Kesmas

Volume 18
Issue 5 *Special Issue 1, July*

Article 7

7-31-2023

Infodemic, Health Promotion Efforts, and Preventive Behavior During the COVID-19 Pandemic in Indonesia: A Quantitative Analysis Study

Desak Putu Y Kurniati
Department of Public Health and Preventive Medicine, Faculty of Medicine, Udayana University, desak.yuli@unud.ac.id

Putu Ayu Indrayathi
School of Health Sciences, University of Debrecen, Debrecen, Hungary, pa_indrayathi@unud.ac.id

Putu Erma Pradnyani
Department of Public Health and Preventive Medicine, Faculty of Medicine, Udayana University, pradnyanierma@gmail.com

Luh Putu S Ulandari
Center for Public Health Innovation, Faculty of Medicine, Udayana University, sinthyaulandari@unud.ac.id

Pande Putu Januraga
Center for Public HealthInnovation, Faculty of Medicine, Udayana University, januraga@unud.ac.id

See next page for additional authors

Recommended Citation

Kurniati D , Indrayathi P , Pradnyani P , et al. Infodemic, Health Promotion Efforts, and Preventive Behavior During the COVID-19 Pandemic in Indonesia: A Quantitative Analysis Study. *Kesmas*. 2023; 18(5): 37-42
DOI: 10.21109/kesmas.v18isp1.7034
Available at: https://scholarhub.ui.ac.id/kesmas/vol18/iss5/7

Infodemic, Health Promotion Efforts, and Preventive Behavior During the COVID-19 Pandemic in Indonesia: A Quantitative Analysis Study

Authors

Desak Putu Y Kurniati, Putu Ayu Indrayathi, Putu Erma Pradnyani, Luh Putu S Ulandari, Pande Putu Januraga, Monika Sri Yuliarti, and Karina Samaria Santosa

Kurniati, *et al. Kesmas: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal)*. 2023; 18 (Special Issue 1): 37-42
DOI: 10.21109/kesmas.v18isp1.7034

Kesmas: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal)

Infodemic, Health Promotion Efforts, and Preventive Behavior During the COVID-19 Pandemic in Indonesia: A Quantitative Analysis Study

Desak Putu Y Kurniati[1,2*], Putu Ayu Indrayathi[1,2,5], Putu Erma Pradnyani[1,2], Luh Putu S Ulandari[1,2], Pande Putu Januraga[1,2], Monika Sri Yuliarti[3], Karina Samaria Santosa[4]

[1]Department of Public Health and Preventive Medicine, Faculty of Medicine, Udayana University, Badung, Indonesia, [2]Center for Public Health Innovation, Faculty of Medicine, Udayana University, Badung, Indonesia, [3]Department of Communication, Faculty of Social and Political Science, Sebelas Maret University, Surakarta, Indonesia, [4]Independent Public Health Consultant, Alumni of Faculty of Public Health, Universitas Indonesia, Depok, Indonesia, [5]Doctoral Program, School of Health Sciences, University of Debrecen, Debrecen, Hungary

Abstract

The coronavirus disease 2019 (COVID-19) is the first pandemic in history where technologies and social media are used on a large scale to make people safe, informed, productive, and connected. At the same time, these technologies enabled the rise of the infodemic, which endangered pandemic control. This study aimed to assess COVID-19 information exposure in the community, the efforts to find related information in online media, and COVID-19 preventive behavior. A cross-sectional study was conducted with 909 participants in Indonesia using the consecutive sampling technique. Data were collected using a questionnaire distributed through social media (WhatsApp, Instagram, and Facebook) and analyzed using univariate analysis, bivariate analysis (Chi-square test), and multivariate analysis (multiple logistic regression). The results showed that about 838 (92.2%) participants said they often or always obtain information about COVID-19 online, 662 (72.8%) participants stated that information from online sources increased their knowledge of the disease, and 728 (80.1%) said that online information enabled them to make preventive efforts. Marital status (AOR = 1.81, p-value = 0.002) and perceived susceptibility (AOR = 1.42, p-value = 0.011) were the most influential factors for COVID-19 preventive behaviors. Information sources and channels frequently accessed by the community must be professionally managed by the government as valuable tools for mitigating an epidemic or pandemic.

