ORIGINAL ARTICLE

Development and Validation of a Questionnaire in Indonesia to Assess General Public's Knowledge, Attitude, Practices, and Trust in Social Media

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ABSTRACT

Introduction: COVID-19 infections could grow due to lack of understanding of the virus. More ever, social media is a supply of fake news. However, there is no validated instrument for assessing social media user's knowledge and trust in COVID-19 information. The psychometry of social media users' knowledge, attitudes, practices in COVID-19 (KAPCOV-19), and trust in social media in Indonesia is being validated in this study. **Methods:** The developed instrument consists of 13 items in trust in the social media domain, 18 items in the knowledge domain, six items in the attitude domain, and 12 items in the practice domain. This questionnaire received expert validation before being administered to 1129 respondents who are over 18 years old, who actively use social media. The validity was examined using the Convergent Validity, discriminant validity and average variance extracted (AVE) methods. For reliability, internal consistency was examined by means of composite reliability and Cronbach's alpha methods. **Results:** The Smart PLS 3.28 output results show that Convergent validity and discriminant validity are above 0.7. In addition, the results of the AVE value are also above 0.5; this means that all latent variables used in this study are valid. All constructs have composite reliability and Cronbach's alpha above 0.70. it can be concluded that the construct has good reliability. **Conclusion:** This instrument can be used to examine KAPCOV-19 and Trust in social media. The KAP-COVID-19 is a reliable tool for assessing knowledge, attitudes, and behaviours related to COVID-19.

Keywords: COVID-19. Knowledge; Reliability; Social Media, Validity.

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INTRODUCTION

After more than a year and a half, the COVID-19 pandemic was declared very dangerous globally by the World Health Organization (1). On October 08 2021, 236,599,025 global cases of COVID-19 were recorded in more than 200 countries, and there were 4,831,486 global death (2). Based on information from the COVID-19 task force website, Indonesia received a second wave last July and peaked on July 12 2021, which listed 350,357 confirmed cases of COVID-19 (3).

The wide spread of COVID-19 forced the government to take strategic policies as much as possible to limit human-to-human transmission through the promotion of health protocols. Misinformation or fake news is a

big challenge in handling the COVID-19 outbreak (4). It can affect ineffective treatment behaviour or be apathetic by deliberately not wearing masks and other health protocols (5). (6) states that trust is built on three dimensions: ability, benevolence, and integrity. In addition, there are other dimensions of trust such as identification (7), social media efficacy (8), and social media concern (9). Therefore, it is crucial to assess the level of public trust in social media and knowledge. attitude and practice (KAP) in the preventing the transmission of COVID-19.

The most common approach to the assessment of these items is to use a questionnaire. Currently, there is still no validated questionnaire to review the public's trust about COVID-19 information, while instruments of KAPCOV-19 need to be evaluated and modified again to make it easier to use (10–14). Furthermore, the existence of a validated instrument of public trust in information on social media and the KAPCOV-19 allow

various studies to measure the government's health

promotion and education. As a result, the KAPCOV-19 instrument can assess people regarding the risk of spread of COVID-19, while Trust in social media instrument can evaluate the public literacy in preventing COVID-19. Hence, this study aimed to develop questionnaires efficiency of Indonesians in trusting information abpout COVID-19 on social media and KAPCOV-19 in preventing COVID-19, including development, validation and reliability in assessing Indonesian people.

MATERIALS AND METHODS

Two phases were passed in developing the questionnaires: literature review used for generated items and validated items using the convergent validity, discriminant validity and average variance extracted (AVE) methods. For the reliability phase, internal consistency was examined by composite reliability and Cronbach's alpha methods. Item Generation Development Phase

The early phase of developing the instrument was a literature review by collecting international journals and websites from the COVID-19 task force in Indonesia. Based on these references, relevant draft indicators and items questionnaires were formed from the Trust in social media information and KAP for the prevention of COVID-19. Then, the questionnaires were reviewed by a panel of experts consisting of Community nurses, Adult nurses, mental health nurses and statisticians. The Experts gave their opinion by giving a content Validity index (CVI) by means of scoring every question, from 1 to 4, in the expert judgment form. The scoring criteria consisted of simplicity, clarity, representativeness, and relevance contents (15). Next, we took items with a CVI exceeding 0.80, which indicated a high level of agreement from experts (16).

