Information Behavior in COVID-19 Prevention: Does Anxiety among Indonesian Mothers Have an Effect?

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ABSTRACT

The pandemic of Coronavirus disease (COVID-19) has contributed more challenges for mothers as the family's primary caregiver in overcoming the widespread infection. Pandemic-related information is essential for mothers to reduce uncertainty as well as to maintain the health of family members during this unprecedented situation. Adopting the framework of the Situational Theory of Problem Solving, this study extends the theory by, first, testing the mediating role of COVID-19 anxiety on mothers' information seeking and information forwarding, referred to as active communication action of problem solving, as well as preventive behavior; and second, by predicting the effect of information seeking on preventive behavior. Referring to an online survey from 371 Indonesian mothers, the findings suggest that in terms of direct effect, only problem recognition was found to have no significant effect on situational motivation. The results suggest that Indonesian mothers perceive COVID-19 as personally relevant so that they are motivated to solve the problem by seeking and forwarding related information. In addition, COVID-19 anxiety was found to play a significant role in predicting information seeking, information forwarding, and preventive behavior. The result of this study is expected to give insights for risk communicators and health professionals in Indonesia in communicating COVID-19, particularly to mothers.

Keywords: Communivative Action on Problem Solving, information forwarding, information seeking, mothers, preventive behavior, Situational Theory of Problem Solving

1. INTRODUCTION

The Coronavirus disease (COVID-19) pandemic has had major effects on women, particularly mothers. Due to physical distancing policies, school and office activities that were formerly conducted outside of the home are now undertaken at home. As a result, moms have more home responsibilities. In the age of COVID-19, women devote more time than men to domestic responsibilities such as babysitting and caring for others (Craig & Churchill, 2021). COVID-19 has also led women to lose more income and become more concerned about their families' well-being (Czymara et al., 2021). During this epidemic, the discrepancy in domestic responsibilities between men and women is aggravating gender inequality (Fodor et al., 2021).

In Indonesia, this phenomenon is also happening. According to UN Women (2020), COVID-19 has increased household and care duties for Indonesian women and required them to spend more time than men in supporting, guiding, and teaching children to study at home. The study found that first, 82 percent of Indonesian women who primarily relied on family businesses had diminished income sources due to the pandemic; second, the health crisis has prompted women in informal employment to work fewer hours than men; third, social limitation regulations require more women than men to perform household labor, particularly caring for and accompanying children; and fourth, due to increased domestic and caregiving burdens, job losses, and gender-based violence, the pandemic caused more women (57%) to experience stress and anxiety than men (48%). Nevertheless, women also play a key role in promoting the maintenance of family hygiene and health. In light of this, mothers' behaviors of seeking and sharing COVID-19-related information, as well as their preventative actions, are crucial.

In general, studies on information behavior in relation to the COVID-19 pandemic have been conducted, such as studies on the factors that caused information seeking (INS) (Huang & Yang, 2020; Jimenez et al., 2021; Kim et al., 2020; Zhao & Liu, 2021), information avoidance (Crowley et al., 2021; Hwang & Jeong, 2021; Siebenhaar et al., 2020), and information sharing (Islam et al., 2020; Xia et al., 2021). Factors that have been frequently studied in INS studies during COVID-19 include anxiety (Barattucci et al., 2020; Park et al., 2021), fear (Beaudoin & Hong, 2021a; Zhou et al., 2021), and need for information (Boot et al., 2021; Dreisiebner et al., 2022). Unfortunately, very little research has focused on the information-seeking and information-forwarding behaviors of women, especially mothers. An earlier work of research that used mothers as the unit of analysis found that pregnant women's anxiety caused by the COVID-19 pandemic led them to look for information regarding maternal and child health (Goldbort et al., 2021).

2. LITERATURE REVIEW

2.1. Risk Communication During COVID-19

During a pandemic, people frequently rely on information from respectable and trustworthy sources, such as the government, the media, and health professionals; therefore, risk communication in the time of pandemic is crucial. The World Health Organization (n.d.) defines risk communication as the use of critical communication skills during the preparation, response, and recovery phases of a health crisis in order to accomplish the desired behavioral change, effective decision-making, and trust. Risk communication permits the exchange of trustworthy information between linked parties, such as health specialists and authorities, as well as health professionals dealing with vulnerable persons, in order to raise awareness and comprehension of particular diseases (e.g., symptoms, transmission, treatment, and preventive behaviour) (IFRC et al., 2020; Rowel et al., 2012).

