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We shall endure: Exploring the impact of government information quality and partisanship on citizens' well-being during the COVID-19 pandemic

Nurwahyu Alamsyah, Yu-Qian Zhu *

Department of Information Management, National Taiwan University of Science and Technology, No. 43, Section 4, Keelung Rd, Da'an District, Taipei City 106, Taiwan

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ABSTRACT

Based on the information-as-coping perspective, we provided a theoretical framework to understand how the quality of government information and citizens' partisanship impact citizens' wellbeing in terms of satisfaction with life and anxiety during COVID-19. With survey data from 705 respondents in Indonesia, we found that government information quality is of vital importance in helping citizens get ready to fight the pandemic, as well as lowering their anxiety. Our results show that higher information quality leads to a higher ability to respond quickly to the crisis, as well as a reduced level of information overload. While partisanship is a significant predictor of information overload, it had no significant impact on perceived quick response ability. Quick response ability and information overload, in turn, predict anxiety and citizen's satisfaction with life.

1. Introduction

The 2020–2021 coronavirus pandemic (COVID-19) has posed severe challenges on governments and their citizens worldwide (Whitelaw, Mamas, Topol, & Van Spall, 2020). As of August 4th, 2021, there have been more than 198 million confirmed cases and 4.24 million deaths globally (WHO, 2021). Those who are not infected also face many challenges in all aspects of life, such as job loss, job changes, pressure on relationships, changes in child care and social life (Venkatesh, 2020). The pandemic has not only halted local economies but also affected public health, with many reporting stress, anxiety, and depression (Khan et al., 2020; Planchuelo-Gómez, Odriozola-González, Irurtia, & de Luis-García, 2020).

COVID-19 is not only a health crisis but also an information crisis, with many questions of direct relevance to the information science field that remain unresolved (Xie, Zang, & Ponzoa, 2020). From the government perspective, researchers have identified different digital strategies governments use to fight the pandemic (Kummitha, 2020) and how coordination across agencies enhances the effectiveness of government communication to the public during COVID-19 (Zeemering, 2021). From a citizen perspective, people's information behaviors during global health crises is a topic that could help individuals and society as a whole survive global health crises (Xie et al., 2020). While prior research has investigated individuals' information behaviors during natural disasters, relatively few researches have explored people's

information behaviors in health crises, and in particular, the current pandemic (Pan, Cui, & Qian, 2020; Xie et al., 2020). A few pioneer studies have tapped into this field. For example, Park, Boatwright, and Johnson Avery (2019) studied citizens' intentions to follow directives from different information channels in a health crisis. Pan et al. (2020) explored how people of different age groups resourced information and adapted information behavior to emerging information technologies. Chen et al. (2020) investigated how to promote citizen engagement through government information shared via social media during COVID-19. Tang, Miller, Zhou, and Warkentin (2021) discussed how government social media promotes users' information security behavior toward COVID-19 scams.

Despite these advances, much remains to be discovered about how people act and react regarding different information during the pandemic. COVID-19 is by far the most challenging health crisis in recent history (Lederer, 2020). During the unprecedented crisis of COVID-19, many people look up to their governments to provide accurate, timely, and helpful information about the current status of the pandemic, what the directives are, vaccination updates, and recommendations to prevent infection (Chen et al., 2020; Janssen & van der Voort, 2020). Government communication with the public serves as an important channel to not only convey vital public health and pandemic response information, but also solicit public collaboration in the fight against COVID-19 (Zeemering, 2021). Government information, therefore, has an essential role in the psychological wellbeing of its citizens.

* Corresponding author.

E-mail address: yzhu@mail.ntust.edu.tw (Y.-Q. Zhu).

Against this backdrop, we adopt the information-as-coping perspective and seek to understand how government information helps citizens cope with the pandemic. The answers to this question could help us provide better quality information to fight and survive the crisis. We argue that better information quality, consisting of understandability, completeness, accuracy, format, and currency, leads to higher quick response ability in individuals and reduces information overload. Higher quick response ability and lower information overload, in turn, predict higher life satisfaction and lower anxiety. Furthermore, we explore whether political choice during the last election and perceived financial risks make a difference in an individual's information behavior.

2. Theoretical framework and hypotheses development

2.1. Theory of coping

When people face challenging situations, they appraise the situation and develop different coping mechanisms (Lazarus & Folkman, 1984). There are two cognitive appraisal processes. The initial appraisal involves the analysis of whether an event is relevant to oneself and whether it is positive or negative. If the event is perceived as negative or stressful, individuals evaluate their resources to deal with the demands, which constitutes the secondary appraisal. When individuals lack the resources to cope with the challenging situation, they are likely to view the situation as a potential threat. It arouses negative emotions, such as fear, stress, and anxiety (Lazarus & Folkman, 1984). Meanwhile, coping mechanisms become activated. The coping processes are influenced by personal and social resources, characteristics of the situation, among others. Information seeking is identified as an active way of coping that has been found to be associated with higher levels of positive affect (Felton & Revenson, 1984).

In coping with issues related to health, information seeking has been increasingly documented as a critical coping strategy in health-promotive activities and psychosocial adjustment (Mason, Francis, & Pecchioni, 2020). In uncertain circumstances such as the pandemic, the details of situations are ambiguous, complex, unpredictable, and people tend to worry (Lind & van den Bos, 2002). Information seeking is purposeful, goal-oriented, and problem-focused (Mason et al., 2020). Through information seeking, individuals may obtain a clear understanding of the current situation, potential risks, and how to mitigate them, as well as knowledge about what to do and what not to do. Health information seeking has been found to help fill the information void and enhance an individual's coping abilities (Morahan-Martin, 2004). Information seeking helps individuals guard against emotional stress (Lambert & Loiselle, 2007), change one's health behavior, improve social cognitions and outcome expectancies, and decrease anxiety by offering reliable and likable sources of information (Myrick, 2017).

Using information-seeking-as-coping as our underlying theoretical framework, we argue that the pandemic is a stressor for individuals and that government information is a vital source for citizens to cope with the pandemic. Good-quality information could help citizens get ready and prepare for the pandemic while at the same time reduce information overload. Quick response ability and information overload serve as mediators to the two outcomes predicted by the coping theory: life satisfaction and anxiety. With unprecedented disruptions of life and work, the overarching effects of COVID-19 have literally touched every aspect of life, leading to significantly lowered life satisfaction for people around the world, posing a severe challenge to the general wellbeing of humankind (Bidzan-Bluma et al., 2020; Trzebiński, Cabański, & Czarnecka, 2020; Zhang, Wang, Rauch, & Wei, 2020). Life satisfaction and anxiety are key dimensions of mental health (Guney, Kalafat, & Boysan, 2010), and thus two popular objects of study during the pandemic (Rogowska, Kuśnierz, & Bokszczański, 2020; Silva, de Sampaio Brito, & Pereira, 2020). Anxiety is an unpleasant emotional state marked by apprehension (Sarason, Sarason, & Pierce, 1990), while life satisfaction exhibits "people's explicit and conscious evaluations of their lives, often

based on factors that the individual deems relevant" (Diener, Lucas, & Oishi, 2018, p.3). Life satisfaction is associated with mental and physical health, general wellbeing, as well as different aspects of cognitive and social functioning (Batthyany & Russo-Netzer, 2014; Trzebiński et al., 2020). To accommodate for citizens' varying political beliefs and financial situations, we further investigate whether political choice and perceived financial risks make a difference in an individual's information behavior.

