Factors affecting undergraduate students' information sharing behaviour when dealing with COVID-19 misinformation: theory of reasoned action

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Abstract

Introduction. *Sharing misinformation has become a widespread phenomenon. Social media networks have significantly contributed to spreading and sharing misinformation, especially during crises and pandemics. However, little is known about why people share misinformation. The study aims to identify the factors affecting undergraduate students' information sharing behaviour when dealing with unverified information. The study also seeks to discover any statistically significant differences (α=0.05) in students' behaviour of sharing information related to COVID-19 without verification attributed to demographic variables, self-efficiency, attitude towards verifying information, individual's beliefs, and subjective norms.*
Method. *The study adopted the theory of reasoned action. A quantitative research approach was adopted via the use of questionnaires. An e-mail was sent to all undergraduate students enrolled at Sultan Qaboos University during 2020-2021, yielding 407 valid answers from various colleges. The reliability of the survey is 0.916 as a whole, 0.741 for the individual's self-efficacy scale, 0.312 for the attitude towards verifying information scale, 0.809 for the individual's beliefs scale, 0.916 for the subjective norms scale, and 0.846 for the behaviour of using and sharing information related to COVID-19 without verification scale. The effect of self-efficacy, Attitude Towards Verifying Information, beliefs, and Subjective norms on the behaviour of sharing information related to COVID-19 without verification were tested.*
Analysis. *Quantitative data retrieved from the questionnaire were analysed using SPSS 24. Several analysis tests such as frequencies, T-test, and multiple regression tests were conducted.*
Results. *The findings support that there's a significant effect of demographic variables, self-efficacy, attitude towards verifying information, individual's beliefs, and subjective norms on students' behaviour of sharing information related to COVID-19 without verification.*
Conclusions. *This research showed that many factors affect information sharing behaviour. The research concluded that the students' information behaviour could be enhanced by focusing on information literacy skills.*

Keywords *misinformation, COVID-19, information behaviour*

Introduction

The COVID-19 pandemic has caused a global crisis, affecting the health of people all over the world. The virus has created challenges in many areas of life. The pandemic surge has caused an increased volume of information on the social web. Hence, social networks sites were a fertile place for sharing information regarding the virus; however, the information circulated on these websites was not subject to review or examination; in contrast, much information was found to be false or misleading information (Ashrafi-Rizi and Kazempour, 2020). Misinformation spreads faster than accurate information; the reason is due to the formulation of this information in ways that attract individuals to interact with it and make judgments. Moreover, scientific information is difficult to understand or is boring. Reliable information needs to be proven and verified with scientific evidence, unlike misleading information (Vosoughi, et al., 2018; Wang, et al., 2019).

Additionally, misinformation might affect individuals' ability to access to reliable information, make judgements, take action. Moreover, it also contributes in creating a state of confusion and fear among people (Laato, et al., 2020). Misinformation can lead to excessive optimism, which would lead to discouraging people from adhering to the necessary health measures and affecting public awareness. Misinformation during the COVID-19 pandemic contributed to spreading racism and distorting images of some races and governments and promoting harmful treatments leading to serious health effects (Attiwi, 2019).

During a crisis, it is essential to have access to reliable information. There is a need to strengthen health information literacy programs that help people select the appropriate sources of information and avoid misinformation. These programs should be based on information-seeking, use, and sharing behaviour studies during other crises. Thus, it is important to understand information sharing behaviour during crises. One of the possible approaches to understanding information behaviour is utilising the theory of reasoned action. The theory of reasoned action (TRA) assumes that humans act logically, take into account the information available to them and anticipate the effects of their actions. In line with its focus on voluntary behaviours of people, TRA assumes that a person's intention is the direct determinant of the behaviour (Khan and Idris, 2019). Guided by the TRA theory, this study seeks to investigate the extent to which demographic factors, self-efficacy, attitudes, beliefs and subjective norms influence an individual's attitude toward the behaviour of using and sharing information related to COVID-19 without verification.

This paper attempts to understand the factors that affect undergraduates' information sharing behaviour during pandemics and health crises. The paper examines the theory of reasoned action elements to find if factors such as demographic factors (age and gender), self-efficacy, attitude towards verification, and beliefs affect the information behaviour.

Literature review

COVID-19 and its impact on the use of information

Since the beginning of the COVID-19 crisis, the search for information regarding the virus has increased. People realised within a short period the seriousness of the epidemic. However, the information was spreading quickly and in large quantities without having enough time to verify. Sharing information through social media became the primary mean of interaction between individuals. Social media became the alternative to compensate for the physical interaction, as it was a way to learn about what was happening worldwide (Barua, et al., 2020).

