

The Impact of Information Seeking Health Behavior on Online Rumor Refuting Behavior of Saudis During Coronavirus Pandemic

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المستخلص:

شهد العالم في ديسمبر ٢٠١٩ أزمة غير مسبقة وهي انتشار جائحة كورونا التي تسببت في حصد ملايين الأرواح وتأثرت أغلب جوانب الحياة بذلك. تحاول المجتمعات دراسة عواقب الجائحة من مختلف الجوانب من خلال إجراء البحوث المختلفة، كمعرفة دور وسائل التواصل الاجتماعي، وانتشار الشائعات والسلوك المعلوماتي الصحي. هذه الدراسة جزء من هذه الأبحاث، ولكنها تتناول الموضوع بشكل آخر وهو دحض الشائعات أثناء الجائحة عند البحث عن المعلومات على شبكة الانترنت والوقوف على أسباب هذا السلوك. تفترض الدراسة أن سلوك البحث المعلوماتي عن الكورونا يرتبط بعدة عوامل كتواصل الأقران، إدراك خطر الإصابة، وكلها تؤثر بشكل إيجابي على دحض الشائعات عبر شبكة الانترنت. لفحص هذا الاقتراح جمع الباحث عبر استطلاع الكتروني ٣٩٠ استجابة أظهرت نتائجها وجود فروق في سلوك البحث عن المعلومات المتعلقة بكورونا على وسائل التواصل الاجتماعي بسبب





فارق النوع، الحالة الاجتماعية، مستوى التعليم، والدخل. كما ان المنصة الاجتماعية المفضلة لها تأثير في رفض الشائعات و ٨٤٪ من أفراد العينة يستخدمون وسائل التواصل الاجتماعي للحصول على معلومات صحية حول كورونا. كما أثبتت الدراسة صحة ارتباط سلوك رفض ودحض الشائعات بإدراك خطر الإصابة، التواصل مع الأقران والثقة الذاتية الصحية. تساهم الدراسة في تعزيز جانب النظريات والممارسة في هذا المجال.

Abstract:

The world witnessed an unprecedented crisis, a widespread disease named coronavirus (COVID-19) in December 2019. The pandemic claimed millions of lives and affected all aspects of life. However, societies are trying to understand the outcomes by conducting more research on many paths, such as, role of social media during the pandemic, spread of rumors, and health information behavior.etc .

This study is part of a broader body of research addressing the same topic, it aims to explore rumors refuting behavior of Saudis on social media during pandemic and their health information needs. The study suggests that coronavirus related information seeking behavior (CISB) with associated factors, peer communication, health self-efficacy, and infection risk perception induce Saudis to rumors refuting behavior. To exam this suggestion the researcher collected 390 Responses of online survey. The results show differences of Corona related information seeking behavior on social media (CISB) due to gender, Marital Status, Level of Education, Income, Job, and Preferred Social Media platform, also 84% of the sample use social media for health information about corona. Meanwhile, refuting rumors during the corona pandemic is associated with peer communication, infection risk perception, then health self-efficacy. This study contributes to both theory and practice .

الكلمات المفتاحية: دحض الشائعات الالكترونية، السلوك المعلوماتي الصحي، السلوك المعلوماتي في الأزمات.

Keywords: refuting online rumors, information health behavior, information behavior during crises.



Introduction

The world witnessed an unprecedented crisis, a widespread disease named coronavirus (COVID-19) in December 2019. The pandemic claimed millions of lives and affected all aspects of life. Recently, on 5 May 2023, the World Health Organization (WHO) declared that COVID-19 is no longer a public health emergency of international concern (WHO,2023), however, societies are still recovering from the pandemic consequences and trying to understand the outcomes by conducting more research in many paths .

Providing information during crises is essential to manage it whether this information is derived from physical or digital environment. To emphasize more on the role of information during crisis, a new term has raised as consequence of the humongous use of information related to crises, "Infodemic", the definition according to the World Health Organization (WHO) is " too much information including false or misleading information in digital and physical environments during a disease outbreak that causes confusion and risk-taking behaviors that can harm health" (WHO,2019). Attitude toward Infodemic, misinformation, and rumors considers part of information behavior discipline that influence individuals' serious health decisions such as wearing masks, social distancing, and responses to vaccinations and restrictions (Cato, et al., 2021)

During the pandemic, social media platforms have been a double-edged sword. Many governments, organizations, scientists, and doctors released their information through it and that enabled people to make serious health decisions. On the other hand, a negative





use of social media was remarked constantly, and rumors were one of the most prominent negative use (Lotfy, 2021) .

This situation promotes the value of social media content to the highest unprecedented level in its history, and Saudi Arabia as all countries around the world, witnessed high levels of usage of social media during pandemic (Alsadiq, 2021). Examining hundreds of hashtags that were launched in Saudi Arabia for example and conversations on other social media platforms present a clue of the collective response and at some point, shape how a society behaves with crises in general, and that is what the current research applies to reveal .

Statement of the problem:

The main reason of conducting this study is to explore Saudi information health behavior, especially rumors in crisis context and to be more specific, refute rumors behavior. Saudi literature has a clear lack of studies that address this aspect, plus to the best of the researcher knowledge, no study has been conducted on refuting rumors behavior during corona crisis on Saudi society according to Montesi (2021).

Studying rumors from refuting perspective particularly, is not highlighting and most studies investigate reasons behind sharing rumors, role of social media in spreading, sharing, and ignoring rumors) .Puyod &Charoensukmongkol,2021 ‘Montesi ,2021 ‘Hou et al., 2020 .(Therefore, current research tries to bridge this research gap and present a new dimension in analyzing crisis heath information behavior in addition to present unstudied population.



Therefore, the study intends to explore rumors refuting on social media for Saudis during crises by suggesting that coronavirus related information seeking behavior (CISB) induce Saudis to online rumor refuting behavior. To exam this suggestion, current study adopts, partially, Liang et.al, dual-pathway model to guide it.

Liang et.al (2022) propose dual-pathway model of coronavirus related information seeking that was grounded from social cognitive theory which values cognitive factors and external environment on individuals' behavior. According to Liang et.al (2022) there is certain factors, such as health self-efficacy, infection risk perception, peer condition and peer communication, can impact individuals refuting behavior .

Significant of the study:

The study sheds light on underrepresented group behavior in crisis context in research, therefore the findings and recommendations of the study are expected to be beneficial to all Saudi stakeholders who interested in Saudi behavior during crisis such as, the ministry of health, interior, media, and research centers. The findings will inform all these institutions about Saudis information needs during crises and the impact of (CISB) on online rumors .

Objectives of the study:

The main objective of this study is to explore the information seeking behavior of Saudi society during coronavirus pandemic by examining the impact





of (CISB) on online rumors refuting behavior, which leads to determine the following specific objectives:

- To understand Saudis information needs during coronavirus crisis.
- To identify to what extent corona information seeking behavior on social media impacts online rumor refuting.
- To what extent different information sources impact Saudi rumor refuting behavior.

Questions of the Study:

The study sets the following major questions:

- 1- What is the information needs of Saudis during coronavirus crisis?
- 2- To what extent (CISB) impacts online rumors behavior during coronavirus crisis?

Hypotheses of the study:

Firstly, describe the main factors of the study: health information needs (HIN), Corona-related information seeking behavior on social media (CISB), Refute rumors (RR), Infection risk perception (IRP), Peer communication (PO), Health self-efficacy (HSE) and determine the differences due to demographic factors, such as gender and marital Status .

Secondly, test the relation between each two factors like the association between Corona-related information seeking behavior on social media (CISB) and Refute rumors (RR), Infection risk perception (IRP), Peer communication (PO), Health self-efficacy (HSE). The study uses the abbreviations to list all the hypotheses:



- Corona-related information seeking behavior on social media (CISB) is positively correlated with (HIN), (RR), (IRP), (PO), and (HSE) .
- Health information needs (HIN) is positively correlated with (CISB), (RR), (IRP), (PO), and (HSE).
- Refute rumors (RR) is positively correlated with (CISB), (HIN), (IRP), (PO), and (HSE) .
- Infection risk perception (IRP) is positively correlated with (CISB), (HIN), (RR), (PO), and (HSE) .
- Peer communication (PO) is positively correlated with (CISB), (HIN), (RR), (IRP), and (HSE) .
- Health self-efficacy (HSE) is positively correlated with (CISB), (HIN), (RR), (IRP), and (PO) .

