

You have been blocked: Exploring the psychological, personality, and cognitive traits of blocking misinformation sources on social media

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ARTICLE INFO

Keywords:

Blocking
Misinformation
Social media
FOMO
News use
Cognition
Conscientiousness

ABSTRACT

While extensive research has explored user engagement with misinformation, there remains a gap in understanding how individuals respond to those who share misinformation by blocking them. This study explores the factors influencing this blocking behavior, including social media news consumption, psychological traits, personality, and cognitive characteristics. Through three studies conducted in varying political contexts (the US and Singapore) and focusing on different types of misinformation (political, health, and political and entertainment deepfakes), we employ the dual motivation framework to analyze the interplay between social media news consumption and the decision to block sources of misinformation. Additionally, we investigate the role of the fear of missing out as a mediator in this relationship and how traits such as conscientiousness and cognitive ability moderate it. Our findings suggest that individuals who frequently consume social media news are more inclined to block sources of misinformation due to a heightened fear of missing out. Furthermore, those with lower levels of cognitive ability and conscientiousness exhibit a greater tendency to block misinformation sources. This research enhances our understanding of the mechanisms driving blocking behavior on social media in response to misinformation and underscores the importance of considering sociopolitical factors in understanding such behaviors.

1. Introduction: Blocking misinformation sources

A Pew Research Centre survey found that 71 % of adults in the US use social media for news (Shearer & Mitchell, 2021). Similar dependencies have been reported in countries such as Indonesia, Malaysia, and Singapore (Newman et al., 2022). Yet this proliferation of social media use is coupled with a substantial increase in the circulation of misinformation. As a result, concerns have been raised regarding the adverse democratic consequences of misinformation propagation. Unsurprisingly, numerous scholars have explored user engagement with misinformation and its effects (Ahmed & Gil-Lopez, 2022; Esan et al., 2023; Guess et al., 2019; Lu et al., 2022; Valenzuela et al., 2019). Most of these studies have focussed on who falls for misinformation (Calvillo et al., 2021; Sindermann et al., 2020; Tandoc et al., 2019) and why users share misinformation (Chen & Sin, 2013; Chen et al., 2015; Guess et al., 2019; Lawson & Kakkar, 2022). Yet, there remains a gap in understanding how individuals respond to those who spread misinformation (e.g., by

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<https://doi.org/10.1016/j.tele.2024.102123>

Received 19 August 2023; Received in revised form 7 February 2024; Accepted 31 March 2024

Available online 2 April 2024

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blocking them or their sources). Social media platforms allow users to regulate their interaction with information. The importance of this lies in the evolving nature of news consumption. Unlike traditional media, social media enables two-way communication—individuals can follow, like, share, comment, and block or unfollow sources based on their preferences (Salaudeen & Onyechi, 2020; Torres et al., 2018). Applied within the context of misinformation, our knowledge regarding how and when social media users choose to block misinformation sources actively remains scarce.

Investigating blocking misinformation sources holds significance because, beyond the basic roles of consuming and sharing information, it represents a distinctive social aspect of engaging with information on social media. Others' reactions to and interactions with information on social media can signal critical social cues to navigate their social environments (Kapoor et al., 2017). These social cues may lead people to respond to information in discriminatory ways. For example, individuals are more likely to trust and align themselves with information shared by close friends (the principle of homophily) and differentiate themselves from dissimilar others (Torres et al., 2018; Liu et al., 2020). In a rare attempt, Kaiser and colleagues (2022) examined the predictors of blocking and unfollowing misinformation sources on social media, suggesting that users are likely to block and/or unfollow misinformation sharers if they are from a politically dissimilar campaign. Kaiser et al. (2022) operationalized blocking by combining both blocking and unfollowing behavior. However, blocking and unfollowing social media network dissolution behaviors are likely to have substantially different consequences on one's social network. Friendship termination by blocking is more detrimental than unfriending or unfollowing and is almost permanent (see John, 2019).

Hence, our study focuses solely on blocking behavior, a unique network termination type with far more severe consequences than unfollowing or unfriending. Furthermore, given the lack of scholarly attention on blocking against misinformation, this study aims to focus on blocking in response to misinformation and examine how social media news use supplemented by psychological, personality, and cognitive characteristics explain such behavior. For greater generalizability of our findings, we conducted three studies across two different political contexts (the US and Singapore). We examined blocking in response to three types of misinformation posting (political misinformation, health misinformation, and video deepfakes). Study 1 was conducted in the US, focusing on blocking those who post *political* misinformation. Study 2 replicated the framework in Singapore but focused on blocking those who post *health* (COVID-19) misinformation. Finally, Study 3 used survey data from Singapore and the US, focusing on blocking those who post *political and entertainment deepfakes*.

First, we suggest a relationship between social media news use and blocking misinformation sources due to users' goal-oriented motivations. Next, we theorize that fear of missing out (henceforth FOMO) as a psychological trait mediates the relationship between social media use and blocking. Finally, besides identifying the underlying mechanism, we explore how individuals' conscientiousness and cognitive ability condition the relationship between social media use, FOMO, and blocking. We test the proposed theoretical framework and determine whether these factors are prevalent across different contextual and misinformation settings. Overall, the findings contribute to the scholarship on selective avoidance on social media by presenting a mechanism explaining why people block those who share misinformation.

1.1. Dual motivation framework: Social media news use to blocking misinformation sources

We rely on the dual motivation framework to theorize why individuals use social media as a news source and how it is likely to be associated with blocking behavior. We propose two possible motivations for social media news use: namely, people look for news to obtain accurate information and to participate in their social environment to meet their social goals (see Kunda, 1990; Osmundsen et al., 2021). The accurate-information motivation, or the accuracy-oriented motivation, drives individuals to form an accurate picture of the world via complex processing and elaborate reasoning (Kunda, 1990; Tetlock & Kim, 1987). This motivation is strong when there are no compelling reasons to prefer one conclusion over another and/or when the stake of making an error is high (Freund et al., 1985). Thus, when individuals encounter misinformation on social media, they may block the source to maintain a more accurate information environment within their networks. The second motivation is the social goal-oriented motivation, which drives individuals to participate in their social environment for personal goals. Social goal-oriented motivation focuses on the utility of the information for social goals (Kunda, 1990; Osmundsen et al., 2021). These goals are driven by social psychological needs such as love, acceptance, a sense of belonging, and social control (Sheldon & Gunz, 2009; Ryan & Deci, 2000). They often result in individuals utilizing information to form bonds within their networks. Previous research highlights how social media use catalyzes bonding social capital (Erickson, 2011). Therefore, the prevalence of misinformation within the network may threaten the users' goals and social environment. Both information accuracy and social goal motivations can operate independently or concurrently when individuals utilize social media for news consumption. However, in cases where social goals are involved, the inclination to block misinformation sharers tends to be more pronounced compared to scenarios where only one motivation is present. This suggests that individuals may turn to social media for news to engage with political discourse or fulfill their social needs. Consequently, the interplay of these dual motivations can manifest when individuals access news online.

Additionally, the utilization of social media for news consumption can be classified into consumptive and expressive behaviors online. This means that interacting with news on social platforms can entail both passive and active engagement. For instance, absorbing news about politics and public affairs on social media constitutes a consumptive and passive online activity, whereas sharing and commenting on news items represent expressive and active online behaviors.

Outside of the above-discussed framework, there also lies a possibility that not all social media news users would recognize the veracity of misinformation to block its source. However, given the abundance of social media news flow and the emotionally charged nature of most misinformation (Nanath et al., 2022), it is likely that users may block misinformation sources to limit negativity on their feeds. In addition, misinformation is usually characterized as highly partisan (Allcott & Gentzkow, 2017) and includes malicious and

conspiracy theories (Molina et al., 2019), which could be a motivation for social media users to block misinformation sources, especially if the information does not align with their ideology (Kaiser et al., 2022; Wang et al., 2023).

Hence, based on the preceding theoretical and empirical evidence, we expect that individuals will block misinformation sources posting misinformation to maintain their information environment belongingness in their social environment and maintain an attitude-consistent feed. We postulate our first hypothesis as follows:

H1: Social media news use is positively associated with blocking misinformation sources.

1.2. Social media news use and fear of missing out

FOMO refers to “fears, worries, and anxieties people may have in relation to being in (or out of) touch with the events, experiences, and conversations happening across their extended social circles” (Przybylski et al., 2013, p. 1842). Much of the literature has found a positive link between FOMO and social media use (Blackwell et al., 2017; Przybylski et al., 2013). While it is intuitive to argue that this is because individuals with higher FOMO tend to monitor social activities or news through social media (Blackwell et al., 2017; Oberst et al., 2017), research has found support for the reverse as well (Buglass et al., 2017; Hamutoglu et al., 2020).

According to the literature on online vulnerabilities, social media news use might be the driving force of FOMO instead of vice versa (Buglass et al., 2017; Davidson & Martellozzo, 2013). Online vulnerabilities refer to individuals’ capacity to experience detriments to their psychological, reputational, or physical well-being as a result of engaging in online activities (Davidson & Martellozzo, 2013). In other words, individuals who use social media excessively may be more susceptible to FOMO (Buglass et al., 2017; Park, 2022). This is because they are more aware of the information they could miss than those who seldom use social media and are unaware. The latter group would not perceive the value of the news and would thus develop less fear of missing future potential information.

This study does not rule out the cyclical nature between social media use and FOMO. Evidence suggests that a vicious cycle exists among those with high FOMO; they turn to social media for a sense of connection but are left feeling increasingly isolated, which further reinforces their FOMO (Clayton et al., 2013; Przybylski et al., 2013). Some have described FOMO as a new type of addiction that causes individuals to spend longer hours on social media out of FOMO on social developments (Buglass et al., 2017; Oberst et al., 2017). This aligns with the psychological-needs perspective based on Deci & Ryan’s (1985) self-determination theory. According to this perspective, FOMO stems from a temporal or chronic failure to meet basic psychological needs of competence, autonomy, or relatedness to others (Przybylski et al., 2013).

However, this effect is not indiscriminate. It is crucial to note that simply using social media does not make just anyone vulnerable (Kuss & Griffiths, 2011; Staksrud et al., 2013). Instead, it has been found that vulnerability depends on how individuals interact with social media. For example, online practices such as self-disclosure and amassing large unmanageable networks contribute to online vulnerability (Buglass et al., 2017; Staksrud et al., 2013). Scholars theorize that these self-promoting online behaviors are users’ attempts to regulate psychological needs deficits of social control, connectivity, and belonging (Vorderer et al., 2016). While the discussion of risk factors is outside the scope of this paper, our focus is on the fact that the use of social media for news, especially active social media news use behavior, can lead to negative psychological states like heightened FOMO (Buglass et al., 2017; Hamutoglu et al., 2020; Oberst et al., 2017). Hence, based on the above discussion, we propose our second hypothesis as follows:

H2: Social media news use is positively associated with FOMO.

1.3. Fear of missing out and blocking misinformation sources

As described above, FOMO is a self-regulatory failure that stems from a temporal or chronic inability to meet basic psychological needs (Berezan et al., 2020; Przybylski et al., 2013). Because such individuals feel a heightened need for relatedness, approval, acceptance, and a sense of belonging, they may understand and react to social media news disagreements more strongly than secure individuals with low FOMO (Gupta & Sharma, 2021). In addition, these individuals are generally more concerned and sensitive to in-group norms and ideologies and fear rejection and social ostracism on social media (Nezlek et al., 2012). For example, it has been suggested that when threatened by social ostracism, individuals will attempt to fortify their basic psychological needs (Richman & Leary, 2009; Williams, 2009).

