Contents lists available at ScienceDirect

International Journal of Disaster Risk Reduction
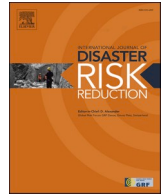
COVID-19 and fake news dissemination among Malaysians – Motives and its sociodemographic correlates

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ARTICLE INFO

ABSTRACT

This paper investigates the motives behind the dissemination of fake news and examines its sociodemographic correlates, namely, gender, age, frequency of using social media and frequency of accessing digital news. A fake news dissemination framework comprising three motives were used to fulfil the aim of the study, namely, Altruism, Attitude and Pass Time. Online question-naires were distributed resulting in the recruitment of 869 Malaysians (18–59 years old). Linear regressions revealed all three motives to significantly and positively predict fake news dissemi-nation. Further analysis revealed females to engage in fake news dissemination significantly less than males for Pass Time purpose, whereas younger people tend to significantly disseminate more false content for Altruistic purpose than the older cohorts. Individuals who spent less than an hour daily accessing digital news were found to significantly share more fake news for Attitude and Altruism reasons compared to those who spent more than 5 h daily. The identification of the sociodemographic correlates and unique motives for fake news dissemination is deemed benefi-cial to authorities such as online content regulators and policy makers in order to design more effective strategies to combat the promulgation of such harmful news.

1. Introduction

The term fake news was popularized after the US 2016 presidential election, whereby an algorithmic flaw in Facebook was deemed to have contributed to the wild spread of misinformation that eventually affected the result of the election [1]. There is no single de-facto definition for fake news, and it often overlaps with other forms of false content such as misinformation and disinformation, all conveying messages, stories or conspiracy theories that spread rapidly and affect the public negatively [2]. In simple terms, fake news refers to any content such as news, articles, messages etc. that are fabricated to deceive people into thinking they are real [3].

With the advent of the Internet and particularly social media, a substantial amount of unverified information travels through social media, and thus misleading and confusing a large population. The popularity of sharing and re-tweeting on social media has driven the dissemination of fake news at an alarming rate. For instance, false content was re-tweeted by more people broadly and rapidly compared to real news [4]. The use of social media platforms and the spread of fake news have intensified recently due to the COVID-19 pandemic [5–7], ranging from peddling fake remedies including drinking or gargling with warm salt or lemon water and consuming bleach [8] to the active promotion of using hydroxychloroquine to treat the virus [9]. The spread of fake news related to COVID-19 is a worldwide concern, with countries taking several measures to counter this issue. For instance, the Spanish National Police published a guide against fake news, providing recommendations to check the veracity of dubious news, verifying authors and relaunching Google searches [10]. Countries such as Kurdistan initiated websites that are regularly updated to ensure a reliable flow of

authentic information related to the pandemic [11] whilst the Indian government requested top social media platforms such as TikTok, Facebook and YouTube to stop publishing unverified news [12].

The phenomenon was observed in Malaysia too whereby fake news related to the virus, lockdown and other COVID-19 related news increased significantly, resulting in the local government setting up the Rapid Response Troop to counter fake news, and the promotion of the local fact-checking website (i.e., sebenarnya.my). Examples of recent fake news disseminated in the country include a list of areas in Klang Valley that should be avoided due to a high number of COVID-19 cases, news urging people with pneumonia symptoms to contact a fake communicable diseases control branch and the possibility of COVID-19 infection through the handling of bank notes [13]. The consequences of fake news can be detrimental as evidenced by the US 2016 presidential results [1,14], and in the context of a pandemic it can be detrimental to people's physical and mental wellbeing as it may lead to a poor observation of public health measures, promote erroneous practices that increase the spread of the virus and therefore, reduce the effectiveness of the efforts made to stop the pandemic [15,16].

Studies related to fake news mainly focused on the detection mechanisms using supervised [17,18] and unsupervised [19] approaches, user profiling [20], whilst others attempted to examine the impact of fake news and its prevalence rate [1,21]. Recent studies have emerged during the COVID-19 probably due to the spike in fake news dissemination including those investigating susceptibility to false information and its impacts [14,22]. For example, Koetke and colleagues [22] found intellectual humility (i.e., accepting something that one does not know) is associated with lower susceptibility to false information about the pandemic. Others have examined ways to build trusts toward fact-checking websites [23] and acceptance of fact checking websites [24]. Very few studies conducted have investigated the motives behind the behavior with results indicating entertainment, social media fatigue, online trust, self-disclosure, social distancing, pass time and a lack of self-regulation to be some of the reasons behind fake news dissemination [25–27].