The trust in social media questionnaire consists of four indicators which consist of 13 items, including identification (three-items; X2.1), social media efficacy (two-items; X2.2), ability (four-items; X2.3), integrity (two-items; X2.4), Benevolence (two-items; X2.5), and social media concern (one-item; X2.6). While the knowledge has 6 indicators, including 18 items, namely aetiology (one-item; X3.1), signs and symptoms (two-items; X3.2), risk groups (two-items; X3.3), modes of transmission (seven-items; X3.4), treatment (one-item; X3.5) and preventive (seven-item; X3.6). The attitude section comprises two indicators, consisting of six items (X4) exploring negative beliefs and fears regarding COVID-19 Lastly. The Practice one has five indicators which consist of 12 items (Y1) to measure the practice of Indonesian people in suppressing the spread of COVID-19. The items are self protection (five-items; Y1.1), physical distancing (one-item; Y1.2), social protection (two-items; Y1.3), nutrition (two-items; Y1.4), activity and rest patterns (two items; Y1.5). Each all item in the questionnaire part can be responded to by one of three responses, which is often/sometimes/never for the trust in social media, right/don't-know/wrong for the knowledge, agree/not-sure/disagree for the attitudes and always/sometimes/never for the practices.

Study design and data collection

This study used a cross-sectional online survey (Cresswell). Respondents were obtained using the Purpose sampling technique. This research was conducted from October 20, 2020, to October 22, 2020. The questionnaire was distributed online through the Google platform called Google form, sent through the WhatsApp group and the researcher's social media posts. The inclusion criteria of this study were all Indonesian residents, over 18 years old, who actively use social media. The candidate of respondent was given a preliminary question asking about the frequency of use social media.

Meanwhile, the exclusion criteria of this study were Indonesians who were illiterate and not currently living in Indonesia. The ethical test of this research was obtained from the Faculty of Medicine, Andalas University with No. 341 / KEP / FK / 2020. All respondents have received detailed explanations from the research team before consenting to be part of this study. Moreover, all the participants have been treated anonymously, their names are not provided, and data collected digitally cannot be accessed by anyone without permission using a computer password.

Statistical analysis

The Participants responses were collected in an Excel file for statistical analysis. A pretesting of questionnaires study involving 30 respondents revealed a construct validity test; this instrument variable was retested the construct reliability was measured by composite reliability and Cronbach's alpha. The following are the results of testing composite reliability and Cronbach's alpha from Smart PLS 3.28. The construct validity test in the PLS indicator reflective model is carried out through convergent validity, discriminant validity and average variance extracted (AVE) tests. The reliability test is used to measure the consistency of the measuring instrument in measuring the concept, or it can also be used to measure the consistency of the respondent in answering the instrument. The instrument is said to be reliable if a person's answer to the statement is consistent or stable over time (17) . A construct is declared reliable if it has a composite reliability value above 0.70 and Cronbach's alpha above 0.70. The item will be considered deleted if it can reduce the reliability of the instruments (18). In addition, before being given to 1129 respondents, this questionnaire was validated by experts (19)

RESULT

The Indonesian version of the questionnaire was validated for language and content by five experts. Content validation of this questionnaire was deemed

Content validation of this questionnaire were deemed satisfactory to the expert panel, scoring that all items have a CVI > 0.80 for all domains, with an average CVI of 0.98-0.99. The Table 1 questionnaire items only have minor revisions, so the number of improvements were made based on suggestions of experts in order to improve the face validity of the instrument.

Convergent Validity Test
The value of convergent validity is the value of the loading factor on the latent variable with its indicators. Table I is a table of loading factors in which each indicator is calculated using PLS.