2.2. Hypotheses development

We define the ability of an individual to quickly organize resources, take actions, respond to and recover from challenges in a crisis as his/her quick response ability. Similarly, for a government, quick response ability involves the capability to organize resources, implement policies and directives as a response to challenges, and recover from challenges with fast speeds. During the pandemic, the ability of both the government and its citizens to quickly respond to the challenges is vital for the success of the combat against the crisis (Muto, Yamamoto, Nagasu, Tanaka, & Wada, 2020; Olganier & Mogensen, 2020).

Information quality is the degree to which information meets the needs of its users (Stvilia, Twidale, Smith, & Gasser, 2005). During a pandemic, the key to such orchestrated quick responses is the timely, easy-to-understand, and accurate information that the government provides to its citizens (Jayasinghe, Ranasinghe, Jayarajah, & Seneviratne, 2020). For example, in South Korea, citizens can access current information specific to their neighborhood, which includes the daily count of cases and detailed movement trajectories of recently confirmed cases. This allows them to respond quickly in case they are at risk of being exposed to the virus, as well as planning their activities and avoiding areas of high risk (Lee, Lee, & Lee-Geiller, 2020). In times of crisis, information can help individuals better comprehend the complete picture of the situation, minimize their vulnerabilities, and improve their responses more effectively and efficiently (Weick, 1993). Therefore, we argue that.

H1. . Government information quality is positively related to citizens' perceived quick response ability.

During the pandemic, the influx of information is not only at a high rate but also from various sources, such as coworkers, classmates, government press releases, social media, family, and friends. In addition, information is constantly changing as the world learns more about the novel virus and its effects. Therefore, many people suffer from information overload or too much information on a particular subject (Liu, Lithopoulos, Zhang, Garcia-Barrera, & Rhodes, 2021). Information quality directly influences an individual's information processing capacity as high-quality information can be utilized more efficiently and effectively than low-quality information (Jackson & Farzaneh, 2012). On the other hand, the abundance of irrelevant information led to information overload (Ackoff, 1968). Therefore, Simpson and Prusak (1995) considered lack of quality information as the main cause of information overload. Despite the availability of information sources, government information stands out as the most important source of information about the current status of the pandemic (Chen et al., 2020; Janssen & van der Voort, 2020). Therefore, if the government provides quality information that is current, complete, accurate, and easy to understand, citizens will be able to process the information efficiently for their information need, reducing information overload.

H2. . Government information quality is negatively related to citizens' information overload.

Although a nation should stand united in the combat against COVID-19, there is early evidence that political partisanship influences how citizens respond to the government's directives and regulations concerning the pandemic. Political partisanship influences citizens' decisions to follow the state governor's recommendations, such as social

distancing in the U.S (Grossman, Kim, Rexer, & Thirumurthy, 2020). Partisan predispositions lead people to selectively expose themselves in accordance with their existing opinions (Barrett & Klapper, 1961). Therefore, it follows that people who share the same partisanship with the current government are likely to be more exposed to and receptive to its communications and regulations. In contrast, people whose partisanship differs from the current government may selectively expose themselves to other sources of information than the government. As government information contains crucial information such as regulations, activities, recommendations and latest updates, more exposure to these pieces of information enables citizens to better prepare for the crisis.

H3. Same political partisanship with the government is positively related to higher perceived quick response ability.

The selective exposure of information also takes its toll on citizens with different political partisanship. They may seek more information about the pandemic from sources other than the government, such as social media, friends, and coworkers, etc. As the information flows in at a high rate, with constant changes, they could easily get overwhelmed. For citizens with the same partisanship, however, they may find it sufficient to rely on government information. Furthermore, the problem is exacerbated by the low quality of information from different sources. A recent survey of COVID-19 information on the web found that the information quality on most websites is low (Jayasinghe et al., 2020), which requires more time and resources to process, leading to information overload.

H4. . The same political partisanship with the government is negatively related to information overload.

2.3. Perceived quick response ability and psychological outcomes

The COVID-19 crisis was characterized by tremendous amounts of uncertainty, anxiety, confusion, dissatisfaction, and fear (Paredes, Apaolaza, Fernandez-Robin, Hartmann, & Yañez-Martinez, 2021). Some of these challenges require immediate responses, such as where not to go as an adjustment to the outbreak of the disease, what to do and what not to do based on news updates. While some people perceive the pandemic as a heavy psychological burden, leading to an enhanced degree of uncertainty, frustration, and anxiety, others try to adapt to the current situation (Brailovskaia & Margraf, 2020). While COVID-19 has led to worsening mental and physical health, increased distress, and lower life satisfaction in general (Zhang, Ji, Zheng, Ye, & Li, 2020), research has shown that task-oriented coping styles could help alleviate these negative outcomes. Task-oriented coping cognitively restructures and solves the problem, thus predicting more adaptive outcomes such as less depression, anxiety, stress, negative affect, and greater life satisfaction (Smith, Saklofske, Keefer, & Tremblay, 2016; Whatley, Foreman, & Richards, 1998). The ability to respond quickly enhances one's disaster readiness and helps to cope with uncertainty (Wang & Hsiao, 2014). When faced with the many challenges and decisions brought by the pandemic, the ability to respond quickly helps people to address issues and solve problems more efficiently. Problem-solving-centered coping reduces the level of uncertainty and distress, boosts self-esteem, sense of mastery, and self-efficacy, and is found to be related to lower anxiety in the short term and higher levels of life satisfaction in the long term (Smith et al., 2016). Similarly, we expect that perceived quick response ability leads to lower levels of anxiety and higher levels of life satisfaction as it adds to one's ability to solve problems and challenges, and helps individuals to cope more effectively in the crisis. Thus, we propose:

H5a. . Perceived quick response ability is negatively related to anxiety.

H5b. . Perceived quick response ability is positively related to life satisfaction.

2.4. Information overload effect during the pandemic

When the pandemic first began, the overwhelming amount of information from various sources made people suffer from information overload (Laato, Islam, Farooq, & Dhir, 2020). Information overload occurs when a person's information-processing capacity cannot meet the information-processing requirements, which involves not only information quantity but also information quality (Song, Yao, & Wen, 2021).