There are multiple ways to communicate a proportional risk in the context of COVID-19: first, promote the use of social media to disseminate pandemic-related information, as the majority of people today use social media as a communication tool; second, maintain a positive relationship with the media in order to spot and handle false rumors and fake news; and third, increase stakeholder engagement (Abrams & Greenhawt, 2020). According to a previous survey, mothers relied mainly on Facebook for disease outbreak information, added by information obtained from daily health ministry briefings (Alwreikat, 2022). Because risk communication has become crucial in risk reduction, primarily for mothers who are a family's primary caregiver, it is vital to identify factors that influence mothers' behaviors in obtaining and giving information to others.

2.2. Pandemic of COVID-19: Impacts and Mothers' Roles

Individuals, particularly mothers, experience apprehension when a novel infection emerges. At the onset of the pandemic, mothers encountered a variety of uncertainties, including: first, adjustment uncertainty, in which

they were unsure how their children would adjust to a new situation in which they had to stay, study, and do their activities at home while schools and public places were closed to prevent virus transmission; second, COVID-19 threat uncertainty, where mothers were doubtful as to how to protect themselves, husbands, and children, especially family members with comorbid conditions from virus infection; third, social interaction uncertainty, where mothers were also unclear as to how to manage social distance with family and friends to protect the vulnerable; last, mothers were found to be concerned about the validity and trustworthiness of information circulated during the pandemic, since fake news and disinformation have grown to be widespread, particularly on social media (Walker et al., 2021).

Regardless of their work level, women are concerned about the COVID-19 pandemic. The shutdown of schools and offices has resulted in major financial interruptions, particularly for working women who must balance their family and professional obligations. Moreover, due to the shutdown of public facilities, families are having difficulty finding child care (Clark et al., 2021; Racine et al., 2021). Amid isolation in the time of the pandemic, mothers must play significant roles by providing multiple caregiving for members of the family and conducting additional home schooling (de Jong et al., 2022).

To address uncertainties about COVID-19, some mothers seek information about its transmission, symptoms, and treatment on social media (Alwreikat, 2022). Mothers who perceived COVID-19 as a threat to their family would be likely to seek related information, whereas mothers who did not consider COVID-19 as a threat tended to avoid it (Walker et al., 2021). In addition to information behavior, preventive behavior (PRE) is also a way to manage uncertainty. Mothers believe that by taking precautions, they may protect themselves and their families against viral transmission.

2.3. Situational Theory of Problem Solving

The purpose of the present study is to analyze COVID-19 anxiety (COA) as a mediating variable using the Situational Theory of Problem Solving (STOPS) as a theoretical framework and to predict its impact on two communicative behaviors, namely INS and INF, as well as PRE. STOPS begins with a basic premise, implying that people cannot avoid communicating and that their action is primarily motivated by the desire to solve problems in their lives. As a result, they communicate in order to address difficulties. Similarly, when the COVID-19 pan-

demic arises, individuals encounter problems that must be solved through communication. STOPS describes the reasons and the way people engage in communicative actions in order to solve problems (Kim & Grunig, 2011). The communicative action in STOPS is known as the Communicative Actions on Problem Solving model (CAPS), which offers a comprehensive description of communicators' communication behavior when confronted with difficult situations (Kim et al., 2010). Given that information is the primary component of communication, communicative action is also referred to as information behavior in this study. In prior research, this phrase was also often used interchangeably (Kim & Hong, 2021; Kim et al., 2011). Information behavior is described as the many actions that people do while engaging with information, including how and when they seek information and how they use it (Bates, 2018).

CAPS is comprised of three types of information behaviors: information acquisition, information selection, and information transmission. Each information behavior has two dimensions, active and passive. Active communication behavior refers to individuals who make a conscious effort to gather, choose, and provide information, whereas passive or reactive communication behavior refers to those who behave passively in reaction to the actions of others (Kim & Grunig, 2011). Information acquisition is made up of two parts: INS and information attending. INS is a deliberate, active, and planned search for certain subjects, including opinion search, whereas information attending is an unintentional and passive search for information. In problem solving, information selection indicates how selective a person is in receiving and distributing knowledge. Information forefending and information permitting are examples of information selection. Information forefending represents the level to which a person sorts out specific information by evaluating information value and relevance, whereas information permitting refers to the degree to which information is accepted without filtering. The active dimension of information transmission is information forwarding (INF), whereas the passive dimension is information sharing. Information sharing happens when a person is only willing to share information, thoughts, or ideas when others enquire, as opposed to INF, which is a sort of information activity in which a person actively and consciously sends information to others.