From Table I, it can be seen that all indicators are already above 0.7 to continue with other tests. In addition to looking at the value of the outer loading, Table II can also see the discriminant value of the cross-loading, where an enormous correlation value upper than 0.7 is in the indicators forming each latent variable.

Table I: Frequency of esponses regarding Trust in Social Media and KAP-COVID 19 Instruments

Domain	Question	Answer			Statistical measurement			
		Often	Sometimes	Never	min	max	mean	std
		Freq (n) %	Freq (n) %	Freq (n) %				
Trust in Social Media	**Identification**							
	1. Seeking information related to the prevention of covid transmission 19	620 (54,9%)	469 (41,5 %)	40 (3,5%)	1	3	2.51	0.57
	2. Looking for tips related to the prevention of covid transmission 19	649 (57,5%)	429 (38 %)	51 (4,5%)	1	3	2.53	0.58
	3. Interact and exchange opinions with others regarding the prevention of transmission of covid 19	578 (51,2%)	469 (41,5%)	82 (7,3%)	1	3	2.44	0.63
	4. Social media efficacy							
	5. follow tips on preventing covid transmission 19	652 (57,8%)	447 (39,6%)	30 (2,7%)	1	3	2.55	0.55
	ability							
	6. Easy to get information related to the prevention of covid transmission 19	868 (76,9%)	249 (22,1%)	12 (1,1%)	1	3	2.76	0.45
	7. Get a lot of new information related to preventing the transmission of covid 19	828 (73,3%)	287 (25,4%)	14(1,2%)	1	3	2.72	0.48
	8. Get clear information related to preventing the transmission of covid 19	558 (49,4%)	545 (48,3%)	26 (2,3%)	1	3	2.47	0.54
	9. More confident in preventing the transmission of covid 19	559 (49,5%)	525 (46,5%)	45 (4%)	1	3	2.46	0.57
	Integrity							
	10. Believe in information on preventing the transmission of covid 19	345 (30,6%)	750 (66,4%)	34 (3%)	1	3	2.28	0.51
	11. Do you believe social media sourced from the government about preventing the transmission of covid 19?	659 (58,4%)	418 (37%)	52 (4,6%)	1	3	2.54	0.58
	benevolence 6 dan 8							
	12. feel the positive impact of social media in increasing knowledge regarding the prevention of covid transmission 19	739 (65,5%)	366 (32,4%)	24 (2,1%)	1	3	2.63	0.52
	13. It was helped by the existence of social media because social media made it easier and provided instructions for me in carrying out the prevention of covid 19 transmission	846 (74,9%)	265 (23,5%)	24 (1,6%)	1	3	2.73	0.48
	Concern							
	14. realize the importance of implementing prevention of covid transmission 19	846 (72,9%)	291 (25,8%)	15 (1,3%)	1	3	2.72	0.48
	Question	Right	Don't know	Wrong	min	max	mean	std

Table I: Frequency of esponses regarding Trust in Social Media and KAP-COVID 19 Instruments (Cont.)