Keywords: channel of information, health promotion, mitigation, preventive behavior

Introduction

During the coronavirus disease 2019 (COVID-19) pandemic, abundant related information is spread. This condition is often referred to as an infodemic.[1] An infodemic can cause public health problems by affecting the effectiveness of programs or initiatives aimed at citizens' health, campaigns, awareness, and welfare.[2,3] People use the internet as the main reference to receive the most up-to-date information on COVID-19.[4] The new media theory by Mark Poster proposes that Web 2.0 and its supporting technologies—primarily related to an internet connection—have a unique character that can alter human communication.[5] It can further expand the flow of information through social media because people can now freely become information providers themselves, as one of the characteristics of new media is that they are decentralized and user-generated (e.g., information sources do not have to come from government or mass media companies but could also be generated from the people who further spread the information they attain).[5] Another question for public health is whether the infodemic generally protects people through its information.

Online media, especially social media, is one of the leading platforms available for health promotion.[6] Online media has become one of the channels used to change behavior, but changing behavior is complex. The Health Belief Model explains how people can undertake preventive behavior as instructed.[7] This model shows the importance of seeing how far the information attained can awaken perceived susceptibility and severity in this pandemic.[7] Thus, this study aimed to investigate information exposure in the community, the efforts to find information in online media, and preventive behaviors during the COVID-19 pandemic in Indonesia.

Method

A cross-sectional online study was performed to assess COVID-19 information exposure from online media, the efforts of people to seek information, and the determinants of prevention behaviors for COVID-19. All participants were selected using consecutive sampling under the following inclusion criteria: an Indonesian citizen

Correspondence: Desak Putu Y Kurniati, Department of Public Health and Preventive Medicine, Faculty of Medicine, Udayana University, Bali 80232, Indonesia, Email: desak.yuli@unud.ac.id, Phone: +62 812-9080-2144*

Received : June 23, 2023
Accepted : July 22, 2023
Published: July 31, 2023

aged at least 18 years old, lived in Indonesia during the data collection period, and willing to participate as stated in informed consent.

The population number was attained by Statistics Indonesia in 2010 (237,641,326 people).[8] The minimum sample size was calculated with the formula using OpenEpi version 3 with a confidence interval (CI) of 95%, resulting in 1,083 respondents. To anticipate incomplete surveys, added 10%; therefore, the total minimum sample was 1,191 participants.

The data were collected using a questionnaire addressing: 1) the demographic characteristics of the participant, including sex, origin, residence, age, marital status, education, and occupation; 2) efforts to seek out information, sources of information, the information sought, and responses and feelings about the information; 3) knowledge of COVID-19 transmission, assessed by 16 items ("correct," "incorrect," or "do not know"); 4) perceived benefits of information and perceived severity and perceived susceptibility of COVID-19, assessed by 11 items using a Likert scale ("strongly agree," "agree," "hesitate," "disagree," or "strongly disagree"); and 5) preventive behavior for COVID-19, assessed by 10 items ("always," "often," "sometimes," or "never").

These variables were assessed using the median point, resulting in two categories for knowledge (poor and good), perceived benefits to information (beneficial and not beneficial), perceived severity of COVID-19 (did not trigger fear and triggered fear), perceived susceptibility to COVID-19 (susceptible and not susceptible), and preventive behavior (poor and good). The demographic characteristics of the participants, knowledge, and perception of COVID-19 became the independent variables. Preventive behavior for COVID-19 became the dependent variable. Referring to the definition of infodemic from the World Health Organization,[1,9] this study categorized participants who said they often or always get information on COVID-19 online as experiencing an infodemic. Conversely, if participants stated that they had never or rarely been exposed to information on COVID-19, they were not in the infodemic category. The questionnaires were tested on 22 respondents for validity (Pearson's correlation) and reliability (Cronbach's alpha >0.60).