At an individual level, information overload is associated with feelings of inadequacy of knowledge and inability to cope. When the information supply exceeds one's processing capacity, individuals have problems in identifying relevant information and face difficulties in understanding the association between details and the overall perspective (Eppler & Mengis, 2004). Information overload has been identified as a source of stress (Sparrow, 1999). It leads to anxiety, as people become frustrated by their inability to understand, or make use of, necessary information (Bawden & Robinson, 2009). In addition, information overload makes decisions difficult as it strains cognitive resources, leading to more flawed decisions and negative responses (Lee & Lee, 2004). As information overload negatively impacts decision ability, people experiencing information overload are less likely to be satisfied with their decisions (Lee & Lee, 2004). Information overload affects people's ability to do their job while impinging upon their relationships and quality of life (Edmunds & Morris, 2000). Over time, information overload takes its tolls on wellbeing, leads to a feeling of loss of control, stress, and ultimately, depressive symptoms and life dissatisfaction (Matthes, Karsay, Schmuck, & Stevic, 2020; Reinecke et al., 2017). Recent research has confirmed the negative impact of information overload during the pandemic, including higher anxiety and lower life satisfaction (Fan & Smith, 2021). This leads to the following hypotheses:

H6a. . Information overload is positively related to anxiety.

H6b. . Information overload is negatively related to life satisfaction.

2.5. The moderating role of perceived financial risks

The pandemic has not only impacted how people live but also altered people's spending, saving, and financial planning habits drastically (Baker, Farrokhnia, Meyer, Pagel, & Yannellis, 2020). For many people, financial risks become a salient threat in their lives (Mogaji, 2020). Recent research reported that people with good financial conditions in the pandemic have lower anxiety and higher life satisfaction (Kivi, Hansson, & Bjälkebring, 2020; Wilson et al., 2020). When perceived financial risks are high, for example, people expecting that they may be unable to cover their expenses due to various reasons, we expect that the effects of quick response ability would be significantly weakened, as without financial resources, many means of coping with the crisis may not be able to substantiate. Thus, although people have the ability to quickly take actions, they lack the financial resources to execute and implement them, reducing the effectiveness of quick response ability. Therefore, people who perceive high financial risks will be more anxious and less satisfied with life, even though they have high perceived quick response ability. Hence, the following hypotheses are proposed:

H7a. . Perceived financial risks weaken the relationship between perceived quick response ability and anxiety.

H7b. . Perceived financial risks weaken the relationship between perceived quick response ability and life satisfaction.

Similarly, when perceived financial risks are high, it is reasonable to expect that the detrimental effects of information overload would exacerbate. People search for information to reduce risks, especially in complex situations (Schmidt & Spreng, 1996). However, information overload reduces an individual's ability to understand and use the information (Eppler & Mengis, 2004). Therefore, for people with high financial risks, information overload will lead to even more anxiety and

less satisfaction with life, as people suffer from its negative effects in not only pandemic-related information processing but also financial-related information search, leading to strengthened outcomes for information overload.

H8a. . Perceived financial risks strengthen the relationship between information overload and anxiety.

H8b. . Perceived financial risks strengthen the relationship between information overload ability and life satisfaction.

3. Methodology

3.1. Study context and data collection

We conducted both online and offline surveys of Indonesian citizens to collect data. Data collection spanned two months, from July 1st to August 31st, 2020. As of September 1st, 2020, Indonesia had 180,646 verified cases in a total population of 268 million, with 7.616 (4.22%) total deaths (Ministry of Health Republic Indonesia, I, 2020). Several regions had implemented local lockdown and physical distancing policies. Furthermore, the Indonesian government had closed down all public spaces to prevent the disease from spreading. Due to these restrictions, we chose the online survey format during the pandemic.

In general, Indonesians have high trust in their government. According to the 2017 Edelman Trust Barometer, 71% of respondents indicated that they trusted their government, ranked the 4th highest in the world (Kumagai & Iorio, 2020).

We used the four most popular social platforms: Facebook, Instagram, Twitter, and WhatsApp, to spread the online survey. To encourage respondents to fill out the online survey, we provided two lucky draws of 1,000,000 IDR (equivalent to \$70 in USD). In order to reach respondents who rarely use the internet or social media, we collected data directly with paper and pencil via face-to-face interviews with respondents without internet access. We got a total of 55 respondents from face-to-face interviews, who were mostly seniors with low income and education levels. Our final sample consisted of 705 responses. Table 1 below

Table 1
Demographic information of the respondents.

Respondents		N = 705	
		Number	Percent (%)
Gender	Male	406	57.60%
	Female	299	42.40%
Age	≤ 20	77	10.90%
	21–29	283	40.10%
	30–39	211	29.90%
	40–49	77	10.90%
	50–59	40	5.70%
	≥60	17	2.40%
Education	Below high school	40	5.70%
	Senior high school	134	19.00%
	Bachelor	381	54.00%
	Graduate	150	21.30%
Daily Internet time	≤ 2 h	38	5.40%
	2–4 h	132	18.70%
	5–7 h	262	37.20%
	≥ 8 h	273	38.70%
Internet use experience	≤ 1 year	25	3.50%
	2–5 years	85	11.10%
	6–10 years	235	33.30%
	≥ 10 years	360	51.10%
GRP Per capita	0–39,999 Rupiah	143	20.30%
	40,000–79,999 Rupiah	490	69.50%
	more than 80,000 Rupiah	72	10.20%
Partisanship	Ruling party	332	47.10%
	Opposing party	373	52.90%
Information Sources	Government website	61	8.70%
	Government social media	311	44.10%
	News agencies	333	47.20%

summarized the demographic characteristics of the respondents.

There were more male respondents (57.6%) than female respondents (42.4%). Respondents aged between 21 and 29 years represented the majority of samples (40.1%). Most respondents were using the internet several hours a day. The nominal gross regional product (GRP) per capita of the respondents' residential province (BPS-Statistics Indonesia, 2020) was used as a gauge for local economic development. When asked about their partisanship, 52.9% of them lined up with the opposing party and voted for Prabowo Subianto and Sandiaga Uno. The rest 47.1% voted for the ruling party, Joko Widodo and Ma'ruf Amin. Regarding their primary COVID-19 information source, 47.2% got information from news agencies based on government press releases, 44.1% from government social media, and 8.7% from the government website.

3.2. Questionnaire design and measurement

Consistent with prior research, we modeled information quality as a second-order formative construct, with first-order reflective items. Based on recent literature discussing information quality and needs in the pandemic, we identified several important first-order constructs for information quality during the pandemic. These first-order constructs include understandability, i.e., information about COVID-19 should be easy to understand, even for people with low education (Paakkari & Okan, 2020); completeness, i.e., information should be complete, without important pieces missing (Taylor-Phillips et al., 2020); accuracy, i.e., information should be correct and without error (Taylor-Phillips et al., 2020); format, i.e., the layout of the information should be clear and easy to read (Okike, 2020); and finally, currency, i.e., information should be up-to-date (Okike, 2020). Measurements for these constructs were from Lee, Strong, Kahn, and Wang (2002) and Nelson, Todd, and Wixom (2005).

Items for partisanship were adapted from Weisberg (1980). Items for perceived quick response ability and information overload were from Wang and Hsiao (2014) and Lee et al. (2020) respectively. Finally, anxiety and life satisfaction measures were from Spitzer, Kroenke, Williams, and Löwe (2006) and McKinney, Yoon, and Zahedi (2002). For partisanship, we asked the respondents whom they voted for during the last election and how strongly they supported their choice and combined the results of two items into one score ranging from -5 to 5, with -5 being strongly against the current president and 5 being strongly supporting the current president. For other items, we used 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The complete questionnaire items for each dimension can be found in Table 2.