According to STOPS, information behavior is influenced by perceptual, cognitive, and motivational factors. The first three perceptual factors are problem recognition

(PBR), involvement recognition (IVR), and constraint recognition (Kim & Grunig, 2011). PBR is defined as an individual perception towards a situation where there is no instantly relevant way of solving a problem. IVR is referred as one's subjective perception of his or her relationship with a problem (Grunig, 1976). Constraint recognition is described as an individual perception regarding restraints that potentially limit the capacity to cope with the problem. Despite having a high degree of problem and IVR, a high level of constraint recognition might hinder someone from executing information behavior. STOPS also includes a cognitive variable, referent criterion, which comprise previous knowledge and experience that can be used to deal with problems. The motivational variable, referred to as situational motivation (SIM), is defined as "a state of situation-specific cognitive and epistemic readiness to make problem-solving efforts—that is, to decrease the perceived discrepancy between the expected and experiential states" (Kim & Grunig, 2011, p. 132). SIM mediates the influence of PBR, IVR, and constraint recognition on CAPS, the dependent variable in STOPS.

STOPS has been used in a variety of research areas, such as health communication (Chon & Park, 2021; Kim & Hong, 2021; Kim et al., 2011; Shen et al., 2019), environmental communication (Lamm et al., 2018), public communication (Chen et al., 2017; Lee et al., 2014; Pressgrove et al., 2020; Shin & Han, 2016), and students' communication regarding university crises (Poroli & Huang, 2018). Prior research revealed that perceptual variables, particularly PBR and IVR, positively influenced SIM, encouraging people to perform both passive and active informative behavior (Shin & Han, 2016; Tao et al., 2021; Zheng, 2020). Instead of testing all CAPS information behavior, the current study aims to focus on mothers' INS and INF behavior. Furthermore, in this model, this study solely employs PBR and involvement as independent variables adopted from STOPS.

2.4. Integrating Anxiety in the Framework of STOPS

Using the pandemic of COVID-19 as a study context, this research incorporates anxiety into the theoretical framework of STOPS. Specifically, the present study attempts to identify whether anxiety has a contributing role as an intervening or mediating variable between SIM and both information behaviors (INS and INF) and PRE. Based on reconstruction of the Extended Parallel Process Model (EPPM), anxiety encourages people to seek for information as a coping strategy when facing a problem (So, 2013). This study particularly focuses on anxiety which is generated by COVID-19.

Anxiety is one of the negative emotions marked by pressure and feelings of distress, and is also indicated by high blood pressure, faintness, shaking, increased heartbeat, and sweating (Kazdin, 2000). Meanwhile, according to the American Psychiatric Association (2013), generalized anxiety is a worry that is difficult to control, persistent, and excessive, and which has symptoms such as restlessness or feeling restless, tiredness, difficulty in concentrating, irritability, muscle tension, sleep disturbances, and decreased ability to engage in social activities. Communication scholars have examined the influence of anxiety on certain behavior and attitudes (Barattucci et al., 2020; Marschalko et al., 2021).

The cognitive appraisal theory of emotion explains that emotion occurs after cognition. According to Jacobs et al. (2012), cognition comprises values, beliefs, and attitudes, as well as mental processes and activities of thinking, judgment, and decision-making (e.g., uncertainty and severity). Meanwhile, emotions are communicated through physiological reactions (e.g., excessive sweating), expressive reactions (e.g., laughing), behavioral tendencies (e.g., avoiding), and emotional experiences (e.g., feeling sad or fearful) (Izard, 2007; Kleinginna & Kleinginna, 1981). In essence, certain cognition triggers specific emotions. In conjunction with STOPS, SIM is a cognitive mediating variable between perceptual variables and information behavior.

The addition of anxiety to the extended EPPM strengthens the rationale for INS as a coping strategy (So, 2013). In line with this, prior researchers found that the higher the level of anxiety regarding COVID-19, the more likely it was individuals looked for relevant information (Barattucci et al., 2020; Marschalko et al., 2021; Park et al., 2021). Previous studies also found that anxious people were inclined to share information using interactive media with others to reduce the level of anxiety (Jin et al., 2016; Lu et al., 2022). In the time of the COVID-19 health crisis, anxious people might feel encouraged to search and share related information with others. In addition, prior studies revealed that anxiety triggered people to comply and engage in PRE (Alrubaiee et al., 2020; Kwok et al., 2020; Magdy et al., 2021).

2.5. Linking Information Behavior and Preventive Behavior

As previously stated, communicative action in STOPS consists of six information behaviors, categorized by their activeness dimension. Despite the fact that STOPS examines all sorts of information behaviors, this study focuses

on two categories of active communication, namely INS and INF. During health emergencies, both information behaviors are critical for mothers to guarantee the safety of loved ones. Pandemic-related information was delivered in order to raise awareness and convince individuals to adopt health-PRE during pandemics (Bala et al., 2021). Prior analysis found that when individuals actively and passively acquired information from conventional and digital media, they tended to engage in preventative behaviors such as wearing masks, avoiding physical interaction, avoiding crowds, frequently washing their hands (Beaudoin & Hong, 2021b; Lee & You, 2021; Zhao & Tsang, 2022), and receiving vaccination (Jung et al., 2013). Based on the literature, people who actively seek information will be likely to perform health PRE. This study specifically concentrates on PREs of social distancing efforts (e.g., physical distancing, and avoiding crowds or travel) (Lee & You, 2021).