The data were collected online and distributed through social media (WhatsApp, Instagram, and Facebook) during the second through fourth weeks of July 2020. Invitations to take part in the survey were distributed through social media. The eligible participants were then asked to complete the questionnaire. They were also asked to share the questionnaire link with others. The questionnaire link distribution continued until the required number of samples was met.

The data were analyzed using free version of SPSS version 25. Descriptive statistics were used for the frequency, proportion, mean, median, and standard deviation. The Chi-square test was used to examine the independent and dependent variables' relationship and identify the significant factors (p-value<0.05). The significant factors were then included in the multivariate analysis (binary logistic regression model) to determine the predictors of COVID-19 preventive behavior, indicated by the adjusted odds ratio (AOR) and a p-value of <0.05.

Results

Of the 909 participants, the majority were female (76.3%), from Bali (53.9%), living in urban areas (68.2%), finished with their undergraduate studies (45%), married (49.9%), working in the private sector (31.5%), and aged 21–30 years old (51.59%) (Table 1) (see Supplementary Files in Availability of Data and Materials).

About 92.2% of the participants said they often or always obtain information on COVID-19 online. For information references, 80.1% of participants stated that they receive information from official government sources and 59.3% from study articles. The preferred forms of COVID-19-related information were infographics (56.4%), video (39.8%), and audio (3.7%). For information sharing, 39.9% of the respondents rarely did it, 27.8% sometimes, 18.8% often, 11.1% never, and 6.4% very often (see Supplementary Files in Availability of Data and Materials).

This study showed that information seeking was done on conventional online news portals (44.9%), non-conventional online news versions (34.0%), and online chat applications (35.0%). Information seeking through social media was done very often (42.2%). Frequently sought COVID-19-related information was about pre-

Table 1. Participants' Demographic Characteristics (n = 909)

Variable	Category	n	%
Sex	Male	215	23.7
	Female	694	76.3
Origin	Western Indonesia	320	35.2
	Central and Eastern Indonesia	589	64.8
Residence	Rural	289	31.8
	Urban	620	68.2
Age	≤20 years	78	8.6
	21–30 years	469	51.6
	31–40 years	204	22.4
	≥40 years	158	17.4
Marital status	Single	442	48.6
	Married	467	51.4
Education	Primary education	205	22.6
	Higher education	704	77.4
Occupation	Student	195	21.5
	Unemployed	91	10.0
	Private sector	286	31.5
	Civil servant	211	23.2
	Others (farmers, teachers, lecturers, drivers, and others)	126	13.9

Table 2. Preventive Behavior for COVID-19 Based on Demographic Characteristics, Knowledge, and Perception (n = 909)

Variable	Category	Preventive Behavior for COVID-19		p-values
		Good (n = 456) (≥Median)	Poor (n = 453) (<Median)	
Sex	Male	101 (46.98)	114 (53.02)	.
	Female	355 (51.15)	339 (48.85)	0.285
Education	Primary education	91 (44.39)	114 (55.61)	.
	Higher education	365 (51.85)	339 (48.15)	0.061
Origin	Western Indonesia	154 (48.13)	166 (51.88)	.
	Central and Eastern Indonesia	302 (51.27)	287 (48.73)	0.365
Residence	Urban	149 (51.56)	140 (48.44)	.
	Rural	307 (49.52)	313 (50.48)	0.567
Occupation	Student	82 (42.05)	95 (45.02)	0.009
	Unemployed	48 (52.75)	43 (47.25)	0.721
	Others	71 (56.35)	55 (43.65)	0.806
	Private sector	139 (48.60)	147 (51.40)	0.160
	Civil Servant	116 (54.98)	95 (45.02)	.
Marital status	Single	190 (42.99)	252 (57.01)	.
	Married	266 (56.96)	201 (43.04)	0.000
Age	≤20 years	29 (37.18)	49 (62.82)	.
	21–30 years	231 (49.25)	238 (50.75)	0.050
	31–40 years	96 (47.06)	108 (52.94)	0.136
	≥40 years	100 (63.29)	58 (36.71)	0.000
Knowledge (mean±SD)		15.09 (1.14)	14.71 (1.65)	0.000
	Poor	110 (44.18)	139 (55.82)	.
	Good	346 (52.42)	314 (47.58)	0.046
Perceived benefits of information	Beneficial	447 (50.39)	440 (49.61)	0.382
	Not beneficial	9 (40.91)	13 (59.09)	.
Perceived severity of COVID-19 (mean±SD)		12.31 (2.95)	11.89 (2.78)	0.027
	Did not trigger fear	154 (47.38)	171 (52.62)	.
	Triggered fear	302 (51.71)	282 (48.29)	0.211
Perceived susceptibility to COVID-19 (mean±SD)		19.14 (4.99)	18.09 (4.31)	0.001
	Susceptible	205 (45.66)	244 (54.34)	
	Not susceptible	251 (54.57)	209 (45.43)	0.007