One such way may be by avoiding or blocking news sources (who post false, malicious, or conspiracy content) they disagree with to fortify psychological needs like autonomy and competence (see Williams, 2009; Wesselmann et al., 2015). In other words, individuals experiencing high FOMO may block misinformation sources to exert control and express competence. Similar patterns have been found across several studies. For example, Warburton et al. (2006) found that participants who were given a chance to fortify their need for control were less aggressive than those who were not. Twenge et al. (2007) also found that when participants’ needs to belong were fortified after being ostracised, they no longer felt the need to exert control and subsequently displayed less anti-social behaviors. Furthermore, Schoel et al. (2013) found that the threatened need for control, and not other needs, explained the relationship between ostracism and aggression. As such, individuals with high levels of FOMO may likely tend to block misinformation sources. While it is also intuitive to think that FOMO might reduce the likelihood of blocking misinformation because those with more significant FOMO might not want to terminate their network in order to stay connected for future interaction opportunities, existing evidence suggests the opposite is true.

In the context of social media misinformation avoidance, highly FOMO individuals may even avoid those who are seemingly not part of their in-group or share in their ideology. While this seems counterintuitive, evidence suggests that two contradictory responses do co-occur when individuals are ostracised, seeking social connections and approval (pro-sociality) and devaluing others (anti-sociality) (Sommer & Bernieri, 2014; Williams, 2009; Wesselmann et al., 2015). In other words, individuals with high FOMO may exhibit

paradoxical behaviors like avoiding others, especially when faced with counter-attitudinal content. Some individuals may also begin to withdraw and become asocial when the threat of social exclusion is prolonged or chronically felt. This is especially so for individuals with high FOMO, which is the stable disposition of pervasive fear that characterizes an individual (Wegmann et al., 2017). Individuals with high FOMO may feel chronically fearful and, thus, when confronted with disagreements, block the source to avoid discomfort and future contact. These individuals may prefer solitude and highly censored networks with little cross-cutting exposure. This also aligns with the flight response proposed by some scholars in contrast to the fight response of fortifying needs discussed above (Wesselmann et al., 2015). Thus, given the theoretical and empirical basis, we hypothesize that:

H3: FOMO is positively associated with blocking misinformation sources.

Among the various manifestations of this self-regulatory failure, a common response is becoming more anti-social and aggressive (Wesselmann et al., 2015; Williams, 2009; Sommer & Bernieri, 2014). In the context of misinformation shared on social media, this may take the form of blocking the content sharer, an online friend, or a news source. Hence, given the relationship between social media news use, FOMO, and avoidance behaviors, it is reasonable to assume that FOMO provides explanatory value to the relationship between social media news use and avoidance behaviors; we hypothesize that:

H4: The relationship between social media news use and blocking is mediated by FOMO.

1.4. The conditional role of personality traits: Conscientiousness

Next, we acknowledge the importance of individual differences in response to misinformation engagement. Specifically, we look to personality traits to provide a more nuanced understanding of blocking (misinformation sources/sharers). Personality traits are unique individual differences that characterize an individual's thoughts, feelings, and behaviors. They are influenced by genetics and socio-environmental experiences (Funder, 2001). Among the many personality frameworks, the Big-Five personality model has established itself as the most reliable and useful in describing social media users' behaviors and usage patterns, among other social behaviors (Gil de Zúñiga et al., 2017; Ngai et al., 2015). Recent studies found that extraversion, agreeableness, and conscientiousness are significant predictors of social media use (Gil de Zúñiga et al., 2017) and misinformation engagement (Lawson & Kakkar, 2022).

Notably, in the context of misinformation engagement, conscientiousness may play an essential role in regulating the belief and sharing of misinformation (Sindermann et al., 2020). Conscientiousness is "individual differences in the propensity to follow socially prescribed norms for impulse control, to be goal-directed, to plan, and to be able to delay gratification and to follow norms and rules" (Roberts et al., 2009, p. 369). It comprises a broad domain of positive traits, including orderliness, impulse control, conventionality, reliability, industriousness, and virtue (Roberts et al., 2009). Several studies also indicate that conscientiousness is negatively associated with the belief in misinformation (Calvillo et al., 2021; Liebman et al., 2002). However, individuals with low conscientiousness tend to share misinformation (Chen & Sin, 2013; Liebman et al., 2002). Prior studies also attributed misinformation-sharing behavior to low levels of conscientiousness, which lowers the likelihood of fact-checking behavior (Calvillo et al., 2021; Lawson & Kakkar, 2022). Given the empirical evidence, it is plausible to argue that conscientiousness influences other misinformation engagement behaviors, particularly blocking online friends and news sources who post misinformation.

Despite the relationship between conscientiousness (in terms of diligence) and avoidance attitude-incongruent sources, little evidence has been found in the literature (Tsfati, 2020). For example, a study hypothesizing a positive association between conscientiousness and conflict management failed to find supporting evidence (Ayub et al., 2017). In the context of social media advertisement avoidance, Dodoo and Wen (2019) also found no association between conscientiousness and advertisement avoidance. In fact, some found opposite results – conscientiousness negatively predicting conflict avoidance and non-confrontational approach (Antonioni, 1998). As such, conscientious individuals were able to confront conflicts, while unconscious individuals tended to shy away from conflicts.

Apart from the above claims, another standpoint stems from characteristics of conscientiousness in exercising extra caution and vigilance. For instance, conscientious individuals are less likely to place themselves in risky situations (Blackhart et al., 2014). Moreover, individuals high in conscientiousness are depicted to engage more in prosocial behavior after considering how their actions may benefit others (Lim et al., 2020). Moreover, several studies found a positive relationship between conscientiousness and guilt-proneness (Abraham & Pane, 2014; Fayard et al., 2012). Thus, high conscientiousness may trigger guilt when engaging in morally or culturally inappropriate behaviors, like propagating fake news or just being associated with the fake news sharers in the form of an online friend. Such individuals may even feel obliged to go the extra mile and block misinformation sources. As such, we argue that highly conscientious individuals are diligent and prudent and will curtail falsehoods. This includes blocking misinformation news sources to prevent unintentionally spreading it within their online social networks.

Furthermore, prior studies consistently revealed that conscientiousness negatively correlates with the level of FOMO experienced (Stead & Bibby, 2017; Rozgonjuk et al., 2021). Individuals with low conscientiousness are typically less sociable, less motivated, and score higher on FOMO (Stead & Bibby, 2017). This could be partly due to problematic internet use (Ruyandy & Kartasasmita, 2021). FOMO is also shown to mediate the relationship between conscientiousness and problematic internet use (Ruyandy & Kartasasmita, 2021). It has also been found that unconscious individuals tend to lack self-discipline in avoiding disruptive smartphone use (Rozgonjuk et al., 2021). Moreover, low conscientious individuals were found to lack the ability to regulate negative emotions (e.g., anxiety and fear), leading to greater FOMO (Ruyandy & Kartasasmita, 2021). On the other hand, highly conscientious individuals were found to seek achievement in other structured activities and avoided problematic internet use (Landers & Lounsbury, 2006; Ryan & Xenos, 2011). In sum, although there is limited supporting evidence for the moderating role of conscientiousness, it is plausible that conscientiousness negatively moderates the relationship between FOMO and selective avoidance behaviors on social media platforms by blocking misinformation sharers. As such, conscientiousness would weaken the link between FOMO and blocking misinformation

sharers. However, due to a lack of empirical evidence confirming the parallel role of conscientiousness in misinformation and FOMO engagement, we propose a research question instead of a hypothesis:

RQ1: How does conscientiousness conditionally influence the mediated relationship between social media news use and blocking misinformation sources through FOMO?

The overall conceptual model is presented in Fig. 1.

2. Study 1

2.1. Method

2.1.1. Sample

The survey for this study was administered in the US by Qualtrics LLC in October 2021. A total of 527 participants were recruited for the study. Efforts were made to match the sample to population parameters, focusing on age and gender quotas. A quota sampling strategy with online panels is frequently used to increase the representativeness of the sample. The demographics are as follows: age ($M = 46.96$, $SD = 17.82$), gender (53.5 % females), education (*Median* = bachelor's degree; 1 = no formal education to 8 = doctoral degree), income (*Median* = \$5,000 to \$6999; 1 = less than \$1000 to 11 = more than \$20,000) and race (75.1 % white).

2.1.2. Procedure

The participants were informed that they would be presented with several news headlines circulating on social media. The participants were also reminded to read each independent post carefully before answering the related question (for blocking) and moving to the next news headline.

A total of 10 news headlines were presented: five pro-liberal stances and five pro-conservative stances. These news headlines were fact-checked to be false using fact-checking websites like Snopes and AFP. The headline posts were also designed in font and size to resemble a social media post to invoke association with social media platforms. Sample headlines are presented in Fig. 2.

The participants were not informed about the false nature of these headlines to prevent social desirability bias (see Valenzuela et al., 2019). However, they were debriefed at the end of the survey regarding the nature of these news headlines.

2.1.3. Measures

To measure *blocking*, we asked the participants how likely (1 = extremely likely to 5 = not at all) they were to block the source if they saw this news headline news posted on social media. The response was reverse coded, so a higher value represents a greater likelihood of blocking. Finally, the responses to the ten news headlines were averaged to create a scale for blocking intentions ($M = 2.32$, $SD = 1.23$, $\alpha = 0.95$).

Social media news use was measured by asking the participants how frequently (1 = never to 5 = daily) they engaged in the following behavior: a) post in their time, b) comment on posts, c) share posts, d) read their news feed and e) read their friends' feeds and times about political and public affairs news ($M = 2.38$, $SD = 1.20$, $\alpha = 0.89$).

Fear of missing out was measured using a previously validated 10-item scale (Przybylski et al., 2013). Sample items included "I get anxious when I don't know what my friends are up to" and "When I have a good time, it is important for me to share the details online (e.g., updating status)." The responses were measured on a 5-point scale (1 = not at all true of me to 5 = extremely true of me). The answers for the ten items were averaged to create the scale ($M = 2.47$, $SD = 1.13$, $\alpha = 0.95$).

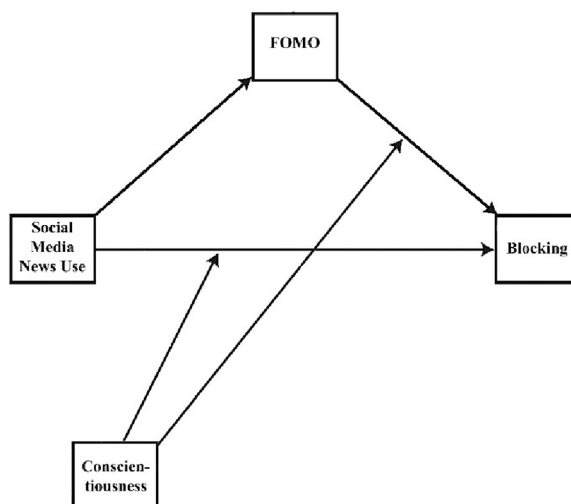


Fig. 1. Conceptual model.