2.6. Research Model and Hypotheses

Given mothers' growing capacity and critical role in ensuring family well-being at this unprecedented time, the purpose of this study is to explain the causal relationship among the variables used: PBR, IVR, SIM, COA, INS, INF, and PRE. Adopting STOPS, this study seeks to test the influence of perceptional variables on SIM and its mediating effect on INS, INF, and COA. Later, this study also tests the influence of COA on INS, INF, and preventive activity, as well as the effect of INS and COA on PRE. Understanding mothers' information and PRE may guide health and family communicators with insights about how to adjust and improve risk communication to mothers. Based on previous studies detailed in the literature review, a research framework has been constructed and proposed for research purposes (Fig. 1). Hypotheses are developed based on the research framework, as outlined below:

H1: Problem recognition positively influences situational motivation

H2: Involvement recognition positively influences situational motivation

H3: Situational motivation positively influences information seeking

H4: Situational motivation positively influences information forwarding

H5: Situational motivation positively influences COVID-19 anxiety

H6: COVID-19 anxiety positively influences information seeking

H7: COVID-19 anxiety positively influences information forwarding

H8: COVID-19 anxiety positively influences preventive behavior

H9: Information seeking positively influences preventive behavior

3. RESEARCH METHODOLOGY

3.1. Survey Instrument

PBR was measured by four items, whereas IVR was assessed by two statements which were adopted from Kim and Grunig (2011). In addition, four items were used to evaluate SIM. To measure anxiety caused by COVID-19, the present study used the COVID-19 Anxiety Scale (Silva et al., 2020). Meanwhile, to measure INS and INF in the present study, we used three items for each information behavior. All answers were scored on a 5-point Likert scale (1=strongly disagree, 5=strongly agree) (Kim & Grunig, 2011). Finally, PRE was calculated using indicators pertaining to the frequency of social distancing behavior using three items (1=never, 5=always), adapted from Lee and You (2021).
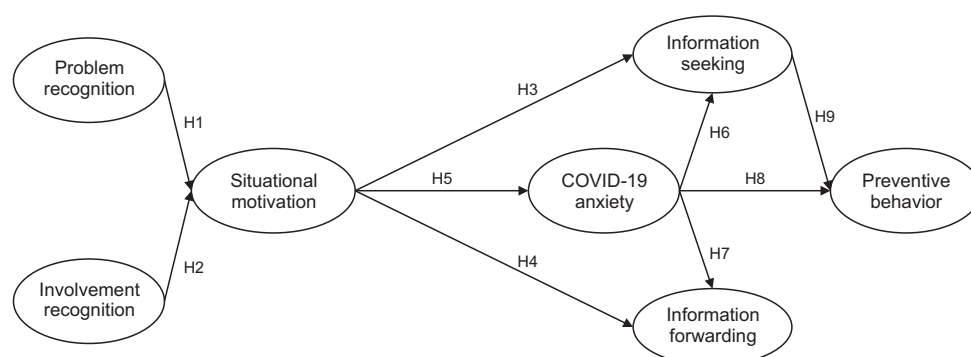

Fig. 1. Research framework.

3.2. Respondents

This study used mothers living in Perigi Baru, Banten, Indonesia as the population of interest. This study used nonprobability sampling with convenience sampling technique where researchers selected samples that were available, easy to reach, and convenient (Neuman, 2014). However, the technique has a limitation as it is not used to create representativeness of the whole population. Because the population size is unknown, this study estimates minimal sample size using a general estimation formula from Partial Least Square (PLS) Structural Equation Modelling (SEM) which is 10 times the indicator used to measure a construct (Hair et al., 2011). To collect data, a survey was distributed digitally and delivered in Indonesian through an online survey using Google Forms. Before this, a pilot test was conducted using 30 participants of mothers living in the area (Perneger et al., 2015). The study used SPSS 26 (IBM Corp., 2019) for the pilot test and the result showed that from 29 questions, 24 were declared valid and reliable for further data collection and analysis. Referring to the estimation of sample size in PLS SEM, the minimal sample size required for this study is 10 times 24, which equals to 240. Before answering the questions, respondents were required to fill in some demographic questions and declare their consent.