Literature review of the study

To build the theoretical framework and provide a comprehensive understanding of the existing knowledge related to the study, the literature is divided to five sections:

1- Rumors Behaviors on Society

Rumors are present in all human communities because they fulfill some important social needs and bring psychological satisfactions. Thus, social media and instant messaging platforms enable rumor spread and delivery quickly until they vastly alter social structures, social reliability, and community behaviors. According to the research of Zheltukhina et al. (2016), public opinion is an important generator





of media rumors in times of instability. It is in fact a very fast line of distribution of false information that circulates as rumors and rapidly damages the public resilience, so that it changes political schemes and shopper market tendencies during emergencies. The principal cause why people pass on rumors is because there are psychological elements underneath that are in humans' nature. In describing their emotional needs such as verification, social networks that need to fulfill visibility and connections, participants spread rumors, Kim and Bock (2011). People seek rumors to understand uncertain situations that cause confusion or fear since rumors act as explainers when official information fails to be accurate. Rumor sharing allows people to bond socially despite containing inaccurate information among exchanged rumors.

Shen et al. (2021) built a model that analyzes multiple elements connected to behaviors of sharing rumors online based on their obtained understanding. The data from Shen et al. (2021) proves that personal psychological states consisting of anxiety, fear, and social influence perception directly determine the extent to which individuals spread rumors. People disseminate unclear content by sharing with others because sharing helps them control their emotions of fear and anxiety. People share false information with others under social pressure and due to accepted behaviors despite reasons for accuracy.

During emergencies, rumor behaviors produce significant destruction to emergency response efforts. According to Mian and Khan (2020), unverified misinformation spreads panic to the public, leading to



unreasonable actions, source waste, and community breakdown. Public resources become endangered due to the widespread rumors, which causes fatal panic and permanent damage to social harmony. Public health operations encounter setbacks when individuals receiving wrong information about health emergencies disregard scientific guidelines. During the COVID-19 pandemic, the general public displayed this pattern of behavioral transformation. Research by Pérez-Escoda et al. (2020) investigated how misinformation spread through Spanish society to affect the public health behavior of its citizens. Various individuals made health choices based on unproven sources of information instead of following straightforward scientific instructions. Misinformation negatively impacted official public health operations by harming their work and increasing public doubt about official sources, which restricted pandemic control.

Individuals' expression of emotions, trust levels, and behavioral choices depend significantly on their participation in rumor behavior, demonstrating a fundamental social occurrence. Each new advancement in communication technology enhances the need to understand the social psychology behind spreading rumors. Fighters against negative rumors need to distribute factual information and solutions that satisfy the emotional needs that rumors typically serve. The development of societal resilience requires trust-based decision-making to arrive at correct choices while managing uncertainty.





2- The Rumors Behavior During Crises

During crises public behaviors toward spreading rumors significantly intensify due to emotional states that become overwhelmed by fear and uncertainty and confusion. Folks lose their ability to distinguish real information from false misinformation when uncertain events hit because they need comfort about these events. People accept doubtful information at disaster sites leading to perfect rumor contexts as per Barua et al.'s (2020) research. The authors Jalali and Mohammadi (2020) demonstrate that wrong information causes more damage to major crises than actual injuries since it negatively impacts response operations while diminishing community trust. During the COVID-19 public health emergency people who spread rumors failed to exhibit normal behavior with their conduct. The users of social media platforms distributed unverified virus treatment information along with improper transmission information as well as baseless origin theories about the pathogen (Ali, 2022). All efforts to respond to the pandemic fell victim to the waves of incorrect information that surged during the pandemic period. Those who failed to obey medical recommendations about COVID-19 treatment along with neglecting virus-related guidance decided to disregard public health safety measures which include wearing masks and getting vaccinated as well as keeping enough distance from others.

Examining past rumors reveals precise factors that explain the destructive impact of rumors during emergency situations. According to Fallatah et al.



(2021) the religious Hadith literature instructed followers to verify information before sharing materials with others. Research indicates through Hadith teachings that individuals should exercise caution when sharing inaccurate news because errors emerge when mistruths prove untrue. Modern crisis management systems implement long-standing Islamic ethical standards to establish specific guidelines for truth-based communication. The influence that rumors create in society differs between cultures that exist across the globe. According to Hou et al. (2020), public reactions toward rumors depend heavily on cultural orientations and institutional trust in media and government agencies. Adults' trust in official information sources strongly affects whether rumors spread and how much they split communities apart. Research results showed that rumors cause misunderstandings between people and strengthen existing social cracks, complicating the response to emergencies. Emergencies generate such severe outcomes from rumor behavior that some governments have established laws to reduce resulting damage. The pandemic created the need for several countries to establish criminal penalties around rumor-spreading (Alshible, 2020). Legal measures for deterring reckless rumor-spreading should be balanced with free speech protections to prevent possible censorship violations.

3- The Role of Social Media During Crisis

During crises, social media has been acting both as an essential tool for disseminating real-time information and one into misinformation on the ramp.





Since incidents of insecurity and panic have occurred, social media platforms have served as primary communication centers that distribute news and facilitate support network connections. While this openness integrates the spread of information at a speed not previously imagined, it also makes them vulnerable to rumors and false narratives. Public trust and subsequent behavioral changes stem directly from the type and origin of crisis messages shared through social media (Snoeijs, Poels, and Nicolay, 2014). The authors researched university emergencies specifically and discovered that official social media platforms minimized panic and confusion, which were superior to both unofficial channels and unknown source platforms. The research demonstrates why people rely on trusted official sources for their emergency information since their trust in the messenger directly affects how they interpret damage-control messages.

Sahni and Sharma (2020) established that the immediate release of information through social media creates destructive outcomes during false information propagation cycles. Information shared on Facebook, Twitter, and WhatsApp reaches thousands and sometimes millions of users before researchers manage to verify or disprove the content. The COVID-19 situation in Japan demonstrated this conflicting role (Cato et al., 2021). Social media platforms spread vital health information quickly but strengthened public misconception and detection, which complicated the public health response measures. This effect can also be observed in Saudi Arabia. Alotaibi and Alotiby (2022) reported that Twitter and WhatsApp served as



the main outlets for medical information acquisition by the public throughout the COVID-19 pandemic. Unverified information about the virus spread rapidly between users of social media platforms, making it difficult for public health initiatives to maintain control of the messaging.

Kothari Walker and Burns (2022) explored the effect of social media accessibility on public health information, giving people both knowledge and communication channels. Social media allowed viewers to encounter a flood of unverified information. The lack of traditional editorial oversight created substantial difficulties for users who tried to identify trustworthy information from untrustworthy sources in social media. Motahari-Nezhad et al. (2022) and Riaz, Wang, and Guo (2021) conducted research that expanded their understanding of this subject. During lockdowns, they became useful spaces for support, information exchange, and community building for people during their lockdown. However, crowdsourcing also became a hotbed for disseminating foreign propaganda, and this showed how close support networks can be to producing misinformation during a crisis.

Mirbabaie et al. (2020) drew lessons from past emergencies to analyze how social media was used during Hurricane Harvey. They found that proactive crisis communication is necessary to prevent the spreading of information. To make good use of social media in a crisis, the official sources should also make rapid responses, actively participate in the process, and spread the knowledge of media literacy and verification practices. In summary, social media's role





in crises is complex and strong. Even though it maps ideal conditions for quick communication and public involvement, it also requires helter-skelter management and strategic communication to avoid misinformation.

4- The Online Rumors During Crises

Academic researchers have shown increased interest in studying online rumors in crises because they seek to understand information spread through digital platforms and resulting public actions during emergencies. Online rumors distribute information across the Internet much more rapidly than ordinary word of mouth communication. The information lacks verification since social media networks serve as platforms that let users transfer information throughout extensive networks. Scientific literature shows that middle-aged and elderly groups were particularly impacted by the re-writing of public health rumors on the Internet (Sun et al., 2020). Research data indicates that these population segments showed low digital literacy competence which left them defenseless against unconfirmed content transmitted via social media channels. During healthcare emergencies the research team advises the creation of training programs which target different age groups to stop misinformation dissemination.