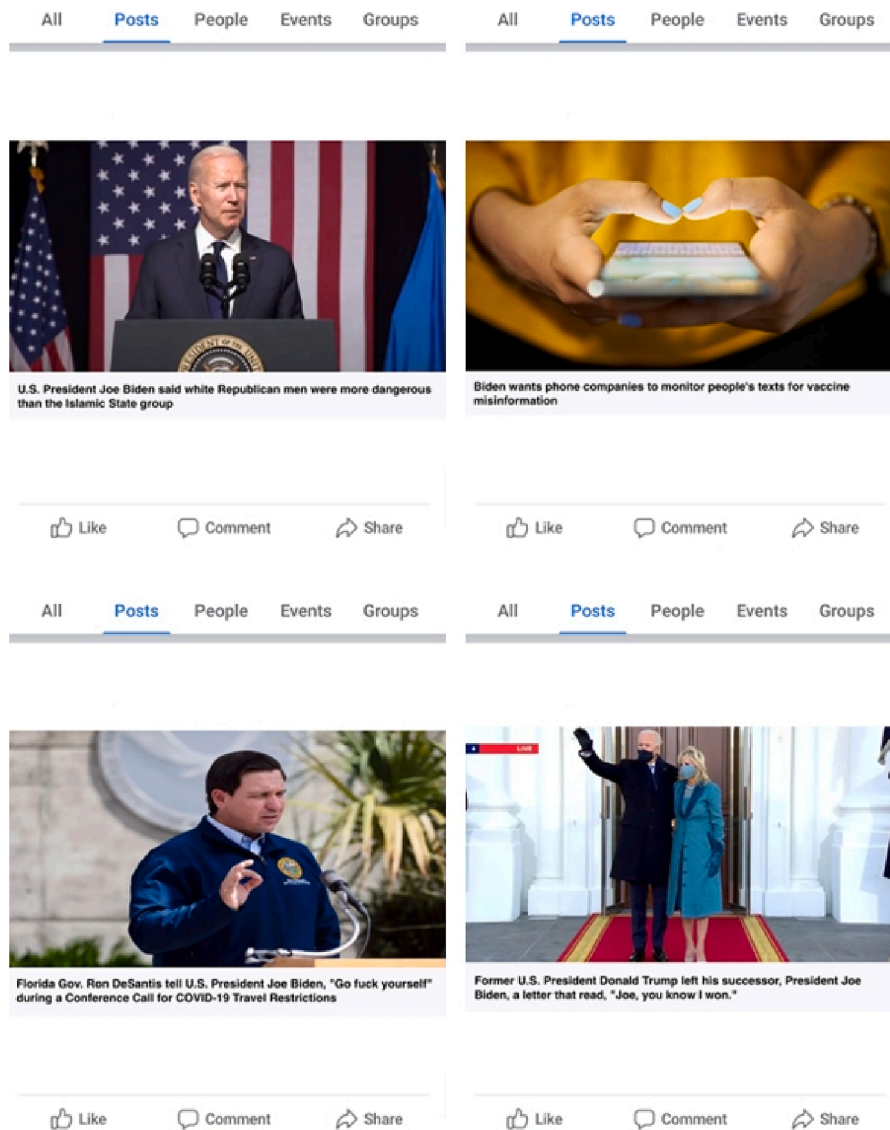


Fig. 2. Sample news headlines (study 1).

Conscientiousness was measured through six items ($M = 3.56$, $SD = 0.78$, $\alpha = 0.70$), with three reversed-coded, using the subscale from the Big Five Inventory-2 Small (BFI-2-S) (Soto & John, 2017). The sample includes: “I am someone who is reliable, can always be counted on” and “I am someone who can be somewhat careless. (Reverse-coded)”. The responses were measured on a 5-point scale (1 = disagree strongly to 5 = agree strongly).

This study also uses demographic and motivational controls. Demographics include age, gender, education, income, and race. Motivational factors include political interest (1 = not at all to 5 = extreme interest: $M = 3.22$; $SD = 1.24$), traditional media news use (averaging television, radio, and print news use; 1 = never to 5 = daily: $M = 2.72$; $SD = 1.11$, $\alpha = 0.64$) and partisanship (1 = strong Democrat to 7 = strong Republican: $M = 3.54$; $SD = 2.16$).

2.2. Results

At the first step, we ran hierarchical regression models with blocking intentions and FOMO as dependent variables. The demographic and motivational controls were entered in the first block, followed by core variables of interest in the second block. The results are presented in Table 1.

As observed, social media news use was positively associated with FOMO ($\beta = 0.29$, $p < 0.001$) but not blocking intentions ($\beta = -0.07$, $p = 0.14$). We find support for H2 but not H1. Therefore, it can be inferred that those who use social media for news consumption are likely to experience FOMO. Still, social media news use does not directly influence their intention to block misinformation sources.

Table 1
Predicting blocking and FOMO in the US (study 1).

| | Blocking intentions | FOMO |
|----------------------------|---------------------|-----------|
| | β | β |
| Age | -0.246*** | -0.472*** |
| Gender (male = 1) | 0.034 | 0.026 |
| Education | -0.016 | 0.092* |
| Income | -0.006 | 0.010 |
| Race (white = 1) | -0.040 | -0.023 |
| Political interest | 0.095* | 0.146*** |
| Partisanship | -0.067 | -0.062 |
| Traditional media news use | 0.169*** | 0.206*** |
| R ² Change (%) | 12.9 | 33.7 |
| Social media news use | -0.071 | 0.286*** |
| FOMO | 0.408*** | - |
| Conscientiousness | -0.145*** | -0.284*** |
| R ² Change (%) | 14.7 | 14.2 |
| Total R ² (%) | 27.6 | 47.9 |

Note. 1. *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$.

Next, we find support for H3 as FOMO was positively associated with the intention to block the source of misinformation ($\beta = 0.41, p < 0.001$). Those with high levels of FOMO are more likely to block those who post misinformation on social media.

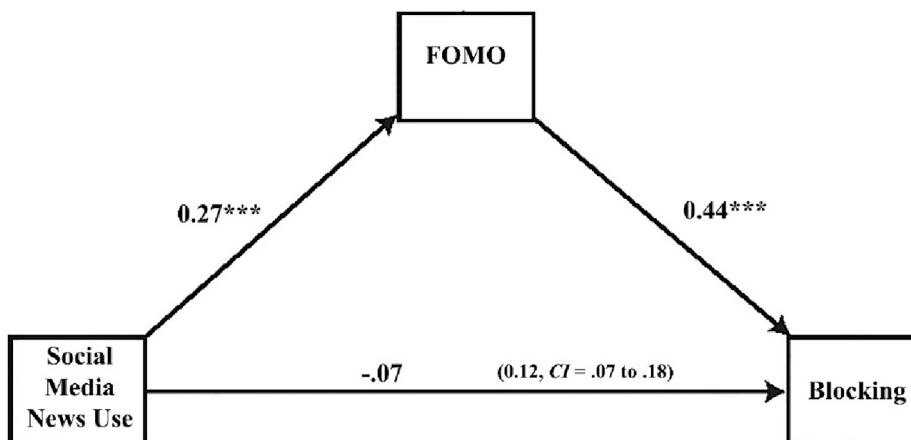
We also observe that younger respondents ($\beta = -0.25, p < 0.001$) and those who are politically interested are also likely to report higher blocking intentions ($\beta = 0.10, p < 0.05$). In addition, in line with previous research, we find that younger ($\beta = -0.47, p < 0.001$) and higher educated people ($\beta = 0.09, p < 0.05$) are more likely to experience FOMO. Those who are politically interested ($\beta = 0.15, p < 0.001$) and frequently use traditional media for news consumption ($\beta = 0.21, p < 0.001$) are also likely to experience FOMO.

The final hypothesis (H4) predicted that FOMO would mediate the relationship between social media news use and intentions to block the source of misinformation. We employed a mediation test using the PROCESS macro with bootstrapping (Hayes, 2017). The relationship between social media news use, FOMO, and blocking intentions is illustrated in Fig. 3. A formal statistical test of the mediation process suggests that FOMO mediates the effect of social media news use on blocking intentions (indirect effect: $b = 0.12, se = 0.03$, bootstrapping LLCI = 0.07 ULCI = 0.18). Thus, H4 is supported.

The final research question asked how conscientiousness would moderate the above-discussed mediation. We ran conditional analyses using the PROCESS macro (Model 15, Hayes, 2017). The index of moderated mediation was found to be statistically significant (index = -0.05, boot se = 0.03, LLCI = -0.11 ULCI = -0.01). The results of the beta estimates, standard errors, and the significance of the indirect effects are included in Table 2.

The results suggest that the indirect effects decrease with an increase in levels of conscientiousness. The effects are found to be strongest for low conscientiousness individuals (-1SD: $b = 0.17, se = 0.03$), followed by those with average (mean: $b = 0.13, se = 0.03$) and high conscientiousness individuals (+1SD: $b = 0.09, se = 0.04$). Therefore, it is inferred that the link between social media news use to blocking intentions via FOMO is most pronounced for low conscientiousness individuals.

In terms of moderation, it was found that the interaction between conscientiousness and FOMO in predicting blocking intentions



Note. *** $p < .001$, ** $p < .01$; Estimates are calculated using the PROCESS macro for SPSS (Model 4; Hayes, 2018). The number in the parenthesis is the indirect effect with LLCI to ULCI. Bootstrap resample = 5,000. Statistical controls include age, gender, education, income, race, political interest, partisanship, traditional media news use, and conscientiousness.

Fig. 3. Illustration of the mediation path (effect values are unstandardized betas) for US data (study 1).

Table 2
Conditional indirect effects for blocking intention with conscientiousness as the moderator (study 1).

| Conscientiousness | Indirect effects | se | 95 % CI |
|-------------------|------------------|------|--------------|
| 2.78 (-1SD) | 0.17 | 0.03 | 0.11 to 0.24 |
| 3.56 (Mean) | 0.13 | 0.03 | 0.08 to 0.19 |
| 4.34 (+1SD) | 0.09 | 0.04 | 0.03 to 0.17 |

was statistically significant ($b = -0.16, se = 0.07, p < 0.05$). The relationship is plotted in Fig. 4. As observed, at higher levels of FOMO, low conscientiousness individuals are more likely to engage in blocking behavior ($b = 0.54, se = 0.07, p < 0.001$) than average ($b = 0.41, se = 0.06, p < 0.001$) and high conscientiousness individuals ($b = 0.29, se = 0.09, p < 0.001$).

2.2.1. Additional Analyses: Testing the role of political partisanship

Numerous studies have established the role of partisanship in misinformation engagement in the US (Allcott & Gentzkow, 2017; Lawson & Kakkar, 2022). Studies suggest that conservatives are likelier to believe and share political misinformation (Pennycook & Rand, 2021). Therefore, we ran additional analyses with partisanship as a secondary moderator to examine the effect of partisanship in our proposed mechanism. The results suggest that partisanship does not conditionally moderate the proposed mechanism. However, conscientiousness continues to be a significant moderator. See Appendix for details.

Further, we also created two dependent variables with attention to Democratic and Republican-leaning misinformation. Replicating the analyses with the two dependent variables did not result in any additional meaningful results. Partisanship continued to be a non-significant moderator in the process. While conscientiousness was a significant moderator in the mediation process using both dependent variables (Democratic and Republican-leaning misinformation blocking). See Appendix for details.