3.3. Analysis Method

To test the model in this study, the researchers applied SEM using WarpPLS software 6.0. This analysis is a unique development of PLS analysis which can be utilized to test hypotheses and to make models that do not have theoretical foundations (Wardhani et al., 2020). Moreover, it allows "nonlinear analyses where best-fitting nonlinear functions are estimated for each pair of structurally linked variables in path models, and subsequently used (i.e., the nonlinear functions) to estimate path coefficients that take into account the nonlinearity" (Kock, 2019, p. 2). There are several steps in WarpPLS, including making a structural model or inner model, followed by making a measurement model (outer model), designing the path diagram, converting the path diagram to an equation system, calculating the parameter, evaluating the model fit, and testing the hypothesis. A measurement model is required to meet the standard of validity and reliability. The evaluation of validity includes convergent validity, which is seen from the value of indicator loadings which should be equal to or greater than 0.5 (Kock, 2021) and average variance extracted (AVE) where the value should be 0.5 or greater (Fornell & Larcker, 1981); and discriminant

validity that can be assessed using two approaches, Fornell-Larcker criterion or cross loadings. In addition, the evaluation of reliability focuses on the value of composite reliability and Cronbach's Alpha where the coefficients must be each equal to or greater than 0.7 (Kock, 2015). The structural model is evaluated by looking at the value of R^2, the level of significance, and path coefficient (Hair et al., 2011).

4. FINDINGS

4.1. Respondents' Demographic Profile

This study used IBM SPSS Statistics 26 for descriptive analysis and WarpPLS 6.0 to test the proposed model. From the data collection that was conducted from January 10 to January 26, 2022, there were 392 responses. However, after removing invalid responses, 371 responses were used for analysis. The sample included a wide range of age groups from 20 to older than 60 years old (Table 1).

4.2. Evaluation of Measurement and Structural Model
4.2.1. Model Fit and Quality Indices

The model in this study was analysed using Warp-PLS 6.0. To evaluate the viability of a model, Kock (2015) provides 10 global model fit and quality indices: average

Table 1. Respondent's demographic characteristics (n=371)

Demographic characteristics		No (%)
Age	20-29 years old	27 (7.3)
	30-39 years old	192 (51.8)
	40-49 years old	121 (32.6)
	50-59 years old	26 (7.0)
	More than 60 years old	5 (1.3)
Education	Elementary school	12 (3.2)
	Secondary school	30 (8.1)
	Senior high school	101 (27.2)
	Diploma	21 (5.7)
	Bachelors	171 (46.1)
	Masters	35 (9.4)
	Doctorate	1 (0.3)
Employment status	Employed	156 (42.0)
	Unemployed	215 (58.0)

path coefficient (APC), average R-squared (ARS), average adjusted R-squared, average block variance inflation factor (AVIF), average full collinearity VIF, Tenenhaus GoF, Sympson's paradox ratio, R-squared contribution ratio, statistical suppression ratio, and nonlinear bivariate causality direction ratio. According to Kock (2015), these criteria depend on the aim of the SEM analysis. If the objective is to test the hypothesis, the overall criteria of model fit and quality indices will be less relevant. However, there are three main criteria which should be met: APC with p-value, ARS with p-value, and AVIF. As the goal of this research is to test hypotheses, thus this study uses the three primary criteria. Nevertheless, according to the ideal value, the global model fit and quality indices showed that the proposed model was acceptable (Table 2).

4.2.2. Measurement Model

Table 3 shows evaluation of the measurement model. It indicates that the value of indicator loadings, composite reliability, Cronbach Alpha, and AVE have met the standard. Therefore, the indicators can be declared as valid and reliable (Table 3).

4.2.3. Direct and Indirect Effect

Table 4 shows the direct and indirect effects of the model. In terms of the direct effect, results show that PBR has no direct effect on SIM ($\beta=0.003$, $p=0.239$), with very weak effect size. Hence, H1 is not supported. Analysis reveals that IVR has a positive and significant influence on SIM ($\beta=0.262$, $p<0.001$), with small effect size. Thus, H2 is supported. Meanwhile, the result indicates that SIM has a positive and significant influence on INS and INF, respectively ($\beta=0.676$, $p<0.001$; $\beta=0.536$, $p<0.001$), with large effect size. Therefore, H3 and H4 are both supported. The analysis also shows that SIM has a positive and significant influence on COA with medium effect size ($\beta=0.345$, $p<0.001$). Hence, H5 is supported. Other results show that COA has a positive and significant influence on, accordingly, INS, INF, and PRE ($\beta=0.082$, $p=0.028$; $\beta=0.141$, $p=0.001$; $\beta=0.095$, $p=0.016$). However, the effect size of COA on PRE is very weak. As a result, H6, H7, and H8 are supported. Finally, the result shows that INS has a positive significant effect on PRE ($\beta=0.232$, $p<0.001$). Thus, H9 is supported. All findings of direct effects are summarized in Fig. 2.

