommendations for future work.

6.1 A summary of the study findings

The present study aimed to understand which factors influence adopting health information from social media during COVID-19 pandemic, among social media users in Saudi Arabia. The study followed a mixed method approach using an online questionnaire followed by follow-up interviews. The main findings of the current study are as following:

1) There is a high use of social media platforms as a health information source among the study participants, where Twitter (known as X now) is found to be the most commonly used platforms for seeking information, getting news or communicating with experts.

2) The findings confirmed that characteristics of information/content have a significant influence on participants' use of social media platforms as a health information source. Timeliness, completeness, relevance and accuracy are found to influence people's attitudes toward adopting health information from social media.

3) The verification mark on social media is found to be a recognizable feature for the sample of the present study. It is also found that the verification mark feature on social media would significantly affect user adoption of the health information, especially when it is combined with other characteristics such as source expertise or familiarity.

4) The findings confirmed that receiving health information from a source with medical expertise would play an important role in adopting this information.

5) The influence of sender-receiver similarity on information adoption is likely to be impacted by the information type. The present study found that when it comes to health information compared to other kinds of information (e.g., shopping), participants would pay more attention and efforts for evaluating information credibility. It seems that people become more rational regarding adopting and trusting health information from social media. This might suggest that assessing the credibility of information is likely to be influenced by the information type.

6) There is a positive attitude towards perceived health information from authorised and governmental organizations among the Saudi population, which positively influence adopting information from such sources. Particularly, the accounts of authorised and governmental organisations on Twitter were mentioned by the study participants as trustworthy sources of information especially during the COVID-19 pandemic.

7) An Arabic definition of information adoption concept is provided to help researchers, especially those who conduct studies on information adoption in the Arabic languages. The definition is:

" مدى تقبل واستخدام المعلومات وتقييمها كمعلومات قابلة للتصديق"

which in English means: “ The extent of using and accepting a piece of information as credible”.

8) There is a high positive relationship between trust and use of information on social media platforms; where the findings found that the greater the level of trust in an information source, the more likely people are to use the information provided by the source.

6.2 The study contributions

The findings of the current study hope to add to the knowledge of information adoption, and provide theoretical and methodological contributions to the field of evaluating information credibility and adopting health information from social media. Furthermore, they would provide helpful insights to health information providers and health organisations with regard to utilising social media platforms to convey health information to the Saudi population.

6.2.1 The theoretical contributions

To begin, the present study aimed to make a theoretical contribution to the field of information credibility and adopting health information from social media platforms. As mentioned earlier in the introduction, human behaviour, particularly individuals’ decision making to use and adopt information from social media is influenced by the credibility of information; the greater the perceived credibility of social media information, the higher the intent of individuals to utilise these platforms as a source of information. In light of prior research, it is assumed that evaluating the credibility of information and individuals’ propensity to adopt information are likely to be affected by a number of factors surrounding information, namely, source and information characteristics, as well as the demographics of information seekers and receivers. The current study contributes to the theories of information adoption and source credibility, by

providing empirical support for the influence of source characteristics on adopting information in the context of online information. Based on the literature, the information source plays a significant role on information credibility, which makes source one of the primary constructs of information adoption models. According to source credibility theory, the credibility of the information can be increased when the source is viewed as expert and trustworthy. In light of source credibility and information adoption theories, Gioia, (2020) argues that “a high level of expertise can make the information be perceived as more credible, increasing the probability of information adoption”. The findings of the current study, which were uncovered through the use of a vignette design, indicated that characteristics as the source's knowledge, qualifications, verification mark, and similarity between information receiver and sender would influence people's attitudes towards adopting health information. Such findings provide significant evidence for the influence of source credibility on information adoption and evaluating information credibility; consequently, it is regarded as an essential element of information adoption models. The findings also imply that when conducting studies on evaluating information credibility, providing as much information as possible about the information provider (e.g., expertise, qualifications… etc.) would assist the participants in making a decision about whether to adopt the information provided by this source.

Additionally, the findings may also lend credence to the heuristic-systematic model (HSM), which is one of the dual-process models (Bohner et al., 2008). HSM holds that people's motivation and cognitive efforts impact the level of effort required to process information. According to this model, information can be processed in two distinct ways; systematically and heuristically (see 5.3.1, p.122). For example, Son et al (2020) asserted that during a nationwide pandemic, when people are highly motivated to obtain credible information, they are more likely to rely on heuristic processing (e.g., trust information from experts) since it is faster and involves less work. This could be also applied to the current research where participants are likely to follow visible cues as the source’s information (e.g., expertise, qualification… etc) when seeking health information, especially during COVID 19 pandemic. This also supports the views of Zhang & Watts (2008) and Zhang et al (2018) which consider source credibility as one of the heuristic factors of processing information, while argument quality is a systematic factor.

Furthermore, as an extension to prior research, the current study focused on factors that need further investigation as the homophily and the verification mark on social media. The homophily concept was examined as another influencing factor on adopting information. Particularly, it focused on the similarity/ dissimilarity between information provider and receivers. Focusing on the nationality aspect, the questionnaire findings found that

participants are more likely to use and trust perceived health information from a Saudi source compared to a non-Saudi source. This finding could provide contribution to the homophily literature, by showing that similarity between information sender and receiver is a potential factor influencing information adoption. It also suggests that individuals' demographics would play a role in shaping homophily, influencing the ways of processing information. Given that Saudi Arabia is a conservative society, bound by religious and social considerations, that values personal ties and associates with in-group individuals, homophily would play a major role in evaluating information credibility in such society. Therefore, the findings of the present study may serve a foundation for future studies aiming to understand the influence of sender-receiver relationship on processing and evaluating information credibility. Furthermore, as mentioned earlier with source credibility, homophily could be considered as another heuristic indicator of processing information. Hence, further attention to this factor is needed especially for studies on evaluating information credibility across cultures.