3. Study 2

3.1. Study Background: Singapore

The estimated number of Singaporean social media users in 2020 was 5.05 million, which is projected to increase to 5.6 million by 2025 (Statista, 2021). 83 % of Singaporeans seek news online, including on social media, but only 18 % trust the news they encounter online (Newman et al., 2021). Regarding the choice of news sources, a study by Teo (2021) found that younger Singaporeans are more inclined to adopt various social media and digital avenues than traditional media and do not perceive the subjectivity of news content from social media to be a severe issue. Chen et al. (2015) reported Singaporeans’ tendency to share misinformation to attract attention and initiate conversations. It was also found that Singaporeans might correct sharers of misinformation with whom they have a

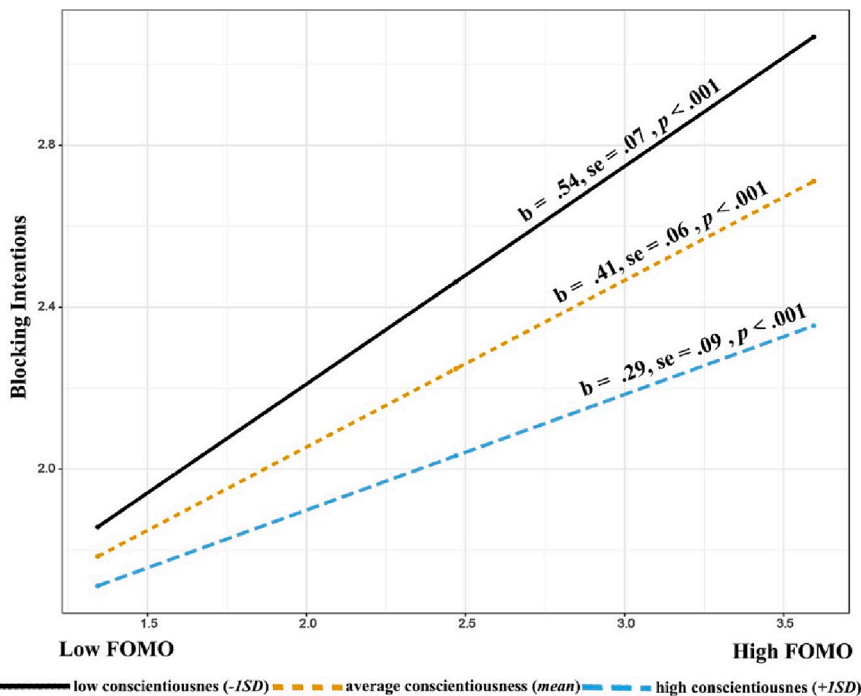


Fig. 4. Visualization of the interaction between FOMO and conscientiousness predicting blocking misinformation sources in the US (study 1).

personal relationship (Tandoc et al., 2019). Importantly, the same study highlighted that most social media users in Singapore tend to ignore misinformation they encounter, and only 12 % might unfollow or block the sharer. More recently, during the COVID-19 pandemic, social media was Singaporeans' preferred news source. However, an estimated 60 % have reported previously receiving misinformation about COVID-19 on social media (National Centre for Infectious Diseases, 2020). Given these concerning trends, this study has replicated the research framework of Study 1 in Singapore using COVID-19 misinformation. Study 2 expands the overall contribution of this study by not only providing cross-cultural empirical evidence but also extending the framework by focusing on a different type of misinformation. Moreover, we focus on the health topic in Study 2 compared to the political topic in Study 1 because Singapore is a hybrid democracy where political issues and interests do not attract as much public attention.

Moreover, analysis of the antecedents and mechanisms of blocking misinformation sharers remains to be tested in non-Western societies. Thus, we conducted Study 2 in Singapore, a context less explored in scholarship on blocking misinformation sharers, focusing on non-political misinformation (i.e., COVID-19 misinformation). While the US and Singapore are culturally unique, they both share close economic and geopolitical ties. This cross-comparison approach would further enhance the generalizability of the findings observed in Study 1. Although we test the proposed hypotheses and research questions (Study 1) in a different context (Study 2), we do not expect findings to differ because our propositions are mainly built on theoretical arguments. This allows us to conduct Study 2 based on Study 1 despite contextual differences. Therefore, we replicate the same goals as in Study 1 (H1 to H4 and RQ1).

3.2. Method

3.2.1. Sample

This study uses a survey sample ($N = 500$) administered by Qualtrics LLC in March 2022 in Singapore. The sample frame was matched to the population parameters, focusing on age and gender quotas. The demographics are as follows: age ($M = 39.22$, $SD = 14.12$), gender (51 % females), education (*Median* = bachelor's degree; 1 = no formal education to 7 = doctoral degree), income (*Median* = \$7,000 to \$8,999; 1 = less than \$1000 to 11 = more than \$20,000) and race (76.6 % Chinese).

3.2.2. Procedure

Similar to study 1, the participants were informed that they would be presented with several news headlines circulating on social media. They are required to read each news headline and answer the related questions (for blocking).

Instead of the political news headlines used in Study 1, we use five news headlines concerning COVID-19. These news headlines were fact-checked to be false. Similar to Study 1, we designed each news headline to resemble a social media post.

3.2.3. Measures

Similar to Study 1, *blocking* intentions were measured by asking the participants how likely (1 = extremely likely to 5 = not at all) are they to block the source (posting) if they saw this news headline news posted on social media. Sample misinformation claims include "mRNA COVID-19 vaccinations cause magnetism by introducing graphene oxide into the blood" and "COVID-19 vaccines are dangerous and ineffective against the Omicron variant". The responses to the five news headlines were averaged to create a scale of blocking behavior ($M = 2.36$, $SD = 1.19$, $\alpha = 0.92$).

Social media news use ($M = 2.26$, $SD = 0.90$, $\alpha = 0.79$) and *fear of missing out* was measured using the same measure as Study 1 ($M = 2.40$, $SD = 0.99$, $\alpha = 0.94$).

Conscientiousness was measured through two items ($M = 5.24$, $SD = 1.06$, Spearman-Brown coefficient = 0.77).

This study also uses demographic and motivational controls. Demographics include age ($M = 39.22$, $SD = 14.12$), gender (51 % females), education (median = bachelor's degree), income (median = \$7000 to \$8999 Singapore dollars), and race (majority, Chinese = 77 %). Motivational factors include political interest (1 = not at all to 5 = extreme interest: $M = 2.82$; $SD = 1.07$) and traditional

Table 3
Predicting blocking intentions and FOMO in Singapore (study 2).

| | Blocking intentions | FOMO |
|----------------------------|---------------------|-----------|
| | β | β |
| Age | -0.112** | -0.379*** |
| Gender (female = 1) | -0.166*** | -0.013 |
| Education | 0.101* | 0.036 |
| Income | -0.007 | -0.014 |
| Race (Chinese = 1) | -0.006 | -0.062 |
| Political interest | 0.251*** | 0.371*** |
| Traditional media news use | 0.039 | 0.163*** |
| R ² Change (%) | 16.1 | 32.3 |
| Social media news use | 0.129* | 0.256*** |
| FOMO | 0.187*** | - |
| Conscientiousness | -0.019 | 0.042 |
| R ² Change (%) | 4.1 | 4.3 |
| Total R ² (%) | 20.2 | 36.6 |

Note. 1. *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$.

media news use (averaging television, radio, and print news use; 1 = never to 5 = daily: $M = 2.82$; $SD = 1.20$, $\alpha = 0.73$).

3.3. Results

We ran hierarchical regression models with blocking and FOMO as dependent variables. The results are presented in Table 3.

Social media news use was positively associated with both blocking intentions ($\beta = 0.13$, $p < 0.05$) and FOMO ($\beta = 0.26$, $p < 0.001$). We find support for both *H1* and *H2*. It is inferred that those who frequently use social media for news are likely to experience FOMO and also engage in blocking the sources of misinformation on their feeds.

In consistency with Study 1, we find support for *H3* as FOMO was found to be positively associated with intention to block ($\beta = 0.19$, $p < 0.001$).

Besides the core findings, we also find that younger respondents ($\beta = -0.11$, $p < 0.01$) and politically interested citizens are more likely to block ($\beta = 0.25$, $p < 0.001$). Again, these patterns are consistent with Study 1.

We again observe that younger respondents ($\beta = -0.38$, $p < 0.001$), politically interested ($\beta = 0.37$, $p < 0.001$), and those who use traditional media for news consumption ($\beta = 0.16$, $p < 0.001$) are likely to report higher levels of FOMO.

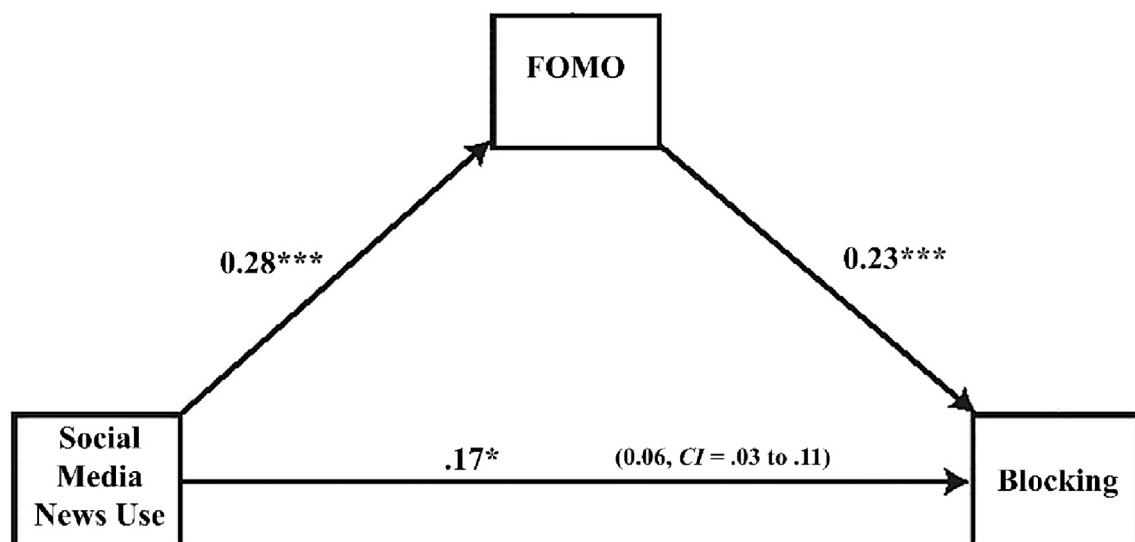
The final hypothesis (*H4*) replicated the earlier prediction that FOMO would mediate the relationship between social media news use and intentions to block the misinformation source. A mediation test using the PROCESS macro with bootstrapping was employed (Hayes, 2017). The relationship between social media news use, FOMO, and blocking intentions is illustrated in Fig. 5. A formal statistical test of the mediation process suggests that FOMO mediates the effect of social media news use on blocking intentions (indirect effect: $b = 0.06$, $SE = 0.02$, bootstrapping LLCI = 0.03 ULCI = 0.11). Therefore, *H4* is supported.

The final research question (*RQ1*) examined the moderated mediation process. A conditional PROCESS analysis (Model 15: Hayes, 2017) suggested that the relationship between social media news use and blocking via FOMO is not moderated by conscientiousness (index = 0.02, $SE = 0.02$, LLCI = -0.019 ULCI = 0.053). Therefore, we conclude that the relationship between social media news use and blocking through FOMO is not conditional upon conscientiousness.

4. Study 3

4.1. Introduction: Deepfakes

Deepfakes are the newest and more virulent form of disinformation that has emerged in recent years. It refers to synthetically generated audio-visual media based on sophisticated AI algorithms. An oft-cited example is the viral deepfake video of Jordan Peele impersonating former president Obama and calling former president Trump a “dipshit” (Romano, 2018). At first glance, for some social media users, it would be difficult to tell that the video was synthetically created because of how well president Obama’s facial features and voice were mapped onto Jordan Peele. This complete falsification of verbal and non-verbal cues renders deepfakes highly realistic and tremendously challenging to differentiate from reality (Westerlund, 2019). Based on the broader misinformation and disinformation literature, meta-analyses found that the average person performs only slightly above chance when evaluating the veracity of a



Note. *** $p < .001$, ** $p < .01$; Estimates are calculated using the PROCESS macro for SPSS (Model 4; Hayes, 2018). The number in the parenthesis is the indirect effect with LLCI to ULCI. Bootstrap resample = 5,000. Statistical controls include age, gender, education, income, race, political interest, traditional media news use, and conscientiousness.