We controlled for important demographic variables of our sample. Specifically, prior research has found that age is positively related to anxiety (Drentea, 2000) and negatively related to life satisfaction (Doyle & Forehand, 1984). Women have higher levels of COVID-19 anxiety (Mohammadkhan et al., 2021) and lower life satisfaction in general (Matud, Bethencourt, & Ibáñez, 2014). Education level is negatively related to anxiety (Liu et al., 2021) and positively impacts life satisfaction (Palmore & Luikart, 1972). Daily internet use time positively affects anxiety levels (Nguyen, Yang, Lee, Nguyen, & Kuo, 2021) and negatively relates to life satisfaction in some countries (Kardefelt-Winther, Rees, & Livingstone, 2020; Zhang, Cheng, & Yu, 2020). Internet use experience has a negative relationship with anxiety (Joiner, Brosnan, Duffield, Gavin, & Maras, 2007) and is not related to life satisfaction (Lissitsa & Chachashvili-Bolotin, 2016; Zhang, Cheng, Wei, Gong, & Zhang, 2019). Finally, we controlled for the per capita GRP of the respondents' provinces as a proxy for local economy development. Prior research shows that poverty is positively related to mental conditions such as depression and anxiety (Ridley, Rao, Schilbach, & Patel, 2020).

Table 2
Measurement items and sources.

Constructs	Measurement items	Source
Understandability (U.N.)	COVID-19 information from the government is easy to understand	Lee et al. (2002); Nelson et al. (2005)
	difficult to understand (R) easy to comprehend	
Completeness (C.O.)	The government provides me with a complete set of information about COVID-19	
	comprehensive information about COVID-19	
Accuracy (A.C.)	all the information about COVID-19 that I need	
	The government provides me with correct information about COVID-19	
Format (F.O.)	COVID-19 information with few errors	
	accurate COVID-19 information	
Currency (C.U.)	COVID-19 information from the government is well-formatted	
	well laid-out	
Partisanship (POL)	clearly presented	Weisberg (1980)
	COVID-19 information from the government is the most recent	
Perceived Quick Response Ability (QRA)	the most current	Wang and Hsiao (2014)
	always up-to-date	
Information Overload (IFO)	Who did you vote for during the last presidential election? How strongly did you support your choice?	Lee et al. (2020)
	I could quickly recover from COVID-19 crisis	
Anxiety (ANX)	I can be fast in responding to COVID-19.	Spitzer et al. (2006)
	I can organize my family members to respond quickly in COVID-19.	
Life Satisfaction (LSF)	Overall, my behavior in responding to COVID-19 is to take action as soon as possible.	McKinney et al. (2002)
	During COVID-19, There is too much information so that I am burdened in handling it	
Perceived Financial Risks (PFR)	Due to the amount of information, I feel it difficult to acquire all the information I need	Hwang & Choe, (2020)
	Due to the amount of information, I could not understand the main points of the information	
	During the COVID-19 pandemic, I feel nervous, anxious or on edge	
	I am not able to stop or control worrying	
	I am worrying too much about different things	
	I have trouble relaxing	
	I am so restless that it is hard to sit still	
	I am easily annoyed or irritable	
	I feel afraid as if something awful might happen	
	During the COVID-19 pandemic, I am satisfied with my life	
	I am pleased with my life	
	I am content with my life	
	I am delighted with my life	
	I worry that COVID-19 will make my basic need become more expensive	
	I worry that COVID-19 will create unexpected extra expenses	
	I worry that COVID-19 will make an additional cost must be paid	

4. Analysis and results

4.1. Reliability and validity

We used SPSS and PLS to evaluate the reliability and validity of our measurements. First, we computed the variance inflation factor (VIF) of each of the predictors to assess whether multicollinearity could be an issue (Mansfield and Helms, 1982). The VIF values of the constructs ranged from 1.050 to 1.538, well below the cut-off value of 5, suggesting there were no significant concerns for multicollinearity. The average variance extracted (AVE), composite reliability (C.R.), and Cronbach's α (C.A.) statistics of the constructs were reported in Table 3 below.

As the table shows, the AVE values were between 0.54 and 0.87, which met the requirement of $AVE > 0.5$ (Hair et al., 2021). The C.R. values of the latent constructs were between 0.923 and 0.967. These results confirmed the reliability and internal consistency of the measures. Cronbach's α for all variables ranged from 0.839 to 0.955. Furthermore, Table 4 shows that the correlations between each pair of constructs were less than the square root of each constructs' AVE, confirming discriminant validity.

We have one formative construct in our model: information quality. As formative constructs demand different validation processes from reflective ones, we followed prior research of similar nature for validation (Li & Shang, 2020). First, we examined multicollinearity via two measures. As Table 4 shows, none of the bivariate correlation coefficients is higher than 0.9; in addition, all variance inflation factors of the information quality dimensions are below 3.5, suggesting multicollinearity is not likely to be a serious concern in the formative construct. Next, we examined the significances of the paths from the dimensions of information quality to the second-order construct. As Fig. 1 shows, the five dimensions for information quality are supported

Table 3
Average variance extracted, composite reliability and Cronbach's α statistics.

Constructs	Items	Loadings	AVE	CR	CA
Information Quality: Understandability	UN1	0.91	0.76	0.90	0.84
	UN2	0.79			
	UN3	0.91			
Information Quality: Completeness	CO1	0.92	0.84	0.94	0.90
	CO2	0.92			
	CO3	0.91			
Information Quality: Accuracy	AC1	0.88	0.81	0.93	0.88
	AC2	0.89			
	AC3	0.92			
Information Quality: Format	FO1	0.91	0.84	0.94	0.90
	FO2	0.92			
	FO3	0.92			
Information Quality: Currency	CU1	0.93	0.89	0.96	0.94
	CU2	0.96			
	CU3	0.94			
Perceived Quick Response Ability	QRA1	0.78	0.68	0.89	0.84
	QRA2	0.86			
	QRA3	0.80			
	QRA4	0.84			
Information Overload	IFO1	0.88	0.80	0.92	0.88
	IFO2	0.91			
	IFO3	0.90			
Anxiety	ANX1	0.78	0.69	0.94	0.92
	ANX2	0.88			
	ANX3	0.83			
	ANX4	0.84			
	ANX5	0.82			
	ANX6	0.79			
	ANX7	0.85			
Life Satisfaction	LFS1	0.89	0.88	0.97	0.96
	LFS2	0.95			
	LFS3	0.96			
	LFS4	0.95			
Perceived Finance Risks	PFR1	0.92	0.87	0.95	0.92
	PFR2	0.93			
	PFR3	0.94			

Table 4
Correlation matrix with the square roots of AVE on the diagonal.