Further, there is also a paucity of research specifically examining the sociodemographic profiles of the individuals who engage in fake news dissemination behavior, in terms of gender, frequency of social media use, and age, among others, except for a few. For instance, Allcott and Gentzkow [1] found US adults who spent more time on social media and older are less likely to believe in false content whereas Indonesians with a high Internet spending (spend more time online) were found to have a higher tendency to share fake news [28]. The studies, however, did not find age, gender and education levels to significantly affect fake news dissemination. The issue related to fake news has gained further salience amid the COVID-19 pandemic, hence research related to the underlying motives of this harmful behavior and its sociodemographic correlates warrants investigation. In light of this gap, we aim to first identify the significant motives predicting fake news dissemination behavior, followed by assessments on four sociodemographic factors, namely, age, gender, frequency of social media use and frequency of access to digital news.

1.1. Fake news dissemination motives and hypotheses

Altruism refers to the unselfish regard for or devotion to the welfare of others. In other words, it is the act of doing something for another individual/group/organization without expecting any reward in return. In the fake news dissemination contagion, altruism may refer to the act of disseminating false content (unintentionally) with the intention to be helpful or offering useful information to others without any expectation [29,30]. A recent study among 385 Nigerians found altruism to be the strongest predictor for fake news dissemination during the COVID-19 pandemic [25], suggesting that the intrinsic nature to help one another is evident in their sharing false information as well. Accordingly, the present study postulates that individuals deemed highly altruistic are more likely to disseminate fake news, knowingly or unknowingly. Hypothesis one is therefore, formulated as:

H1. Altruism affects fake news dissemination

A positive attitude towards a topic/event/product has been shown to have positively influenced peoples' adoption and acceptance, and vice-versa [31,32]. Cyberbullying studies for example, revealed that respondents' attitude toward the phenomenon affect its perpetration. For example, Balakrishnan & Norman [33] found bullies tend to have a poorer attitude towards cyberbullying perpetration compared to witnesses. In the context of health emergencies/crisis, it has been shown that individuals look for proper information to change their attitude only if they perceive a high risk, hence it is important for people to have the right perception and attitude about the risk of COVID-19 and the spread of fake news [34]. Studies on fake news dissemination have showed peoples' poor attitude such as being lazy and lack of self-regulation practices lead to a higher spread of false content [26,27]. This notion is further supported by studies indicating that many people tend to forward unverified information without even realizing they are spreading false content, suggesting that most fake news dissemination is done accidently and not intentionally [6,27]. The present study therefore hypothesizes that an individual's poor attitude positively affects fake news dissemination, therefore the second hypothesis is formulated as follows:

H2. Attitude affects fake news sharing

The term pass time has been often used by scholars investigating the adoption of technology such as mobile phones, social media, Internet etc. [35], and refers to people's behavior in engaging in an activity as a measure to counter boredom or simply because they have nothing much to do. The motive has been examined in fake news dissemination studies as well, however, with conflicting results. For instance, Thompson et al. [36] found their respondents not to engage in fake news dissemination activities to pass time whilst others such as Vicario et al. [37] and Apuke and Omar [25] found positive association between sharing fake news and pass time. Considering the COVID-19 pandemic resulted in a long period of lockdown that forced people to stay and work from home, we posit that many individuals would have engaged in fake news dissemination (knowingly and unknowingly) simply to pass their time, and thus, our final hypothesis is as follows:

H3. Pass time affects fake news sharing

2. Material and methods

It is to note that the content presented and discussed in this paper is part of a larger study that examines the underlying motives of fake news sharing among Malaysians during the COVID-19 pandemic, hence only the relevant sections are elaborated. Fig. 1 depicts the theoretical framework used in this study, with three independent variables (Altruism, Attitude and Pass time) and the socio-demographic variables, namely, gender, age, frequency of social media use and frequency of accessing digital news.