Fig. 5. Illustration of the mediation path (effect values are unstandardized betas) for Singapore (study 2).

message (Bond & DePaulo, 2006). This statistic is less optimistic for deepfakes (Ahmed, 2021; 2022; Köbis et al., 2021). In a recent study by Cochran and Napshin (2021), 62 % of the participants felt deepfakes had deceived them. More concerning is that when individuals are unsure of the veracity of the deepfake, they tend to exhibit an authenticity bias. That is, individuals tend to assume the deepfake is authentic when they are unsure. This can be especially harmful in an information ecosystem that circulates disruptive and malicious deepfakes. For example, some actors used the technology in early 2022 in the act of war. The deepfake video was of president Zelensky imploring its soldiers to surrender to Kremlin (Allyn, 2022). Such politically charged deepfakes regarding current affairs may influence citizens. As such, Study 3 aims to replicate the blocking mechanism for deepfakes.

Therefore, in the first step, we replicate the goals of the previous two studies (*H1 to H4* and *RQ1*), focusing on blocking those who post deepfakes.

Further, beyond replication, Study 3 also explores the role of cognitive ability as another conditional moderator. Within the wider dis- and misinformation literature, most have found cognitive ability crucial in discerning fake news (Ahmed & Gil-Lopez, 2022; Ahmed & Rasul, 2023; Pennycook & Rand, 2021). According to the cognitive miser theory, people tend to think and solve problems in the least mentally effortful way (Kahneman, 2011; Toplak et al., 2014). Therefore, we are motivated to minimize the cognitive effort to evaluate and reason and are inclined to rely on heuristics. This is problematic when faced with an amalgamation of true and fake news on social media. Instead of carefully evaluating each piece of information, we rely on intuition for a quick and superficial assessment. In addition, it has also been found that individuals with high cognitive ability are better at information processing (Pennycook & Rand, 2021) and less likely to engage in network dissolution (Wang et al., 2023) or FOMO (Ahmed, 2022). Therefore, the influence of social media news on blocking through FOMO can be expected to be weaker for individuals with high cognitive ability. However, given the lack of previous empirical support, we propose a research question instead of a hypothesis:

RQ2: How do conscientiousness and cognitive ability conditionally influence the mediated relationship between social media news use and blocking misinformation sources through FOMO?

The updated conceptual model is presented in Fig. 6.

4.2. Method

4.2.1. Sample

This study uses a survey sample from the US ($N = 1010$) and Singapore ($N = 1008$). Similar to previous studies, we use a quota-based sampling approach and use the services of Qualtrics LLC to recruit the sample. The surveys were administered in July 2022.

The demographics are as follows: age (US: $M = 48.96$, $SD = 17.54$; Singapore: $M = 43.80$, $SD = 13.98$), gender (US: 54 % females; Singapore: 45 % females), education (US: *Median* = bachelor's degree; Singapore: *Median* = bachelor's degree; 1 = no formal education to 7 = doctoral degree;), income (US = *Median* = \$7,000 to \$8,999; Singapore = *Median* = \$7,000 to \$8,999; 1 = less than \$1000 to 11 = more than \$20,000) and race (US = 76.1 % White; Singapore = 80.8 % Chinese).

4.2.2. Procedure

Unlike studies 1 and 2, we used four trending deepfakes videos in study 3. These deepfakes were fact-checked to be false. Using a strategy similar to previous studies, we designed each post to resemble a social media post. A sample is presented in Fig. 7.

Similar to previous studies, the participants were informed that they would be presented with several news stories circulating on

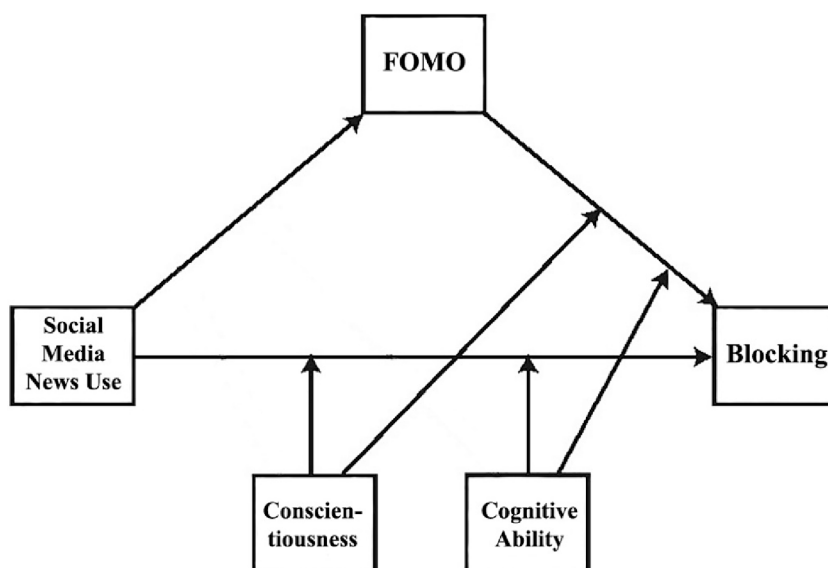


Fig. 6. Extended conceptual model.

social media. They were required to watch each video and answer the related questions.

4.2.3. Measures

Blocking was measured by asking the participants how likely (1 = extremely likely to 5 = not at all) are they to block the source (posting) if they saw this news video news posted on social media? We used four videos (subjects: Vladimir Putin, Kim Kardashian, Tom Cruise and Mark Zuckerberg). The sample claims in deepfakes include “Valdimir Putin mocked Americans for being the reason behind the fall of America” and “Kim Kardashian acknowledged manipulating people online for money”. The responses were reverse coded and averaged to create a scale of blocking behavior (US: $M = 2.05$, $SD = 1.22$, $\alpha = 0.88$; Singapore: $M = 1.71$, $SD = 1.02$, $\alpha = 0.90$).

Social media news use (US: $M = 2.40$, $SD = 1.22$, $\alpha = 0.93$; Singapore: $M = 2.25$, $SD = 0.98$, $\alpha = 0.88$) and *fear of missing out* was measured using the same measure as Study 1 (US: $M = 2.29$, $SD = 1.06$, $\alpha = 0.92$; Singapore: $M = 2.25$, $SD = 0.98$, $\alpha = 0.92$).

Conscientiousness was measured through two items (US: $M = 4.10$, $SD = 0.86$, Spearman-Brown coefficient = 0.80; Singapore: $M = 3.94$, $SD = 0.72$, Spearman-Brown coefficient = 0.73).

Cognitive ability was measured through the wordsum test. The test requires participants to match the source word with the closest matching target word from a list of five alternatives. The 10-question test shares high variance with general intelligence and has been frequently used to measure cognitive ability of participants (Greene et al., 2021; Wang et al., 2023). The correct responses to each question were summed to create a scale of cognitive ability (US: $M = 5.43$, $SD = 2.41$, $\alpha = 0.74$; Singapore: $M = 5.53$, $SD = 2.30$, $\alpha = 0.73$).

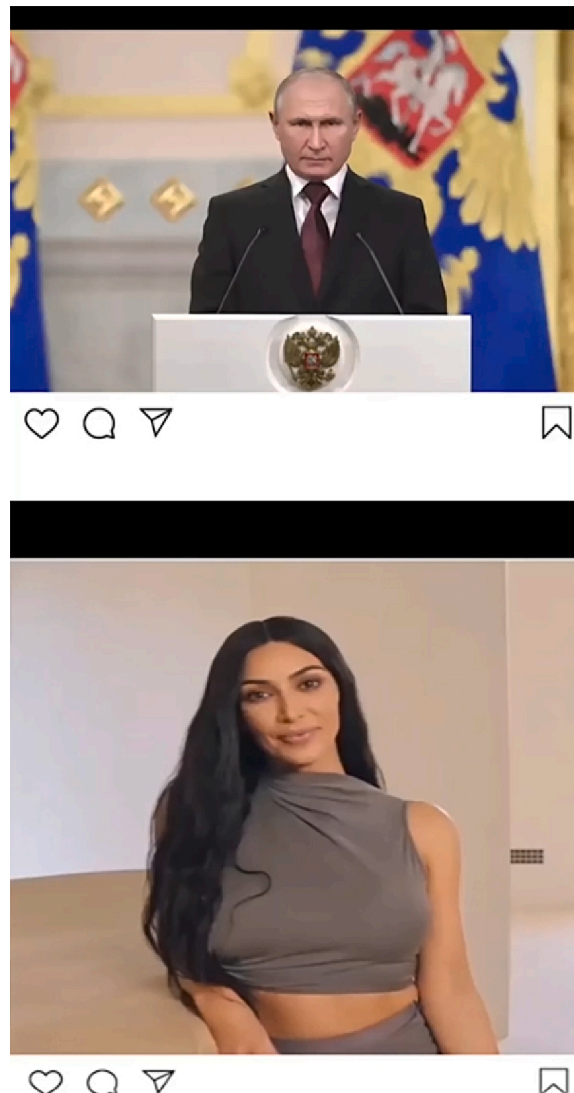


Fig. 7. Sample deepfake videos (study 3).

We also use age, gender, education, income, and race as controls. Motivational factors include political interest (US: $M = 3.11$; $SD = 1.27$; Singapore: $M = 2.73$; $SD = 1.08$) and traditional media news use (US: $M = 2.65$; $SD = 1.03$, $\alpha = 0.70$; Singapore: $M = 2.69$; $SD = 1.02$, $\alpha = 0.75$).

4.3. Results

For a direct comparison with previous studies, we ran hierarchical regression models with blocking intentions and FOMO as dependent variables along with the same set of independent variables. The results for both the US and Singapore are presented in Table 4.

Social media news use was associated with blocking intentions in Singapore ($\beta = 0.15$, $p < 0.001$) but not in the US ($\beta = 0.07$, $p > 0.05$). Therefore, H1 was partially supported. Further, social media news use was positively associated with FOMO in both contexts (US: $\beta = 0.32$, $p < 0.001$; Singapore: $\beta = 0.38$, $p < 0.001$). H2 is supported.

Similar to previous studies, we find support for H3 as FOMO was positively associated with intention to block in both countries (US: $\beta = 0.32$, $p < 0.001$; Singapore: $\beta = 0.36$, $p < 0.001$). Besides, we also observe that younger respondents are more likely to engage in blocking (US: $\beta = -0.24$, $p < 0.001$; Singapore: $\beta = -0.14$, $p < 0.001$) and FOMO behavior (US: $\beta = -0.47$, $p < 0.001$; Singapore: $\beta = -0.35$, $p < 0.001$). Those with political interest are also likely to engage in blocking (Singapore: $\beta = 0.15$, $p < 0.001$) and showcase FOMO (US: $\beta = 0.10$, $p < 0.001$; Singapore: $\beta = 0.22$, $p < 0.001$).

The results for the mediation analyses suggest that the relationship between social media news use, FOMO, and blocking intentions is statistically significant (indirect effect for US: $b = 0.10$, $SE = 0.02$, bootstrapping LLCI = 0.07 ULCI = 0.14; Singapore: $b = 0.14$, $SE = 0.02$, bootstrapping LLCI = 0.10 ULCI = 0.19). The results are illustrated in Figs. 8 and 9. H4 is supported.

Next, to directly compare the findings with the previous two studies, we ran moderated mediation analyses using the PROCESS macro (Model 15, Hayes, 2017) with a single moderator: conscientiousness. The index of moderated mediation was found to be significant for the US (index = -0.03 , boot se = 0.01, LLCI = -0.06 ULCI = -0.01) but not Singapore (index = -0.03 , boot se = 0.02, LLCI = -0.07 ULCI = 0.01). The results for the US are included in Table 5.

Similar to Study 1, the results suggest that the indirect effects decrease with an increase in levels of conscientiousness (for the US). The effects are found to be strongest for low conscientiousness individuals ($-1SD$: $b = 0.13$, $se = 0.02$), followed by those with average (mean: $b = 0.11$, $se = 0.02$) and high conscientiousness individuals ($+1SD$: $b = 0.08$, $se = 0.02$). Therefore, it is inferred that the link between social media news use to blocking intentions via FOMO is most pronounced for low conscientiousness individuals.