With regards to R-squared (R^2), the results suggest that R^2 of SIM is 0.07 or 7%, implying that 7% of SIM can be explained by PBR and IVR, while the remaining (93%) is explained by other factors which are not investigated in this study. Concurrently, the R^2 of INS, COA, INF, and PRE is, respectively, 50%, 12%, 36%, and 7%, which means that the rest is explained by other variables which were not tested in the current study. Thus, these other variables can be studied in the future.

In terms of indirect effects, the results showed a positive and significant effect on: IVR to COA through SIM

Table 2. Result of model fit and quality indices

Element	Value	Criteria	Interpretation
APC	0.264, $p<0.001$	p value ≤0.05	Acceptable
ARS	0.224, $p<0.001$	p value ≤0.05	Acceptable
AARS	0.220, $p<0.001$	p value ≤0.05	Acceptable
AVIF	1.137	Acceptable if ≤5, ideally ≤3.3	Acceptable
AFVIF	1.747	Acceptable if ≤5, ideally ≤3.3	Acceptable
GoF	0.413	Small ≥0.1, medium ≥0.25, large ≥0.36	Large
SPR	1.000	Acceptable if ≥0.7, ideally=1	Ideal
RSCR	1.000	Acceptable if ≥0.9, ideally=1	Ideal
SSR	1.000	Acceptable if ≥0.7	Acceptable
NLBCDR	1.000	Acceptable if ≥0.7	Acceptable

APC, average path coefficient; ARS, average R-squared; AARS, average adjusted R-squared; AVIF, average block variance inflation factor; AFVIF, average full collinearity VIF; GoF, Tenenhaus GoF; SPR, Sympson's paradox ratio; RSCR, R-squared contribution ratio; SSR, statistical suppression ratio; NLBCDR, nonlinear bivariate causality direction ratio.

Table 3. Result of measurement model test

Constructs & Indicators	Mean	SD	Validity		Reliability	
			LF	AVE	CR	CA
Problem recognition (PBR)				0.571	0.839	0.742
In my opinion, the pandemic of COVID-19 is a problematic situation.	4.34	0.949	0.578			
Pandemic of COVID-19 is a serious national and social problem.	4.61	0.620	0.793			
Pandemic of COVID-19 must be solved immediately.	4.77	0.461	0.847			
Relevant stakeholders are required to overcome the pandemic instantly.	4.68	0.546	0.776			
Involvement recognition (IVR)				0.869	0.930	0.849
Pandemic of COVID-19 can significantly influence my life.	4.39	0.695	0.932			
Pandemic of COVID-19 can affect me and the people I care about.	4.46	0.728	0.932			
Situational motivation (SIM)				0.705	0.905	0.858
I always think about the pandemic of COVID-19.	3.55	0.933	0.736			
I keep a close watch on the COVID-19 pandemic.	3.64	0.914	0.833			
I want to have deeper understanding about the pandemic of COVID-19.	3.46	0.964	0.883			
I want to know better about the pandemic of COVID-19.	3.55	0.930	0.897			
COVID-19 anxiety (COA)				0.806	0.954	0.939
I am constantly worried about the pandemic of COVID-19.	3.50	1.071	0.827			
Pandemic of COVID-19 makes me worry about anything.	3.28	1.090	0.930			
The COVID-19 pandemic is stressing me out.	3.04	1.084	0.944			
The COVID-19 pandemic has me panicking.	2.92	1.075	0.929			
Pandemic of COVID-19 has me living in fear.	3.11	1.072	0.851			
Information seeking (INS)				0.809	0.927	0.881
I actively seek information about the COVID-19 pandemic on any media.	3.31	1.029	0.929			
I'm looking for the latest information regarding the COVID-19 pandemic.	3.36	1.024	0.890			
I purposely check the update information pertaining COVID-19.	3.08	1.094	0.877			
Information forwarding (INF)				0.861	0.949	0.919
I actively share information about the COVID-19 pandemic with others.	3.12	1.095	0.944			
I voluntarily provide information regarding the COVID-19 pandemic.	3.33	1.076	0.907			
I am actively disseminating information about the COVID-19 pandemic.	3.04	1.104	0.931			
Preventive behavior (PRE)				0.722	0.886	0.804
I avoid travelling during the pandemic of COVID-19.	3.74	0.964	0.743			
I avoid crowds during the pandemic of COVID-19.	4.18	0.818	0.918			
I maintain physical distance during the pandemic of COVID-19.	4.30	0.768	0.878			

SD, standard deviation; LF, loading factor; AVE, average variance extracted; CR, composite reliability; CA, Cronbach's Alpha.