In addition, the interviews revealed interesting findings regarding sender-receiver similarity and adopting information. It was found that similarity between sender and recipient would matter more in the context of religious, political, and marketing information than it does with health information. In other words, the present study found that when it comes to health information, participants would pay more attention and efforts for evaluating information credibility. It seems that people become more rational regarding adopting and trusting health information from social media. This might suggest that assessing the credibility of information is likely to be influenced by the information type, as well as users' motivations towards the information. These findings could provide a knowledge support to the theories of "dual processing models" as suggested by Flanagin & Metzger (2000) & Metzger (2007). They suggest that individuals' propensity to critically evaluate information is influenced by the nature of the information, which is moderated by the level of motivation. In this regard, Metzger, & Flanagin, (2015, p.450) claimed that when information seekers are highly motivated to find accurate information, "*they will likely pay more attention to a broader array of credibility cues*" to evaluate the information credibility than they would if they were less motivated. According to a research by Flanagin & Metzger (2000), online users were found to put in far more time and effort to evaluate the credibility of factual information (e.g., health-related) compared with other types of information (e.g., entertainment content). Hence, individuals' motivation and information type could be added to the literature of the influencing factors on evaluating the credibility of information and adopting information.

Further, interesting findings could be added to the context of human behaviours and differences in terms of processing and evaluating information credibility. The findings of the

current study revealed that there are differences between men and women towards adopting and processing information. Particularly, it was found that health information from a female source and a verified account on social media platforms were found to be more preferred by female participants. Such findings might indicate that women would trust perceived health information from social media, as they see verified female accounts on social media a trustworthy source. This might support the concept that women trust online information more than men, as has been found in previous studies (e.g., Lim & Kim, 2011; Dart, 2008). It can be concluded that there are significant differences between men and women in processing information. In addition, there is a high propensity of using and trusting social media information among female participants compared to males. Such findings might support the fact that level of engagement in seeking health information is high for women when compared to men, as highlighted by previous studies (e.g., Hallyburton & Evans, 2014; Myrick & Willoughby, 2019). Hence, the study findings might add to the scope of the literature in human behaviours towards adopting information and evaluating the credibility of information.

Finally, despite the studies investigating information adoption from the internet and social media, the Arabic research literature lacked a formal definition of the term "information adoption". Hence, a conceptual contribution of the present study is providing an Arabic definition of information adoption, which can be used by other researchers, particularly those who conduct studies on information adoption within Arab context.

6.2.2 The methodological contributions

Furthermore, a methodological contribution could be made to the studies of information adoption and assessing the credibility of information on social media platforms. Unlike other studies of information adoption that mostly used a quantitative approach, the present research is taking a mixed method approach by combining a quantitative vignettes questionnaire and qualitative semi-structured interviews. The use of the vignettes questionnaire helped the researcher in reaching a wide variety of respondents, as well as conducting the vignettes experiments. On the other side, the use of semi-structured interviews in the current study allowed for the collection of in-depth information from the participants about the topic of investigation. Consequently, methodological contributions could be made to the literature of information adoption, for example; combining various research methodologies and employing qualitative methods within to the studies of information adoption and assessing the credibility of information on social media platforms. In this regard, Hodeib (2021, p.120) identified the following advantages of combining different research methods; "*a more valid research design, more reliable results and a deeper understanding of the investigated phenomenon*". In addition, using mixed methods might help in identifying "*new ways to answer research*

questions" or overcoming the weakness or limitations of using a single method (Molina-Azorin, 2016,p.38; Azorín, & Cameron, 2010). Thus, a more comprehensive understanding of the research problem can be attained through applying mixed approaches. In the current study, the use of semi-structured interviews was helpful in obtaining detailed information from the participants about how they judge the credibility of perceived and published information on social media platforms. The social media verification mark was also discussed in further depth, including how users feel about it and whether they believe the symbol has lost its value in light of the latest developments to this mark by social media platforms' managements[9].

In addition, to the best of the researcher's knowledge, this study is one of the first studies in the Saudi population that examined the influencing factors on adopting health information from social media by designing a vignette-based technique. The vignette method was used to analyse the impact of source characteristics on adopting health information from social media. Hence, a methodological contribution could be made to the existing body of research about using vignettes experiment design. In the current study, the vignettes were found to be a valuable tool for researching as this technique, which enabled the researcher to combine and manipulate variables, such as source expertise and nationality with verification mark. Hence, this approach is recommended for future research that seeks to manipulate variables or examine individuals' attitudes toward different characteristics or situations in which social media is used.

6.2.3 The practical contributions

The findings of the present study hope to provide practical contribution to the policy makers and social media founders and developers. Firstly, the current study revealed a high propensity of trusting the verified accounts on social media, which indicate that the technical features as verification mark could have a great impact on adopting information among social media users[10]. The study found that verification mark would significantly affect user adoption of the health information on social media, especially when it is combined with other characteristics as source expertise or familiarity. However, although this mark shows that the account holder is a real person/ organisation, it cannot be considered a sufficient evidence of credibility. Participants of the present study believe that such mark lost its value since it begins

[9] Verification mark used to be hard to get and only given to real people and organisations. Now, social media users can pay to get this mark quickly and easily.

[10] It needs to be clarified that the changes in the status of verification mark on Twitter post the 1st data collection method of the present study. "Musk declared in Nov,2022 announcing a plan to offer verified badges to any user who paid a monthly fee ($8/month)" (CNN, April, 2023).

to be granted easily to social media users as celebrities or users who have a large number of followers. Even worse, the recent updates to this mark allow any user to subscribe and pay monthly fees to obtain this mark, which makes the credibility of such accounts questionable.