The interaction between conscientiousness and FOMO in predicting blocking intentions was statistically significant ($b = -0.10$, $se = 0.05$, $p < 0.05$). The relationship is plotted in Fig. 10. At higher levels of FOMO, low conscientiousness individuals are more likely to engage in blocking behavior ($b = 0.47$, $se = 0.06$, $p < 0.001$) than others (average: $b = 0.39$, $se = 0.04$, $p < 0.001$; high: $b = 0.30$, $se = 0.05$, $p < 0.001$).

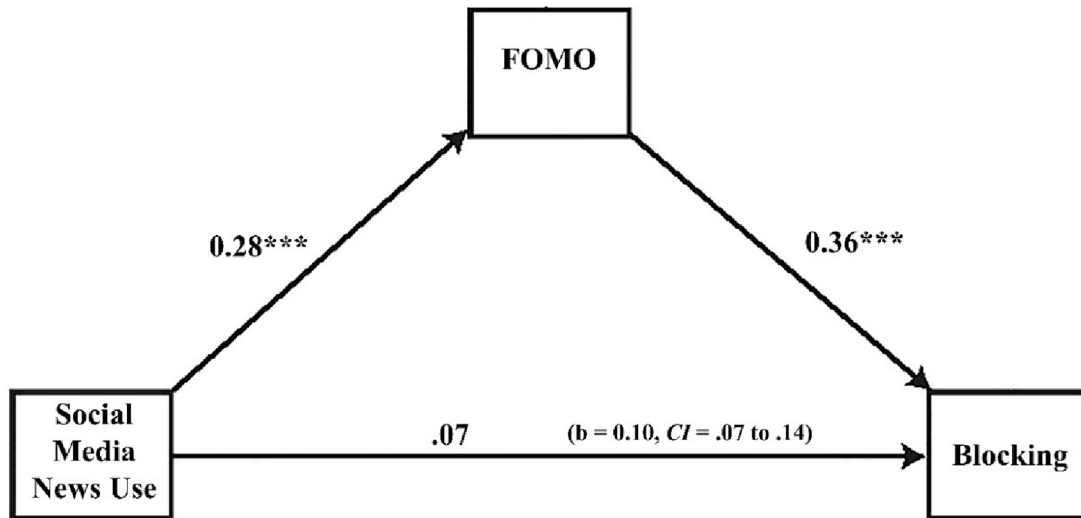
Finally, we ran an additional moderated mediation model (Model 17: Hayes, 2017) with two moderators: cognitive ability and conscientiousness. The indexes of moderated mediation for the two countries are included in Table 6. The index for both moderators was significant for the US, but the index for only cognitive ability was significant in Singapore.

The conditional effects for both countries are included in Table 7. In the US, the effects are found to be strongest for low conscientiousness individuals with low cognitive ability ($-1SD$: $b = 0.14$, $se = 0.03$). Generally, the effects decrease with an increase in conscientiousness and cognitive ability. Similar patterns are observed in Singapore, with the most significant effects for low conscientiousness individuals with low cognitive ability ($-1SD$: $b = 0.20$, $se = 0.03$). Here, we also observe the effects to decrease with an increase in cognitive ability across all levels of conscientiousness.

Table 4
Predicting blocking intentions and FOMO in the US and Singapore (study 3).

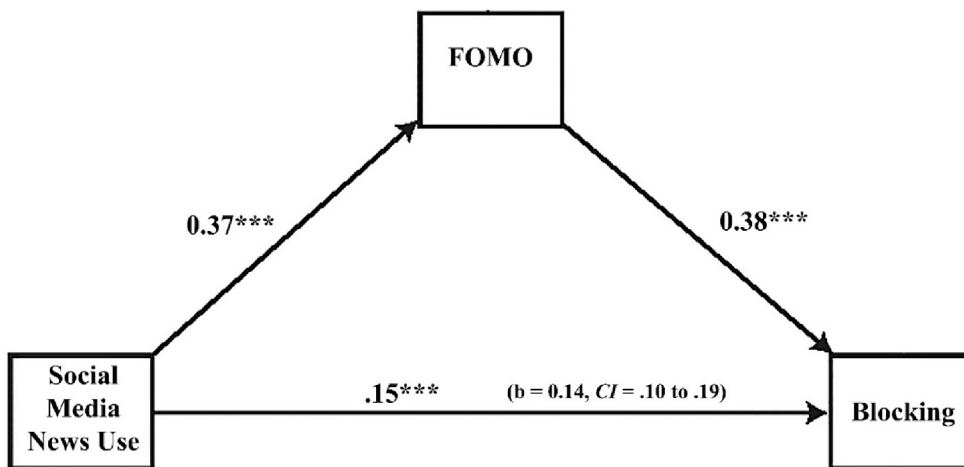
| | US | | Singapore | |
|----------------------------|---------------------|-----------|---------------------|-----------|
| | Blocking Intentions | FOMO | Blocking Intentions | FOMO |
| | β | β | β | β |
| Age | -0.242*** | -0.469*** | -0.142*** | -0.354*** |
| Gender (male = 1) | -0.013 | -0.016 | 0.126*** | 0.047 |
| Education | -0.057 | -0.011 | -0.035 | 0.027 |
| Income | 0.047 | 0.033 | -0.013 | -0.059 |
| Race (majority = 1) | -0.047 | -0.021 | -0.120*** | -0.047 |
| Political interest | 0.031 | 0.104*** | 0.146*** | 0.217*** |
| Traditional media news use | 0.240*** | 0.292*** | 0.162*** | 0.110*** |
| R ² Change (%) | 14.8 | 38.2 | 12.1 | 20.7 |
| Social media news use | 0.074 | 0.319*** | 0.146*** | 0.384*** |
| FOMO | 0.317*** | - | 0.360*** | - |
| Conscientiousness | -0.052 ⁺ | -0.035 | -0.019 | -0.066* |
| R ² Change (%) | 7.5 | 5 | 14.3 | 9.8 |
| Total R ² (%) | 22.3 | 43.2 | 26.3 | 30.5 |

Note. 1. *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$.



Note. *** $p < .001$, ** $p < .01$; Estimates are calculated using the PROCESS macro for SPSS (Model 4; Hayes, 2018). The number in the parenthesis is the indirect effect with LLCI to ULCI. Bootstrap resample = 5,000. Statistical controls include age, gender, education, income, race, political interest, traditional media news use, and conscientiousness.

Fig. 8. Illustration of the mediation path (effect values are unstandardized betas) for US (study 3).



Note. *** $p < .001$, ** $p < .01$; Estimates are calculated using the PROCESS macro for SPSS (Model 4; Hayes, 2018). The number in the parenthesis is the indirect effect with LLCI to ULCI. Bootstrap resample = 5,000. Statistical controls include age, gender, education, income, race, political interest, traditional media news use, and conscientiousness.

Fig. 9. Illustration of the mediation path (effect values are unstandardized betas) for Singapore (study 3).

Table 5
Conditional indirect effects for blocking intention with conscientiousness as the moderator (study 3).

| Conscientiousness | Indirect Effects | SE | 95 % CI |
|-------------------|------------------|------|--------------|
| 3.24 (-1SD) | 0.13 | 0.02 | 0.09 to 0.18 |
| 4.10 (Mean) | 0.11 | 0.02 | 0.07 to 0.14 |
| 4.96 (+1SD) | 0.08 | 0.02 | 0.05 to 0.13 |

5. General conclusion

The results of Study 1 suggest that social media news use is associated with higher levels of FOMO, which translates into blocking sources who post political misinformation on social media. These effects are also found to be conditional upon levels of conscientiousness such that the effects are more substantial for those with low rather than high levels of conscientiousness. Additionally, we

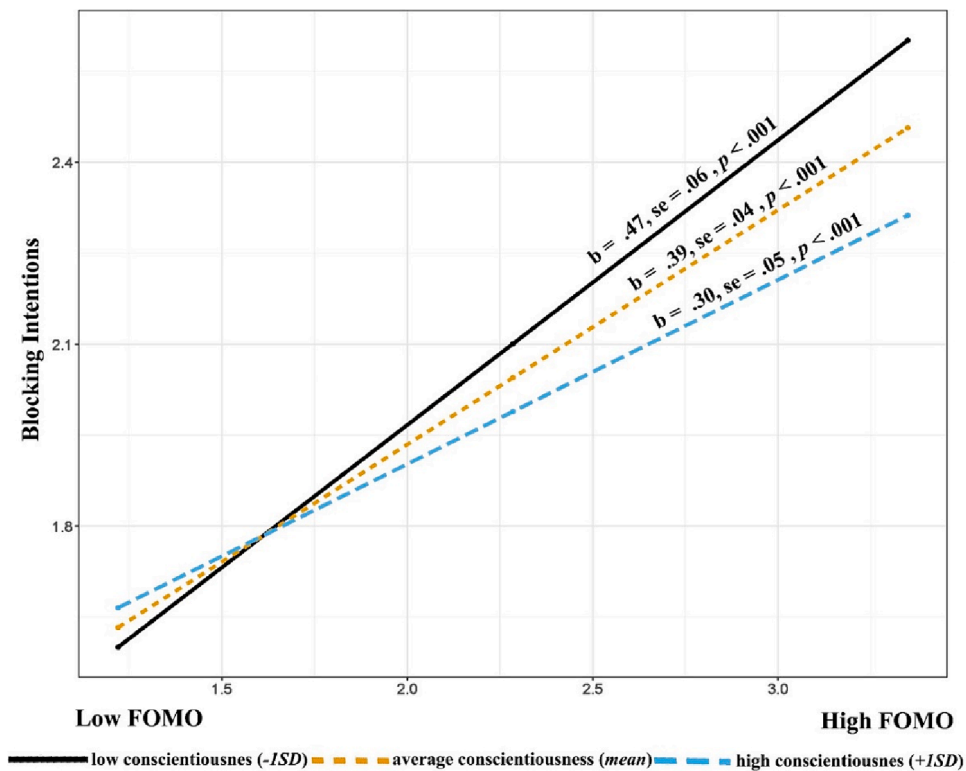


Fig. 10. Visualization of the interaction between FOMO and conscientiousness predicting blocking misinformation sources in the US (study 3).

Table 6
Indices of moderated mediation in the US and Singapore (study 3).

| United States | | | | |
|-------------------|--------|---------|----------|----------|
| Moderator | Index | Boot SE | BootLLCI | BootULCI |
| Conscientiousness | -0.025 | 0.014 | -0.055 | -0.009 |
| Cognitive Ability | -0.014 | 0.005 | -0.025 | -0.004 |
| Singapore | | | | |
| Moderator | Index | Boot SE | BootLLCI | BootULCI |
| Conscientiousness | -0.031 | 0.018 | -0.068 | 0.006 |
| Cognitive Ability | -0.033 | 0.007 | -0.048 | -0.019 |

also find that partisanship does not play a conditional role in this relationship. Study 1 provides critical insights into why social media users engage in blocking in response to political misinformation. However, it also suffers from several limitations. First, it is unknown if the observed patterns would hold for other kinds of misinformation that are not political. Second, the study is based in the US, a society that has witnessed a significant impact of misinformation within the political arena (Ahmed & Gil-Lopez, 2022; Allcott & Gentzkow, 2017; Guess et al., 2019). Finally, an analysis of antecedents and mechanisms of blocking in non-Western democracies remains untested.