People usually interact with events and information they receive in different ways that affect their behaviour. Hence, they take different actions, such as resharing the information (retweet, share), liking it, or expressing opinions about it (comment, replay), as they interact with information psychologically and are affected by it (Ahmad and Murad, 2020). Therefore, the false and misleading information that spread during the crisis posed a global threat to public health, which prompted the World Health

Organization to warn about it. It constituted an information epidemic that spreads faster than the virus itself (Pickles, et al., 2020).

During the COVID-19 pandemic, people have disseminated information on social media, leading to a flood of information or infodemic. Regardless of the credibility of the information, a significant amount of information was received through social media (Cuello-Garcia, et al., 2020). Hence, this information affected people's decisions, making them do unpredictable actions that would harm them (Tran, et al., 2021). As a result, having information literacy skills becomes a necessity (Zolbin, et al., 2021; Shehata, 2021).

Spreading false and misleading information is a form of information behaviour that individuals make for different reasons and motives that are difficult to detect (Alwreikat, et al., 2021). False and misleading information spreads quickly; because people enjoy sharing it even if they are not sure of its authenticity (Karlova and Fisher, 2013). Some may publish false information for personal gains, express a personal opinion and obtain relevant information (Chen, et al., 2015a; Laato, et al., 2020a). The term misinformation is used to refer to different types of information such as misleading information, false information, mal-information and disinformation (Wardle and Derakhshan, 2018).

Factors contributed to the spread of misinformation

The literature revealed that many reasons contribute to the increase of misinformation. For example, misinformation can increase as a result of demand for information that exceeds supply (Ahmadi, 2022; Pan, et al., 2021). Therefore, the beginning of the COVID-19 crisis witnessed widespread of misinformation related to the virus and its origin, a time when doctors and scientists did not possess reliable information, so rumours spread to fill the lack of reliable information (Kim, et al., 2020; Laato, et al., 2020b). Notably, reliable information needs time to be proven; false information will need nothing more than to create and disseminate the information. Individuals do not necessarily produce misinformation; governments also have their share of misinformation. Some governments deliberately manipulated information related to the crisis and its impact by concealing the actual number of infections to achieve specific purposes, such as mitigating the impact of the crisis on the economy (Ognyanova, et al., 2020; Vasconcellos-Silva and Castiel, 2020). These practices have led to suspicion and mistrust in the information published by official institutions (Vasconcellos-Silva and Castiel, 2020; Wang and Huang, 2021).

Information overload or infodemic is one of the factors that contributed to the spread of misinformation. After COVID-19 was announced and classified as a global epidemic, people found themselves in front of a massive amount of information flowing to them from multiple sources. Individuals faced a massive amount of information, reducing their ability to distinguish between accurate and false information (Siebenhaar, et al., 2020; Vrdelja, et al., 2021). Thus, the need for health information literacy programs has increased to fight the spread of misinformation and enable individuals to extract useful information from the flood of COVID-19 information on the web (Chong, et al., 2020; Dadaczynski, et al., 2021).

Social networks sites are also factors that contributed to the increase in the spread of misinformation. Studies have shown that much of the information shared on social media is considered misinformation (Biancovilli, et al., 2021; Zareie and Sakellariou, 2021). The issue with social media is that it is difficult to judge the authenticity of the information, which exemplifies the growth of misinformation on social media (Walter, et al., 2020). People can publish any information on social media without backing it up with evidence. Thus, it is difficult to control the information published on social media or prevent people from being exposed to such information (Chen, et al., 2015a; Pennycook, et al., 2020). Hence, the spread of misinformation has elevated the need to gain suitable digital information literacy education to avoid falling for online misinformation (Khan and Idris, 2019).

The aims and objectives of the study

This study seeks to identify the extent to which the components of the TRA theory influence the behaviour of Sultan Qaboos University undergraduate students when dealing with and sharing information related to COVID-19 through the following sub-objectives:

1. Explore the influence of demographic factors on the students' information behaviour when dealing with COVID-19 information.
2. Identify the impact of individual self-efficacy on COVID-19 information sharing behaviour.
3. Measure the impact of the attitude towards verifying information on sharing information related to COVID-19.
4. Explore the impact of beliefs on COVID-19 information sharing behaviour.
5. Identify the impact of subjective norms on COVID-19 information using and sharing behaviour.