A COVID-19 rumor dataset was created by Cheng et al. (2021) which contained different categories of false information such as fabricated medical symptoms and fraudulent treatments and complex government conspiracy theories. The authors investigated how emergency uncertainty enabled



widespread misinformation through their findings about the many rumors spread across various categories. Liang et al. (2022) studied the behaviors of individuals using different information sources when they encounter rumors whether to deny or share them throughout their networks. The researchers discovered that more diverse information sources do not consistently produce enhanced fact-checking abilities, paradoxically making individuals more prone to misinformation when information sources become overwhelming.

Huda et al. (2020) and Biancovilli Makszin and Jurberg (2021) established that online rumors produced extensive stigma plus discrimination and public health regulation non-compliance within Brazil alongside Southern Asia. Researchers confirm that misinformation exceeds standard communication issues by posing a severe risk to public health. The study by Liu and Zuo (2021) demonstrated that COVID-19 rumors in China and the United Kingdom exhibited different details based on cultural variations. However, the core psychological and social factors, such as fear, anxiety, and distrust, showed universal social patterns across both nations. Utilizing nonlinear dynamic modeling, Hui et al. (2020) analyzed how rumors spread in the spread of rumors during COVID-19 and which are important influencers and network effects that promote rumor diffusion. The research reveals that misinformation control could succeed by focusing on influential network participants with their central social connections. In summary, as pointed out by Wang et al. 2022 and Hirabayashi et al. 2023, the role that leadership communication plays during crises





is enormous. False political statements and misleading statements from Twitter inadvertently fueled the spread of health-related rumors, which negatively impacted vaccine acceptance and led to adverse health effects for the public.

5- Refuting Rumors Behavior

Research on misinformation combat during emergencies relies heavily on studying rumor refutation behaviors. Social media rumor refutation studies conducted by Zhao, Yin, and Song (2016) proved user engagement and the level of trust users held toward sources produced better refutation outcomes. Liang et al. (2022) studied how seekers who obtain information from different sources show a higher propensity to refute rumors. College student groups' normative culture about verification influenced their online rumor-refuting activities (Xia, Liu, and Hou, 2024). Liu et al. (2023) showed that critical thinking skills among people at an individual level serve as a deciding factor for rumor propagation or refutation. People with strong critical thinking abilities avoided sharing rumors and actively refuted false information in their online activities.

Barua et al. (2020) propose that public media education should become a primary approach to improve resistance against misinformation. Canary and his colleagues showed that fact-checking at the beginning of social media rumors would stop the spread of dangerous misinformation, specifically when panic and uncertainty make crises like COVID-19 difficult to handle. The emotional origins of rumor behavior, fear, anxiety, and uncertainty need direct



attention from a psychological point of view and factual information dissemination, according to Ali (2020). People spread rumors during emergencies because they need assurance from emotional input and control over the situation. Providing information without recognizing emotional influences tends to fail in authenticating rumors. Ali (2022) explains that refuting rumors extends beyond rebuke by needing trust enhancement through consistent empathetic communication. The fight against misinformation requires awareness of cultural traditions, which determine how messages are presented to different communities. The successful reduction of rumor spread depends on authorities who maintain factual accuracy alongside emotional and cultural sensitivity with their communicators. Authorities and institutions should initiate countermeasures against misinformation before rumors begin to spread extensively, according to Mian and Khan (2020). The research found that rapid response actions, transparency, and the involvement of trusted community leaders were particularly effective in combating false information.

Summary:

Literature review elaborates how rumors, supported by emotional necessities like fear and anxiety, get quickly disseminated via social media during crises like the COVID-19 pandemic. Research shows that misinformation greatly dissolves public confidence, hinders emergency responses, and leads to negative societal actions. Social media websites, although positive for instant information sharing, also





facilitate spreading rumors due to unverified posting. Cultural differences and institutional levels of trust significantly influence the reception and dissemination of rumors in societies. Efforts at spreading counterfeit information must be integrated with fact-based communication, emotional empathy, trust building, and response speed strategies. Finally, enhancing critical thinking, media literacy, and the involvement of credible community leaders are central to responding effectively to and preventing rumor transmission in crises.

Methodology of the study

Measures

To implement these objectives and questions, Liang et.al, dual-pathway model guided and provided most of the key constructs of study to extract its sub-objectives and hypotheses. Next, to measure (CISB) on online rumor refuting of Saudis, Variables need to be put in statistics description and a survey with a closed question questionnaire is a suitable method. The purpose of using the survey is to generalize from a sample to a population, which helps to make inferences about some variables. A combination of items are added to reflect the objectives of the study, the general questionnaire consists of groups of questions: demographic information group, health information needs (HIN) group(driven from (Gua et.al, study,2023),Health self-efficacy (HSE)group (driven from Oh et.al study, 2013), Corona-related information seeking on social media behavior (CISB)group , Refute rumors (RR) group, Infection risk perception (IRP) group, Peer communication



(PO) group.(all of them are driven from Liang et.al study, 2022).

The questionnaire is closed, multiple-choice questions which also includes Likert scale categories that normally rate from 1-5, from strongly agree to strongly disagree. The questionnaire is a web-based survey on Google form and the distribution method sent a link to intend participants to fill the online questionnaire. The questionnaire opened for two months and strategies were taken to induce individuals to participate, such as distributed via social networks. Then data analysis and extracts results took one month.

The key constructs tables:

- 1- The researcher introduces health information needs HIN in the study as

health information needs HIN (Gua et.al, study,2023)	HIN1: I often need information on corona signs & symptoms
	HIN2: I often need information on causes & treatment of coronavirus
	HIN3: I often need information on government policy & restrictions on movement.
	HIN4: I often need information on vaccinations & its effects

- 2- The researcher introduces Corona related information seeking behavior on social media (CISB) in the study as

Corona related information seeking	CISB1: I often use online social media to get information about corona virus during the pandemic.
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behavior on social media (CISB) (Liang et.al study, 2022).	CISB2: I often use online social media to get information from knowledgeable people.
	CISB3: I often seek advice from online social media.

3- The researcher introduces individual's rumor refuting in the study as

Refute rumors (RR) (Liang et.al study, 2022).	RR1: I have forwarded information about corona pandemic on online social media.
	RR2: I expect myself to retweet (X app), repost information about corona regardless the credibility of the information.
	RR3: I have the desire to forward the information about corona.

4- The researcher introduces Health self efficacy (HSE) in the study as

Health self-efficacy (HSE) (Oh et.al study, 2013).	HSE1: I have the confidence that I can keep my health in the outbreaks.
	HSE2: I have set a clear plan to ensure avoiding have corona virus
	HSE3: I am keen on take care of my health continuously during corona virus crisis

5- The researcher introduces Infection risk perception (IRP) in the study as:

Infection risk perception (IRP) (Liang et.al study, 2022).	IRP1: I have concern of risking when contacting patients with coronavirus.
	IRP2: I have concern of risking in transmitting coronavirus to others (e.g., family, friends.)

6- The researcher introduces Peer communication (PO), in the study as:

Peer communication (PO) (Liang et.al study, 2022).	PO1: I often discuss virus information with my friends/relatives.
	PO2: I often learn about the virus information from my friends/relatives.



	PO3: I often share with my friends/relatives about virus information.
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Participants and Sampling:

Due the researcher's residency, the random sample is Riyadh population from different social-education economic backgrounds through the structured survey, and researcher has carefully chosen 385 Saudi as a sample used the social media during corona crisis in Riyadh area with a total population near five million persons by using the equation of Thompson. (Thompson,2012)

$$n = \frac{NP(1-P)}{(N-1)\left(\frac{d}{Z_{1-\alpha/2}}\right)^2 + P(1-P)} \quad \text{where } n = \text{sample size, } N =$$

population size (5,000,000),

d =Error proportion (0.05), Z= confidence level, P =proportion (0.5)

By focusing on this group of Saudis, this research aims to raise awareness of Saudi people about the impact of coronavirus related information seeking behavior (CISB)on online rumors refuting behavior.