To fill these research gaps, we conducted Study 2 in Singapore, a context, less explored in the literature, focusing on non-political misinformation. The findings of Study 2 increase the generalizability of the proposed mechanism of blocking. The relationships between social media news use, FOMO, and blocking are consistent in Singapore for a different form of misinformation—COVID-19 misinformation. As such, we can infer that blocking in response to misinformation is driven by FOMO across cultural contexts and types of misinformation. However, we also observe that these relations are not conditional upon conscientiousness. Nevertheless, this is a single case study, and there is a need to conduct more cross-national comparisons to come to definite conclusions.

Finally, we employed a cross-national comparison of the US and Singapore in Study 3, where we replicated and extended the proposed framework in the first two studies. We tested the mechanism of social media news use – FOMO – blocking for a newer form of misinformation – deepfakes. Next, along with testing the conditional role of conscientiousness, we also introduced cognitive ability as a secondary moderator in the proposed framework. Findings showed that social media news use was associated with blocking

Table 7

Conditional indirect effects for blocking intention with conscientiousness and cognitive ability as the moderator (study 3).

| United States | | | | | |
|-------------------|-------------|--------|--------|----------|----------|
| Conscientiousness | Cog Ability | Effect | BootSE | BootLLCI | BootULCI |
| Low (-1SD) | Low (-1SD) | 0.14 | 0.03 | 0.09 | 0.19 |
| | Mean | 0.10 | 0.02 | 0.06 | 0.15 |
| | High (+1SD) | 0.07 | 0.02 | 0.02 | 0.12 |
| Mean | Low (-1SD) | 0.11 | 0.02 | 0.07 | 0.16 |
| | Mean | 0.08 | 0.02 | 0.05 | 0.12 |
| | High (+1SD) | 0.05 | 0.02 | 0.01 | 0.09 |
| High (+1SD) | Low (-1SD) | 0.09 | 0.02 | 0.05 | 0.14 |
| | Mean | 0.06 | 0.02 | 0.02 | 0.10 |
| | High (+1SD) | 0.03 | 0.02 | -0.02 | 0.07 |
| Singapore | | | | | |
| Conscientiousness | Cog Ability | Effect | BootSE | BootLLCI | BootULCI |
| Low (-1SD) | Low (-1SD) | 0.20 | 0.03 | 0.15 | 0.27 |
| | Mean | 0.13 | 0.02 | 0.09 | 0.18 |
| | High (+1SD) | 0.05 | 0.03 | 0.00 | 0.11 |
| Mean | Low (-1SD) | 0.18 | 0.03 | 0.13 | 0.24 |
| | Mean | 0.11 | 0.02 | 0.07 | 0.14 |
| | High (+1SD) | 0.03 | 0.02 | -0.01 | 0.08 |
| High (+1SD) | Low (-1SD) | 0.16 | 0.03 | 0.11 | 0.22 |
| | Mean | 0.08 | 0.02 | 0.04 | 0.13 |
| | High (+1SD) | 0.01 | 0.03 | -0.04 | 0.06 |

intentions in Singapore but not in the US. Further, the results of the mediation analyses suggest that the relationship between social media news use, FOMO, and blocking intentions is statistically significant in both the US and Singapore. The moderated mediation analyses show that conscientiousness and cognitive ability were both significant moderators in the US, but in Singapore only cognitive ability was significant.

6. General discussion

The results across three studies focusing on varying types of misinformation across two socio-political contexts suggest that social media news users are more likely to block misinformation sources due to FOMO. Moreover, these patterns of blocking vary across personality and cognitive traits. For example, those with low cognitive ability and conscientiousness levels are more likely to engage in blocking. We discuss the results in the following paragraphs.

First, we observe that social media news users are more likely to engage in blocking misinformation sources, partly due to high FOMO. Increased social media news use likely raises the levels of FOMO among users because of social surveillance. As users access news on social media platforms through the social endorsement of their friends and acquaintances, they may experience an increased inclination to stay consistently informed about current events and developments as a form of socialization. It is also possible that the need to stay informed about current events to appear knowledgeable among friends and acquaintances drives the association between frequent social media news use and FOMO. Even so, this study adds to the literature by presenting how news use through social media can be associated with FOMO.

Second, the need for belonging also increases the likelihood of blocking misinformation sources. Prior research has suggested that individuals with high levels of FOMO are more sensitive about their social bonds (Przybylski et al., 2013) and strive to present an authentic version of themselves on social media (Wang et al., 2018). These individuals turn to online mediums to compensate for unmet psychological needs in the offline environment (Wang et al., 2018). Therefore, given that high FOMO can drive self-preservatory behavior, social media news users may likely block misinformation sources to maintain their self-presentations and social bonds. The consistency of the patterns across both countries, the US and Singapore, increases the robustness of the relationship.

Third, the findings indicate conscientiousness moderated the effects of social media news use through FOMO for blocking in the US, but we did not find similar results in Singapore. There are two possible explanations for these patterns.

On the one hand, the US and Singapore have significant cultural differences. According to the theory of cultural tightness-looseness, Singapore has a tight culture, while the US has a loose culture (Gelfand et al., 2006; 2011). A tight culture is defined as a culture with strong social norms and a low tolerance for deviant behaviors, while loose cultures are often characterized by weak norms and a high tolerance for deviant behaviors (Gelfand et al., 2011). According to the theory, social institutions reflect and reinforce the strength of social norms and tolerance of deviant behavior. Institutions in tight countries have little socialization, restricting the range of accepted behavior, while institutions in loose countries encourage a wide range of acceptable behavior (Arnett, 1995). Given this cultural difference, the results we observe may be contextually rooted. For example, situated within a tight culture, Singaporeans may be less tolerant of misinformation; thereby, citizens engage in blocking on social media. Therefore, these actions may not be contingent upon personality traits.

An alternative explanation could be the difference in types of misinformation explored across the studies. In Study 1, we used

political misinformation, whereas in Study 2, we used COVID-19 misinformation. It could be that partisan politics touch on more deeply entrenched values, and therefore, those high in conscientiousness employ avoidance strategies more frequently. Compared to COVID-related misinformation, a more novel and unfamiliar issue, individuals high in conscientiousness may not be as strongly averse. Therefore, we observe no significant difference between individuals with high and low conscientiousness in Study 2. However, replicating the results for Singapore in Study 3 (with political and entertainment deepfakes) lends more substantial support to the first inference. Nevertheless, more empirical work is necessary within countries culturally close to Singaporean society to come to definite conclusions.

Finally, Study 3 advances the scholarship on social media avoidance strategies. We observe that the mediated relationship is contingent upon the cognitive ability of social media users across both societies. More specifically, we find that the relationship between social media news use and blocking misinformation sources through FOMO is most substantial for low-cognitive individuals across both societies.

Low-cognitive individuals do not have the necessary skills to discern misinformation from real news (Ahmed & Gil-Lopez, 2022; Ahmed & Rasul, 2023; Pennycook & Rand, 2021). However, the results may indicate their ability to be aware of such limitations and motivation to avoid being in settings where they must distinguish the content's veracity. This may also be because individuals with high cognitive ability have better information processing abilities (Wang et al., 2023), perceive less situational stress, and show greater reliance on the self (Cravens & Worchel, 1997). On the other hand, those with low cognitive ability due to their higher emotional traits (Furnham, 2016) may experience stress in conflicting situations and engage in more hostile reactions. As such, high levels of FOMO and lower cognitive skills may amplify blocking among these individuals.

Our study has a few limitations, such as the use of cross-sectional survey data, because of which we are limited in our causal inferences. However, consistency in the mediation model across studies adds robustness to the findings. Furthermore, our study focused on only conscientiousness as a moderating personality trait, although some work has suggested that other personality traits (e.g., openness, neuroticism, and extraversion) may also relate to misinformation engagement (Xiao & Su, 2022). Finally, while we compare two countries (the US and Singapore), which enhances the generalizability of the findings, both are technologically advanced societies with moderate to high digital literacy (Digital Skills Gap Index, 2021). How these relations play out in contexts with low literacy levels remains to be seen.

The proposed motivations that are likely to drive blocking misinformation sources work with the assumption that individuals realize that the source and/or the information is problematic or causes negativity in their feed. This means that conscientiousness occurs at a reasonable level before blocking happens. In other words, people first notice the source and/or the information is negative before they carry out blocking. Given this, awareness of misinformation should be considered when discussing the relationship between social media news use and blocking misinformation sources. Therefore, we suggest that future studies examine the role of awareness (or lack thereof) as a critical mediator when examining engagement with misinformation like blocking behavior. Moreover, it is possible that misinformation blocking may be driven by topic salience or knowledge. As a cautionary step, we ran additional analyses across three studies with perceived accuracy as a control in all analytical models. The results are consistent with what is presented here. The additional results are included in the Appendix. We recommend that future scholars studying avoidant behavior on social media also consider how individual differences in psychological, personality, and cognitive traits shape blocking behavior.

CRedit authorship contribution statement

Saifuddin Ahmed: Conceptualization, Formal analysis, Methodology, Project administration, Writing – original draft, Writing – review & editing. **Adeline Wei Ting Bee:** Formal analysis, Methodology, Writing – original draft, Writing – review & editing. **Muhammad Masood:** Formal analysis, Writing – original draft, Writing – review & editing. **Tan Han Wei:** Writing – original draft.

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.

Data availability

Data will be made available on request.

Appendix A

Table A1

Indices of moderated mediation with two moderators (conscientiousness and partisanship) – blocking misinformation as the dependent variable.

| Moderator | Index | Boot SE | BootLLCI | BootULCI |
|-------------------|--------|---------|----------|----------|
| Conscientiousness | -0.053 | 0.026 | -0.104 | -0.003 |
| Partisanship | -0.003 | 0.006 | -0.016 | 0.010 |

Table A2

Indices of moderated mediation with two moderators (conscientiousness and partisanship) – blocking democratic leaning misinformation as the dependent variable.

| Moderator | Index | Boot SE | BootLLCI | BootULCI |
|-------------------|--------|---------|----------|----------|
| Conscientiousness | -0.049 | 0.026 | -0.101 | -0.001 |
| Partisanship | -0.002 | 0.006 | -0.014 | 0.011 |

Table A3

Indices of moderated mediation with two moderators (conscientiousness and partisanship) – blocking democratic leaning misinformation as the dependent variable.

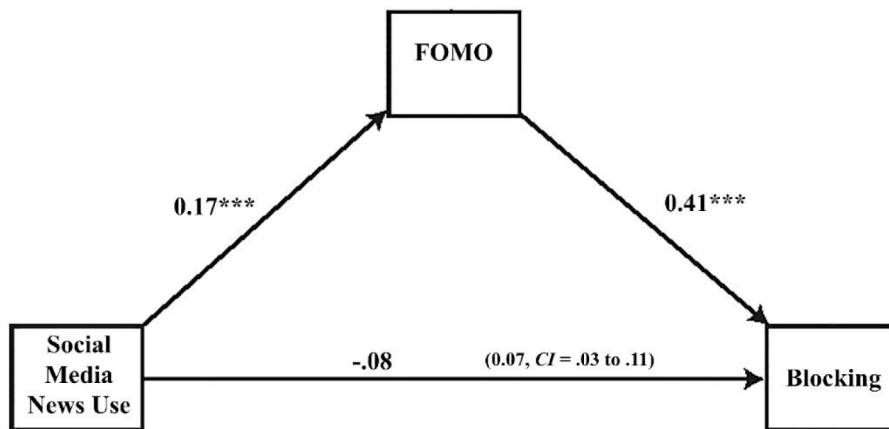
| Moderator | Index | Boot SE | BootLLCI | BootULCI |
|-------------------|--------|---------|----------|----------|
| Conscientiousness | -0.056 | 0.028 | -0.112 | -0.001 |
| Partisanship | -0.005 | 0.007 | -0.019 | 0.010 |

Appendix B

Study 1 results (US) with perceived accuracy as an additional control

Mediation results

Consistent with the presented results, we found that FOMO mediates the effect of social media news use on blocking intentions (indirect effect: $b = 0.07$, $se = 0.02$, bootstrapping LLCI = 0.03 ULCI = 0.11). An illustration of the relationships is included in the following figure.