	MEAN	S.D.	AC	ANX	CO	CU	FO	IFO	PFR	LFS	POL	QRA	UN
AC	2.84	0.95	0.81										
ANX	2.97	2.97	-0.01	0.69									
CO	3.09	3.09	0.73	-0.06	0.84								
CU	3.52	0.99	0.51	-0.04	0.50	0.89							
FO	3.37	0.92	0.67	-0.07	0.63	0.56	0.84						
IFO	3.45	1.06	-0.25	0.40	-0.25	-0.20	-0.25	0.80					
PFR	4.17	0.89	-0.14	0.33	-0.12	-0.05	-0.10	0.29	0.88				
LFS	2.95	1.11	0.20	-0.40	0.21	0.13	0.22	-0.15	-0.25	0.87			
POL	3.53	0.84	0.01	0.19	0.00	0.03	0.03	0.20	0.10	-0.06	1.00		
QRA	5.13	2.91	0.32	-0.31	0.32	0.33	0.34	-0.20	-0.13	0.41	-0.11	0.68	
UN	3.59	0.89	0.47	-0.20	0.59	0.42	0.57	-0.31	-0.10	0.20	-0.07	0.29	0.76

Note: A.C.: Accuracy; ANX: Anxiety; CO: Completeness; CU: Currency; F.O.: Format; IFO: Information overload; LFS: Life satisfaction; PRF: Perceived finance risks; QRA: Perceived quick response ability; POL: Partisanship; U.N.: Understandability; S.D.: Standard Deviation; N.A: Not Available. Diagonal elements (bold figures) are the square root of the AVE (the variance shared between the reflective constructs and their measures). Off-diagonal elements are the correlations among all the variables included in the research model.

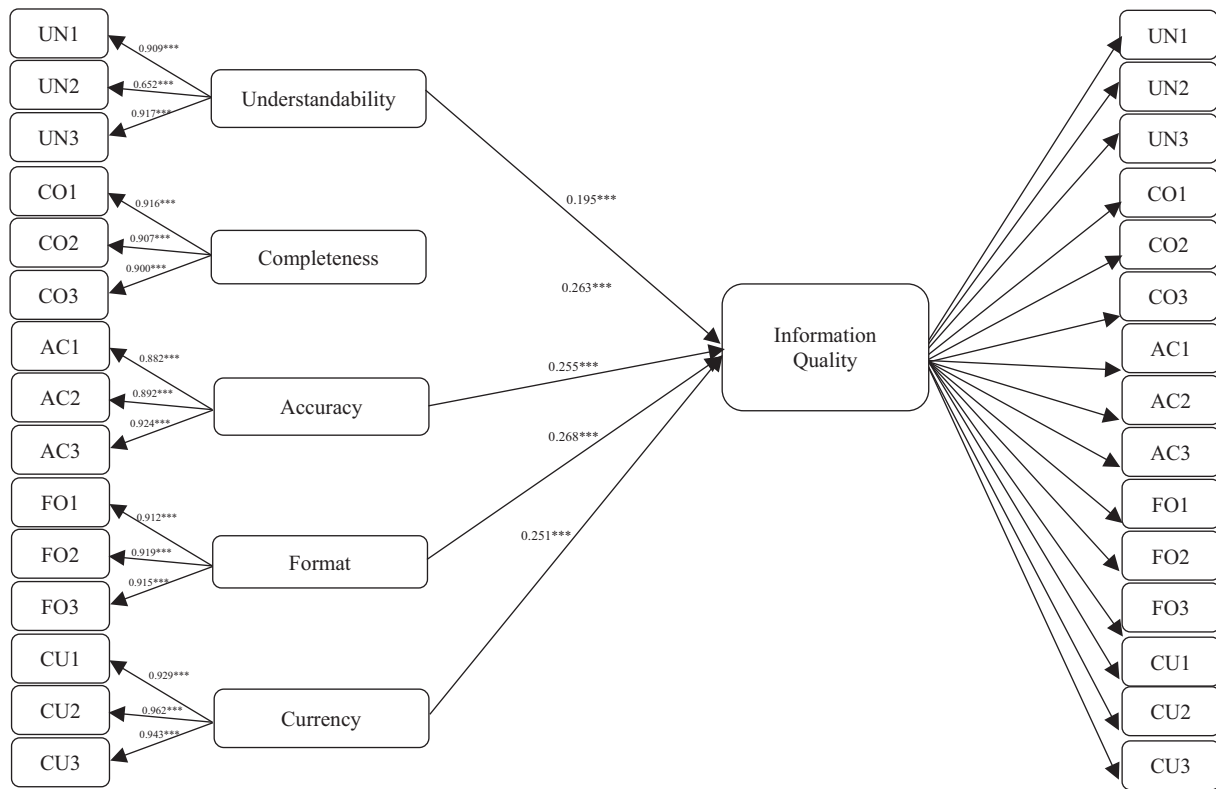


Fig. 1. Formative construct paths.

by empirical results. Each of the five dimensions significantly explains the variance of information quality. The formative relations for the five information quality dimensions are follows: understandability (beta = 0.195***, $p < 0.001$), completeness (beta = 0.263***, $p < 0.001$), accuracy (beta = 0.255***, $p < 0.001$), format (beta = 0.268***, $p < 0.001$), currency (beta = 0.251***, $p < 0.001$).

4.2. Hypotheses testing

After ensuring sufficient validity and reliability of the measures, we tested the proposed research model with PLS. Fig. 2 and Table 7 summarized the results. As expected, information quality had a statistically significant effect on perceived quick response ability (beta = 0.40, $p < 0.001$); therefore, H1 was supported. Information quality had a significantly negative effect on information overload (beta = -0.30, $p < 0.001$), substantiating H2. H3 was not supported. Partisanship did not

have a significant relationship with perceived quick response ability. Partisanship, however, had a statistically significant effect on information overload; therefore, H4 was supported. Perceived quick response ability had a negative effect on anxiety (beta = -0.21, $p < 0.001$); thus, H5a was supported. Perceived quick response ability had a positive effect on life satisfaction (beta = 0.38, $p < 0.001$), lending support to H5b. Information overload had a statistically significant effect on anxiety (beta = 0.32, $p < 0.001$) but did not have a statistically significant effect on life satisfaction. Thus, H6a was supported, while H6b was not supported.

For our control variables, age and daily internet use time do not seem to be important predictors of anxiety or life satisfaction in our sample. Other control variables turned out to be significant predictors of our dependent variables. Females are less satisfied with life and experience more anxiety, confirming Matud et al. (2014) and Mohammadkhah et al. (2021). Consistent with prior research (Liu, Li, et al., 2021; Palmore &

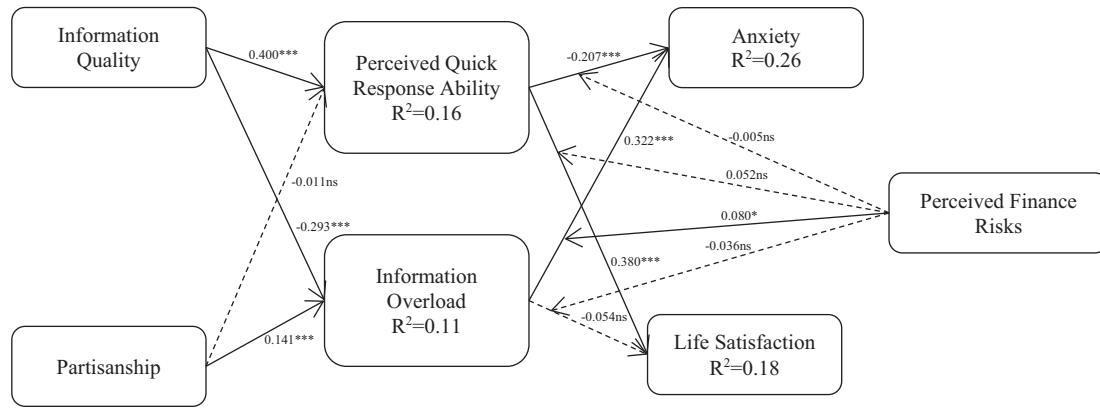


Fig. 2. Summary of results.
 Note: ns = not significant; * $P < 0.05$; ** $P < 0.01$; *** $P < 0.001$.