Ethical consideration:

A written consent is taken from the participants (the study includes the survey cover page of PNU IRB, form 10.05) this consent includes participants rights of sharing, confidentiality, and incompleteness of the questionnaire.

The date is pulled out from Google form that was created by researcher's Gmail email, and she only has access to it. sheets of extracting data files are





protected by password. After conducting the research, the data will be deleted and cannot be used.

Validity and reliability:

The researcher used a questionnaire from other studies and made some adaptation under the supervision of some specialists from the university. The pilot study over 50 persons from Riyadh reached a high correlation for each factor by their statements, and the whole questionnaire by Alpha Cronbach correlation coefficient in the coming table.

	Factor	Statement	Alpha Cronbach	Alpha Cronbach
1	health information needs HIN	HIN1: I often need information on corona signs & symptoms	0.889	0.921
2		HIN2: I often need information on causes & treatment of coronavirus	0.877	
3		HIN3: I often need information on government policy & restrictions on movement.	0.925	
4		HIN4: I often need information on vaccinations & its effects	0.896	
5	Corona related information seeking behavior on social media (CISB)	CISB1: I often use online social media to get information about corona virus during the pandemic.	0.832	0.904
6		CISB2: I often use online social media to get information from knowledgeable people.	0.916	



7		CISB 3: I often seek advice from online social media	0.835	
8	Refute rumors (RR)	RR1: I have forwarded information about corona pandemic on online social media.	0.814	0.897
9		RR2: I expect myself to retweet (X app), repost information about corona regardless the credibility of the information	0.918	
10		RR3: I have the desire to forward the information about corona.	0.829	
11	Infection risk perception (IRP)	IRP1: I have concern of risking when contacting patients with coronavirus.	0.775	0.777
12		IRP2: I have concern of risking in transmitting coronavirus to others (e.g., family, friends.)	0.778	
13	Peer communication (PO)	PO1: I often discuss virus information with my friends/relatives.	0.820	0.877
14		PO2: I often learn about virus information from my friends/relatives.	0.839	
15		PO3: I often share with my friends/relatives about virus information.	0.819	
16	Health self-efficacy (HSE)	HSE1: I have the confidence that I can keep my health in the outbreaks.	0.802	0.854
17		HSE2: I have set a clear plan to ensure avoiding have corona virus	0.752	





18		HSE3: I am keen on take care of my health continuously during corona virus crisis	0.821	
Total Questionnaire				0.948

Table 1: Alpha Cronbach correlation coefficient for Questionnaire.

Sampling Description:

The researcher collected 390 questionnaires from the sample of the study, the questionnaires included demographic data for the sample about: Gender, Marital Status, Level of Education, Income, Job Title, and finally Preferred Social Media platform. The following tables show the characteristics of the sample as follows:

Gender	Frequency	Percent
Females	232	59.5
Males	158	40.5
Total	390	100.0

Table 2: Frequency and Percent Distribution of Sample by Gender

Table 2 shows that, more than half of the sample are females, 232 females by 59.5 % and 158 males by 40.5 %.

Marital Status	Frequency	Percent
Married	241	61.8
Single	138	35.4
Others	11	2.8
Total	390	100.0

Table 3: Frequency and Percent Distribution of Sample by Marital Status

Table 3 represents Marital Status of total sample size, the majority of the sample are married persons which



represented by 232 persons by 61.8 %, 138 persons are single by 35.4 %, and finally 11 persons have different cases (not married and not single) by 2.8 %.

Level of Education	Frequency	Percent
Master and PHD	180	46.2
Bachelor	123	31.5
Secondary	67	17.2
Less Secondary	8	2.1
Others	12	3.1
Total	390	100.0

Table 4: Frequency and Percent Distribution of Sample by Level of Education

Table 4 introduces Level of Education of the total sample, 180 persons of the sample have Master or Doctorate by 46.2 %, 123 persons have bachelor's degree by 31.5 %, 67 persons have Secondary Education by 17.2 %, 8 persons have less Secondary Education, and finally 12 persons have other qualifications by 3.1 %.

Income	Frequency	Percent
Less than 3000 SR	63	16.2
3000-6000 SR	66	16.9
7000-16000 SR	207	53.1
More than 16000 SR	54	13.8
Total	390	100.0

Table 5: Frequency and Percent Distribution of Sample by Income

Table 5 shows the distribution of income through the sample, 63 persons have less than 3000 Saudi Rail by 16.2 %, 66 persons have income 3000-6000 by 16.9 %, 207 persons have 7000-16000 by 53.1 %, and finally 54 persons have more than 16000 by 13.8 %.

Job Title	Frequency	Percent
Governmental Job	197	50.5
Private Job	70	17.9





Student	56	14.4
Self Employed	21	5.4
Others	46	11.8
Total	390	100.0

Table 6: Frequency and Percent Distribution of Sample by Job

Table 6 presents Job titles for the sample, half of the sample are governmental employees by 50.5 %, 70 persons work at private sectors by 17.9 %, 56 students by 14.4 %, 21 persons from the sample size are self-employees by 5.4 %, and finally 46 persons have other jobs by 11.8 %.

Preferred Social Media platform	Frequency	Percent
Whats App	58	14.9
X (formerly Twitter)	14	3.6
Snapchat	29	7.4
Instagram	14	3.6
Other	98	25.1
Multiple Applications	177	45.4
Total	390	100.0

Table 7: Frequency and Percent Distribution of Sample by Social Media platform

Table 7 shows Preferred Social Media platform for the sample, 58 persons from the sample size prefer Whats-Application only by 14.9 %, where 14 persons use X (formerly Twitter) only by 3.6 %, 29 persons prefer Snapchat only by 7.4 %, 14 persons use Instagram only by 3.6 %, and finally 98 persons prefer other applications like Facebook by 25.1 %. The researcher noted that 177 persons from the sample use multiple applications like Snapchat, Whats App, X (formerly



Twitter) and Instagram some time with the same email and password by 45.4 %.

Results:

The researcher describes each factor of the study, the most important statement of each factor, and search for differences in these factors attributable to any of the demographic variables in the study. The study of The Impact of Information Seeking Health Behavior on social media on online Rumor Refuting Behavior of Saudis During Coronavirus Pandemic, and its factors starting by health information needs (HIN) factor, Corona related information seeking behavior on factor, social media (CISB) factor, Refute rumors (RR) factor, Infection risk perception (IRP) factor, Peer communication (PO) factor, Health self-efficacy (HSE) factor. The following tables represent the opinions of the study sample members according to the five-point Likert scale on the different factors and for each statement of these factors as follows: This study explores Saudis information health needs during coronavirus.

1- Health Information Needs (HIN) Factor

Statement	Count	Strongly disagree	Disagree	Not sure	Agree	Strongly agree	Mean	SD	%
HIN1: I often need information on	F	9	18	41	179	143	4.1	0.8	82.00





corona signs & symptoms	%	2.3	4.6	10.5	45.9	36.7			
HIN2: I often need information on causes & treatment of coronavirus	F	8	19	37	175	151	4.13	0.92	82.67
	%	2.1	4.9	9.5	44.9	38.7			
HIN3: I often need information on government policy & restrictions on movement.	F	7	11	23	177	172	4.27	0.84	85.44
	%	1.8	2.8	5.9	45.4	44.1			
HIN4: I often need information on vaccinations & its effects	F	7	15	20	169	179	4.28	0.87	85.54
	%	1.8	3.8	5.1	43.3	45.9			
Health Information Needs Factor (HIN)							4.20	0.80	83.91

Table 8: Descriptive Statistics of First Factor (Health Information Needs (HIN))

From table 8 we can see that, 83.9 % of the sample used social media for health information about corona, and 85.5 % of the sample used social media for information on vaccinations & its effects. Where 85.4 % used social media for information on government policy & restrictions on movement, 82.67 % used social media for information on causes & treatment of coronavirus, finally 82 % of the total sample used social media for information on corona signs & symptoms, almost all studies had the same point like Barua et al.'s (2020), Alotaibi and Alotiby (2022), Kothari Walker and Burns (2022), Motahari-Nezhad et al. (2022) and Riaz, Cheng et al. (2021), Liang et al.