Note. *** $p < .001$, ** $p < .01$; Estimates are calculated using the PROCESS macro for SPSS (Model 4; Hayes, 2018). The number in the parenthesis is the indirect effect with LLCI to ULCI. Bootstrap resample = 5,000. Statistical controls include age, gender, education, income, race, political interest, partisanship, traditional media news use, and conscientiousness.

Fig. B1. Illustration of the mediation path (effect values are unstandardized betas) for US data (study 1).

Moderated mediation results

We ran conditional analyses using the PROCESS macro (Model 15, Hayes, 2017). The index of moderated mediation was found to be statistically significant (index = -0.03, boot se = 0.02, LLCI = -0.06 ULCI = -0.01). The results of the beta estimates, standard errors, and the significance of the indirect effects.

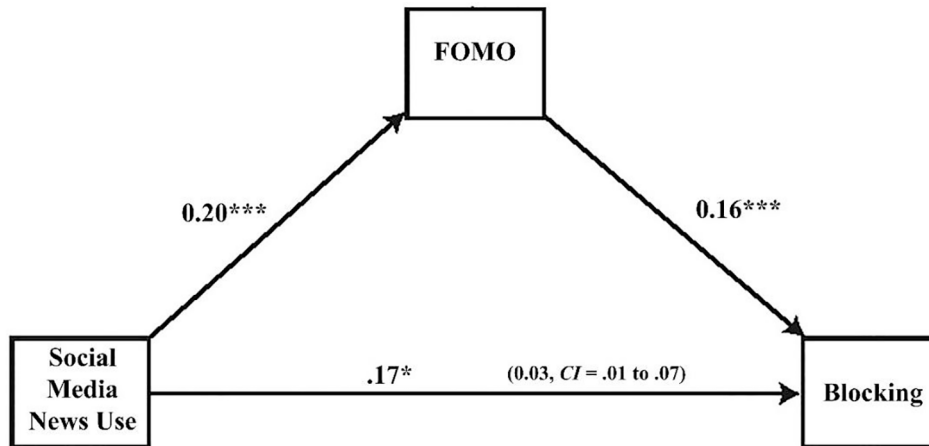
Consistent with the presented results, we found that the indirect effects decrease with an increase in levels of conscientiousness. The effects are found to be strongest for low conscientiousness individuals (-1SD: $b = 0.10$, $se = 0.02$), followed by those with average (mean: $b = 0.07$, $se = 0.02$) and high conscientiousness individuals (+1SD: $b = 0.05$, $se = 0.02$). All three levels were statistically significant.

Appendix C

Study 2 results (Singapore) with perceived accuracy as additional control

Mediation results

Consistent with the presented results, we found that FOMO mediates the effect of social media news use on blocking intentions (indirect effect: $b = 0.03$, $se = 0.02$, bootstrapping LLCI = 0.01 ULCI = 0.07). An illustration of the relationships is included in the following figure.



Note. *** $p < .001$, ** $p < .01$; Estimates are calculated using the PROCESS macro for SPSS (Model 4; Hayes, 2018). The number in the parenthesis is the indirect effect with LLCI to ULCI. Bootstrap resample = 5,000. Statistical controls include age, gender, education, income, race, political interest, traditional media news use, and conscientiousness.

Fig. C1. Illustration of the mediation path (effect values are unstandardized betas) for Singapore data (study 2).

Moderated mediation results

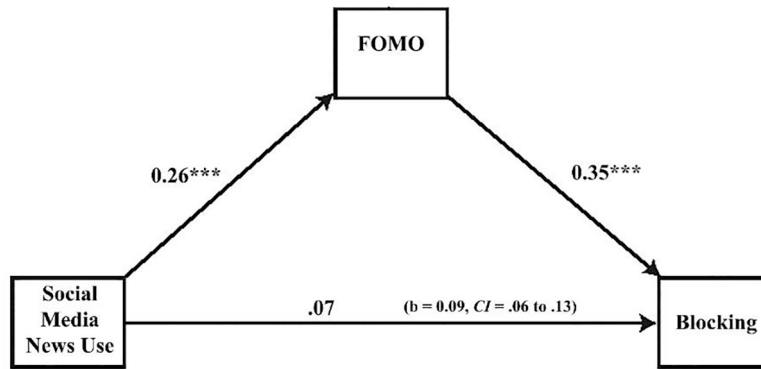
Similar to the approach in the study, a conditional PROCESS analysis (Model 15; Hayes, 2017) was run. The results suggested that the relationship between social media news use and blocking via FOMO is not moderated by conscientiousness (index = 0.01, SE = 0.01, LLCI = -0.017 ULCI = 0.033). Therefore, we conclude that the relationship between social media news use and blocking through FOMO is not conditional upon conscientiousness.

Appendix D

Study 3 results (US and Singapore) with perceived accuracy as additional control

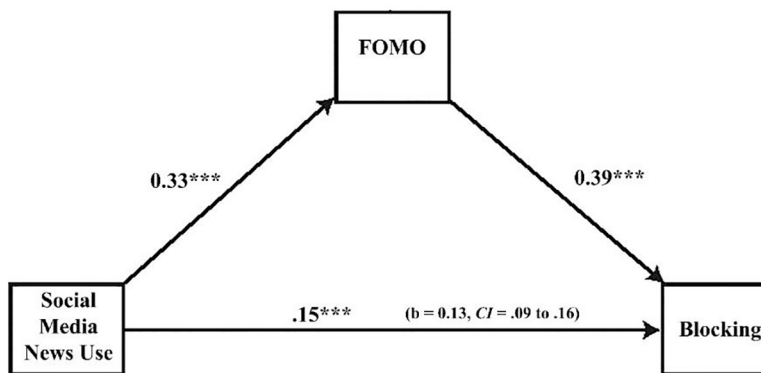
Mediation results

Consistent with the results in the study, we found that the relationship between social media news use, FOMO, and blocking intentions is statistically significant (indirect effect for US: $b = 0.09$, $SE = 0.02$, bootstrapping LLCI = 0.06 ULCI = 0.13; Singapore: $b = 0.13$, $SE = 0.02$, bootstrapping LLCI = 0.09 ULCI = 0.17). The results are illustrated in Figure D1 (US) and D2 (Singapore).



Note. *** $p < .001$, ** $p < .01$; Estimates are calculated using the PROCESS macro for SPSS (Model 4; Hayes, 2018). The number in the parenthesis is the indirect effect with LLCI to ULCI. Bootstrap resample = 5,000. Statistical controls include age, gender, education, income, race, political interest, traditional media news use, and conscientiousness.

Fig. D1. Illustration of the mediation path (effect values are unstandardized betas) for US (study 3).



Note. *** $p < .001$, ** $p < .01$; Estimates are calculated using the PROCESS macro for SPSS (Model 4; Hayes, 2018). The number in the parenthesis is the indirect effect with LLCI to ULCI. Bootstrap resample = 5,000. Statistical controls include age, gender, education, income, race, political interest, traditional media news use, and conscientiousness.

Fig. D2. Illustration of the mediation path (effect values are unstandardized betas) for Singapore (study 3).

Moderated mediation results

At first, we ran moderated mediation analyses using the PROCESS macro (Model 15, Hayes, 2017) with a single moderator: conscientiousness. The index of moderated mediation was found to be significant for the US (index = -0.02, boot se = 0.01, LLCI = -0.05 ULCI = -0.01) but not Singapore (index = -0.03, boot se = 0.02, LLCI = -0.06 ULCI = 0.01).

For US, the results suggest that the indirect effects decrease with an increase in levels of conscientiousness (for the US). The effects are found to be strongest for low conscientiousness individuals (-1SD: $b = 0.12$, $se = 0.02$), followed by those with average (mean: $b = 0.09$, $se = 0.02$) and high conscientiousness individuals (+1SD: $b = 0.07$, $se = 0.02$).

At the next step, we ran moderated mediation analyses using two moderators: conscientiousness and cognitive ability (Model 17, Hayes, 2017). The indexes of moderated mediation for the two countries are included in Table D1. The index for both moderators was significant for the US, but the index for only cognitive ability was significant in Singapore.

The conditional effects for both countries are included in Table D2.

In US, the effects are found to be strongest for low conscientiousness individuals with low cognitive ability (-1SD: $b = 0.12$, $se = 0.03$). Generally, the effects decrease with an increase in conscientiousness and cognitive ability. Similar patterns are observed in Singapore, with the most significant effects for low conscientiousness individuals with low cognitive ability (-1SD: $b = 0.18$, $se = 0.03$). Here, we also observe the effects to decrease with an increase in cognitive ability across all levels of conscientiousness.

Table D1
Indices of moderated mediation in the US and Singapore (study 3).

| United States | | | | |
|-------------------|--------|---------|----------|----------|
| Moderator | Index | Boot SE | BootLLCI | BootULCI |
| Conscientiousness | -0.023 | 0.013 | -0.051 | -0.001 |
| Cognitive Ability | -0.012 | 0.005 | -0.022 | -0.003 |

(continued on next page)

Table D1 (continued)

| United States | | | | |
|-------------------|--------|---------|----------|----------|
| Moderator | Index | Boot SE | BootLLCI | BootULCI |
| Singapore | | | | |
| Moderator | Index | Boot SE | BootLLCI | BootULCI |
| Conscientiousness | -0.027 | 0.016 | -0.060 | 0.005 |
| Cognitive Ability | -0.029 | 0.007 | -0.043 | -0.017 |

Table D2

Conditional indirect effects for blocking intention with conscientiousness and cognitive ability as the moderator (study 3).

| United States | | | | | |
|-------------------|-------------|--------|--------|----------|----------|
| Conscientiousness | Cog Ability | Effect | BootSE | BootLLCI | BootULCI |
| Low (-1SD) | Low (-1SD) | 0.12 | 0.02 | 0.08 | 0.18 |
| | Mean | 0.09 | 0.02 | 0.06 | 0.14 |
| | High (+1SD) | 0.06 | 0.02 | 0.02 | 0.11 |
| Mean | Low (-1SD) | 0.10 | 0.02 | 0.07 | 0.15 |
| | Mean | 0.07 | 0.02 | 0.04 | 0.11 |
| | High (+1SD) | 0.04 | 0.02 | 0.01 | 0.08 |
| High (+1SD) | Low (-1SD) | 0.08 | 0.02 | 0.04 | 0.13 |
| | Mean | 0.05 | 0.02 | 0.02 | 0.09 |
| | High (+1SD) | 0.02 | 0.02 | -0.02 | 0.07 |
| Singapore | | | | | |
| Conscientiousness | Cog Ability | Effect | BootSE | BootLLCI | BootULCI |
| Low (-1SD) | Low (-1SD) | 0.19 | 0.03 | 0.13 | 0.25 |
| | Mean | 0.12 | 0.02 | 0.08 | 0.16 |
| | High (+1SD) | 0.05 | 0.02 | 0.00 | 0.10 |
| Mean | Low (-1SD) | 0.17 | 0.03 | 0.12 | 0.22 |
| | Mean | 0.10 | 0.02 | 0.07 | 0.14 |
| | High (+1SD) | 0.03 | 0.02 | -0.01 | 0.07 |
| High (+1SD) | Low (-1SD) | 0.15 | 0.03 | 0.10 | 0.20 |
| | Mean | 0.08 | 0.02 | 0.04 | 0.12 |
| | High (+1SD) | 0.01 | 0.02 | -0.03 | 0.06 |

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