Hypotheses

Guided by the elements of TRA, the study tested the following hypotheses:

1. Demographic factors (gender and age) influence sharing information related to COVID-19 without verification.
2. An individual's self-efficacy influences the behaviour of sharing information related to COVID-19 without verification.
3. Attitude towards verifying information influences the behaviour of sharing information related to COVID-19 without verification.
4. Individual's beliefs influence the behaviour of using and sharing information related to COVID-19 without verification.
5. Subjective norms influence the behaviour of using and sharing information related to COVID-19 without verification.

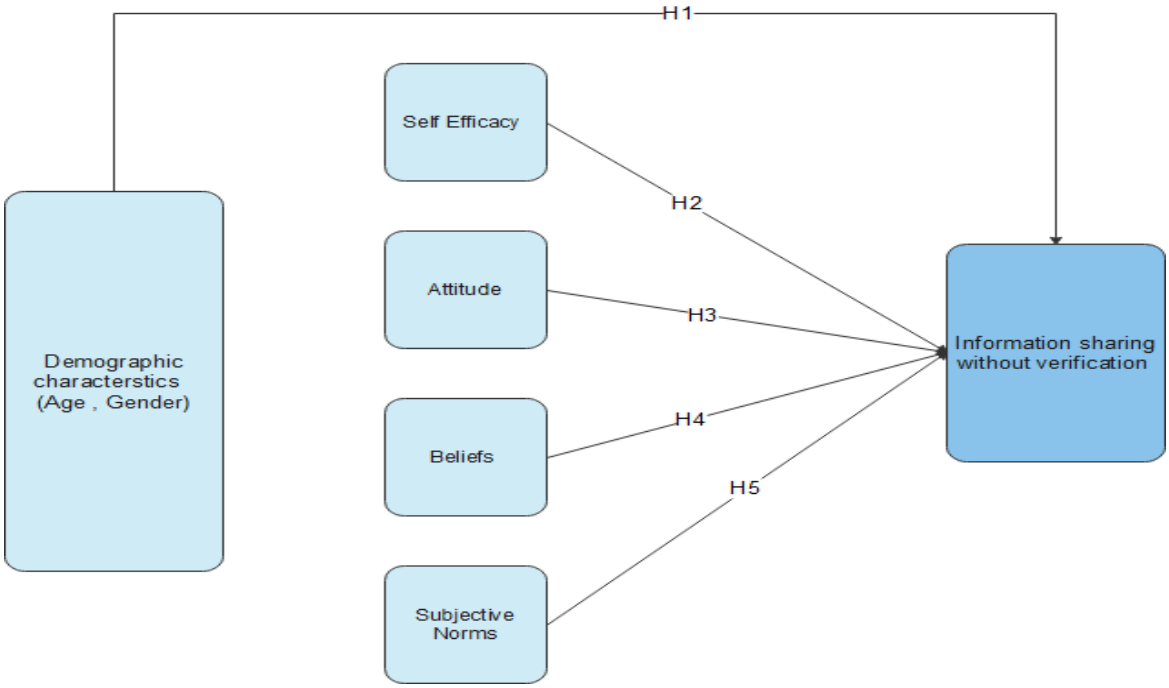

Figure 1: The study hypotheses

Research methodology

The study adopted the quantitative approach. This approach was thought to help identify the effect of predetermined variables on information behaviour. The study population included all undergraduate students at Sultan Qaboos University during 2020/2021. The population is 16018 students. A random sample of undergraduate students was selected because this group represents most of the university community. This group also relies more on social media to obtain information and news since it is the fastest and easiest way. The questionnaire was distributed electronically to all students from February to March 2021. The relationship department at the university was responsible for sending the questionnaire to all students registered at the university. After two weeks, a reminder was sent to all students to make sure the number of responses was high. As a result, 407 students from different faculties submitted the questionnaire. Table 1 shows the demographic characteristics.

A number of 407 students responded to the survey. Males were approximately 53.8% of the overall respondents, while females were 46.2%. The distribution of students spread all over nine colleges at SQU with the largest percent 20.4% of respondents were from the Faculty of Arts and Social Sciences, 12.3% from the Faculty of Education, followed by 12% from the Faculty of Science, 10.6% from Faculty of Economics and Political Science, and each of other faculties were less than 10%. Most students in this sample (38.8%) were aged between 21 and 23 years, 34.9% were aged between 18 and 20 years, and 26.3% were 24 years or older. Most of the students in this sample, 31.4%, were in the third year, 26.3% in the fourth year, 24.3% in the second year, 12% in the first year and only 6% in prep-year.