Do-main	Question	Answer			Statistical measurement			
		Often Freq (n) %	Some-times Freq (n) %	Never Freq (n) %	min	max	mean	std
Knowl-edge	**etiology**							
	1. COVID-19 is a disease caused by the corona virus	1113 (98,6%)	7 (0,6%)	9 (0,8%)	1	3	2.54	0.58
	Sign and Symptom							
	2. The main clinical symptoms of COVID-19 are fever, fatigue, cough and muscleaches	1056 (92,6%)	15 (1,3%)	68 (0,8%)	1	3	2.87	0.49
	3. There are also people with COVID-19 who do not show any symptoms, which iscalled positive confirmation without symptoms	1088 (96,4%)	15 (1,3%)	26 (2,3%)	1	3	2.94	0.32
	Risk Group							
	4. Older people with COVID-19 are more likely to have more severe conditions than others	1097 (97,2%)	18 (1,6%)	14 (1,2%)	1	3	2.96	0.25
	5. People with COVID-19 who have chronic diseases such as diabetes, heart diseaseand obesity have more severe conditions than others	1069 (94,7%)	34 (3%)	26 (2,3%)	1	3	2.92	0.34
	Mode of Transmission							
	6. Children and adolescents do not need to make efforts to prevent COVID-19 infection because they have good immunity	1034 (91,6%)	20 (1,8%)	75 (6,6%)	1	3	2.85	0.51
	7. People who have high immunity cannot be infected with COVID-19	707 (62,6%)	52 (4,6%)	370 (32,8%)	1	3	2.30	0.93
	8. People with COVID-19 who don't show symptoms cannot pass the virus infectionto others	916 (81,1%)	33 (2,9%)	180 15,9%)	1	3	2.65	0.74
	9. COVID-19 spreads through the respiratory droplets of an infected person	1025 (90.8%)	29 (2,6%)	75 (6,6 %)	1	3	2.84	0.52
	10. The bodies of people with COVID-19 who have not yet been buried can be asource of the spread of the COVID-19 virus	894 (79,2%)	87 (7,7%)	148 (13,1%)	1	3	2.66	0.70
	11. The buried bodies of people with COVID-19 can be a source of the spread of theCOVID-19 virus	879 (77,9%)	123 (10,9%)	127 (11,2%)	1	3	2.67	0.67
	12. COVID-19 cannot penetrate the cloth masks commonly used by the general public	627 (55,5%)	124 (11%)	378 (33,5%)	1	3	2.22	0.92
	13. COVID-19 only spreads through objects, not through the air	813 (72%)	77 (6,8%)	239 (21,2%)	1	3	2.51	0.82
	Treatment							
	14. There is no effective cure for COVID-19, but early symptom treatment and intensive care can help people with COVID-19 recover	1044 (92,5%)	54 (4,8%)	31 (2,7%)	1	3	2.90	0.38
	Preventive							
	15. To prevent COVID-19 infection, we must avoid traveling to crowded places such as markets and tourist attractions and avoid using public transportation	1099 (97,3%)	14 (1,2%)	16 (1,4%)	1	3	2.96	0.26
	16. Not traveling between cities can prevent the spread of COVID-19	1075 (95,2%)	15 (1,3%)	39 (3,5%)	1	3	2.92	0.38
	17. One of the ways to prevent the transmission of the COVID-19 virus is by nottouching your face	1040 (92,1%)	33 (2,9%)	56 (5%)	1	3	2.87	0.46
	18. Isolation and treatment of people infected with the COVID-19 virus is an effectiveway to reduce the spread of the virus	1104 (97,8%)	14 (1,2%)	11 (1%)	1	3	2.97	0.22

Table I: Frequency of esponses regarding Trust in Social Media and KAP-COVID 19 Instruments