2.1. Materials and measures

A questionnaire survey was developed in English based on all the motives being investigated, with the items adopted/adapted from past studies, specifically Altruism [25,30], Attitude [27,33] and Pass Time [25,36,37]. The survey had three sections, namely, the demographic section (age, gender, frequency of accessing digital news portals, frequency of use social media in a day, main source of information, awareness of fake news and fact-checking websites, among others). The second section measured the prevalence rate and the popular medium(s) used to disseminate fake news (social media, mobile messaging apps etc.). Two items measuring the prevalence rate ("I have spread fake news knowingly," and "I have spread fake news unknowingly") were used as the independent variable, that is, fake news dissemination. All the items were measured based on a four-point scale ranging from 1 (strongly disagree) to 4 (strongly agree), with the neutral point excluded. The final section comprised items related to all the motives investigated, measured using the same four-point scale as Section 2. All the items were deemed reliable based on their respective Cronbach alpha values, i.e. αAltruism = 0.935; αAttitude = 0.863; αPassTime = 0.928.

Data collection was done entirely online by the students registered for the Probability and Statistics course, who in return earned credit scores for their effort. Participation of all the respondents were voluntary, confidential and anonymous (i.e., no personal information that can be used to identify a respondent was collected). The criteria used were for the respondents to be a Malaysian aged more than 18 years old.

2.2. Respondents

A total of 869 respondents were recruited ranging between 18 and 59 years old (Mean = 22.3; Standard deviation = 6.13). As shown in Table 1, it can be observed that females outnumbered males (59.7% versus 40.3%). Most of the respondents were aged between 18 and 25 years old (85.8%) and are students (both undergraduates and postgraduates, 80.7%).

More than half of the sample seldom share news (fake/real), followed by those who do more regularly (31.9%). Approximately, 12% of them claimed to never share any form of news. Although the majority claimed to what fake news means (88.8%), unfortunately most (65.2%) do not bother to authenticate suspicious looking news/content. Considering a young sample, many spent more than 5 h (47%) on social media daily, however the pattern was not observed for daily access of digital news whereby most of the respondents spent between an hour to five daily (44.35), followed by those who spent less than an hour daily (42%). Most of our respondents (71.7%) were also found to depend on social media for information, and traditional form of media (printed, television and radio) was not favored, a pattern that was somewhat expected as the respondents mostly belong to the younger generations, or digital natives. In fact, the pattern is in line with the latest statistics that reported approximately 71% of Malaysians below 25 years of age (i.e., Gen Z) get their news from social media whereas only 23% depended on newspapers [38]. Close to half of the sample (49.5%) were unsure about their skill in identifying fake news, and a vast majority were ignorant of the existence of a local fact-checking website (58.1%).

2.3. Data analysis

All the data analyses were performed using the Statistical Package for Social Sciences (SPSS) 26. Linear regressions were used to identify the significant underlying motives for fake news dissemination. As for the sociodemographic correlates, independent sample *t*-test was used to examine if there's any difference in terms of gender (dichotomous) whereas Analysis of Variance (ANOVA) was used for age, frequency of social media use and frequency of accessing digital news.
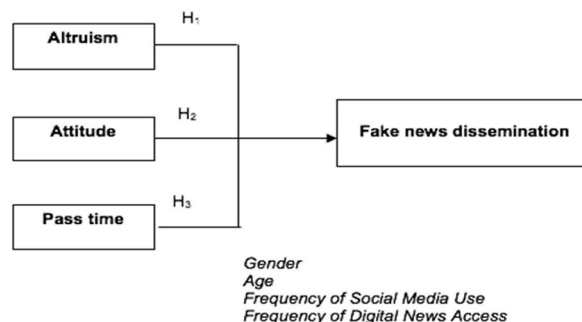

Fig. 1. Theoretical framework for fake news dissemination.

Table 1
Respondents' sociodemographic profiles.