Subsequently, further recommendations could be provided to the management of social media platforms. Particularly, it is recommended that for the platforms' management to improve their policies regarding the verification feature. For instance, it is advised that this mark would be used more effectively if it is limited to experts, scientists and authorised individuals. Such improvement would help users of social media when evaluating the credibility of social media information. Another suggestion is that, influencers, celebrities and users who get the verification mark should be informed to not publish information unrelated to their field. Also, they have to check the content credibility or provide a source of the information before publishing it. Such policies should be combined with penalties (e.g., deactivating the account) to minimize the level of disseminating fake or misleading information. This step has been recently implemented by the Saudi public prosecution; whereby strict procedures have been set out against spreading rumors or misleading information through social media platforms. According to the statement made by Saudi public prosecution; "*Sharing or spreading rumors or fake news that might affect public order and security is considered cybercrime punishable by 5-year imprisonment and SR 3 million fine*" (Saudi Gazette report, 2018). It is possible that taking such a move could be regarded as a helpful strategy to regulate the dissemination and sharing of inaccurate information on social media platforms.

Furthermore, there is a high need to raise users' awareness of the verification feature on social media. This should be done by the technology and communication organisations, and the education institutions. For instance, adding a social media platforms course to education curriculums might help in raising students' awareness of dealing with information and using these platforms. According to the latest statistics on using social media around the world by Statista, 2021[11], most of the internet users around the world are aged 18 to 44, where age group 25-34 got the high ratio with around 33% (Figure 12). It shows that there is a high use of internet among the young adults, so targeting this age group specifically is highly needed.

[11] "*Statista is a well-known provider of market and consumer data commonly cited in the peer-reviewed literature. Also, in 2020, it has been listed as a must-have database for academic and public libraries by the Library Journal*" (De Melo et al., 2022).

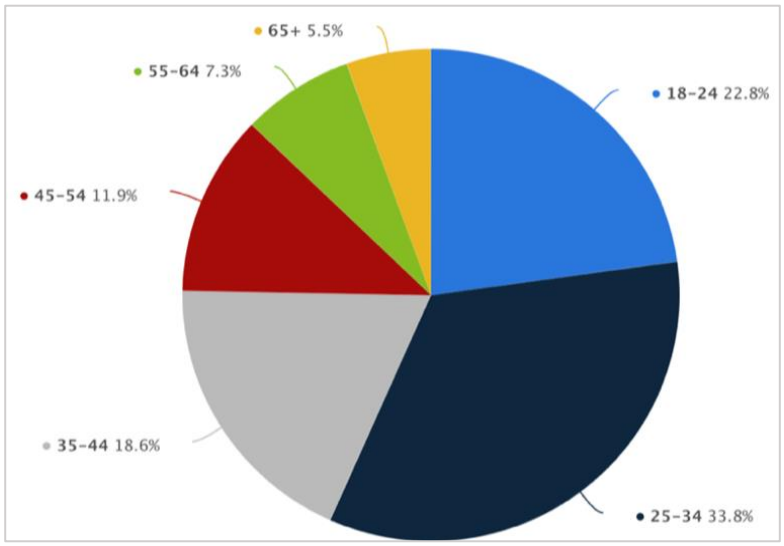

Figure 12:Using social media around the world by age group in 2021.

Secondly, the findings of the current study could align with one of the goals of the Saudi 2030 vision [12], which aims to enhance the role of digital transformation in a wide range of aspects of government procedures. In particular, the Saudi Ministries of Communication and Information Technology, and Health might benefit from the study findings, by identifying the extent of social media's use as an information source for seeking health information among Saudi citizens. For example, female experts with verified accounts on social media are likely to be the best sources for providing health messages to Saudi females. In addition, official and governmental organisations should start employing social media, especially Twitter, as a main tool for spreading information to the Saudi population. These organisation should also enhance the quality of the information they provide by constantly updating the information and providing accurate and up-to-date information. They should also provide a reference to the information source, for example, by attaching a link pointing the original source or mentioning the author/ organisation name. Furthermore, the findings from studying the population's demographic differences with using social media might help policymakers, such as the research centres in Saudi Arabia. There are 33 research centres in Saudi Arabia that focus on collecting different data types, and providing them to governmental or private organisations to help them in making their decisions (Khan & Badr, 2020). Hence, policymakers could consider the differences between individuals when they communicate with their audiences through social media platforms.

[12] Vision 2030 " *is a unique transformative economic and social reform blueprint that is opening Saudi Arabia up to the world*" (Vision 2030.com, 2023).

6.3 Limitations and suggestions for future works

There is no work without limitations, and this research is not an exception. One of the limitations of this study is related to the study sample, particularly the sample's age range and education level. Most of the participants in this study were young and middle-aged adults (18-44), and majority of them have a university and postgraduate degree (Bachelor, Master, PhD). Although the findings provided qualitative evidence which suggests that participants' ways of evaluating information had improved over the time, no significant statistical conclusions were drawn regarding the influence of age and education on adopting social media information.

Second, there is a lack of previous studies, especially in Arab countries, that examined the influence of demographic characteristics of individuals or cultural dimensions on adopting online health information. Although the present study did not discuss the influence of culture dimensions on evaluating information credibility, the findings might suggest that these dimensions would influence on evaluating information credibility. For instance, some of this study's outcomes could be attributed to the cultural dimensions of Saudi Arabia, particularly collectivism and short-term orientation dimension. The first term "collectivism" refers to "the orientation where the individual emphasizes the interdependence and the priority of group/collective goals over individual goals" (Zeffane, 2014). On the other hand, short-term orientation is defined as "values-oriented toward the past and present such as the expectation of quick results, respect for tradition, and personal stability" (Tata, 1999). Prior studies assumed that people from collective cultures with a short-term orientation are more willing to accept and trust information from in-group members (Mooij & Goodrich, 2014; Han & Kim, 2018). Yet, it was insufficient to draw a conclusion concerning the influence of demographic characteristics or cultural dimensions with relating to information credibility among Arab countries or Arab users of social media. King et al. (2014) argue for the need for more studies to examine how the use of social media as an information source differs between cultures. Therefore, conducting more research in this field is still needed.

Third, despite the fact that there are quite a number of studies conducted on evaluating the information credibility of social media platforms in the Arabic context, yet, to the best of the researcher's knowledge, there is a lack of studies that used vignette experiment designs as a research methodology, particularly in the information adoption field.