Domain	Question	Often Freq (n) %	Sometimes Freq (n) %	Never Freq (n) %	min	max	mean	std
Attitudes	**Question**	Agree	Not Sure	Dis-agree Freq	min	max	mean	std
	Perceived severity							
	1. Keeping up with the development of information about the number of COVID-19 cases is important for the community	1045 (92,6%)	77 (6,8%)	7 (0,6%)	1	3	2.92	0.29
	2. Keeping up with the development of information about the government's appeal on efforts to prevent COVID-19 is important for the community	1098 (97,3%)	27 (2,4%)	4 (0,4%)	1	3	2.97	0.19
	3. People with COVID-19 who are self-isolating means that they have shown their responsibility in preventing transmission of COVID-19	1112 (98,5%)	17 (1,5%)	0 (0%)	2	3	2.98	0.12
	fear							
	4. After knowing the development of information about the number of COVID-19 cases I was worried / scared	553 (49%)	451 (39,9%)	125 (11,1%)	1	3	1.62	0.68
	stigma							
	5. All people with COVID-19 are people who violate the government's appeal in efforts to prevent the transmission of COVID-19	315 (27,9%)	588 (52,1%)	226 (20%)	1	3	2.08	0.69
	People with COVID-19 should not be given a negative stigma in society	1074 (95,1%)	27 (2,4%)	28 (2,5%)	1	3	2.93	0.34
Practices	**Question**	Always	Sometimes	Never	sum	min	max	mean
	Self protection							
	1. Wear a mask when going to crowded places	1095 (97%)	30 (2,7%)	4 (0,4%)	1129	1129	1	3
	2. Use the handsanitizer when traveling to crowded places	828 (73,3%)	277 (24,5%)	24 (2,1%)	1129	1129	1	3
	3. I wash my hands with soap after traveling to crowded places	977 (86,5%)	146 (12,9%)	6 (0,5%)	1129	1129	1	3
	4. I keep more and more clean the place where I live	964 (85,4%)	161 (14,3%)	4 (0,4%)	1129	1	3	2.85
	5. I am increasingly diligent in washing my hands using soap	1017 (90,1%)	109 (9,7%)	3 (0,3%)	1129	1	3	2.90
	Physical distancing							
	6. I keep my distance or physical distancing when in a crowd	926 (82%)	197 (17,4%)	6 (0,4%)	1129	1	3	2.81
	Social protection							
	7. I immediately changed the clothes I wore before entering the house and made contact with family members	733 (64,9%)	355 (31,4%)	41 (3,6%)	1129	1	3	2.61
	8. I educate people around me with knowledge about COVID-19 and its prevention efforts	643 (57%)	455 (40,3%)	31 (2,7%)	1129	1	3	2.54
	Nutrition							
	9. Eat vegetables and fruit	754 (66,8%)	372 (32,9%)	3 (0,3%)	1129	1	3	2.67
	10. Take vitamins or supplements to increase endurance	433 (38,4%)	576 (51%)	120 (10,6%)	1129	1	3	2.28
	Activity and rest patterns							
	11. Get enough sleep rest	676 (59,9%)	444 (39,3%)	9 (0,8^)	1129	1	3	2.59
	12. I am diligent in exercising	273 (24,2%	775 (68,6%)	81 (7,2%)	1129	1	3	2.17

Table II: Cross Loading Value on Discriminant Validity score of KAP about preventing in Covid 19 and Trust in Social Media.

	Knowledge	Practice	Attitude	Trust in the social media
X2.1	0.354	0.552	0.672	0.733
X2.2	0.286	0.763	0.868	0.907
X2.3	0.393	0.885	0.979	0.975
X2.4	0.289	0.692	0.902	0.899
X2.5	0.333	0.844	0.963	0.942
X2.6	0.407	0.876	0.939	0.937
X3.1	0.863	0.358	0.313	0.336
X3.2	0.885	0.342	0.270	0.302
X3.3	0.812	0.314	0.318	0.353
X3.4	0.768	0.420	0.250	0.245
X3.5	0.827	0.348	0.365	0.378
X3.6	0.796	0.431	0.244	0.250
X4.1	0.393	0.885	0.979	0.975
x4.2	0.289	0.692	0.902	0.899
x4.3	0.333	0.844	0.963	0.942
y1.1	0.407	0.876	0.939	0.937
y1.2	0.336	0.839	0.701	0.711
y1.3	0.304	0.869	0.673	0.676
y1.4	0.331	0.832	0.563	0.560
y1.5	0.504	0.859	0.692	0.710

Average Variance Extracted (AVE)

From Table III, it can be seen that the AVE value is above 0.5. This means that all latent variables used in this study are valid because they have met the recommended AVE value (> 0.5) (20).

Table III: Average Variance Extracted Score of Preventing In Covid 19 And Trust in Social Media

	Average Variance Extracted (AVE)
Knowledge	0.683
Practice	0.731
Attitude	0.900
Trust in the social media	0.814

Composite Reliability and Cronbach Alpha

Table IV demonstrated that all constructs have composite reliability and Cronbach's alpha value above 0.70. So it can be concluded that the construct has good reliability (20).

Table IV: Composite Reliability And Cronbach Alpha of Preventing In Covid 19 And Trust in Social Media

	Cronbach's Alpha	Composite Reliability
Knowledge	0.906	0.928
Practice	0.909	0.932
Attitude	0.944	0.964
Trust in the social media	0.953	0.963

Source: Output SmartPLS 3.28 results processed by researchers.