Demographic variables	N (%)	Demographic variables	N (%)
Gender		Daily Access to Digital News (Hours)	
Female	519 (59.7)	*<1*	368 (42.3)
Male	350 (40.3)	*1–5*	382 (44.0)
Age		*>5*	119 (13.7)
18–25	746 (85.8)		
26–30	59 (6.8)	Daily Access to Social Media	
More than 31	64 (7.4)	*<1*	61 (7.0)
Status		*1–5*	399 (45.9)
Working	150 (17.3)	*>5*	409 (47.1)
Students	700 (80.6)	Main source of Information	
Others	19 (2.2)	*Social media*	623 (71.7)
Frequency of sharing news		*Digital news*	185 (21.3)
Never	101 (11.6)	*Traditional (printed)*	8 (0.9)
Seldom	482 (55.5)	*Traditional (Radio, TV)*	19 (2,2)
Occasionally	206 (23.7)	*Family/friends*	34 (3.9)
Frequently	80 (9.2)		
Definition of fake news?		Can identify fake news?	
Yes	772 (88.8)	*Yes*	337 (38.8)
No	6 (0.7)	*No*	102 (11.7)
Unsure	91 (10.5)	*Unsure*	430 (49.5)
Authenticate?		Aware of fact checking (Malaysia)?	
Yes	302 (34.8)	*Yes*	364 (41.9)
No	567 (65.2)	*No*	505 (58.1)

3. Results and discussion

3.1. Fake news dissemination motives

Linear regressions revealed all three motives to positively and significantly ($p < 0.001$) affect fake news dissemination, hence all the proposed hypotheses are supported as indicated in Table 2.

Based on the β value of 0.275 for Altruism, it can be surmised that the motive had the strongest impact on fake news dissemination, a finding that was also reflected in Apuke and Omar [25]. According to Koh et al. [39]; Malaysians have been proactive in posting messages deemed as "public service" such as encouraging others to comply with the Standard Operating Procedures due to their altruistic nature. Though the latter is not directly linked to fake news, the behavior suggests the tendency of highly altruistic people to share opinions/information/news and other media content with the others. Our finding suggests that the majority of the respondents tend to engage in fake news dissemination with the intention of helping others, with the idea that the piece of information being shared might be beneficial to those in their extended social contact. Although this may seem like a benevolent act, however this behavior also increases the chances of sharing false content that was not verified in the first place.

An individual's negative or poor Attitude was also found to have a significant direct effect on fake news dissemination behavior, indicating the tendency for individuals to engage in a risky behavior due to a lack of awareness of the consequences of sharing fake news and also highly trusting the source of news, the latter of which was referred to as online trust in Talwar et al. [40]. A vast majority of the respondents belong to the Gen Z generation, a cohort that is believed to depend more on opinion-based news in the form of social media influencers who not only provide updates on current issues, but who may also (unknowingly) disseminate false content or voice their opinions on critical matters based on their inherent prejudices or social biases. In such a scenario, there is a risk for these young followers to blindly believe the shared news/information and a tendency to disseminate those without any form of verification. This sentiment is echoed in the Ipsos Survey 2019 that found approximately 48% of Malaysians feel facts no longer remain to be an important aspect as people prefer to believe what or who they want [38]. A similar observation was reflected in Shahi et al. [41] where brands such as organizations and celebrities were found to be involved in approximately 70% of fake news circulation on Twitter, accomplished through liking or re-tweeting.

Finally, Pass Time was also found to be significant, and thus showing that the respondents in this study do engage in fake news dissemination as they were bored or simply had nothing much to do. This was somewhat expected as the COVID-19 pandemic resulted in a nationwide lockdown (or locally known as the Movement Control Order) for approximately four months (i.e., between March 18 and June 15, 2020), followed by a partial lockdown in several major states from October 2020 to present. These lockdowns forced people to stay indoors, and to work and study from home. Individuals especially younger generations who are cooped up at home may

Table 2
Motives for fake news dissemination.

Motives	β	t-value	p-value	Hypothesis
Altruism	0.275	8.534	<0.001	Supported
Attitude	0.245	7.596	<0.001	Supported
Pass Time	0.151	4.676	<0.001	Supported

Model F (3, 806) = 50.79, p < 0.001.

struggle to cope with the unprecedented situation, and with so much of time in hand, they may be bored, and thus have a high tendency to disseminate fake news to while away their time.