Table 4. Direct and indirect effects of the model

Type	Effect	β	*p*-value	SE	f²
Direct	PBR → SIM	0.003	0.239	0.052	0.000
	IVR → SIM	0.262	<0.001	0.050	0.068
	SIM → INS	0.676	<0.001	0.047	0.476
	SIM → INF	0.536	<0.001	0.048	0.313
	SIM → COA	0.345	<0.001	0.049	0.119
	COA → INS	0.082	0.028	0.051	0.026
	COA → INF	0.141	0.001	0.051	0.045
	COA → PRE	0.095	0.016	0.051	0.014
	INS → PRE	0.232	<0.001	0.050	0.059
Indirect	PBR → SIM → COA	0.001	0.245	0.037	0.000
	IVR → SIM → COA	0.091	0.003	0.036	0.025
	PBR → SIM → INS	0.002	0.240	0.037	0.000
	IVR → SIM → INS	0.177	<0.001	0.036	0.025
	PBR → SIM → INF	0.002	0.242	0.037	0.000
	IVR → SIM → INF	0.141	<0.001	0.036	0.009
	COA → INS → PRE	0.019	0.151	0.037	0.003
	SIM → COA → INS	0.028	0.110	0.037	0.020
	SIM → COA → INF	0.049	0.046	0.036	0.028
	SIM → COA → PRE	0.190	<0.001	0.051	0.049
	PBR → SIM → COA → INS	0.000	0.250	0.030	0.000
	PBR → SIM → COA → INF	0.000	0.249	0.030	0.000
	PBR → SIM → COA → PRE	0.001	0.248	0.042	0.000
	IVR → SIM → COA → INS	0.007	0.201	0.030	0.001
	IVR → SIM → COA → INF	0.013	0.168	0.030	0.001
	IVR → SIM → COA → PRE	0.050	0.060	0.042	0.006
	SIM → COA → INS → PRE	0.007	0.207	0.030	0.002
	PBR → SIM → COA → INS → PRE	0.000	0.250	0.026	0.000
	IVR → SIM → COA → INS → PRE	0.002	0.237	0.026	0.000

PBR, problem recognition; IVR, involvement recognition; SIM, situational motivation; COA, COVID-19 anxiety; INS, information seeking; INF, information forwarding; PRE, preventive behavior; β, standardized path coefficient; SE, standard error; f², effect size.

(β=0.091, *p*=0.003) with small effect size; IVR to INS through SIM (β=0.177, *p*<0.001) with small effect size; IVR to INF through SIM (β=0.141, *p*<0.001) with very weak effect size; SIM to INF through COA (β=0.049, *p*=0.046) with small effect size; and SIM to PRE through COA (β=0.190, *p*<0.001) with small effect size.

5. DISCUSSION

The objective of this study was to test the mediating role of COA on INS, INF, and PRE among Indonesian mothers. Overall, the findings of this study did not fully support the effect sequence as described in STOPS. According to STOPS, PBR has a positive and significant effect on SIM. In contrast, the result of hypothesis testing suggests that PBR has no significant effect on SIM. There are several probable explanations: first, given that the pandemic has been going on for more than two years, mothers may have become accustomed to the existing situation; second, at the time the data was collected, 68 percent of
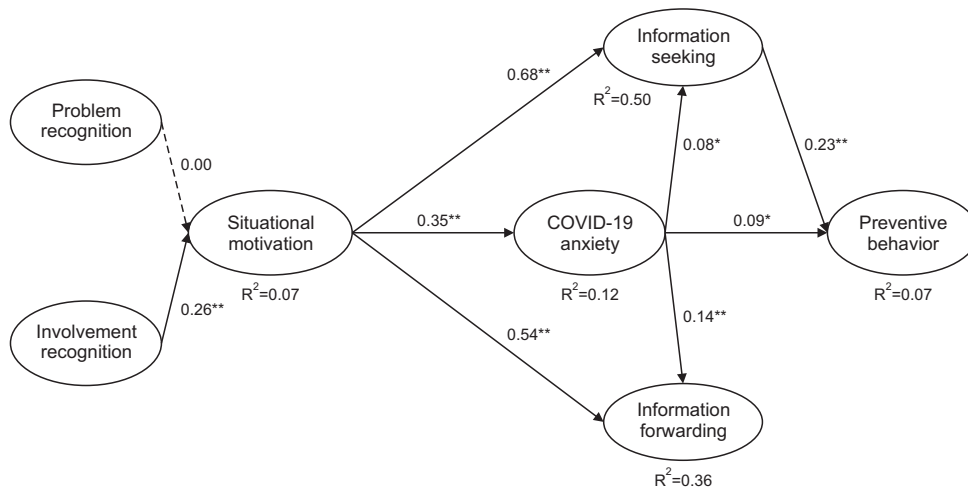
Fig. 2. The result of model testing. *p<0.05, **p<0.01.