Table 1: Demographic characteristics

Percentage	***Responses num***	***Faculty***
20.4	83	College of Arts and Social Sciences
12.3	50	Faculty of Education
12.0	49	College of Science
10.6	43	Faculty of Economics and Political Science
9.8	40	College of Nursing
9.6	39	College of Engineering
9.1	37	College of Medicine and Health Sciences
8.8	36	Faculty of Agricultural and Marine Sciences
7.4	30	College of Law
100%	407	Total
		Gender
53.8	219	Male
46.2	188	Female
100%	407	Total
		Age
34.9	142	18-20
38.8	158	21-23
26.3	107	and More 24
100%	407	Total

		Academic Year
6.1	25	Prep-year
12.0	49	First Year
24.1	98	Second Year
31.4	128	Third Year
26.3	107	Fourth Year
100%	407	Total

The questionnaire consisted of two main parts. The first part collects personal information about the respondent, such as gender, age, academic year and college, in addition two questions about sources of information related to COVID-19 and about the most prominent effects of exposure to misinformation associated with the health crisis. The second part focused on the factors affecting using and sharing information without verifying it, consisting of 5 scales; self-efficacy, attitude towards verification, belief in the validity of information, subjective norms and behaviour. The questionnaire statements were designed based on reviewing the literature on the topic and literature that adopted TRA. Later the questionnaire was compared against core literature, then a pilot study was carried out in January 2020 to test the questionnaire. Cronbach's Alpha test was used to measure the internal consistency, and the alpha coefficient was (0.916). This result indicates a high degree of internal consistency between the parts of the questionnaire and that the consistency of the tool is generally excellent.

Data analysis

In order to carry out the analysis tests of the study, the researchers initially tested the normality of the distribution of the data using the Shapiro-Wilk test and Kolmogorov-Smirnov test. The results revealed that the sample is normally distributed.

Individual's self-efficacy

Table 2 of the self-efficacy factor shows that about (51%) of the study sample was at a high level of awareness regarding their ability to distinguish accurate information from others. The standard deviation and mean of the self-efficacy factor were 3.6 and 0.435, revealing that the sample had high awareness of dealing with misinformation. The table shows confidence among the sample in recognising fake information and dealing with it. The sample indicated that they know how to check the information's credibility through different tools (M=4.22). In addition, the sample revealed that they could distinguish accurate information from misinformation (M= 4.21). Overall, the response showed a positive behaviour toward confirming the credibility of the information using different techniques and methods.

Table 2: Self-efficacy

Statement	*Strongly agree*	*Agree*	*Natural*	*Disagree*	*Strongly disagree*	*Mean*	*Std.*
I can check information about the epidemic in the Sultanate from official accounts such as "Oman faces Corona".	148	211	40	7	1	4.22	0.710
	36.4%	51.8%	9.8%	1.7%	0.2%		
I can distinguish accurate information from others	145	210	46	6	0	4.21	0.696
	35.6%	51.6%	11.3%	1.5%	0		
I am able to double-check interesting information from other sources as soon as I get it	86	265	49	7	0	4.06	0.631
	21.1%	65.1%	12%	1.7%	0		
I can distinguish misinformation through its linguistic form	71	226	91	16	3	3.85	0.775
	17.4%	55.5%	22.4%	3.9%	0.7%		
I can distinguish misinformation by the date it was first posted	55	232	102	13	5	3.78	0.761
	13.5%	57%	25.1%	3.2%	1.2%		
I can judge information by knowing the purpose of it	59	219	101	22	6	3.74	0.824
	14.5%	53.8%	24.8%	5.4%	1.5%		
I can verify the accuracy of the information by checking the qualifications of the sender or originator of the information	47	226	101	28	5	3.69	0.810
	11.5%	55.5%	24.8%	6.9%	1.2%		
I can verify the authenticity of the images through Google Reverse Image Search or any other image verification method	24	45	204	109	25	2.84	0.914
	5.9%	11.1%	50.1%	26.8%	6.1%		
I use snopes or other validator to verify information	18	54	196	116	23	2.82	0.890
	4.4%	13.3%	48.2%	28.5%	5.7%		
Information on social networking sites and the Internet	18	41	207	112	29	2.77	0.887
	4.4%	10.1%	50.9%	27.5%	7.1%		
Standard deviation and mean of the self-efficacy factor						3.60	0.435

Attitude toward information verification

In order to test the validity of the third hypothesis, the statements of the second category of the questionnaire were analysed. Table 3 reveals that the sample attitude of the verification was at a high level in terms of recognising the need to verify the source of information before sharing. For example, checking the source of information (M=4.43) and not using or sharing unverified information (M=4.28) were among the practices followed by the sample, indicating a high information literacy skill. Also, the participants showed high awareness of the threat of spreading misinformation (M= 4.25) and refraining from sharing misinformation to keep a positive public image (M= 4.16). The participants also indicated the importance of asking their family and friends to confirm the information (M=4.05).