(2022), and finally Biancovilli Makszin and Jurberg (2021). On the other side the researcher finds differences in the first factor Health Information Needs (HIN) due to gender, Marital Status, Level of Education, Income, Job, and finally Preferred Social Media platform variables as showed in the coming tables.

Health Information Needs (HIN)	Frequency	Mean	Standard Division	T Test	Sign.
Females	232	4.41	0.84	7.12	0.000
Males	158	3.88	0.61		

Table 9: T Test for First Factor Health Information Needs (HIN) by Gender

Table 9 represents the descriptive statistics of Health Information Needs (HIN) factor by gender, females mean of health information needs reached 4.41 with standard deviation 0.84 for 232 females, where males mean reached 3.88 with standard deviation 0.61 for 158 males. T test reached 7.12 with level of significance 0.000 which less than 0.05, which indicates the difference between females and males in the first factor Health Information Needs (HIN) for females the keenest on Health Information Needs (HIN) than males.

Health Information Needs (HIN)	Frequency	Mean	Standard Division	F Test	Sign.
Married	241	4.42	0.78	30.17	0.000
Single	138	3.81	0.66		
Other	11	4.02	0.92		

Table 10: F Test for First Factor Health Information Needs (HIN) by Marital Status.





Table 10 shows the descriptive statistics of Health Information Needs (HIN) factor by marital status, married persons in the sample have a mean of health information needs reached 4.42 with standard deviation 0.78 for 241 married persons, where single persons mean reached 3.81 with standard deviation 0.66 for 138 males, finally 11 persons with different cases have a mean reached 4.02 with standard deviation 0.92. F test reached 30.17 with level of significance 0.000 which less than 0.05, and that indicates the differences between the three groups for married on Health Information Needs (HIN) than other cases. The same thing happened with the rest demographic variables with respect to Health Information Needs (HIN) factor, where the high level of education group, high income group, governmental employees and private employees as well, and finally X (formerly Twitter) and Whats-App users have the highest mean of Health Information Needs (HIN) factor.

2- Corona related information seeking behavior on social media (CISB) Factor

Statement	Count	Strongly disagreed	Disagree	Not sure	Agree	Strongly agree	Mean	SD	%
CISB1: I often use online social media to get information about corona virus during the pandemic.	F	9	19	37	159	166	4.16	0.95	83.28
	%	2.3	4.9	9.5	40.8	42.5			



CISB2: I often use online social media to get information from knowledgeable people	F	7	16	29	175	163	4.21	0.88	84.15
	%	1.8	4.1	7.4	44.9	41.8			
CISB 3: I often seek advice from online social media	F	9	13	35	181	152	4.16	0.89	83.28
	%	2.3	3.3	9.0	46.4	39.0			
Corona related information seeking behavior on social media (CISB) Factor							4.18	0.83	83.57

Table 11: Descriptive Statistics of Second Factor (Corona related information seeking behavior on social media (CISB))

From table 11 we can see that 83.57 % of the sample used social media for Corona related information seeking behavior on social media (CISB), and 84.15 % of the sample used social media to get information from knowledgeable people. Where 83.28 % used social media to get information about corona virus during the pandemic, and finally 83.28 % used social media to seek advice from online social media, almost all studies had the same point like Jalali and Mohammadi study (2020), Sahni and Sharma (2020), Kothari Walker and Burns (2022), Motahari-Nezhad et al. (2022) and Riaz, Wang, and Guo (2021), Liang et al. (2022), finally Huda et al. (2020). On the other side the researcher finds differences in the second factor Corona related information seeking behavior on social media (CISB) due to gender, Marital Status, Level of Education, Income, Job, and finally Preferred Social Media platform variables as showed in the coming tables.





Corona related information seeking behavior on social media (CISB)	Frequency	Mean	Standard Division	T Test	Sign.
Females	232	4.36	0.88	5.74	0.000
Males	158	3.91	0.68		

Table 12: T Test for Second Factor Corona related information seeking behavior on social media (CISB) by Gender

Table 12 represents the descriptive statistics of Corona related information seeking behavior on social media (CISB) factor by gender, the mean of females (232 females) for the factor reached 4.36 with standard deviation 0.88, where males mean reached 3.91 with standard deviation 0.68 for 158 males. T test reached 5.74 with level of significance 0.000 which less than 0.05, and indicates the difference between females and males in second factor Corona related information seeking behavior on social media (CISB) for females and against males.

Corona related information seeking behavior on social media (CISB)	Frequency	Mean	Standard Division	F Test	Sign.
Married	241	4.33	0.87	11.38	0.000
Single	138	3.92	0.70		
Other	11	4.03	0.85		

Table 13: F Test for Second Factor Corona related information seeking behavior on social media (CISB) by Marital Status.

Table 13 shows the descriptive statistics of Corona related information seeking behavior on social media (CISB) factor by marital status, married persons in the



sample (241) have the highest mean reached 4.33 with standard deviation 0.87, where single persons mean reached 3.92 with standard deviation 0.70 for 138 males, finally 11 persons with different cases have a mean reached 4.03 with standard deviation 0.85. F test reached 11.38 with level of significance 0.000 which less than 0.05, which indicates that married persons were seeking about information behavior on social media (CISB) than others. The same thing happened with the rest demographic variables with respect to corona related information seeking behavior on social media (CISB) factor, where the high level of education group, high income group, governmental employees and private employees as well, and finally X (formerly Twitter) and Whats-App users have the highest mean of Corona related information seeking behavior on social media (CISB) factor.

3- Refute rumors (RR)Factor

Statement	Count	Strongly disagreed	Disagree	Not sure	Agree	Strongly agree	Mean	SD	%
RR1: I have forwarded information about corona pandemic on online social media.	F	49	59	37	133	112	3.51	1.37	70.26
	%	12.6	15.1	9.5	34.1	28.7			
RR2: I expect myself to retweet (X app), repost information	F	75	149	30	28	108	2.86	1.52	57.18





about corona regardless the credibility of the information.	%	19.2	38.2	7.7	7.2	27.7			
RR3: I have the desire to forward the information about corona.	F	37	57	53	136	107	3.56	1.29	71.23
	%	9.5	14.6	13.6	34.9	27.4			
Refute rumors (RR) Factor							3.31	1.27	66.22

Table 14: Descriptive Statistics of Third Factor (Refute rumors (RR))

From table 14 we can see that, 66.22 % of the sample used social media for forward information about corona used by 71.23 % of the sample. Where 70.26 % used social media to forwarded information about corona pandemic on online social media, and finally 57.18 % used social media to retweet (X app) or repost information about corona regardless the credibility of the information, a lot of previous studies had the same point that social media have spread false rumors like Barua et al.'s (2020), Sahni and Sharma (2020), Alotaibi and Alotiby (2022), Kothari Walker and Burns (2022), Wang, and Guo (2021), finally Cheng et al. (2021), Liang et al. (2022). On the other side the researcher finds differences in the third factor Refute rumors (RR) due to gender, Marital Status, Level of Education, Income, Job, and finally Preferred Social Media platform variables as showed in the coming tables.

Refute rumors (RR) factor	Frequency	Mean	Standard Division	T Test	Sign.
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Females	232	3.44	1.52	2.80	0.01
Males	158	3.12	0.73		

Table 15: T Test for Third Factor Refute Rumors (RR) by Gender

Table 15 represents the descriptive statistics of Refute rumors (RR) factor by gender, the mean of females (232 females) for the factor reached 3.44 with standard deviation 1.52, where males mean reached 3.12 with standard deviation 0.73 for 158 males. T test reached 2.80 with level of significance 0.01 which less than 0.05, and indicates the difference between females and males in third factor Refute rumors (RR) factor for females and against males.

Refute rumors (RR) factor	Frequency	Mean	Standard Division	F Test	Sign.
Married	241	3.56	1.42	12.37	0.000
Single	138	2.91	0.83		
Other	11	2.94	1.26		

Table 16: F Test for Third Factor Refute Rumors (RR) by Marital Status.