In order to overcome the discussed limitations above, the following suggestions are provided:

1) Future work should include comparative studies of social media usage across different cultures. For instance, comparing social media use as an information source among different countries. Also, examining the influence of cultural dimensions on evaluating information credibility cross cultures, especially Arab culture which still needs further investigation.

2) It is suggested to replicate the study using same methods (vignettes within questionnaire followed by interviews) but expanding the study sample to include participants of different educational levels and different age groups. Also, the methods could be replicated for types of information other than health information.

3) It is recommended to conduct further qualitative studies that deeply investigate how people's ways of evaluating information credibility changed and improved over the time.

4) It is anticipated that assessing the credibility of information is likely to be influenced by the information users' motivations towards the information. Hence, understanding human's motivation towards processing and adopting information needs a further understanding.

5) It is noticed that vignette design needs more attention from researchers, especially within the field of information adoption. The effectiveness of such approach needs further examination, therefore; conducting more studies using this approach is required.

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Appendices

Appendix 1) The questionnaire

Dear participant, we hope to participate in a study entitled: ……

FACTORS INFLUENCING INFORMATION ADOPTION FROM SOCIAL MEDIA

THE CASE OF HEALTH INFORMATION IN SAUDI ARABIA.

- If you agree to complete the questionnaire, which takes (10) minutes, the researcher will ensure the fully and confidentiality of all participants' information and their responses, which will be used for the purposes of this research only.
- Participation is voluntary and you can withdraw at any time up to the point where you submit the survey at the end.
- To get more information about this research, please see the attached participant information sheet (link).

Agreement to fill in the survey: [ ]

Part1: Demographic questions:

Gender *

- Male
- Female

Age *

- 18-24
- 25-34
- 35-44
- 45-54
- 55-64
- 65+

Educational Level

- No formal education
- Primary
- Intermediate
- Secondary
- Bachelor/ Diploma
- High studies (Master / PhD..)

Part2: A) Use of social media sites:

1- How many years/ months have you used the social media platforms

- More than two years
- Between a year and two years
- Between 6 months and a year
- Less than 6 months

2- How often do you use social media?

- Several times a day
- About once a day
- 3–5 days a week
- Every few week
- Less often
- other

3- How would you rate your level of expertise using social media platforms?

- Expert
- Very good
- Good
- Beginner

4- If you were to go and seek for information about Coronavirus, which source would you use:

- Websites
- News channels
- Social media
- Other, please name it ……

Part3: Credibility of social media information:

A) Please indicate to which extent you agree / disagree with the following statements:

Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
In social media, I tend to use:					
1. The most recent information.					
2. Information if it covers my needs.					
3. Information that is available at times of need.					
4. Information if it is relevant.					
5. Information if it is accurate information.					
6. In social media, I feel more willing to trust information if it comes from people who share interests with me.					

B- Imagine you chose to follow a small number of accounts to find out more information about how the Coronavirus situation is evolving, and you found the following accounts:

- Group one: two account have a verification symbol.
- Group two: two account do not have a verification symbol.
- Group three: two account from a different nationality, one has a verification symbol.

Group 1	
Account A1	**Account B2**
It belongs to someone who is: • An expert in medicine • Working in hospital in Saudi Arabia. • **Matches your** demographic characteristics (male\ female) • He/ she has a verified account on social media  	It belongs to someone who is: • An expert in medicine • Working in hospital in Saudi Arabia. • **Does not match** your demographic characteristics (male\ female) • He/ she has a verified account on social media 
1- Would you more likely to use the provided information by this account?	
1) Very likely _ _ _ _ _ _ _ 5) Very unlikely	1) Very likely _ _ _ _ _ _ _ 5) Very unlikely
2- **How likely are you to trust information provided by this source?**	
1) Very likely _ _ _ _ _ _ _ 5) Very unlikely	1) Very likely _ _ _ _ _ _ _ 5) Very unlikely

<table>
<tr><td colspan="2">Group 2</td></tr>
<tr><td>Account C3</td><td>Account D4</td></tr>
<tr><td>It belongs to someone who is:
An expert in medicine
Working in hospital in Saudi Arabia.
Matches your demographic characteristics (male\ female)
He/ she does not have a verified account on social media  </td><td>It belongs to someone who is:
An expert in medicine
Working in hospital in Saudi Arabia.
Does not match your demographic characteristics (male\ female)
He/ she does not have a verified account on social media  </td></tr>
<tr><td colspan="2">1- Would you more likely to use the provided information by this account?</td></tr>
<tr><td>1) Very likely _ _ _ _ _ _ _ 5) Very unlikely</td><td>1) Very likely _ _ _ _ _ _ _ 5) Very unlikely</td></tr>
<tr><td colspan="2">2- How likely are you to trust information provided by this source?</td></tr>
<tr><td>1) Very likely _ _ _ _ _ _ _ 5) Very unlikely</td><td>1) Very likely _ _ _ _ _ _ _ 5) Very unlikely</td></tr>
</table>

<table>
<tr><td colspan="2">Group 3</td></tr>
<tr><td>Account E</td><td>Account F</td></tr>
<tr><td>It belongs to:
A non-Saudi person
An expert in medicine
Working in hospital in Saudi Arabia.
Matches your demographic characteristics (male\ female)
He/ she has a verified account on social media  </td><td>It belongs to:
A non-Saudi person
An expert in medicine
Working in hospital in Saudi Arabia.
Does not match your demographic characteristics (male\ female)
He/ she does not have a verified account on social media  </td></tr>
<tr><td colspan="2">1- Would you more likely to use the provided information by this account?</td></tr>
<tr><td>1) Very likely _ _ _ _ _ _ _ 5) Very unlikely</td><td>1) Very likely _ _ _ _ _ _ _ 5) Very unlikely</td></tr>
<tr><td colspan="2">2- How likely are you to trust information provided by this source?</td></tr>
<tr><td>1) Very likely _ _ _ _ _ _ _ 5) Very unlikely</td><td>1) Very likely _ _ _ _ _ _ _ 5) Very unlikely</td></tr>
<tr><td colspan="2">* The researcher might need to conduct a follow up interview, if you would like to participate please provide your email..

