

# Peer Influence, Risk Propensity and Fear of Missing Out in Sharing Misinformation on Social Media during the COVID-19 Pandemic

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**Abstract:** Widespread misinformation on social media is high, and this is made worse during a public health crisis. While literature on technological solutions to combat misinformation abounds, limited studies have investigated the psychology behind why misinformation is in rapid diffusion in this digital platform. Using a sample of 209 students, we tested the relationships of peer influence, risk propensity and fear of missing out on the behavioral intention to share misinformation on Facebook during the COVID-19 pandemic. Analysis of the results supported prior literature that peer influence and fear of missing out has a positive influence on the behavioral intention to share misinformation on social media. While risk propensity has a positive influence on sharing misinformation, this cannot be supported at a significant level. We conclude this paper by discussing the implications of our study to academic policies on formal and informal disaster education while highlighting the limitations of the study to provide directions for future scholarly endeavors.

**Keywords:** misinformation, COVID-19, social media, pandemic, peer influence, FOMO, risk propensity

## 1. Introduction

Social media has become the foremost source of information and misinformation among digital natives in today's connected economy. Various social media platforms are highly entrenched in our everyday lives through commerce (Catedrilla, 2017), education (Murire & Cilliers, 2017), health (Tacco, Sanchez, Connolly, & Compeau, 2018) and social relationships (Ham, Lee, Hayes, & Bae, 2019). While social media platforms delivered its promise to establish and nurture social relationships, online social networks have become one of the primary sources of knowledge due to its wealth of information. Users can read, create and share content with their friends and family members with ease (Vranešević, Perić, & Marušić, 2019). The interactive spaces inherent to social media and its phenomenal reach are key factors why it has become an important source of information among its users (Krutka & Carpenter, 2016).

Despite its crucial role in information dissemination for the public good, social media has also become a medium of misinformation. Recent debates in the scholarship have called for the responsible utilization of social media in public communication. Notable among these discourses is the propagation of misinformation in social media to influence political processes (Müller & Schulz, 2019; Tandoc, Lim, & Ling, 2018). The gravity of the misuse of social media platforms is highlighted by calls of several governments to regulate these platforms, to mitigate its abuse and target the spread of deliberate misinformation (Vranešević et al., 2019). Today, the deliberate and undeliberate spread of unverified information on social media has become a public concern that requires attention from various stakeholders (Buchanan & Benson, 2019).

Literature on the misuse of social media has primarily focused on political contexts, and limited research explored the role of these platforms during a pandemic. The scientific orientation of a pandemic requires individuals distributing information to have appropriate training in the appreciation,

interpretation and dissemination of related facts (Hazelton, 2020). While ease and accessibility of social media drive its wide adoption, it has also contributed to the burgeoning challenge in massive misinformation during the COVID-19 pandemic (Frenkel, Alba, & Zhong, 2020). The exponential increase in misinformation has called for different stakeholders such as governments, the World Health Organization (WHO), and social media platforms to adopt a united stand to fight inaccurate information during the pandemic (Guynn, 2020).

In this paper, we provide an overview of influential factors that lead to sharing misinformation in social media during this difficult time. We believe that behavioral intention to share information in social media without adequate verification results to the proliferation of misinformation during a pandemic and merits further scholarly elucidation. Consistent with prior studies, psychological factors play a pivotal role in the behavioral intention to share misinformation. Literature synthesis reveals the lack of theoretical guidance in the study of social media during health crises, with most studies primarily focused on the development of technology solutions to combat misinformation. First, a review of related literature revealed that extant research has been conducted in developed economies despite the fact that misinformation is a key concern in the global south (Silver, 2019). Second, we highlight the importance of social media during a crisis, and we observed that a bulk of related researches primarily focused on investigations related to political processes. Understanding why users interact with social media content during disasters remains under-investigated (Luna & Pennock, 2018). Given the infrequency of a health pandemic, in conducting this research, we identified the influential factors that lead to sharing misinformation during this difficult time. Following the presentation of the current state of the art of social media and misinformation during a pandemic, we discussed our theoretical framework and its corresponding set of hypotheses. This is followed by a discussion of our methodology, the results of our analysis, and conclude with limitations and recommendations.