Table 16 shows the descriptive statistics of Refute rumors (RR) factor by marital status, married persons in the sample (241) have the highest mean reached 3.56 with standard deviation 1.42, where single persons mean reached 2.91 with standard deviation 0.83 for 138 males, finally 11 persons with different cases have a mean reached 2.94 with standard deviation 1.26. F test reached 12.37 with level of significance 0.000 which less than 0.05, which indicates that married persons were Refute rumors (RR) than others. The same thing happened with the rest demographic variables with respect to refute





rumors (RR) factor, where the high level of education group, high income group, governmental employees and private employees as well, and finally X (formerly Twitter) and Whats-App users have the highest mean of refute rumors (RR) factor.

4- Infection risk perception (IRP) factor

Statement	Count	Strongly disagreed	Disagree	Not sure	Agree	Strongly agree	Mean	SD	%
IRP1: I have concern of risking when contacting patients with coronavirus.	F	4	27	42	182	135	4.07	0.91	81.38
	%	1.0	6.9	10.8	46.7	34.6			
IRP2: I have concern of risking in transmitting coronavirus to others (e.g., family, friends.)	F	4	13	22	176	175	4.29	0.80	85.90
	%	1.0	3.3	5.6	45.1	44.9			
Infection risk perception (IRP) factor							4.18	0.77	83.64

Table 17: Descriptive Statistics of Fourth Factor Infection risk perception (IRP) factor)

From table 17 we can see that, 83.64 % of the sample used social media for Infection risk perception (IRP) factor, and highest way to Infection risk perception (IRP) factor was through concern of risking in transmitting coronavirus to others (e.g., family, friends.) by 85.90 % of the sample. Where 81.38 % used social media have concern of risking when



contacting patients with coronavirus, many studies had the same result like Sahni and Sharma (2020) study, and Alotaibi and Alotiby (2022). On the other side the researcher finds differences in the fourth factor Refute rumors (RR) due to gender, Marital Status, Level of Education, Income, Job, and finally Preferred Social Media platform variables as showed in the coming tables.

Infection risk perception (IRP) factor	Frequency	Mean	Standard Division	T Test	Sign.
Females	232	4.36	0.82	5.96	0.000
Males	158	3.92	0.61		

Table 18: T Test for Fourth Factor Infection risk perception (IRP) factor by Gender

Table 18 represents the descriptive statistics of Infection risk perception (IRP) factor by gender, the mean of females (232 females) for the factor reached 4.36 with standard deviation 0.82, where males mean reached 3.92 with standard deviation 0.61 for 158 males. T test reached 5.96 with level of significance 0.000 which less than 0.05, and indicates the difference between females and males in the fourth factor Infection risk perception (IRP) factor for females and against males.

Infection risk perception (IRP) factor	Frequency	Mean	Standard Division	F Test	Sign.
Married	241	4.36	0.77	21.56	0.000
Single	138	3.85	0.66		
Other	11	4.41	0.77		

Table 19: F Test for Fourth Factor Infection risk perception (IRP) factor by Marital Status.



Table 19 shows the descriptive statistics of Infection risk perception (IRP) factor by marital status, married persons in the sample (241) have the highest mean reached 4.36 with standard deviation 0.77, where single persons mean reached 3.85 with standard deviation 0.66 for 138 males, finally 11 persons with other cases have a mean reached 4.41 with standard deviation 0.77. F test reached 21.56 with level of significance 0.000 which less than 0.05, which indicates that married persons were Refute rumors (RR) than others. The same thing happened with the rest demographic variables with respect to infection risk perception (IRP) factor, where the high level of education group, high income group, governmental employees and private employees as well, and finally X (formerly Twitter) and Whats-App users have the highest mean of Infection risk perception (IRP) factor.

5- Peer Communication (PO) Factor

Statement	Count	Strongly disagree	Disagree	Not sure	Agree	Strongly agree	Mean	SD	%
PO1: I often discuss virus information with my friends/relatives.	F	11	18	51	182	128	4.02	0.95	80.41
	%	2.8	4.6	13.1	46.7	32.8			
PO2: I often learn about virus	F	8	21	46	193	122	4.03	0.91	80.51



information from my friends/relatives.	%	2.1	5.4	11.8	49.5	31.3			
PO3: I often share with my friends/relatives about virus information.	F	10	14	37	202	127	4.08	0.89	81.64
	%	2.6	3.6	9.5	51.8	32.6			
Peer Communication (PO) Factor							4.04	0.82	80.85

Table 20: Descriptive Statistics of Fifth Factor (Peer Communication (PO) Factor)

From table 20 we can see that, 80.85 % of the sample used social media for Peer communication (PO), and they used peer communication (PO) to share with friends/relatives about virus information. by 81.64 % of the sample. Where 80.51 % used social media to learn about virus information from my friends/relatives, finally 80.41 % used social media through peer communication to discuss virus information with friends/relatives, many studies had the same result like (Snoeijers, Poels, and Nicolay, 2014), Sahni and Sharma (2020), Alotaibi and Alotiby (2022). On the other side the researcher finds differences in the fifth factor peer communication (PO) factor due to gender, Marital Status, Level of Education, Income, Job, and finally Preferred Social Media platform variables as showed in the coming tables.

Peer communication (PO) factor	Frequency	Mean	Standard Division	T Test	Sign.
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Females	232	4.16	0.92	3.87	0.000
Males	158	3.86	0.60		

Table 21: T Test for Fifth Factor Peer Communication (PO) factor by Gender

Table 21 represents the descriptive statistics of Peer communication (PO) factor by gender, the mean of females (232 females) for the factor reached 4.16 with standard deviation 0.92, where males mean reached 3.86 with standard deviation 0.60 for 158 males. T test reached 3.87 with level of significance 0.000 which less than 0.05, and indicates the difference between females and males in the fifth factor Peer communication (PO) for females and against males.

Peer communication (PO) factor	Frequency	Mean	Standard Division	F Test	Sign.
Married	241	4.22	0.83	16.78	0.000
Single	138	3.74	0.70		
Other	11	3.88	0.95		

Table 22: F Test for Fifth Factor Peer communication (PO) factor by Marital Status.

Table 22 shows the descriptive statistics of Peer communication (PO) factor by marital status, married persons in the sample (241) have the highest mean reached 4.22 with standard deviation 0.83, where single persons mean reached 3.74 with standard deviation 0.70 for 138 males, finally 11 persons with other cases have a mean reached 3.88 with standard deviation 0.95. F test reached 16.78 with level of significance 0.000 which less than 0.05, which indicates that married persons were peer communicated than others. The same thing happened



with the rest demographic variables with respect to peer communication (PO) factor, where the high level of education group, high income group, governmental employees and private employees as well, and finally X (formerly Twitter) and Whats-App users have the highest mean of Peer communication (PO) factor.

6- Health Self-Efficacy (HSE) Factor

Statement	Count	Strongly disagree	Disagree	Not sure	Agree	Strongly agree	Mean	SD	%
HSE1: I have the confidence that I can keep my health in the outbreaks.	F	5	11	51	191	132	4.11	0.83	82.26
	%	1.3	2.8	13.1	49.0	33.8			
HSE2: I have set a clear plan to ensure avoiding have corona virus	F	7	14	55	175	139	4.09	0.89	81.79
	%	1.8	3.6	14.1	44.9	35.6			
HSE3: I am keen on take care of my health continuously during corona virus crisis	F	3	0	24	207	156	4.32	0.66	86.31
	%	0.8	0	6.2	53.1	40.0			
Health Self-Efficacy (HSE) Factor							4.17	0.70	83.45

Table 23: Descriptive Statistics of Sixth Factor (Health Self-Efficacy (HSE) Factor)

From table 23 we can see that, 83.45 % of the sample used social media for health self-efficacy (HSE), and 81.64 % of the sample are keen on take care of their





health continuously during corona virus crisis. Where 82.26 % of the sample are confidence that they can keep their health in the outbreaks., finally 81.79 % of the sample set a clear plan to ensure avoiding corona virus, many previous studies had the same point like Barua et al.'s (2020), Sahni and Sharma (2020), Kothari Walker and Burns (2022), Wang, and Guo (2021), Cheng et al. (2021), Liang et al. (2022), and finally Alotaibi and Alotiby (2022). On the other side the researcher finds differences in the sixth factor health self-efficacy (HSE) due to gender, Marital Status, Level of Education, Income, Job, and finally Preferred Social Media platform variables as showed in the coming tables.