* If you would like to get a summary of the results of this study, please provide me with your email address..</td></tr>
</table>

Appendix 2: The Arabic copy of the questionnaire:

بيانات شخصية

1. **الجنس:**
   - ذكر
   - أنثى

2. **العمر:**
   - ١٨ - ٢٤
   - ٢٥ - ٣٤
   - ٣٥ - ٤٤
   - ٤٥ - ٥٤
   - ٥٥ - ٦٤
   - ٦٥ فأكثر

3. **المستوى التعليمي:**
   - لم يتم الالتحاق بالمدرسة
   - الابتدائي
   - المتوسط
   - الثانوي
   - الجامعة أو الكلية
   - الدراسات العليا (الماجستير أو الدكتوراه أو أعلى)

- **استخدام برامج التواصل الاجتماعي:**

4. **كم من السنوات مضت على استخدامك لبرامج التواصل الاجتماعي؟**
   - أقل من سنتين
   - من سنة إلى سنتين
   - ٦ شهور إلى سنة
   - أقل من ٦ شهور، الرجاء ذكرها ....
   -

5. **ما هو معدل استخدامك لبرامج التواصل الاجتماعي؟**
   - عدة مرات في اليوم
   - حوالي مرة في اليوم
   - ٣-٥ مرات في الأسبوع
   - ١-٢ مرات في الأسبوع
   - أقل عدة لأيام

6. كيف تقيم مستوى خبرتك في استخدام برامج التواصل الاجتماعي؟

- مبتدئ
- جيد
- جيد جدا
- خبير

7. ما هي المصادر التي تستخدمها في حال رغبتك بالبحث عن معلومات (مثلاً حول فيروس كورونا):

- تصفح الإنترنت (جوجل مثلا)
- القنوات الإخبارية
- برامج التواصل الاجتماعي
- أخرى، الرجاء ذكرها .....

- **الرجاء اختيار لأي مدى تتفق \ أو لا تتفق مع العبارات التالية:**

العبارة	موافق بشدة	موافق	محايد	غير موافق	غير موافق بشدة	لا ينطبق علي
عند استخدام برامج التواصل الاجتماعي كمصدر للبحث عن معلومات:						
1. أفضل استخدام المعلومات حيثما أتيحت.						
2. يهمني توفر المعلومات وقت الحاجة إليها.						
3. أفضل استخدام المعلومات التي تشبع احتياجي.						
4. أفضل استخدام المعلومات ذات الصلة بموضوع الذي أبحث عنه.						
5. أفضل استخدام معلومات دقيقة من مصادر موثوقة.						
6. أفضل تلقي المعلومات التي تتأتى من أشخاص يشاركونني في نفس الاهتمامات (مثلا نفس المهنة أو الأفكار)						
7.						

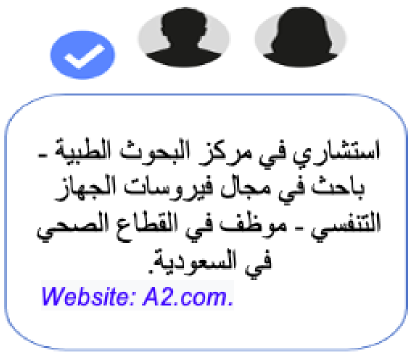
- **افترض أنك اخترت متابعة عدد من الحسابات في برامج التواصل الاجتماعي وتؤثر على سبيل المثال (الحصول على معلومات حول فيروس كورونا، ووجدت الحسابات التالية:**
  - **المجموعة الأولى: (حسابات كلاهما يحتوي على علامة التوثيق)**
  - **المجموعة الثانية: (حسابات تحتوي على علامة التوثيق)**
  - **المجموعة الثالثة: (حسابات أشخاص من مجتمعك, أحدهما يحتوي على علامة التوثيق والآخر بدون علامة توثيق)**

المجموعة الأولى (حسابات تحتوي على علامة التوثيق)

علامة التوثيق هي: هي شارةٌ زرقاء أو علامة نجمة باللون الأصفر، تظهر بجانب اسم المستخدم على حسابه، وتدل على أنّ هذا الحساب حقيقي لشخصيةٍ عامةٍ أو مشهورةٍ.

<table>
<tr><th>حساب أ</th><th>حساب ب</th></tr>
<tr><td>معلومات عن صاحب الحساب:

• يتشابه مع خصائصك الديموغرافية من حيث (نفس الجنس: ذكر \ أنثى)
• نفس جنسيتك (سعودي).
• خبرة في المجال الصحي والمعلومات الطبية ويعمل في إحدى المستشفيات السعودية.
• لديه حساب موثق في برامج التواصل الاجتماعي (وجود علامة التوثيق الزرقاء بجانب اسم الحساب)
• يوجد الموقع الشخصي لصاحب الحساب.

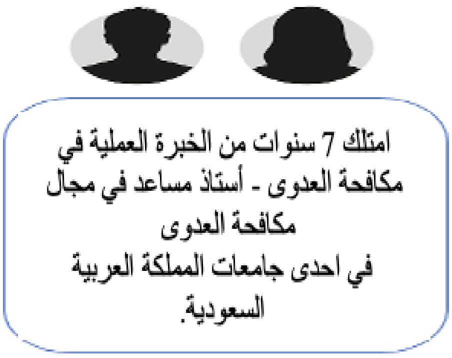
 
</td><td>معلومات عن صاحب الحساب:

• يختلف معك في الخصائص الديموغرافية (أي أنه ليس من نفس الجنس: ذكر \ أنثى)
• نفس جنسيتك (سعودي).
• خبرة في المجال الصحي والمعلومات الطبية ويعمل في إحدى المستشفيات السعودية.
• لديه حساب موثق في برامج التواصل الاجتماعي (وجود علامة التوثيق الزرقاء بجانب اسم الحساب)
• يوجد الموقع الشخصي لصاحب الحساب.