Table 3: Attitude toward verification of information

Statement	*Strongly agree*	*Agree*	*Natural*	*Disagree*	*Strongly disagree*	*Mean*	*Std.*
I think it's important to check the source of information before using or sharing it	191	202	14	0	0	4.43	0.562
	46.9%	49.6%	3.4%	0	0		
I refuse to use or share unverified information so as not to affect others negatively	149	227	27	3	1	4.28	0.639
	36.6%	55.8%	6.6%	0.7%	0.2%		
I refuse to share unverified information so as not to help spread it	138	234	34	1	0	4.25	0.609
	33.9%	57.5%	8.4%	0.2%	0		
I refrain from sharing unverified information to not lose others' trust in me	114	250	37	6	0	4.16	0.637
	28%	61.4%	9.1%	1.5%	0		
I ask my family and friends to validate any message before I share it	88	263	46	7	3	4.05	0.681
	21.6%	64.6%	11.3%	1.7%	0.7%		
Usually, I don't like to share information, even if it is true and reliable	44	218	94	36	15	3.59	0.926
	10.8%	53.6%	23.1%	8.8%	3.7%		
I am interested in reporting the wrong information and alerting the sender to that	33	231	96	29	18	3.57	0.904
	8.1%	56.8%	23.6%	7.1%	4.4%		
I see that I do not have enough time to verify the information before sharing	13	215	79	68	32	3.27	1.034
	3.2%	52.8%	19.4%	16.7%	7.9%		
I don't bother checking information when I feel anxious or afraid	8	195	77	65	62	3.05	1.152
	2%	47.9%	18.9%	16%	15.2%		
The standard deviation and mean of the attitude factor						3.85	0.321

Individual's beliefs and sharing information related to COVID-19

Table 4 of the individual's beliefs factor shows that (60.4%) of the study sample believe that the information they obtain from social media is reliable, so they depend on it and share it with others. The table also reveals that personal beliefs affect the sample behaviour. International official intuitions (M=4.15) and the Omani government (M=4.14) were among the participants' most credible sources of information. It was found that trusting friends and family is one of the factors that affect how the participants deal with information (M=3.23). Additionally, many participants indicated that they share information consistent with their beliefs (M=3.52). Notably, many of the participants indicated that they trust information from social media (M=3.54) and that the frequent repetition of information increases the credibility of this information (M= 3.31).

Table 4: Individual's beliefs

Statement	*Strongly agree*	*Agree*	*Natural*	*Disagree*	*Strongly disagree*	*Mean*	*Std.*
I often trust the information published by international official institutions and organisations, so I use it	156	177	59	11	4	4.15	0.838
	38.3%	43.5%	14.5%	2.7%	1%		
I trust the information I get through the Omani government communication channels, so I use it	142	196	53	14	2	4.14	0.803
	34.9%	48.2%	13%	3.4%	0.5%		
I believe that the information I get from social media is reliable, and I share it with others for their benefit	20	246	93	31	17	3.54	0.867
	4.9%	60.4%	22.9%	7.6%	4.2%		
I make sure to share information that is consistent with my own thoughts and opinions	21	218	133	23	12	3.52	0.803
	5.2%	53.6%	32.7%	5.7%	2.9%		
I see that the frequent repetition of information increases my belief in its correctness	34	131	185	41	16	3.31	0.906
	8.4%	32.2%	45.5%	10.1%	3.9%		
I trust the information that I receive from my family and friends, and I do not see that there is a need to verify it	14	200	94	65	34	3.23	1.035
	3.4%	49.1%	23.1%	16%	8.4%		
I see that the many comments, likes and re-shares are evidence of the credibility of the information	24	100	192	62	29	3.07	0.957
	5.9%	24.6%	47.2%	15.2%	7.1%		
I think the information attached to the video or photos is correct, so I re-share it	17	79	215	71	25	2.98	0.885
	4.2%	19.4%	52.8%	17.4%	6.1%		
Standard deviation and arithmetic mean of an individual's belief factor						3.49	0.582