vention efforts (health protocols such as using masks, hand washing, and physical distancing), at approximately 60.3%.

This study showed that most respondents (93.4%) read the titles and articles, and 76.0% rechecked the information's correctness by searching for clarification from online news portals. Confusion, ordinary feelings, and anxiety were the three most frequent responses when obtaining COVID-19 information. Most participants (72.8%) perceived that the information increased their knowledge, and 80.1% stated that it enabled them to make preventive efforts. Nevertheless, only 48.6% of the respondents confirmed their ability to perform management measures if exposed to COVID-19, while 50.4% felt that the information could reduce anxiety. This study showed that the majority agreed and feared COVID-19 (38.8%), mostly the fear of losing their life (53.0%). The inconvenience was felt by 41.6% of respondents, and sleep disturbance happened to 5.8%.

Table 2 shows that risk factors associated with COVID-19 preventive behavior were age, marital status, occupation, knowledge, perceived severity, and perceived susceptibility (p-value<0.05). In the modeling to see the influence of all variables associated with COVID-19 preventive behavior, this study used a p-value limit of <0.25. Table 3 shows that the model 2 results, which had an AOR and 95% CI, did not pass. When together, marital status (p-value = 0.002) and perceived susceptibility (p-value = 0.011) were the most influencing factors for the respondents' COVID-19 preventive behaviors.

Discussion

This study assessed the COVID-19 information flow and channels from online media, information-seeking behavior, and determinants of preventive behavior during the pandemic. The findings showed that the information was primarily obtained from credible sources, and despite increasing anxiety, the information could enhance knowledge and ability in prevention. During the COVID-19 pandemic, online media was one of the main sources of information widely accessed by people. In this study, social media was the most frequently accessed. Social media has emerged as a vital technology for disaster risk reduction, including preparedness, response, and re-

Table 3. Influence of Demographic Characteristics, Knowledge, and Perception on Preventive Behavior for COVID-19 (n = 909)

Variable		Model 1	Model 2
		Crude OR (95% CI)	Adjusted OR (95% CI)
Knowledge	Poor	ref	ref
	Good	1.39 (1.03–1.86)	1.26 (0.93–1.72)
Perceived severity	Did not fear	ref	ref
	Fear	1.19 (0.91–1.56)	1.21 (0.85–1.48)
Perceived susceptibility	Susceptible	ref	ref
	Not susceptible	1.43 (1.11–1.85)	1.42 (1.08–1.85)
Occupation	Civil servant	ref	ref
	Private sector	0.77 (0.54–1.11)	0.93 (0.61–1.42)
	Student	0.59 (0.40–0.88)	1.04 (0.58–1.88)
	Not working	0.92 (0.59–1.49)	1.02 (0.59–1.76)
	Others	1.05 (0.68–1.64)	1.14 (0.70–1.86)
Marital status	Single	ref	ref
	Married	1.75 (1.35–2.28)	1.81 (1.25–2.61)
Age	≤20 years	ref	ref
	21–30 years	1.64 (1.01–2.68)	1.31 (0.73–2.36)
	31–40 years	1.50 (0.88–2.56)	0.81 (0.39–1.65)
	≥40 years	2.91 (1.66–5.10)	1.56 (0.75–3.23)