 
</td></tr>
<tr><td colspan="2">8. ما مدى احتمالية أن تستخدم المعلومات التي ينشرها صاحب هذا الحساب؟</td></tr>
<tr><td>١) احتمال عالي ------ ٥) لا يمكن اطلاقا</td><td>١) احتمال عالي ------ ٥) لا يمكن اطلاقا</td></tr>
<tr><td colspan="2">9. ما مدى احتمالية أن تثق في المعلومات التي ينشرها صاحب هذا الحساب؟</td></tr>
<tr><td>١) احتمال عالي ------ ٥) لا يمكن اطلاقا</td><td>١) احتمال عالي ------ ٥) لا يمكن اطلاقا</td></tr>
</table>

المجموعة الثانية (حسابات لا تحتوي على علامة التوثيق)

هذه الحسابات لا تحتوي على شارةٌ زرقاء أو نجمة بجانب اسم المستخدم.

حساب د	حساب ج
معلومات عن صاحب الحساب: • يختلف عن خصائصك الديموغرافية (أي أنه ليس من نفس الجنس: ذكر \ أنثى) • نفس الجنسية (سعودي). • خريج في المجال الصحي وله علم بالمجالات الطبية ويعمل في إحدى المستشفيات السعودية. • لديه حساب غير موثق في برامج التواصل الاجتماعي (وجود علامة التوثيق الزرقاء بجانب اسم الحساب)  	معلومات عن صاحب الحساب: • يتشابه مع خصائصك الديموغرافية من حيث نفس الجنس: ذكر \ أنثى) • نفس الجنسية (سعودي). • خريج في المجال الصحي وله علم بالمجالات الطبية ويعمل في إحدى المستشفيات السعودية. • لديه حساب غير موثق في برامج التواصل الاجتماعي (وجود علامة التوثيق الزرقاء بجانب اسم الحساب) 
10. ما مدى احتمالية أن تستخدم المعلومات التي يشير إليها صاحب هذا الحساب؟	
١) احتمال عالي ------ ٥) لا يمكن اطلاقا	١) احتمال عالي ------ ٥) لا يمكن اطلاقا
11. ما مدى احتمالية أن تثق في المعلومات التي يشير إليها صاحب هذا الحساب؟	
١) احتمال عالي ------ ٥) لا يمكن اطلاقا	١) احتمال عالي ------ ٥) لا يمكن اطلاقا

المجموعة الثالثة: (حسابات لأشخاص من جنسية أخرى، أحدهم يحتوي على علامة التوثيق والآخر غير موثق)	
حساب و	حساب هـ
معلومات عن صاحب الحساب: • يختلف معك من حيث (ليس من نفس الجنس: ذكر \ أنثى) • **الجنسية غير سعودي).**	معلومات عن صاحب الحساب: • **يتشابه** معك من حيث نفس الجنس: ذكر \ أنثى) • **الجنسية غير سعودي).**

- خبير في المجال الصحي والعلوم الطبية وعامل في إحدى المستشفيات السعودية.
- لديه حساب غير موثق في برامج التواصل الاجتماعي (وجود علامة التوثيق الزرقاء بجانب اسم الحساب)

- خبير في المجال الصحي والعلوم الطبية وعامل في إحدى المستشفيات السعودية.
- لديه حساب موثق في برامج التواصل الاجتماعي (وجود علامة التوثيق الزرقاء بجانب اسم الحساب)

12. ما مدى احتمالية أن تستخدم المعلومات التي ينشرها صاحب هذا الحساب؟

١) احتمال عالي ------ ٥) لا يمكن إطلاقا	١) احتمال عالي ------ ٥) لا يمكن إطلاقا

13. ما مدى احتمالية أن تثق في المعلومات التي ينشرها صاحب هذا الحساب؟

١) احتمال عالي ------ ٥) لا يمكن إطلاقا	١) احتمال عالي ------ ٥) لا يمكن إطلاقا

14. قد يحتاج الباحث اجراء مقابلات بحثية تكميلية لهذا البحث ، إذا كنت ترغب في المشاركة الرجاء تزويدي بإيميلك.

15. إذا كنت ترغب في الحصول على نسخة من نتائج البحث ، الرجاء تزويدي بإيميلك.

Appendix 3) The interview questions

A) Sources to get health information about Covid-19:

Let us talk about the last time you seek information about covid-19:

1. Could you please tell me which sources do you use to get information about Covid-19?/ Why did you use this source?
2. How do you decide that a source of information is credible and trustworthy?

B) Using social media as health information source:

3. Could you please tell me which social media platforms helped you to get health information during the Covid-19 pandemic?

4. If you would to use social media as information source, what are the characteristics of **source** and **information** that make you use and trust the provided information by this source?

C) The verified accounts on social media:

5. Have you ever paid attention to the verification mark on social media?

6. What do you feel about the verification feature on social media? What does it tell you?

7. Do you trust information more from a verified account? Why / if no, why not?

8. How important is the verification feature to you? Why do you think it is important?

D) The homophily:

9. When you receive information from someone on social media, is it more important that this person to be similar to you or different from you (in gender, age, thoughts and interests) to trust this information? Why?
10. How important was this similarity (or difference)? Why do you think similarity (difference) was important?

E) The experience:

11. When you receive health information from someone on social media, is it more important that this source should have experience? Why

12. How important is the experience of source to you? Why do you think it is important?

Appendix 4) Participant Information Sheet

Invitation

We would like to invite you to take part in a research study forming part of PhD Research at Aston University. It is conducted by Saad Almalki (a PhD Student), and it is supervised by the supervisor: Victoria Uren and Matthew Hall at Aston University. This study is trying to investigate which factors influence using and trusting health information on social media platforms among the Saudi population. It also aims to understand people's attitudes toward the verification feature (the blue check beside the account holder's name on Facebook, Twitter and Instagram or yellow star on Snapchat) on social media platforms, and how it influences their adoption of health information on social media platforms.

Before you decide if you would like to participate, take time to read the following information carefully and, if you wish, discuss it with others such as your family, friends or colleagues.