Health self-efficacy (HSE) factor	Frequency	Mean	Standard Division	T Test	Sign.
Females	232	4.36	0.75	7.02	0.000
Males	158	3.90	0.53		

Table 24: T Test for Sixth Factor Health Self-Efficacy (HSE) Factor by Gender

Table 24 represents the descriptive statistics of health self-efficacy (HSE) factor by gender, the mean of females (232 females) for the factor reached 4.36 with standard deviation 0.75, where males mean reached 3.90 with standard deviation 0.53 for 158 males. T test reached 7.02 with level of significance 0.000 which less than 0.05, and indicates the difference between females and males in the sixth factor health self-efficacy (HSE) for females and against males.



Health self-efficacy (HSE) factor	Frequency	Mean	Standard Division	F Test	Sign.
Married	241	4.33	0.73	16.35	0.000
Single	138	3.91	0.58		
Other	11	4.09	0.50		

Table 25: F Test for Sixth Factor Health Self-Efficacy (HSE) Factor by Marital Status.

Table 25 shows the descriptive statistics of health self-efficacy (HSE) factor by marital status, married persons in the sample (241) have the highest mean reached 4.33 with standard deviation 0.73, where single persons mean reached 3.91 with standard deviation 0.58 for 138 males, finally 11 persons with other cases have a mean reached 4.09 with standard deviation 0.50. F test reached 16.35 with level of significance 0.000 which less than 0.05, which indicates that married persons were health self-efficacy (HSE) than other groups. The same thing happened with the rest demographic variables with respect to Health self-efficacy (HSE) factor, where the high level of education group, high income group, governmental employees and private employees as well, and finally X (formerly Twitter) and Whats-App users have the highest mean of health self-efficacy (HSE) factor.

Correlation Between the Six Factors:

The researcher tries to explore the relation between the six factors (health information needs, corona related information seeking behavior, refute rumors, infection risk perception, peer communication, health self-efficacy) using correlation coefficient between each two factors, and it has to be





near ± 1 to represent good linear correlation between any two factors as introduces in the coming table.

Infection Risk Perception (IRP)	Refute Rumors (RR)		Corona related Information Seeking Behavior CISB)		Health Information Needs HIN	
	Correlation	Sig.	Correlation	Sig.	Correlation	Sig.
	.661**	0.00	.510**	0.00	1.00	
	.541**	0.00	.548**	0.00	.715**	0.00
	.585**		1.00	0.00	.510**	0.00
	1.00	0.00	.585**	0.00	.661**	0.00
	.623**	0.00	.727**	0.00	.680**	0.00
	.626**	0.00	.578**	0.00	.577**	0.00



	Sig.	0.00	0.00	0.00		0.00	0.00
Peer Communication (PO)	Correlation	.680**	.651**	.727**	.623**	1.00	.658**
	Sig.	0.00	0.00	0.00	0.00		0.00
Health Self-Efficacy (HSE)	Correlation	.577**	.556**	.578**	.626**	.658**	1.00
	Sig.	0.00	0.00	0.00	0.00	0.00	

Table 26: Correlation coefficients Between the Six Factors.

Table 26 shows Pearson correlation coefficients between any two factors through the cross-table, All the correlation coefficients are high and with significance level 0.000 which less than 0.05 and that indicates good linear correlation between all factors under study, but the highest correlation coefficients are two one of them between Health Information Needs (NID) and Corona related Information Seeking Behavior (CISB) which reached 0.715 with level of significance 0.000 less than 0.05 and that indicates the positive linear correlation between both factors. The other highest correlation coefficient between Refute Rumors (RR), and Peer Communication (PO) factors reached 0.727 with level of significance 0.000 less than 0.05 and that indicates the positive linear correlation between both factors.





Discussion:

The researcher collected 390 questionnaires from the sample of the study, the questionnaires included demographic data for the sample about: Gender, Marital Status, Level of Education, Income, Job Title, and finally Preferred Social Media platform. He found that more than half of the sample are females, 232 females by 59.5 % and 158 males by 40.5 %, the majority of the sample are married persons which represented by 232 persons by 61.8 %, 138 persons are single by 35.4 %, and finally 11 persons have different cases (not married and not single) by 2.8 %. About 180 persons of the sample have Master or Doctorate by 46.2 %, 123 persons have bachelor's degree by 31.5 %, 67 persons have Secondary Education by 17.2 %, 8 persons have less Secondary Education, and finally 12 persons have other qualifications by 3.1 %, where 63 persons have income less than 3000 Saudi Rail by 16.2 %, 66 persons have income 3000-6000 by 16.9 %, 207 persons have 7000-16000 by 53.1 %, and finally 54 persons have more than 16000 by 13.8 %. Half of the sample are governmental employees by 50.5 %, 70 persons work at private sectors by 17.9 %, 56 students by 14.4 %, 21 persons from the sample size are self-employees by 5.4 %, and finally 46 persons have other jobs by 11.8 %, while 58 persons from the sample size prefer Whats-Application only by 14.9 %, where 14 persons use X (formerly Twitter) only by 3.6 %, 29 persons prefer Snapchat only by 7.4 %, 14 persons use Instagram only by 3.6 %, and finally 98 persons prefer other applications like Facebook by 25.1 %. The researcher noted that 177 persons from the sample use



multiple applications like Snapchat, Whats App, X (formerly Twitter) and Instagram some time with the same email and password by 45.4 %.

The researcher described each factor of the study, the most important statement of each factor, and search for differences in these factors attributable to any of the demographic variables in the study. The study of The Impact of Information Seeking Health Behavior on social media on online Rumor Refuting Behavior of Saudis During Coronavirus Pandemic, and its factors starting by health information needs (HIN) factor, Corona related information seeking behavior on factor, social media (CISB) factor, Refute rumors (RR) factor, Infection risk perception (IRP) factor, Peer communication (PO) factor, Health self-efficacy (HSE) factor.

Researcher found that for the first factor 83.9 % of the sample used social media for health information about corona, and 85.5 % of the sample used social media for information on vaccinations & its effects. Where 85.4 % used social media for information on government policy & restrictions on movement, 82.67 % used social media for information on causes & treatment of coronavirus, finally 82 % of the total sample used social media for information on corona signs & symptoms, almost all studies had the same point like Barua et al.'s (2020), Alotaibi and Alotiby (2022), Kothari Walker and Burns (2022), Motahari-Nezhad et al. (2022) and Riaz, Cheng et al. (2021), Liang et al. (2022), and finally Biancovilli Makszin and Jurberg (2021). On the other side the researcher finds differences in the first factor Health Information Needs (HIN) due to gender, Marital Status, Level of





Education, Income, Job, and finally Preferred Social Media platform. Females mean of health information needs reached 4.41 with standard deviation 0.84 for 232 females, where males mean reached 3.88 with standard deviation 0.61 for 158 males. T test reached 7.12 with level of significance 0.000 which less than 0.05, which indicates the difference between females and males in the first factor Health Information Needs (HIN) for females the keenest on Health Information Needs (HIN) than males. While married persons in the sample have a mean of health information needs reached 4.42 with standard deviation 0.78 for 241 married persons, where single persons mean reached 3.81 with standard deviation 0.66 for 138 males, finally 11 persons with different cases have a mean reached 4.02 with standard deviation 0.92. F test reached 30.17 with level of significance 0.000 which less than 0.05, and that indicates the differences between the three groups for married on Health Information Needs (HIN) than other cases. The same thing happened with the rest demographic variables with respect to Health Information Needs (HIN) factor, where the high level of education group, high income group, governmental employees and private employees as well, and finally X (formerly Twitter) and What's-App users have the highest mean of Health Information Needs (HIN) factor.