Luikart, 1972), education turns out to be a significant predictor of anxiety and life satisfaction. The higher the education level, the more satisfaction with life ($\beta = 0.12, p = 0.004$) and less anxiety ($\beta = -0.13, p < 0.001$). Internet use experience is negatively related to anxiety ($\beta = -0.14, p < 0.001$), confirming Joiner et al. (2007). Finally, per capita GRP is positively related to anxiety. This may be due to the fact that the more affluent regions also tend to be more densely populated and are hit harder in the pandemic. Jakarta province, for example, has the highest per capita GRP, but also the highest cases per 100,000 population, leading to higher anxiety levels among its residents.

To test hypotheses H7a to H8b, we ran a general linear model in SPSS 22 using composite variables, followed by examining the simple slopes of all significant interactions. As shown in Table 5, Table 6, and Fig. 3, only perceived finance risks significantly moderate the relationship between information overload and anxiety (H7b) ($\beta = 0.08, p = 0.022$). The rest of the moderating hypotheses failed to achieve statistical significance (H7a, H8a, and H8b). Fig. 3 further illustrates the moderating effects of perceived finance risks on the relationship between information overload and anxiety.

5. Discussion and conclusion

5.1. Discussion

How should governments help citizens combat COVID-19? Our research points some directions for governments to follow during this difficult time. The findings indicate that government information quality is of vital importance in helping citizens get ready to fight the pandemic, as well as maintain their wellbeing. Our results show that higher information quality leads to higher ability to respond quickly to the crisis, as well as reduced level of information overload. These two, in turn, predict anxiety and citizen’s satisfaction with life. This echoes with Mei (2020), which reported that higher level of information quality leads to faster response to COVID -19 from the public.

Table 5
 Moderation effect of perceived financial risk in anxiety relationships.

Construct	Dependent variable: Anxiety				95% Confidence Interval	
	B	Std. Error	t	Sig	Lower bound	Upper Bound
PFR	0.298	0.042	7.088	0.000	0.215	0.380
IFO	0.323	0.034	9.417	0.000	0.256	0.390
IFO*PFR	0.080	0.035	2.304	0.022	0.012	0.148
QRA	-0.335	0.036	-7.620	0.000	-0.422	-0.249
PFR	0.347	0.041	8.477	0.000	0.266	0.427
QRA*PFR	-0.005	0.049	-0.104	0.917	-0.102	0.092

Table 6
 Moderation effect of perceived financial risk in life satisfaction relationships.

Construct	Dependent variable: Life satisfaction				95% Confidence Interval	
	B	Std. Error	t	Sig	Lower bound	Upper Bound
IFO	0.078	0.040	-1.956	0.051	-1.155	0.000
PFR	-0.292	0.049	-6.009	0.000	-0.388	-0.197
IFO*PFR	-0.036	0.040	-0.889	0.374	-0.114	0.043
QRA	0.490	0.046	10.645	0.000	0.399	0.580
PFR	-0.256	0.043	-5.992	0.000	-0.340	-0.172
QRA*PFR	0.052	0.052	1.013	0.311	-0.049	0.154

While partisanship is a significant predictor of information overload, it had no significant impact on perceived quick response ability. Therefore, people with different partisanship from the current government can still quickly respond to the crisis but suffer from higher levels of information overload. This may be due to the fact that government is the only valid source of information for COVID-19 concerning policies, the number of cases, vaccine, infection distribution, etc. Therefore, despite their partisanship, most people may realize that selectively avoiding exposure to government information is infeasible and unwise. Hence, selective avoidance of information from the government did not happen; at the same time, selective seeking other information is possible: they may selectively seek more information from sources other than the government, leading to higher levels of information overload.

Perceived quick response ability is negatively related to anxiety and positively associated with life satisfaction, as expected. Therefore, one key to helping citizens maintain their wellbeing and reduce anxiety is to offer them information that prepares them for the crisis so that they know what to do in different scenarios. Faced with the many challenges in the pandemic, the ability to quickly respond to the rising issues assists people to better adapt to the crisis and recover from it.

Information overload is positively related to anxiety but does not predict life satisfaction. This may be due to the fact that the pandemic has had such a massive impact on people’s lives from many different aspects that the burden of information overload on satisfaction with life may seem trivial compared with other more pressing concerns, such as social isolation, loneliness, safety, and finance (B. W. Nelson, Pettitt, Flannery, & Allen, 2020).

During the pandemic, financial concerns stand out in that they not only have a direct relationship with anxiety and life satisfaction but also exacerbate the negative impact of information overload on anxiety. Our results indicate that it strengthens the negative influence of information overload on anxiety (H8c). It fails to moderate the other three proposed relationships (H7a, H7b, and H8d). Therefore, financial concerns exert their influences on anxiety and life satisfaction mostly in a direct rather

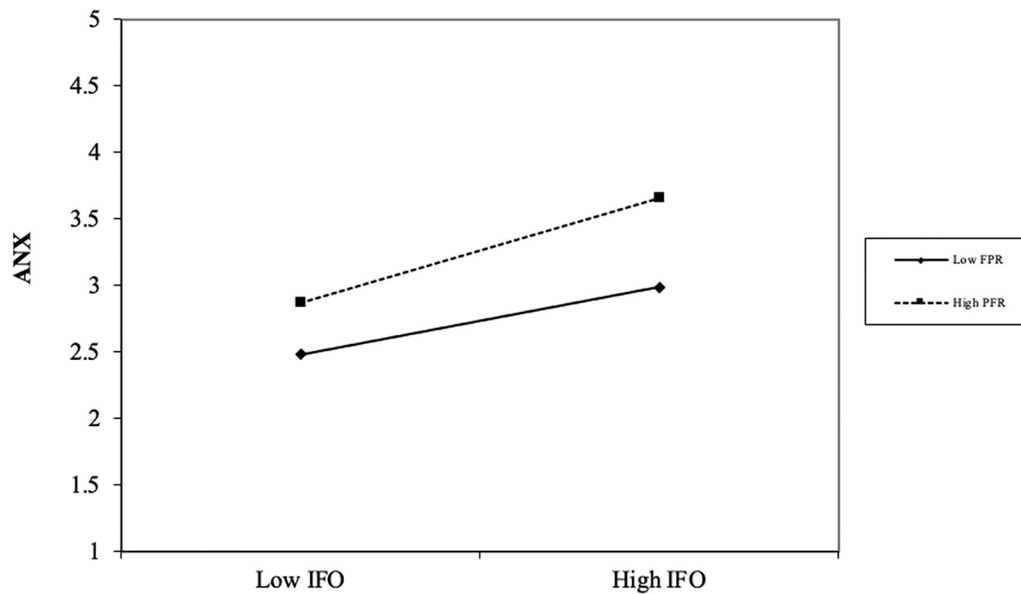


Fig. 3. Moderating effect results.

than interactive manner. These differences for perceived finance risks can be attributed to a lack of variance in the respondents' scores for perceived finance risks. Of all the respondents, 93% perceived medium to high perceived financial risks (mean score of 3 and higher on a 5-point scale), whereas only 7% perceived low perceived finance risks (mean score of 1 on a 5-point scale). The high level of perceived financial risks might be the reason that the moderating effect of perceived finance risks was not confirmed with H7a, H8b, and H8d.