Subjective norms influence

Table 5 of the subjective norms factor shows that (65.4%) of the study sample believes that sharing information about COVID-19 helps them to obtain the opinions of others about it. In comparison (68.1%) of the sample, sharing information about COVID-19 benefits them from the different experiences of others. More than half of the sample (61.4%) expressed that sharing information about COVID-19 helps them express their personal opinion. Remarkably, 56% of the study sample believes that sharing information with others about the COVID-19 pandemic makes them appear influential in society, and 52.8% of the sample expressed that sharing information makes them good people in the eyes of others.

Table 5: Subjective norms factor in the behaviour of sharing information without verification

Statement	*Strongly agree*	*Agree*	*Natural*	*Disagree*	*Strongly disagree*	*Mean*	*Std.*
sharing information keeps me up-to-date	47	273	66	13	8	3.83	0.745
	11.5%	67.1%	16.2%	3.2%	2%		
sharing information makes me benefit from the different experiences of others	29	277	76	17	8	3.74	0.733
	7.1%	68.1%	18.7%	4.2%	2%		
sharing information about events as a societal duty	56	233	82	25	11	3.73	0.871
	13.8%	57.2%	20.1%	6.1%	2.7%		
sharing information helps me get other people's opinions about it	33	266	72	28	8	3.71	0.791
	8.1%	65.4%	17.7%	6.9%	2%		
sharing information helps me express my personal opinion about events	34	250	84	30	9	3.66	0.820
	8.4%	61.4%	20.6%	7.4%	2.2%		
sharing information keeps me connected with others	34	240	79	37	17	3.58	0.919
	8.4%	59%	19.4%	9.1%	4.2%		
sharing information expresses the breadth of my culture and knowledge	26	246	84	34	17	3.57	0.891
	6.4%	60.4%	20.6%	8.4%	4.2%		
sharing information makes me look like an influential person	21	228	86	47	25	3.43	0.974
	5.2%	56%	21.1%	11.5%	6.1%		
sharing information makes me a good person in the eyes of others	17	215	102	47	26	3.37	0.966
	4.2%	52.8%	25.1%	11.5%	6.4%		
I am influenced by what famous people post on social media	9	64	200	74	60	2.72	0.971
	2.2%	15.7%	49.1%	18.2%	14.7%		
Standard deviation and mean of the subjective norms factor						3.53	0.658

Hypothesis Testing

In order to carry out the analysis tests of the study, the researchers initially tested the normality of the distribution of the data using the Shapiro-Wilk test and Kolmogorov-Smirnov test. The results revealed that the sample is normally distributed.

The study aims to discover if there are any statistically significant differences among students' behaviour in sharing information related to COVID-19 without verification that is attributed to demographic variables of gender and age. Also, to discover the effect of an individual's self-efficacy, attitude towards verifying information, individual's beliefs, and subjective norms on the behaviour of sharing information related to COVID-19 without verification. So, the following hypotheses have been formulated:

- H1: An individuals' gender and age influence the behaviour of using and sharing information related to COVID-19 without verification.

- H2: An individual's self-efficacy influences the behaviour of using and sharing information related to COVID-19 without verification
- H3: A person's attitude toward information verification greatly influences using and sharing information related to COVID-19 without verification.
- H4: Individual's beliefs influence the behaviour of using and sharing information related to COVID-19 without verification.
- H5: Subjective norms influence the behaviour of sharing information without verification.

Multiple linear regression model was performed to measure the effect of gender, age, individual's self-efficiency, person's attitude towards information verification, individual's beliefs, and subjective norms on the behaviour of using and sharing information related to COVID-19 without verification. The adjusted R-square in Table 6 of 0.590 shows that our independent variables explain 59% of the variability of our dependent variable. The F-ratio in the ANOVA (Table 7) tests whether the overall regression model is a good fit for the data. The table shows that the independent variables statistically significantly predict the dependent variable, $F(7, 399) = 84.617$, $p < .001$ (i.e., the regression model is a good fit for the data). The regression coefficients in Table 8 show that all coefficients are statistically significant. The difference in conditional means between females and males was -0.961, which means that females do not share information related to COVID-19 without verification as males by 0.961 points. Also, the difference in conditional means between 21-23 and 18-20 was 0.936, which means that the 21-23 age group is more significant than the 18-20 group in the behaviour of using and sharing information related to COVID-19 without verification by 0.936 points. Finally, the difference in conditional means between 24 and older and 18-20 was 3.069, which means that the 24 and older age group is more significant than the 18-20 group in the behaviour of using and sharing information related to COVID-19 without verification by 3.069 points. The previous results indicate that sharing information related to COVID-19 without verification increases in older participants.