DISCUSSION

Unprecedented disruption to human society has been by the COVID-19 pandemic. A wide range of misinformation has propagated across social media, resulting in an infodemic. There were excessive amounts of misinformation, disinformation, and rumours that challenged identifying reliable information sources (21). Public health Trust increment is a vital strategy to prevent the spread of COVID-19. Using multiple channels, including digital literacy content, is added to public health campaigns to reduce the knowledge gap (22). Therefore, it is essential to examine public trust to counter and prevent hoaxes from circulating among the public (19,23). Through this study, we obtain the validation results of the instrument's reliability are considered very good statistically.

The reliability and validity of the KAPCOV-19 and trust in social media instruments among Indonesians were explored in this study, translating the original English version into Indonesian. The KAPCOV-19 displayed remarkable internal consistency with a Cronbach's alpha of more than 0.90. The internal consistency of the KAPCOV-19 was much higher than that of the original English version (Cronbach's = 0.65)(14) and slightly better than that of the prior Indonesian version Cronbach's values for the knowledge and attitude domains were 0.87 and 0.82, respectively (24) and the Chinese version of the (KAP) towards COVID-19(Cronbach's = 0.71) (25). As a result, the KAPCOV-19 surveys demonstrated high-reliability figures.

In addition, convergent validity constantly refers to different measurements of a particular construct that converge and share a large proportion of variance or, in other words, the significant correlation between the measures designed to measure the same construct reflected by it. Therefore, the factor loading of average variance extracted (AVE) was used to determine convergent validity (26,27). This research reveals that the AVE's attitude variable reaches 0.9, making it

the highest value. The attitude variable shows many variations in the multiple items explained by the latent variable, which is comparable to the proportion of variance explained in factor analysis. The AVE ranges between 0 and 1, whereby the adequate value exceeds 50 suggesting convergent validity (28,29).

According to the construct validity result and reliability construct, the components and indicators which form the KAPCOV-19 are variable and valid. It shows all the components and indicators which can reflect thhose instrument. The dominant component reflecting the subjective KAPCOV-19 is in the attitude domain, especially in the attitude domain. At the same time, in the trust of social media questionnaire, there is a question regarding the perceived severity component with the loading factor value above 0.9.

When it comes to discriminant validity, this refers to a construct's ability to distinguish itself from other constructs. According to Hair et al. (2010), high discriminant validity indicates that a construct is distinctive and distinct from others. That is to say, a latent variable should explain the variance of its indicators better than the variance of other variables. This means that each visible variable should only represent one latent variable. Moreover, Hair et al. (2010) suggested that cross-loadings indicate a discriminant validity problem. The final items in the knowledge section show a significant correlation value higher than 0.7 in the indicators forming each latent variable. Furthermore, validated KAPCOV-19 instruments are required for researchers to investigate these circumstances. In this situation, the KAPCOV-19 questionnaire, which is validated in this study, can be utilized to investigate the difficulties encountered in implementing health protocols during the COVID-19 pandemic.

In our research, we discovered a few obvious limitations. First, although the sample was drawn from 6 races of Indonesian citizens using a purposive sampling approach, an additional study is still needed to include participants from different ethnicities to make the population more heterogeneous. Secondly, this study has no group of elderly, even though the elderly are the most vulnerable group who died from COVID-19.

CONCLUSION

Social media can be an effective tool for health promotion to prevent the spread of COVID-19. The community has the proper Knowledge and attitude toward preventing that pandemic. The government also needs to intensify health promotion on social media. This research successfully validated and developed public trust in social media and KAPCOV-19. Our findings conclude that these items achieve excellent reliability in terms of internal consistency and have good content, convergent, and discriminant validity. Its construct

validity also indicates that it is a unidimensional instrument. Therefore, those instruments are a valid tool to assess the level of trust, need, and adherence to COVID-19 prevention in Indonesia.

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