3.2. Fake news dissemination and sociodemographic roles

Independent *t*-test revealed no significant difference between males and females in terms of fake news dissemination behavior. On the other hand, ANOVA revealed no significant difference for frequency of social media use (p = 0.121) and fake news dissemination. However, age was found to be significantly different (F (2, 867) = 4.831; p = 0.037). Further post-hoc analysis revealed the differences to be significant between those aged 18 and 25, and 26 and 30 (p = 0.007) and 26 and 30 and those above 31 years old (p = 0.022). Interestingly, the younger respondents (18–25) and those above 31 were found to engage more in fake news dissemination compared to those between 26 and 30 years old. The younger respondents mainly comprised students, hence they may be deemed immature and lack the tack or social responsibility in ensuring given information is authentic prior to dissemination, in line with Herrero-Diz et al. [42]. On the flip side, those aged more than 31 comprise respondents who are older (up to 59 years old) and although they are deemed to be more matured, they may however, lack the skill to check for the veracity of news as reflected in other studies [43]. Nevertheless, this finding warrants a further investigation as the number of respondents who are older than relatively small (see Table 1).

Frequency of digital news access was also found to be significantly different (F (2, 867) = 3.334; p = 0.036). Post-hoc analyses revealed respondents who spent lesser time accessing online news tend to disseminate more fake news compared to those who spent more than 5 h daily (p < 0.001). This could be attributed to the fact that most social media users tend to look at the news headlines (and perhaps scroll through netizens comments) instead of reading the article in its entirety by visiting its official page. Further, news headlines also tend to be catchy in order to attract more readers, hence those who spent less time on news portal may be easily duped, resulting in them sharing the false content without knowing its source, credibility or legitimacy. Conversely, individuals who spent more time accessing these digital news are privy to the real content of the news, and thus may be able to gauge its veracity better.

3.3. Fake news dissemination motives and sociodemographic correlates

3.3.1. Gender

Gender was found to be significant only for Pass Time (t = −5.454; p < 0.001) with a negative mean difference indicating females to engage in fake news dissemination lesser for pass time purpose as opposed to males. Perhaps this relates more to a gendered role whereby females are usually expected to share household responsibilities, particularly in an Asian culture. This is especially true among the Malaysian communities that are still embedded in a patriarchy environment whereby the differential treatment between sons and daughters are justified using tradition [44]. Therefore, despite being forced to stay indoors, most males probably had more time on their hands than females, resulting in them engaging more in fake news sharing simply out of boredom.

3.3.2. Age

Table 3 depicts the results of ANOVA for age, with significant differences observed for Altruism (p = 0.018). Post-hoc analysis revealed younger respondents (18–25 years) to significantly engage in fake news dissemination for Altruistic reasons compared to those between 26 and 30 years old (p = 0.005). Age difference(s) was not significant for Attitude and Pass Time.

These two age cohorts formed the largest groups of respondents in this study (Table 1), hence it can be argued that the younger individuals tend to engage more in fake news dissemination without realizing the consequences of their actions or even without knowing if the content being shared is fake or real. On the contrary, the slightly older respondents may be more matured hence they are more wary in disseminating content in the name of altruism. The findings also seem to tally with those presented in Section 3.2 whereby the younger respondents were generally found to disseminate fake news more than those aged between 25 and 30 years old.

3.3.3. Frequency of digital news access

As for frequency of daily access of digital news, significant differences were noted for Altruism (p = 0.003) and Attitude (p < 0.001), as shown in Table 4.

Individuals who spent less than an hour daily accessing digital news were found to significantly engage in fake news dissemination due to Altruism and a poor Attitude compared to those who spent more than 5 h (p < 0.001). We argue that individuals who spent lesser time accessing the official news portal sites to be less interested in the veracity of the content, and perhaps belong to groups that prefer glancing at the catchy headlines and tend to share such information and as an act of benevolence (Altruism) and without being aware of the negative consequences of their behavior (Attitude). Conversely, those spent more time are deemed more matured and tend to show more concern about the authenticity, credibility and legitimacy of the information presented to them.

3.3.4. Frequency of social media use

Finally, a significant difference was found for frequency of social media use and Attitude (p = 0.006) whereby individuals who

Table 3
Age and fake news dissemination motives.

Motives	df	F	p	Categories
Altruism	2	4.050	0.018*	18–25 & 26–30
Attitude	2	0.391	0.676	–
Pass Time	2	2.432	0.089	–

*: Significant.