Considering the effect of self-efficiency, the unstandardised coefficient is equal to -0.148; this means that for each one point increase in self-efficiency, there is a decrease in behaviour score of 0.148 points. Also, for the effect of attitude, the unstandardised coefficient is equal to 0.271; this means that for each one point increase in attitude, there is an increase in behaviour score by 0.271 points. For the effect of beliefs, the unstandardised coefficient is equal to 0.340; this means that for each one-point increase in beliefs, there is an increase in behaviour score by 0.340 points. Finally, the effect of subjective norms, the unstandardised coefficient is equal to 0.419, which means that for each one point increase in subjective norms, there is an increase in behaviour score by 0.419 points.

Behavior = -2.016 – (0.961 * female) + (0.936 * Age 21-23) + (3.069 * Age 24 or older) - (0.148 * Self-efficacy) + (0.271 * Attitude) + (0.340 * Beliefs) + (0.419 * Subjective Norms).

Table 6: Regression model summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.773	.598	.590	3.84369

Table 7: ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	8750.842	7	1250.120	84.617	<.001
Residual	5894.795	399	14.774		
Total	14645.636	406			

Table 8: Regression model coefficients

	Unstandardised Coefficients		***t***	***Sig.***
	B	Std. Error		
(Constant)	-2.016	2.550	-.791	.430
Gender (Female)	-.961	.396	-2.430	.016
Age (21-23)	.936	.455	2.056	.040
Age (24 or older)	3.069	.518	5.923	<.001
Self-efficacy	-.148	.049	-3.010	.003
Attitude	.271	.071	3.818	<.001
Beliefs	.340	.058	5.819	<.001
Subjective	.419	.042	9.926	<.001

Discussion

The study examined the impact of a set of factors on the behaviour of Sultan Qaboos University students when they share information related to COVID-19 (Table 10). This study attempted to understand the factors that predict the behaviour of sharing information on social media without verification. The findings indicate that many factors affect information sharing behaviour.

Table 9: Factors affecting information sharing

Hypothesis	***Test***	***T***	***Sig***	***Result***
Gender (Female)	Multiple Linear Regression	-2.430	.016	Statistically significant
Age (21-23)	Multiple Linear Regression	2.056	.040	Statistically significant
Age (24 and older)	Multiple Linear Regression	5.923	<.001	Statistically significant
Self-Efficiency	Multiple Linear Regression	-3.010	.003	Statistically significant
Attitude	Multiple Linear Regression	3.818	<.001	Statistically significant
Beliefs	Multiple Linear Regression	5.819	<.001	Statistically significant
Subjective Norms	Multiple Linear Regression	9.926	<.001	Statistically significant

Overall, the findings revealed that all factors are affecting sharing behaviour. Gender, for example, is significantly affecting sharing behaviour for many reasons. One of the reasons may be that females are more interested in confirming the reliability of the information than males (Alwreikat, et al., 2021). Notably, Khan and Idris (2019) and Apuke and Omars (2021) studies did not show a statistically significant difference between females and males in sharing information. Yet, Chen, et al. (2015b) proved the existence of gender differences in the behaviour of sharing information and the reasons for participation, as women used social media in collecting information more than men. These differences between results might be due to the characteristics of the sample.

Demographic factor (age) was one of the factors that affect sharing of information related to COVID-19 without verification. Although the age groups are somewhat similar, the finding showed that it significantly affects sharing information; we presume that experience increased students' self-efficacy. It was found that older students in the age group 24 and over tend to share information without verification more than younger age groups. This means that older students have less information literacy skills. Our sample consisted of students in all different university stages; ideally, they have to take mandatory courses related to search strategies, which make them able to search, judge and retrieve information. Hence, their information behaviour should be better in the first years of the university as they take the course in the first year. The literature showed relative findings. For example, Rampersad and Althiyabi (2020) concluded that age positively affected accepting false information. In contrast, Loos and Nijenhuis (2020) found that young people have greater health knowledge and digital skills, which enabled them to deal with accurate and inaccurate information. They are less likely to report any misleading content. Apukea (2021) and Khan and Idris (2019) did not indicate any relationship between age and sharing false and misleading information.