## **2. Related Literature and Theoretical Foundations**

Wider access to the Internet and the increased popularity of social media translated to unprecedented challenges to the rapid propagation of misinformation online. In the context of this research, misinformation is defined as unverified or inaccurate information that is mostly shared or reshared in social media platforms unintentionally and without due diligence of investigating the veracity of its truthfulness (Wu, Morstatter, Carley, & Liu, 2019). In the study of Bessi and Ferrara (2016), the spread of misinformation appears to be highly influenced by automated social bots during the 2016 United States presidential election. A substantial number of voters were believed to be exposed to misinformation, which they believed to be true and therefore influenced the political landscape in the United States (Allcott & Gentzkow, 2017; Vranešević et al., 2019). In another quantitative study investigating Facebook as a source of news information during the German elections in 2017, the behavior to verify information shared in social media is influenced by prior exposure to misinformation (Müller & Schulz, 2019).

During a crisis, the velocity of the spread of information becomes critical and social media is an ideal platform that supports information exchange necessary for disaster education or safety information dissemination. Using a grounded theory approach, the study of Linlin et al. (2015) revealed that the wide access to social media and its capability to circulate information fast renders it useful during a crisis. However, researchers note that these same reasons can make social media platforms a vehicle to spread misinformation. During pandemic or public health crises, limited studies have investigated the role of social media in the spread of misinformation. Analyzing social media postings regarding Ebola on Twitter, the study of Tran and Lee (2016) revealed the pivotal role of social ties in the propagation of information during a pandemic. Another study focused on Swine Flu and Ebola retrieved and analyzed Twitter posts using several search parameters. Thematic analysis identified fear from both outbreaks as a critical topic that emerged from exaggerated discussions on unverified information on social media (Ahmed, Bath, Saffi, & Demartini, 2018). In a quantitative study in South Korea on social media and the Middle East Respiratory Syndrome coronavirus (MERS-COV), fear and anger are self-relevant emotions that positively influence social media use highlighting its importance during infectious disease outbreaks (Oh, Lee, & Han, 2020).

Several determinants of behavioral intention have been widely investigated in social media adoption. First, in the Theory of Planned Behavior by Ajzen (1991), subjective norms have been widely tested to positively influence a behavioral intention to perform an act (Hassandoust, Logeswaran, &

Farzaneh Kazerouni, 2011; Lee & Tsai, 2010). In the educational context, social norms are behaviors observed by students on their peers who are mostly their classmates. Peers are within the social ties of students in their social media accounts, and sharing misinformation within their own networks may be perceived to be typical, with utter disregard for appropriate information verification. As such, we hypothesize that:

H1: Peer influence positively influences behavioral intention to share misinformation

Second, social media interactions involve varying levels of risk. As a public space, people interact with strangers, share photos, post and repost verified and unverified information online. Prior literature revealed that an individual with a high level of risk propensity is more likely to share misinformation online (Koohikamali & Sidorova, 2017). As such, we hypothesize:

H2: Risk propensity positively influences behavioral intention to share misinformation

Social technologies allow individuals to belong to an online community where they interact with family members, friends and peers. The behavior demonstrated by people in a social network exerts pressure on an individual to behave the same as others in order to minimize isolation, a concept known as Fear of Missing Out or FOMO. On the use of social media and deviant Internet behavior, the psychological effect of FOMO has been found to have a positive influence on problematic social media use (Reyes et al., 2018). As such, we hypothesize:

H3: Fear of Missing Out positively influences behavioral intention to share misinformation

In the context of this study, we hypothesize that Peer Influence, Risk Propensity and Fear of Missing Out are psychological determinants in the behavioral intention to share misinformation on social media as summarized in Figure 1 – Theoretical Framework:

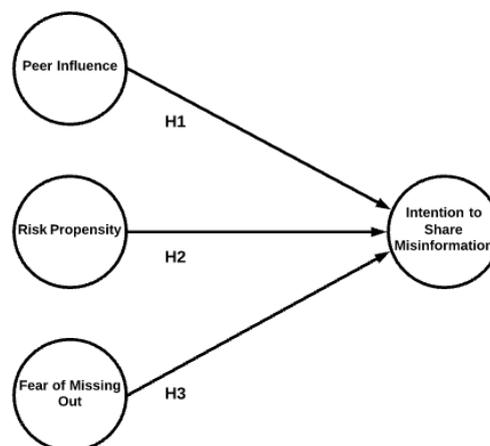


Figure 1. Theoretical Framework and Hypotheses

### 3. Methods and Procedures

To validate the structural model, we utilized a scale consisting of twenty-four (24) items adopted from prior literature. We utilized three (3) items for Peer Influence from Chang (2014), three (3) items for Risk Propensity and five (5) items for intention from Koohikamali and Sidorova (2017), and ten (10) items were adopted from Abel, Buff and Burr (2016). To contextualize the scale, we updated some terms to fit within the domain of our study. To test the validity and reliability of the scale, we applied a Partial Least Square Algorithm using SmartPLS. Indicators that did not meet the minimum threshold were deleted until the minimum values for Cronbach Alpha (0.70), Average Variance extracted or AVE (0.50) and Composite Reliability or CR (0.70) were obtained. The values are shown in Table 1 – Scale Validation Results:

Table 1.  
*Scale Validation Results*

Construct	Cronbach's Alpha	Composite Reliability	Average Variance Extracted
Peer Influence	0.945	0.948	0.858
Risk Propensity	0.805	0.885	0.720
FOMO	0.858	0.886	0.610
Intention	0.891	0.906	0.710

Given the manner of our data collection and theoretical operationalization, we tested for the existence of common method variance which may result from the way the items in the questionnaire are presented, the use of the same respondents for both dependent and independent variables, and the presence of social desirability bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). To address this potential issue, we conducted a full collinearity test and extracted the variance inflation factor values or VIFs (Kock, 2015). The test yielded values that are less than 3.3, where the values of 1.067, 1.087 and 1.021 for peer influence, risk propensity and fear of missing out, respectively, indicate that the study does not suffer from common method bias (Ifinedo, 2017; Kock, 2015).

To further establish the validity of the survey instrument, we tested for discriminant validity through a Fornell-Larcker criterion test. Examination of the results is a prerequisite to ensure that each construct is able to depict the measure it was designed to represent (Hair, Hult, Ringle, & Sarstedt, 2014). As shown in Table 2 – Fornell-Larcker Test, the square root of the AVEs for each construct is higher than the other inter-construct correlation values, therefore, establishing discriminant validity (Nelson, Verhagen, & Noordzij, 2016; Yang, Yu, Zo, & Choi, 2016).

Table 2.  
*Fornell-Larcker Test Results*

	FOMO	Intention	Peer Influence	Risk Propensity
FOMO	0.781			
Intention	0.263	0.843		
Peer Influence	0.101	0.249	0.927	
Risk Propensity	0.034	0.173	0.066	0.848

Recent arguments against the use of the Fornell-Larcker criterion test in establishing discriminant validity for variance-based empirical research necessitates further evaluation of the survey instrument to establish sound confirmatory factor analysis procedure (Ab Hamid, Sami, & Mohamad Sidek, 2017; Henseler, Ringle, & Sarstedt, 2014). To ensure that the latent variables do not suffer from multicollinearity issues, we tested for discriminant validity using the Heterotrait-Monotrait values. As shown in Table 3 – Heterotrait-Monotrait Test, all values are below 0.90, which further supports that the instrument demonstrates strong discriminant validity among its operationalized constructs (Ab Hamid et al., 2017).

Table 3.  
*Heterotrait-Monotrait Test Results*

	FOMO	Intention	Peer Influence	Risk Propensity
FOMO				
Intention	0.225			
Peer Influence	0.124	.097		
Risk Propensity	0.153	.161	0.184	0.156

To test our hypotheses, we deployed an online survey from March 15 to April 15 during the COVID - 19 lockdown to students from two universities in the Philippines. Participation is voluntary

and the participants gave informed consent. A total of 209 students provided valid responses. All students are enrolled in various undergraduate programs in colleges and universities with active Facebook accounts. To produce better approximation and due to the small sample size, a bootstrapping technique (Schmidheiny, 2014) was applied to the responses and the results are shown in Table 4 – Structural Model Test Results:

Table 4  
*Structural Model Test Results*

HYPOTHESIS	SD	T STATISTICS	P Values	DECISION
H1: Peer influence positively influence behavioral intention to share misinformation	0.079	7.534	0.000	Accept
H2: Risk propensity positively influence behavioral intention to share misinformation	0.136	0.689	0.491	Reject
H3: Fear of Missing Out positively influence behavioral intention to share misinformation	0.077	2.770	0.006	Accept