Notes: OR = Odd Ratio, CI = Confidence Interval

covery activities.[10] Twitter (65%) was by far the dominant social media platform used in other countries for study around disaster recovery, followed by Facebook (16%).[10]

In crises and disasters, communities often use social media platforms to stay connected, share experiences, and access vital information and resources to support disaster response and recovery.[10] These platforms have become even more helpful for disaster-impacted communities to stay connected in the global pandemic. Indeed, social media appears as a useful tool for public health.[11-13] It can also act as a surveillance tool for disease control and mitigation, increase access to screening and disease management, and provide peer support and bridge human connections during an epidemic.[11]

An infodemic refers to too much information, including false or misleading information, in digital and physical environments during a disease outbreak. It causes confusion and risk-taking behaviors that can harm health.[2] This study found that respondents acquired extensive information on COVID-19 online, especially from social media. For COVID-19, social media can be crucial in disseminating health information and tackling infodemics and misinformation.[14] Most respondents had not yet experienced misinformation due to the infodemic. The majority said that their sources of information were mostly trusted, with government and research sites as the two main references. It might be because most respondents had a high education level; thus, they could choose reliable information sources.

Misinformation was mainly driven by rumors, stigma, and conspiracy theories circulating on social media and other online platforms.[15] Kouzy, *et al.,* revealed that misinformation accounted for 24.8% (153 of 617) of all serious tweets (e.g., not humor-related posts). Tweets from unverified Twitter accounts contained more misinformation (31.0% versus 12.6% for verified accounts, p-value<0.001). Tweets from healthcare/public health accounts had the lowest rate of unverifiable information (12.3%, p-value = 0.04).[16] This study also found that most respondents felt that the COVID-19 information they received increased their knowledge and ability to take preventive measures. Social media is crucial in people's perceptions of disease exposure, resultant decision-making, and risk behaviors.[17,18] Exposure to media can increase preventive behaviors against COVID-19.[19]

In this study, perceived susceptibility and marital status influenced the preventive behavior for COVID-19 transmission. This result aligns with the study by Eichenberg, *et al.*, which found that a higher perceived susceptibility level positively correlates to compliance with protective measures.[20] Study by Leung, *et al.*, also found that a higher perception of susceptibility to severe acute respiratory syndrome was a positive and significant predictor of prevention behavior and health service utilization.[21] In addition, study by Kim and Kim in Korea showed that the number of children in a family positively affected COVID-19 prevention behavior.[19] As people become more in touch with those prone to COVID-19, they will increasingly take action to prevent the disease.[19] Increased COVID-19 information exposure was significantly related to increased fear of COVID-19; the fear

was related to the safety of the self and loved ones.[22]

Health promotion is more important than ever to fight COVID-19. Health promotion will continue to be crucial beyond the pandemic; therefore, using the latest technology with the human touch must be carefully balanced to ensure successful future health promotion efforts.[23] Government responses disseminated over social media have been increasingly crucial in combating infodemics and promoting accurate and reliable information for the public. It also remains unknown whether government posts would reach greater numbers of social media users or have greater effects on them than infodemics would.[24]

Health information providers must provide unambiguous communication about health risks and prevention measures,[22] including escalating the spread of accurate health information through various online media and strengthening regulations to protect people from misinformation and disinformation.[12,13,25,26] In order to be considered credible, social media platforms from the government should share data with behavioral and public health researchers to understand the effects of such policies on both online and offline behaviors.[24]

These findings can give insight into developing health messages and choosing the proper channels to facilitate sustainable preventive behaviors in the community post-pandemic situation. This study had several limitations. The online survey made the results prone to respondent bias. The number of samples was 1,191, but only 909 could be processed due to missing data. The sample distribution was not even, so it was less representative.

Conclusion

Most respondents have not yet experienced misinformation due to the infodemic because they searched for information from relevant and credible sources (government and researchers). However, it is undeniable that the information had a psychological impact that cannot be resolved by the information they read. Marital status and perceived susceptibility are the determinants of preventive behaviors for COVID-19 transmission. Information sources and channels frequently accessed by the community must be professionally managed as valuable tools for mitigating an epidemic or pandemic in the post-COVID-19 era.