Please ask a member of the research team, whose contact details can be found at the end of this information sheet, if there is anything that is not clear or if you would like more information before you make your decision.

What is the purpose of the study?

This study is a part of a PhD research project and following up study that aims to investigate which factors influence using and trusting health information on social media platforms among the Saudi population. It also aims to go deeply and understand people's attitudes toward the verification feature (the blue check beside the account holder's name on Facebook, Twitter and Instagram or yellow star on Snapchat) on social media platforms, and how it influences their using and trusting of health information on social media platforms.

Why have I been invited? You are being invited to take part in this study because:

1. You are a Saudi resident, an Arabic speaker, aged 18 or higher and using social media.
2. Your attitude towards published information on social media is invaluable.
3. In the first stage of data collection (the questionnaire), you have expressed an interest in participating in an interview to discuss using social media platforms as a health information source.

What will happen to me if I take part?

If you agree to take part, the following processes will be taken:

1. You will be asked to sign a consent form before conducting the interview. The consent form will be sent to you through email: you will be asked to sign it and send it back to the researcher.
2. At the beginning of the interview, I (the researcher) will introduce myself and present the study's aim and objectives to the interviewees. Also you will be informed about recording and storing the data.
3. I (the researcher) will inform you of the process and the expected time frame – which I estimate will take you 30-50 minutes - and will try to guide the interview to keep it to the upon agreed timeframe. Then I will review the received consent form of the interviewee before starting the interview.
4. The interviews will be held in Arabic, and will be conducted virtually (using Teams, Skype, or Zoom). You can conduct the interview via any device with internet access (smartphone, tablet or computer).
5. Interview will be recorded. The records will be only used by the researcher for transcribing the answers and will not be shared with anyone else. Any personal information will be removed from the records and will not be transcribed or used in the research. However, your anonymised data might be used by the research teams for future research.
6. During the interview, you will be asked to answer a number of questions about your usage of social media platforms as an information source for seeking health information. Also you will be asked about the verification feature on social media platforms (defined previously on page 1). Also you will be asked about receiving health information from people who share similar interests/ values/ demographic characteristics with you.
7. At the end of the interview, you will be asked to review your answers and a copy of the interview transcript will be shared with you through email.
8. After the interview, your records will be transcribed in Arabic and then translated to English, and your participations will be stored in different files on desktops.

Do I have to take part?

No. It is up to you to decide whether or not you wish to take part.

- If you do decide to participate, you will be asked to provide informed consent.
- You can halt your participation in the research at any time by telling the researcher or closing down the browser without giving a reason, and any data collected up to that point will not be used.
- If you wish to withdraw your data after participation, then you have up to 14 days after the interview. I will give each participant a specific code (e.g., A1, A2), so that withdrawing your interview will be easily accessible. So, you can contact the research team (contact information

is provided at the end of this sheet) and give your code. After this point, your data will be anonymised, and it will not be possible to withdraw it. Your interview recording will be destroyed as soon as the research is complete (typically within 6 months of submitting the thesis), so withdrawing data will not be possible after destroying the records.

Will my taking part in this study be kept confidential?

Yes. A code will be attached to all the data you provide to maintain anonymity. Analysis of your data will be undertaken using coded data.

- If I need to collect personal data (such as email), I will only use this for the purposes outlined in this participant information sheet (if you ask for a lay summary of the findings).
- Your personal data (e.g., email) and recordings will be separated from the data and stored electronically on a secure encrypted device. Recordings will be destroyed within 6 months of submitting the thesis. Any future research or follow-up papers will be written based on the thesis data and data will be anonymised.
- The data we collect will be stored electronically on a secure encrypted mobile device, password- protected computer server or secure cloud storage device.
- To ensure the quality of the research Aston University may need to access your data to check that the data has been recorded accurately e.g. for the purposes of audit. If this is required your personal data (email) will be treated as confidential by the individuals accessing your data.

How will the conversation be recorded and the information I provide managed?

- I will audio record the interview with your permission.
- The recording will be typed into a document (transcribed) by a member of the research team/transcriber approved by Aston University. This process will involve removing any information which could be used to identify individuals e.g. names, locations etc.
- Audio recordings will be destroyed as soon as the research is complete (typically within 6 months of submitting the thesis).
- I will ensure that anything you have told me that is included in the reporting of the study will be anonymous.
- You are free not to answer any questions that are asked without giving a reason.

What happens if I tell you something that concerns you about my health or welfare or that of the person I care for?

In the unlikely event of this happening, we will discuss with you how this should be addressed. If necessary, to protect you and the person you care for, we will report your

concern to the appropriate person or bodies.

What are the possible benefits of taking part?

Although you may find participation in this research interesting, there may be no direct benefit to you as a result. However we hope that the findings of this research will help the researcher to understand using social media platforms, especially the verified accounts, as health information sources among the Saudi population. Also it will help in deeply investigating which factors influence the Saudi population's attitudes towards published health information on social media platforms.

Also, the findings of this study might help the researchers and health professionals to identify the Saudi population's attitudes towards published health information on social media platforms, and which factors influence their attitudes. Hence, the health sector in Saudi Arabia and health professionals can effectively utilise social media platforms as an information source. Also, the findings might help the researchers to carry out more studies in the future or conduct more comparative studies.

Your participation will provide a practical contribution to the field of information technology, and social media usage in the middle east countries since most of the studies in this field have been conducted in western countries. A summary of the results and recommendations of the study will be available for you at your request, which might help you understand the status of using social media and verified accounts as a health information source among Saudi residents, while the study recommendations might help in raising your awareness of picking information especially health information from social media.

What are the possible risks and burdens of taking part?

We do not foresee there being any risk to you in participating. However, since this study focuses on health information, there is a risk that might be raised with addressing sensitive information. However, the researcher will try to handle the interview by avoiding discussing sensitive topics. Any sensitive information will be removed from the records and will not be transcribed or used in the research. Also the researcher will ensure the data anonymity and the full confidentiality of participants' answers.