#### 4. Discussion of Results

Based on the results, we confirm that Peer Influence (H1) and Fear of Missing Out (H3) positively influence the behavioral intention to share misinformation due to their T-Statistics scores of 7.543 and 2.770, respectively. As they are higher than the minimum score, we can support both hypotheses at a significant level (Hair et al., 2014). These findings are consistent with prior literature confirming the role of peers in deviant online behaviors and the growing influence of social media in the instigation of fear to be left out among younger adults (Burnett, Enyeart Smith, & Wessel, 2016; Rice & Staffo, 2012). Students consider people in academic institutions as peers and the likelihood of them being in the ‘Friends’ list is high. In the study of Riemenschneider, Leonard and Manly (2011), students’ unethical behaviors are highly influenced by normative beliefs drawn from how people they consider important behave. Peer influence is formed with the approval of significant persons prior to performing a specific act and in the context of social media, these peers are within the network with whom they have close ties (Khan & Idris, 2019). In Facebook, content posted by people within a students’ social network can influence the decision process to re-share such information. In a recent study, students intimated that they would re-share unverified content if they see that these news information were also shared or liked by other people in their own social networks (Oh et al., 2020).

Like the influence of social networks, the fear of being left out can also influence the decision to share misinformation. Individuals who have high FOMO tend to behave like most of the people in a group to satisfy their urge to socially belong. In addition, prior literature have demonstrated FOMO as a strong predictor of deviant behavior among young adults in social media (van Rooij, Lo Coco, De Marez, Franchina, & Abeele, 2018). Prior literature linked FOMO to problematic online behavior such as social media addiction (van Rooij et al., 2018). During the community lockdown in the Philippines, educational institutions were forced to close its operations and shift to online platforms to support learning (Bagayas, 2020). Such transition affords students more time to spend online and a recent study points to high social media exposure among individuals during the COVID-19 pandemic has caused mental problems (Wang et al., 2020). While the T-statistics value of H2 is positive, this cannot be supported at a significant level. Our findings support the study of Buchanan & Benson (2019), which did not find a positive influence between risk propensity and the behavior to spread unverified information. A possible explanation is that sharing or reposting of unverified information is considered a low-risk behavior. During the COVID-19 pandemic, the government enacted the Bayanihan to Heal as One Act or Republic Act 11469 that includes provisions that sanction individuals who spread fake news and misinformation online (Sawadjaan, 2020).

## 5. Conclusion and Recommendations

In conclusion, we confirm that peer influence and fear of missing out (FOMO) can positively influence the dissemination of misinformation on social media during a crisis. We contribute to recent calls in social media research to go beyond technology by approaching the challenge of misinformation during disasters through understanding the psychology behind this systemic online behavior (Elbanna, Bunker, Levine, & Sleight, 2019; Luna & Pennock, 2018). As more people harness information online, social media becomes important during difficult times, and the role of the academe in formal and informal education is equally vital in mitigating the spread of misinformation.

Central to discourses on disaster education is the function of the academe in the management of misinformation on social media. Peer influence or social pressure on students can come from different sources such as classmates, close friends and family members. In this regard, it will be timely to update the present curricula on disaster education to include social media ethics to indoctrinate appropriate online ethical behavior among students (Harris & Lang, 2011). While technology supports formal and informal learning, it ushers ethical dilemmas within and outside the hallways of the classroom (Gutierrez & Padagas, 2019; Trapero, 2018). Teachers and parents can exert ethical influence on students and academic institutions can find innovative activities where both can cooperate to further understand students' behavior online (Bagnall, Skipper, & Fox, 2019). Research indicates that the fear of missing out is a direct result of excessive social media usage. Intervention such as self-monitoring of social media use can be effective in addressing this behavior (Dogan et al., 2019). Institutions can promote the benefits of social media for educational purposes to engage students in meaningful activities rather than actively immersing themselves in misinformation. Additionally, academic institutions can go beyond the traditional hallways of the classroom by engaging in informal education through social media. This can be accomplished by involving healthcare experts and authorities to participate as informal educators in academic social media communities to provide content to support disaster education measures during a health pandemic (Feng, Hossain, & Paton, 2018).

Our findings should be interpreted with its limitations in mind and its corresponding research opportunities. First, the sampling technique and small sample size might invite questions on its generalizability and therefore we encourage future research to test our study on a larger population and a longitudinal technique to investigate the influence of the constructs after the crisis. Second, the study was conducted in the Philippines and therefore it will be interesting to compare these results with another cultural context. Lastly, while we have confirmed two hypotheses and rejected one, we utilized a methodology that can be improved to provide deeper insights to the results of this inquiry. Future research can extend this study by testing the moderating effects of age and gender as well as applying qualitative techniques to further elucidate the results of this paper. Another opportunity for future research is the application of modern methodology such as netnography to analyze comments on unverified information by users, to capture how they influence students to share such content.

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