The second factor Corona related information seeking behavior on social media (CISB) Factor, 83.57 % of the sample used social media for Corona related information seeking behavior on social media (CISB), and 84.15 % of the sample used social media to get information from knowledgeable people. Where 83.28



% used social media to get information about corona virus during the pandemic, and finally 83.28 % used social media to seek advice from online social media, almost all studies had the same point like Jalali and Mohammad I study (2020), Sahni and Sharma (2020), Kothari Walker and Burns (2022), Motahari-Nezhad et al. (2022) and Riaz, Wang, and Guo (2021), Liang et al. (2022), finally Huda et al. (2020). On the other side the researcher finds differences in the second factor Corona related information seeking behavior on social media (CISB) due to gender, Marital Status, Level of Education, Income, Job, and finally Preferred Social Media platform. Mean of females (232 females) for the factor reached 4.36 with standard deviation 0.88, where males mean reached 3.91 with standard deviation 0.68 for 158 males. T test reached 5.74 with level of significance 0.000 which less than 0.05, and indicates the difference between females and males in second factor Corona related information seeking behavior on social media (CISB) for females and against males. While married persons in the sample (241) have the highest mean reached 4.33 with standard deviation 0.87, where single persons mean reached 3.92 with standard deviation 0.70 for 138 males, finally 11 persons with different cases have a mean reached 4.03 with standard deviation 0.85. F test reached 11.38 with level of significance 0.000 which less than 0.05, which indicates that married persons were seeking about information behavior on social media (CISB) than others. The same thing happened with the rest demographic variables with respect to corona related information seeking behavior on social media (CISB) factor, where the high level of education





group, high income group, governmental employees and private employees as well, and finally X (formerly Twitter) and What's-App users have the highest mean of Corona related information seeking behavior on social media (CISB) factor.

Also, researcher found that for the Refute rumors (RR) Factor, 66.22 % of the sample used social media for forward information about corona used by 71.23 % of the sample. Where 70.26 % used social media to forwarded information about corona pandemic on online social media, and finally 57.18 % used social media to retweet (X app) or repost information about corona regardless the credibility of the information, a lot of previous studies had the same point that social media have spread false rumors like Barua et al.'s (2020), Sahni and Sharma (2020), Alotaibi and Alotiby (2022), Kothari Walker and Burns (2022), Wang, and Guo (2021), finally Cheng et al. (2021), Liang et al. (2022). On the other side the researcher finds differences in the third factor Refute rumors (RR) due to gender, Marital Status, Level of Education, Income, Job, and finally Preferred Social Media platform. Mean of females (232 females) for the factor reached 3.44 with standard deviation 1.52, where males mean reached 3.12 with standard deviation 0.73 for 158 males. T test reached 2.80 with level of significance 0.01 which less than 0.05, and indicates the difference between females and males in third factor Refute rumors (RR) factor for females and against males. While married persons in the sample (241) have the highest mean reached 3.56 with standard deviation 1.42, where single persons mean reached 2.91 with standard deviation 0.83 for 138





females and against males. Also, married persons in the sample (241) have the highest mean reached 4.36 with standard deviation 0.77, where single persons mean reached 3.85 with standard deviation 0.66 for 138 males, finally 11 persons with other cases have a mean reached 4.41 with standard deviation 0.77. F test reached 21.56 with level of significance 0.000 which less than 0.05, which indicates that married persons were Refute rumors (RR) than others. The same thing happened with the rest demographic variables with respect to infection risk perception (IRP) factor, where the high level of education group, high income group, governmental employees and private employees as well, and finally X (formerly Twitter) and What's-App users have the highest mean of Infection risk perception (IRP) factor.

While the Peer Communication (PO) Factor explained that, 80.85 % of the sample used social media for Peer communication (PO), and they used peer communication (PO) to share with friends/relatives about virus information. by 81.64 % of the sample. Where 80.51 % used social media to learn about virus information from my friends/relatives, finally 80.41 % used social media through peer communication to discuss virus information with friends/relatives, many studies had the same result like (Snoeijers, Poels, and Nicolay, 2014), Sahni and Sharma (2020), Alotaibi and Alotiby (2022). On the other side the researcher finds differences in the fifth factor peer communication (PO) factor due to gender, Marital Status, Level of Education, Income, Job, and finally Preferred Social Media platform. Mean of females (232 females) for



the factor reached 4.16 with standard deviation 0.92, where males mean reached 3.86 with standard deviation 0.60 for 158 males. T test reached 3.87 with level of significance 0.000 which less than 0.05, and indicates the difference between females and males in the fifth factor Peer communication (PO) for females and against males. While married persons in the sample (241) have the highest mean reached 4.22 with standard deviation 0.83, where single persons mean reached 3.74 with standard deviation 0.70 for 138 males, finally 11 persons with other cases have a mean reached 3.88 with standard deviation 0.95. F test reached 16.78 with level of significance 0.000 which less than 0.05, which indicates that married persons were peer communicated than others. The same thing happened with the rest demographic variables with respect to peer communication (PO) factor, where the high level of education group, high income group, governmental employees and private employees as well, and finally X (formerly Twitter) and What's-App users have the highest mean of Peer communication (PO) factor.

Finally, the Health Self-Efficacy (HSE) Factor showed that, 83.45 % of the sample used social media for health self-efficacy (HSE), and 81.64 % of the sample are keen on take care of their health continuously during corona virus crisis. Where 82.26 % of the sample are confidence that they can keep their health in the outbreaks., finally 81.79 % of the sample set a clear plan to ensure avoiding corona virus, many previous studies had the same point like Barua et al.'s (2020), Sahni and Sharma (2020), Kothari Walker and Burns (2022), Wang, and Guo (2021), Cheng et al.





(2021), Liang et al. (2022), and finally Alotaibi and Alotiby (2022). On the other side the researcher finds differences in the sixth factor health self-efficacy (HSE) due to gender, Marital Status, Level of Education, Income, Job, and finally Preferred Social Media platform. Mean of females (232 females) for the factor reached 4.36 with standard deviation 0.75, where males mean reached 3.90 with standard deviation 0.53 for 158 males. T test reached 7.02 with level of significance 0.000 which less than 0.05, and indicates the difference between females and males in the sixth factor health self-efficacy (HSE) for females and against males. While married persons in the sample (241) have the highest mean reached 4.33 with standard deviation 0.73, where single persons mean reached 3.91 with standard deviation 0.58 for 138 males, finally 11 persons with other cases have a mean reached 4.09 with standard deviation 0.50. F test reached 16.35 with level of significance 0.000 which less than 0.05, which indicates that married persons were health self-efficacy (HSE) than other groups. The same thing happened with the rest demographic variables with respect to Health self-efficacy (HSE) factor, where the high level of education group, high income group, governmental employees and private employees as well, and finally X (formerly Twitter) and What's-App users have the highest mean of health self-efficacy (HSE) factor.

Correlation Between the Six Factors:

The researcher tries to explore the relation between the six factors (health information needs, corona related information seeking behavior, refute



rumors, infection risk perception, peer communication, health self-efficacy) using correlation coefficient between each two factors, and it has to be near ± 1 to represent good linear correlation between any two factors, all the correlation coefficients are high and with significance level 0.000 which less than 0.05 and that indicates good linear correlation between all factors under study, but the highest correlation coefficients are two one of them between Health Information Needs (NID) and Corona related Information Seeking Behavior (CISB) which reached 0.715 with level of significance 0.000 less than 0.05 and that indicates the positive linear correlation between both factors. The other highest correlation coefficient between Refute Rumors (RR), and Peer Communication (PO) factors reached 0.727 with a level of significance 0.000 less than 0.05 and that indicates the positive linear correlation between both factors.

Conclusion:

The researcher elaborates how rumors, supported by emotional necessities like fear and anxiety, get quickly disseminated via social media during crises like the COVID-19 pandemic. Research shows that misinformation greatly dissolves public confidence, hinders emergency responses, and leads to negative societal actions. Social media websites, although positive for instant information sharing, also facilitate spreading rumors due to unverified posting. Cultural differences and institutional levels of trust significantly influence the reception and dissemination of rumors in societies. Efforts at





spreading counterfeit information must be integrated with fact-based communication, emotional empathy, trust building, and response speed strategies. Finally, the researcher introduces many ideas like

1. Enhancing critical thinking,
2. Media literacy
3. Involvement of credible community leaders are central to responding effectively to preventing rumor transmission in crises.

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