What will happen to the results of the study?

The results of the study will be used in *the PhD* thesis of *Saad Almalki (the researcher).* The results of this study may be published in scientific journals and/or presented at conferences. If the results of the study are published, your data will be completely anonymous, your personal data and email will not be shared, and your identity will remain confidential. The anonymised results may be used for research by other research teams as described in

[Appendix A]. A lay summary of the results of the study will be available for participants when the study has been completed. Should you wish to receive a copy, please provide your email address on the consent form or contact a member of the research team.

Expenses and payments There will be no expenses and payments.

Who is funding the research?

The study is being funded by the *Saudi* Arabian Cultural Bureau (SACB) in London; for PhD scholarship that is granted by Taif University, Saudi Arabia. The Saudi Arabian Cultural Bureau (SACB) will not have access to the research data, and it will not ask the researcher to provide any details about the research.

Who is organising this study and how is my data being used?

Aston University is organising this study and acting as data controller for the study. Research data will be used only for the purposes of the study or related uses identified in this Information Sheet or Appendix A.

Who has reviewed the study? This study was given a favorable ethical opinion by Aston Business School Research Ethics Committee.

What if I have a concern about my participation in the study?

If you have any concerns about your participation in this study, please speak to the research team and they will do their best to answer your questions. Contact details can be found at the end of this information sheet.

If the research team are unable to address your concerns or you wish to make a complaint about how the study is being conducted you should contact the Aston University Research Integrity Office at research_governance@aston.ac.uk or via the University switchboard on +44 (0)121 204 3000.

Research Team

The researcher: **Saad Almalki** (a PhD candidate at Aston Uni): almalks1@aston.ac.uk

The supervisors: **Victoria Uren:** v.uren@aston.ac.uk **Matthew hall:** m.j.hall@aston.ac.uk

Thank you for taking time to read this information sheet. If you have any questions regarding the study please don't hesitate to ask one of the research team.

Appendix A:

Aston University takes its obligations under data and privacy law seriously and complies with the

Data Protection Act 2018 ("DPA") and the General Data Protection Regulation (EU) 2016/679 as retained in UK law by the Data Protection, Privacy and Electronic Communications (Amendments etc) (EU Exit) Regulations 2019 ("the UK GDPR").

Aston University is the sponsor for this study based in the United Kingdom. We will be using information from you in order to undertake this study. Aston University will process your personal data in order to register you as a participant and to manage your participation in the study. It will process your personal data on the grounds that it is necessary for the performance of a task carried out in the public interest (GDPR Article 6(1)(e). Aston University may process special categories of data about you which includes details about your health. Aston University will process this data on the grounds that it is necessary for statistical or research purposes (GDPR Article 9(2)(j)). Aston University will keep identifiable information about you for 6 years after the study has finished.

Your rights to access, change or move your information are limited, as we need to manage your information in specific ways in order for the research to be reliable and accurate. If you withdraw from the study, we will keep the information about you that we have already obtained. To safeguard your rights, we will use the minimum personally identifiable information possible. You can find out more about how we use your information at https://www.aston.ac.uk/about/statutes-ordinances-regulations/publication-scheme/policies-regulations/data-protection or by contacting our Data Protection Officer at dp_officer@aston.ac.uk.

If you wish to raise a complaint on how we have handled your personal data, you can contact our Data Protection Officer who will investigate the matter. If you are not satisfied with our response or believe we are processing your personal data in a way that is not lawful you can complain to the Information Commissioner's Office (ICO).

When you agree to take part in a research study, the information about you may be provided to researchers running other research studies in this organisation and in other organisations. These organisations may be universities, NHS organisations or companies involved in health and care research in this country or abroad. This information will not identify you and will not be combined with other information in a way that could identify you. The information will only be used for the purpose of research, and cannot be used to contact you.

Appendix 5) Consent Form

Aston University
BIRMINGHAM UK

نموذج موافقة المشاركة

الرجاء الإجابة على العبارات التالية :

1.	I confirm that I have read and understand the Participant Information Sheet (Version Number and Date) for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. - قرأت ورقة المعلومات (نموذج معلومات الدراسة)، كما أتيح لي الاستفسار عن هذه الدراسة.. - قرأت كامل رغبتي بالمشاركة والإجابة على الأسئلة الموجودة في هذه الدراسة.	
2.	I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason and without my legal rights being affected. - لدي معرفة تامة بأن المشاركة في هذه الدراسة اختيارية، ويحق لي الانسحاب في أي وقت بدون الإفصاح عن سبب الانسحاب من المشاركة في هذه الدراسة.	
3.	I agree to my personal data and data relating to me collected during the study being processed as described in the Participant Information Sheet. - أوافق على أن يتم استخدام معلوماتي الشخصية (الاسم فقط) في هذه الدراسة كما هو موضح في نموذج معلومات الدراسة (: أي أن بياناتي سوف يتم استخدامها فقط للتواصل معك بخصوص اجراء هذه المقابلة أو تزويدك بنسخة من نتائج الدراسة.	
4.	I agree to my interview being audio recorded and to anonymised direct quotes from me being used in publications resulting from the study. - أوافق على تسجيل مشاركتي في هذه الدراسة، مع استخدام اسم مستعار لمشاركتي (لن يتم الإفصاح عن أسماء المشاركين في الدراسة).	
5.	I agree to my anonymised data being used by research teams for future research. - أوافق على استخدام مشاركتي باسم مستعار في أي دراسات مستقبلية يقوم بها الباحث.	
6.	I agree to my personal data being processed for the purposes of inviting me to participate in future research projects. I understand that I may opt out of receiving these invitations at any time. - أوافق على أن يتم استخدام معلوماتي الشخصية (الاسم فقط) للمشاركة في دراسات مستقبلية، ولي الحق في اعلام الباحث بعدم رغبتي في استقبال دعوة للمشاركة في دراسات مستقبلية.	
7.	I agree to take part in this study. - أوافق على المشاركة في هذه الدراسة.	

Name of participant Date Signature