5.2. Theoretical implication

This research contributes to the extant literature in several ways. First, we are among the first to tap into people's information behavior in the COVID-19 crisis. Based on the information-as-coping perspective, we provided a theoretical framework to understand how the quality of government information impacts citizens' wellbeing in terms of satisfaction with life and anxiety. The findings supported the proposed research model and confirmed the important role of information as a valid resource to cope with the pandemic. Specifically, high-quality information enhances citizens' quick response ability to the pandemic and decreases information overload, leading to higher levels of wellbeing.

Second, we identified partisanship as a salient factor impacting citizens' information behaviors. While prior research has discussed how partisanship influenced citizens' willingness to follow government directives during the pandemic (Grossman et al., 2020), little is known about the impact of partisanship on how citizens perceive and process information from the government. While digital inequality represents a major risk factor of vulnerability in COVID-19 (Beaunoyer, Dupéré, & Guitton, 2020), partisanship could be a contributing factor to digital inequality. Digital inequality rises when differences exist between individuals and social groups in terms of not only access to technologies and information, but also their capacity to obtain benefices from their use of technology, or how citizens "access, process, engage and understand the information" (Beaunoyer et al., 2020, p.1; Büchi, Festic, & Latzer, 2018). As our results show, partisanship predicts information overload, which hinders citizens' information processing capabilities and contributes to digital inequality. More research about how to counter the negative effects of partisanship on information overload and the ability to process information is warranted to ensure equal abilities across partisanship to benefit from key information in the combat

against COVID-19.

Finally, we established and tested the dimensions of information quality in the pandemic context. The rapid development and far-reaching consequences of the pandemic demand proactive and frequent communication between the government and its citizens, as well as different priorities regarding information quality. To fit citizens' information needs, government information should be well laid-out, complete, accurate, current, and understandable. As citizens have different levels of education and internet literacy, ranging from very low to very high, we see that features pertaining to format (i.e., format and understandability) are as important as, if not more important than those pertaining to content (i.e., accuracy, currency, completeness). This is something that we must remember to ease the effects of digital inequalities and ensure the information benefits everyone (Beaunoyer et al., 2020).

5.3. Practical implications

This research provided meaningful practical implications to governments in the fight against the pandemic. First, the quality of information matters. To help citizens better cope with the crisis, COVID-19 information should be understandable, current, accurate, well laid out, and complete. All dimensions have similar weights toward perceived quality, meaning that each and every dimension matters.

Second, governments should pay attention to citizens with different partisanship as they tend to suffer more from information overload in the pandemic. Our statistics show that although partisanship is not significantly related to perceived information quality, i.e., people from different partisanship do not hold negative evaluations for government information quality, it exerts a negative impact by contributing to information overload, possibly by selectively exposing to more information. To alleviate their information overload, governments should cultivate trust among all citizens so that they do not have to seek a second or third source of information to validate what they receive from the government.

Third, people with higher financial risks seem to be hit harder by the pandemic in terms of anxiety and life satisfaction. There are two ways governments could help regarding this issue. First, governments could ease their concerns and worries with either direct aid packages such as cash or subsidies; or, for the more resource-constrained governments, indirect aids such as tax exempts, credits and deferrals could be

Table 7
Summary of results.

Hypothesis	Coefficient	S.D.	P Value	Result
H1: Information quality → Perceived quick response ability	0.40	0.04	<0.001	Supported
H2: Information quality → Information overload	-0.29	0.04	<0.001	Supported
H3: Partisanship → Perceived quick response ability	-0.01	0.04	0.773	Not supported
H4: Partisanship → Information overload	0.14	0.04	<0.001	Supported
H5a: Perceived quick response ability → Anxiety	-0.20	0.04	<0.001	Supported
H5b: Perceived quick response ability → Life satisfaction	0.38	0.04	<0.001	Supported
H6a: Information overload → Anxiety	0.32	0.04	<0.001	Supported
H6b: Information overload Life satisfaction	-0.05	0.04	0.181	Not supported
H7a: Moderating effect of perceived financial risks on perceived quick response ability → anxiety	-0.005	0.05	0.921	Not supported
H7b: Moderating effect of perceived financial risks on perceived quick response ability → life satisfaction	0.05	0.05	0.311	Not supported
H8a: Moderating effect of perceived financial risk on information overload → anxiety	0.08	0.03	0.022	Supported
H8b: Moderating effect of perceived financial risk on information overload → life satisfaction	-0.03	0.04	0.371	Not supported
Control Variables				
Age - > Anxiety	0.06	0.03	0.070	Not significant
Age - > Life Satisfaction	-0.02	0.03	0.478	Not significant
Gender - > Anxiety	0.06	0.03	0.048	Significant
Gender - > Life Satisfaction	-0.07	0.03	0.045	Significant
Education - > Anxiety	-0.13	0.03	<0.001	Significant
Education - > Life Satisfaction	0.12	0.04	0.004	Significant
Daily Internet time - > Anxiety	0.04	0.03	0.269	Not significant
Daily Internet time - > Life Satisfaction	-0.02	0.04	0.643	Not significant
Internet Use Experience - > Anxiety	-0.14	0.04	<0.001	Significant
Internet Use Experience - > Life Satisfaction	-0.02	0.04	0.680	Not significant
GRP per capita - > Anxiety	0.08	0.03	0.016	Significant
GRP per capita - > Life Satisfaction	-0.01	0.04	0.747	Not significant

considered to alleviate their financial burdens. Second, more mental

Appendix A

A.1. Items loadings and cross-loadings

	AC	ANX	CO	CU	FO	FIA	IFO	LFS	PFR	QRA	POL	UN
AC1	0.88	-0.05	0.68	0.48	0.59	0.18	-0.24	0.18	-0.10	0.30	-0.07	0.46
AC2	0.89	0.03	0.59	0.41	0.57	0.11	-0.20	0.16	-0.14	0.28	-0.05	0.36
AC3	0.92	-0.01	0.67	0.48	0.64	0.12	-0.24	0.19	-0.13	0.28	-0.08	0.43
ANX1	-0.03	0.78	-0.02	-0.03	-0.05	0.03	0.27	-0.38	0.30	-0.26	0.07	-0.09
ANX2	0.02	0.88	-0.04	-0.05	-0.08	-0.04	0.33	-0.39	0.26	-0.29	0.11	-0.15
ANX3	-0.03	0.83	-0.07	-0.03	-0.09	0.01	0.32	-0.33	0.31	-0.26	0.10	-0.11
ANX4	-0.01	0.84	-0.04	-0.01	-0.06	0.02	0.39	-0.32	0.28	-0.22	0.10	-0.14
ANX5	0.03	0.81	-0.05	-0.06	-0.03	0.01	0.34	-0.26	0.19	-0.21	0.09	-0.15
ANX6	-0.03	0.79	-0.07	-0.02	-0.06	0.01	0.35	-0.29	0.26	-0.26	0.06	-0.11
ANX7	-0.02	0.85	-0.07	-0.03	-0.05	0.01	0.34	-0.34	0.33	-0.29	0.10	-0.10

(continued on next page)

health support and resources could be provided to them as they are at high risk of anxiety.