Table 4

Frequency of digital news access and fake news dissemination motives.

Motives	df	F	p	Hypothesis
Altruism	2	5.908	0.003*	<1 and More than 5, 1–5 and More than 5
Attitude	2	9.873	<0.001*	<1 and More than 5
Pass Time	2	1.098	0.344	–

*: Significant.

spent less than an hour daily on social media engaged lesser in fake news dissemination compared to those who spent more than 5 h daily (p = 0.002), due to a poor Attitude. Unlike frequency of accessing digital news, this finding suggests that individuals who spent more time on social media tend to share more false content due to their lack awareness of the consequences of fake news dissemination or those who are simply lazy to verify the veracity of news, probably due to a wider exposure to social media content that seem to occur in a real-time pattern, representing trending topics and events. In fact, news and information related to the COVID-19 pandemic grow rapidly online, resulting in what has been termed as 'infodemic' - an excessive amount of information consisting of some inaccuracies that cause difficulties for the public to obtain reliable information and dependable advice when required [45]. Therefore, individuals who spent more time online are more exposed to such information, and this can be problematic considering the rapid transmit (and growth) of such information and the time-consuming effort involved in ensuring the veracity of every piece of news found on social media.

4. Conclusion, limitations and future directions

The dissemination of fake news through websites and social media platforms has developed into a scourge, particularly during the COVID-19 pandemic resulting in the spread of falsehoods and increased misconceptions about the pandemic, despite one's underlying intentions. As the underlying motives for the dissemination of fake news are not well understood, the present study proposed to identify the motives behind fake news dissemination and its sociodemographic correlates, namely, gender, age, frequency of using social media and frequency of accessing digital news. The study is deemed important as it is one of the first to examine the socio-demographic correlates associated with this negative behavior, especially when fake news proliferation has been reported to have increased during an on-going pandemic. Salient findings indicate Altruism to be the strongest motive for fake news dissemination among a sample that is majorly made up of the younger (or Gen Z) generations, followed by Attitude and Pass Time. Significant sociodemographic correlates were also found for age, frequency of social media use and frequency of access to digital news.

The findings from the study will be beneficial to the research community and fellow scholars who are interested in examining the reasons for this detrimental behavior, along with the individual profiles that are more inclined to spread fake news. For instance, fake news dissemination seems to be higher among respondents with a poor Attitude, hence respective authorities should take measures to educate or cultivate awareness on the consequences of fake news dissemination among the public, especially the younger generations who are known to spend a considerable amount of time daily online. Timely education is important considering that once an individual believed a fake news, particularly those in alignment with their beliefs, it would be difficult to sway the individual's perception. The public also needs to be educated so that they are equipped with the basic skills to assess and verify any piece of information, especially those that are dubious. It is therefore, recommended that local governments should fund efforts to improve digital literacy to help people in becoming better consumers of online information. This is in line with the approach adopted in Finland where media literacy is promoted aggressively targeting citizens at various age levels [46]. Such programs and interventions should be designed aiming to improve ethical sharing behavior among online consumers and to increase users' accountability so that everyone realize their roles and responsibilities in sharing authentic information, especially during the pandemic [47].

Additionally, the three motives investigated were all based on existing studies that have examined their impacts on fake news dissemination and other negative online behaviors. This study, therefore, has broadened the scope of the existing studies by expanding its constructs and sociodemographic correlates related to fake news dissemination – a phenomenon that has become a threat in a trying time.

The study has a few limitations – a vast majority of the respondents belong to the Gen Y and Z, a pattern that was expected considering the data were collected mainly by students and through online mediums. The age bracket needs to be expanded in order to investigate if similar behavioral patterns are observed among much older respondents (e.g., elderlies). Our findings have provided a glimpse that those aged more than 31 engage more in fake news dissemination, however, due to a small sample for this cohort, further investigations are warranted. Secondly, questionnaire surveys are useful in providing the quantitative aspect of the study, however, to have a better understanding of the underlying motives behind this behavior among a young (and educated) cohort, future studies should look into other means of data collections such as interviews or focus group studies. This will provide a 'richer' data and potentially a clearer explanation for fake news dissemination behavior.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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