the Indonesian population had received at least one vaccine dosage, and approximately 47 percent of the total population had been fully vaccinated (Institute for Health Metrics and Evaluation, 2022). As a result, mothers might not be motivated to know more about COVID-19. Even this result contrasts with the work of Kim and Grunig (2011), Shin and Han (2016), and Tao et al. (2021), which exhibit that PBR has a positive and significant effect on SIM; it also supports previous results which stated that there was no significant effect of PBR on SIM in the context of policy issues and corporate social responsibility campaigns (Chen et al., 2017; Lee et al., 2020). Amid conflicting findings, further studies are required to test the effect of PBR on SIM.

IVR was found to have a positive and significant effect on SIM. This result echoes prior study from Chon and Park (2021), and Shin and Han (2016). It means that when mothers perceive COVID-19 can affect themselves and their loved ones, they will be highly motivated to learn and understand better about COVID-19. In predicting SIM, IVR was found to be a strong predictor, supporting prior studies by Kim and Grunig (2011), and Shin and Han (2016). It demonstrated that mothers' perceptions of the possibility of an infectious disease could harm themselves and their family members, encouraging them to find out more about COVID-19. The higher level of IVR, the greater motivation that mothers have to understand more about the pandemic. Furthermore, this study also found that mothers' motivation was a significant trigger for mothers to seek and forward COVID-19-related information, supporting prior studies (Tao et al., 2021; Yan et al., 2018). When mothers are positively motivated in understanding the current health situation, they will be likely to seek and forward relevant information.

Results also showed that COA was a significant mediating variable between SIM and INF, and between SIM and PRE. With regards to information behavior, our model also identified COA as a positive predictor of INS and INF, indicating that the more anxious mothers feel about COVID-19, the more likely they look for and forward related information. This result resonates with previous work from Barattucci et al. (2020), suggesting that anxiety which was prompted by the public's perception on severity and susceptibility pertaining to COVID-19 had a strong predictive power on the public's health-related INS. In addition, one prior study found that anxiety led people to give information, particularly, to strangers on online media in order to reduce the level of anxiety (Lu et al., 2022). Similarly, mothers may expect that by seeking and forwarding pandemic-related information, their COA will decrease. In addition, results suggested that COA was also a significant predictor on PRE, indicating that when mothers are anxious about the current health situation, they are more likely to perform PRE, supporting prior research results (Alrubaiee et al., 2020; Kwok et al., 2020; Magdy et al., 2021). Mothers might expect that by doing PREs, they might reduce the possibility of being infected, leading them to manage their anxiety.

Finally, INS was found to have a positive impact on PRE, implying that active information behaviors encouraged people to engage in preventive action. This finding corroborates previous research suggesting that parents' INS activity affected their children's acceptance of the H1N1 vaccine (Jung et al., 2013). Having adequate knowledge about the current situation, mothers will remain attentive, aware, and motivated to confidently and deliber-

ately perform their role in ensuring the well-being of their family members.

6. CONCLUSION

As the first study using STOPS to predict the effect of COA on information and PRE among Indonesian mothers, this study provides a contribution theoretically and in practice. First, our study extends the literature of STOPS by adding COA as recommended by previous studies, revealing that COA is a significant predictor of INS and PRE and a significant mediator between SIM and INF, as well as between SIM and PRE. Moreover, this study also tests the influencing power of INS on PRE. From a practical point, the model can guide risk communicators and health professionals in adjusting and delivering pandemic information, especially to mothers. As a main caretaker of the family, mothers' information behavior and compliance on PRE are crucial during the pandemic to ensure the wellbeing of family members, particularly during a health emergency.

This study has some limitations. First, this current research examines the influencing factor of COA on mothers' information and PREs regardless of mothers' ages and their children's ages. As a consequence, more research on mothers' perspectives and behaviors based on their age and the age of their children is proposed. Mothers with small children may hold different views than mothers with mature children. Second, to expand understanding about the impact of related variables on information behavior, future research may involve together men and women, instead of women solely. Third, considering that the predicting power of variables on SIM and PRE is small, future research may involve another perceptual variable. In relation to the third point, rather than evaluating only two active elements of communicative action (INS and INF), future research may include another active and passive dimension of communicative action, such as information evaluation, information acceptance, and information attendance. Next, given the contrasting results on the effect of PBR on SIM, researchers are advised to examine the theoretical framework in other contexts. Finally, future study can anticipate the impact of other psychological cognitive factors on information and preventative behavior, such as weariness and fear.

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CONFLICTS OF INTEREST

No potential conflict of interest relevant to this article was reported.

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