5.4. Limitation and future research

Several limitations of this research should be noted. First, following Weisberg (1980), we used presidential voting choices to measure partisanship. However, the election was in 2019, a year from the pandemic breakout. Therefore, there may be some partisanship changes for some people that were not captured by their last election choice. Second, our sample is biased toward the young and male respondents. To address this bias, we controlled for the age and gender of the respondents in our model estimates. The results indicate that only gender is related to anxiety, while age did not predict either dependent variable. Finally, a considerable portion of respondents accessed government-released pandemic information through news agencies (47%) instead of accessing government websites or social media. While the government could still make sure that the information it releases to news agencies is accurate and updated, it does not have full control of the format or layout of the information. We compared the averages of perceived quality of people accessing government websites/social media versus news agencies, and the results indicate that people visiting government sources on average have significantly higher evaluations of the information's currency, format, and accuracy ($P < 0.05$) than people who get their information from news agencies or social media.

Future research could proceed in the following directions. First, how partisanship influences information processing could be further examined beyond information overload. Direct measures of selective exposure or avoidance could be taken to capture the differences between partisanships. Second, according to the theory of coping, there are two phases of appraisal, primary appraisal and secondary appraisal. Our model mainly deals with the secondary appraisal phase, when coping mechanisms are activated. Future research could incorporate the primary appraisal phase to provide a more comprehensive understanding of the complete coping process with information seeking.

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(continued)

	AC	ANX	CO	CU	FO	FIA	IFO	LFS	PFR	QRA	POL	UN
CO1	0.63	-0.09	0.92	0.43	0.55	0.17	-0.27	0.16	-0.13	0.28	-0.10	0.52
CO2	0.66	-0.04	0.92	0.43	0.57	0.18	-0.20	0.21	-0.08	0.28	-0.08	0.51
CO3	0.67	-0.04	0.91	0.51	0.61	0.17	-0.23	0.19	-0.11	0.32	-0.11	0.52
CU1	0.50	-0.04	0.48	0.93	0.54	0.20	-0.19	0.14	-0.05	0.33	-0.08	0.37
CU2	0.47	-0.04	0.47	0.96	0.53	0.19	-0.19	0.12	-0.04	0.31	-0.08	0.37
CU3	0.47	-0.03	0.47	0.94	0.52	0.23	-0.19	0.12	-0.03	0.30	-0.09	0.40
FO1	0.65	-0.07	0.61	0.52	0.91	0.18	-0.24	0.19	-0.08	0.34	-0.09	0.53
FO2	0.56	-0.04	0.52	0.49	0.92	0.12	-0.18	0.21	-0.06	0.27	-0.11	0.47
FO3	0.62	-0.09	0.60	0.53	0.92	0.18	-0.26	0.21	-0.10	0.33	-0.12	0.55
IFO1	-0.20	0.32	-0.19	-0.11	-0.19	-0.12	0.86	-0.11	0.27	-0.15	0.15	-0.17
IFO2	-0.20	0.37	-0.21	-0.18	-0.21	-0.13	0.91	-0.11	0.25	-0.19	0.14	-0.23
IFO3	-0.26	0.39	-0.28	-0.24	-0.26	-0.13	0.91	-0.16	0.26	-0.20	0.18	-0.31
LFS1	0.16	-0.36	0.17	0.08	0.22	0.01	-0.11	0.88	-0.24	0.33	-0.08	0.14
LFS2	0.17	-0.39	0.18	0.11	0.20	0.06	-0.13	0.95	-0.23	0.39	-0.05	0.17
LFS3	0.20	-0.38	0.20	0.15	0.21	0.07	-0.15	0.96	-0.23	0.40	-0.04	0.17
LFS4	0.21	-0.37	0.22	0.15	0.22	0.09	-0.15	0.95	-0.23	0.40	-0.07	0.19
PFR1	-0.15	0.32	-0.14	-0.07	-0.12	0.04	0.28	-0.23	0.92	-0.12	0.08	-0.10
PFR2	-0.11	0.29	-0.09	-0.02	-0.05	0.03	0.25	-0.24	0.93	-0.11	0.05	-0.07
PFR3	-0.12	0.32	-0.09	-0.03	-0.07	0.05	0.27	-0.22	0.94	-0.13	0.07	-0.05
POL	-0.08	0.11	-0.11	-0.09	-0.12	-0.10	0.17	-0.06	0.07	-0.05	1.00	-0.05
QRA1	0.25	-0.27	0.23	0.21	0.25	0.04	-0.16	0.37	-0.16	0.79	0.01	0.12
QRA2	0.27	-0.28	0.28	0.32	0.30	0.13	-0.20	0.35	-0.11	0.86	-0.05	0.23
QRA3	0.29	-0.19	0.30	0.32	0.31	0.18	-0.16	0.24	-0.04	0.79	-0.10	0.22
QRA4	0.25	-0.28	0.26	0.24	0.28	0.10	-0.15	0.37	-0.11	0.84	-0.04	0.17
UN1	0.43	-0.13	0.52	0.37	0.52	0.17	-0.22	0.20	-0.08	0.23	-0.05	0.91
UN2	0.28	-0.14	0.34	0.27	0.36	0.11	-0.28	0.08	-0.06	0.10	-0.02	0.79
UN3	0.47	-0.12	0.57	0.39	0.57	0.18	-0.23	0.18	-0.06	0.23	-0.06	0.91

Bolded items represent the factor loadings for each construct.

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Yu-Qian Zhu is an associate professor in the Department of Information Management, National Taiwan University of Science and Technology. She holds a Ph.D. in Management of Technology from National Taiwan University. Prior to her academic career, she served as R&D engineer and R&D manager in Fortune 100 and InfoTech 100 firms. Her research interests include information privacy, information systems and social media. She has published in journals such as *Journal of Management*, *Information & Management*, *Government Information Quarterly*, and *International Journal of Information Management*. She is the corresponding author of this research.

Nurwahyu Alamsyah is a Ph.D. student in the Department of Information Management, National Taiwan University of Science and Technology. His current research interests include e-government and smart city development.