Perceived self-efficacy in recognising misinformation indicates that beliefs and attitudes about information can influence individuals' behaviours. Khan and Idris (2019) found that self-efficacy in recognising false information positively affects the information-sharing behaviour without verification. While our study showed similar findings to Khan and Idris (2019), Oluwaseye and Oyetola (2018) indicated no relationship between the competencies of secondary school students in Nigeria and their misinformation sharing behaviour. Visentin, et al. (2019) supported the previous results. They claimed that self-efficacy in recognising misleading information about brands does not necessarily affect attitudes because of trust in the media. Hence, we conclude that students' competencies in recognising misinformation are high as they have digital literacy skills and awareness of the tools available to verify the information. The issue with misinformation is that identifying this kind of information requires having good information literacy skills that undergraduate students are prepared for in the university, as many of them receive training on information literacy competencies during their study. We assume a significant relationship between information literacy training and self-efficacy and students' ability to recognise misinformation.

The individual's attitude towards behaviour is formed from perceptions of the importance of the behaviour. One of the interesting findings in our study is that there is a significant relationship between attitude and information sharing. Laato, et al. (2020b) indicated that trusting the information and not verifying it before sharing leads to an increase in the spread of false and misleading information. Promoting a healthy doubt of social media information and the internet is essential so that people do not share information immediately upon receiving it. Khan and Idris (2019) showed a negative impact of the attitude of verification on sharing false information without verification. The person's tendency to verify information reduces his participation in false and misleading information. We attribute these differences to the fact that sharing information may be motivated by emotional motives such as fear, anxiety or desire to benefit others. Naturally, its impact varies from one person to another. The excessive flow of information, the desire to be the first to share information, and the effort and time to verify information, may lead to sharing information without verification.

Beliefs were used in the study to express one's belief in the validity of the information circulated on social media, whether related to one's thoughts and beliefs or the person's confidence in the information shared by his friends or influential people on social media. The findings indicated a relationship and influence between the individual's beliefs in the credibility of the information and the sharing of information related to COVID-19 without verification. Beliefs were the main driver of many types of individuals' behaviour. Theories that explore information behaviour have stressed that beliefs can significantly affect how people react to a specific incident. Chen and Chang (2019) and Talwar, et al. (2019) indicated that social media users often follow people from the same social environment or agree with them in opinions, ideas and beliefs. Khan and Idris (2019) confirmed that belief in the credibility of information obtained from social media makes one share it without feeling the need to verify it.

The study verified the impact of subjective norms resulting from a person's social influences and normative beliefs on sharing information. The study results indicated a relationship and effect between

subjective norms and sharing information related to COVID-19 without verification. Hence, we can not exclude the cultural context and social influence when we try to understand how individuals engage with misinformation. Individuals are usually affected by their environment, making them take irrational decisions such as sharing wrong information. It seems that there is an agreement in the literature about the impact of subjective norms on sharing information, as they are one of the main factors affecting human behaviour. There is no doubt that when a person shares information, he expects that this participation will benefit him or the group to which he belongs, and maybe the behaviour is related to the group's expectations about him or what he perceives that society wants him to do. Chen and Chang (2019) found that sharing information without verification may be motivated by reasons related to the person himself, such as the desire to obtain others' opinions or the need to express a personal opinion. Other reasons, such as strengthening relationships with others and interaction with people, were among the reasons that were confirmed by different studies, e.g. (Arpaci, 2020; Jang and Kim, 2018; Talwar, et al., 2019).

Conclusion

This research study provides information on the factors affecting sharing information related to COVID-19 without verification. The study reached a set of results, including that students rely mainly on social media to obtain information related to the pandemic. Twitter was found to be one of the most important sources that students adopt. The majority of students reported exposure to false information during the crisis. Mental confusion and psychological anxiety were among the most severe effects of misinformation from the students' point of view.

The study also proved an effect of a group of factors on information-sharing behaviour. The study concluded that the demographic factor (age), (gender), subjective norms, self-efficacy, attitude to verification behaviour, and personal beliefs on sharing information without verification significantly affect sharing behaviour. The study's findings are of great importance in understanding the factors that drive students to share information through social media without thinking about the credibility or the reliability of the information. The study also contributes to understanding the factors that affect people's information-sharing behaviour. The findings have indicated that people may share information sometimes just because it agrees with their individual beliefs, ideas and experiences or brings them and their society a specific benefit.

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