Abbreviations

COVID-19: coronavirus disease 2019; CI: Confidence Interval; AOR: Adjusted Odds Ratio.

Ethics Approval and Consent to Participate

This study received ethical approval (no: 1528/UN14.2.2.VII.14/LT/2020 dated 20 July 2020) from the Ethical Commission of the Faculty of Medicine Udayana University. The participants provided their written informed consent to participate in this study.

Competing Interest

The authors declare that there are no significant competing financial, professional, or personal interests that might have affected the performance or presentation of the work described in this manuscript.

Availability of Data and Materials

The data supporting this study's findings are available on request from the author due to privacy restrictions. The data are not publicly available because they contain information that could compromise the privacy of the research participants. The Supplementary files can be accessed by clicking the word "Supplementary".

Authors' Contribution

Conceptualization: DPYK, PAI, PPJ, MSY. Data curation: DPYK, KSS, MSY. Formal analysis: DPYK, PEP, MSY. Funding acquisition: PAI, PPJ. Methodology: PAI, PEP, LPSU. Project administration: PEP, LPSU. Visualization: PEP, PAI. Writing–original draft: DPYK, PEP, PAI, KSS. Writing–review and editing: DPYK, PEP, PAI, LPSU, KSS.

Acknowledgment

This study received funding from the Center for Public Health Innovation, Faculty of Medicine, Udayana University. The authors thank the Center for Public Health Innovation, the Faculty of Medicine, and the participants and translators for contributing to this study.

References

1. World Health Organization. Novel Coronavirus (2019-nCoV): Situation Report-13. Geneva: World Health Organization; 2020.
2. World Health Organization. Managing the COVID-19 infodemic: Promoting healthy behaviors and mitigating the harm from misinformation and disinformation. Geneva: World Health Organization; 2020.
3. Pulido CM, Ruiz EL, Redondo SG, Villarejo CB. A new application of social impact in social media for overcoming fake news in health. Int J Environ Res Public Health. 2020; 17 (7): 2430. DOI: 10.3390/ijerph17072430
4. Kementerian Komunikasi dan Informasi Republik Indonesia. Kominfo Beri Edukasi Pemanfaatan Internet dalam Cegah COVID-19. Jakarta: Kementerian Komunikasi dan Informasi Republik Indonesia; 2020.
5. Littejohn SW, Foss KA, Oetzel JG. Theories of human communication. 11th ed. Illinois: Waveland Press; 2017.
6. Zarocostas J. How to fight an infodemic. Lancet. 2020; 395 (10225): 676. DOI: 10.1016/S0140-6736(20)30461-X
7. Luger TM. Health Beliefs/Health Belief Model. In: Gellman MD, editors. Encyclopedia of behavioral medicine. Switzerland: Springer, Cham; 2020. DOI: 10.1007/978-3-030-39903-0_1227
8. Badan Pusat Statistik. Penduduk Indonesia menurut Provinsi 1971, 1980, 1990, 1995, 2000, dan 2010. Jakarta: Badan Pusat Statistik; 2021.
9. World Health Organization. Novel Coronavirus (2019-nCoV): Situation Report-10. Geneva: World Health Organization; 2020.
10. Ogie RI, James S, Moore A, et al. Social media use in disaster recov-

ery: A systematic literature review. Int J Disaster Risk Reduct. 2022; 70 (102783). DOI: 10.1016/j.ijdrr.2022.102783

11. Schillinger D, Chittamuru D, Ramírez AS. From "infodemics" to health promotion: A novel framework for the role of social media in public health. Am J Public Health. 2020; 110 (9): 1393–1396. DOI: 10.2105/AJPH.2020.305746
12. Pulido CM, Villarejo -Carballido B, Redondo-Sama G, Gómez A. COVID-19 infodemic: More retweets for science-based information on coronavirus than for false information. Int Sociol. 2020; 35: 377–392. DOI: 10.1177/0268580920914755
13. Jindal S, Anand G. Fighting an infodemic in the time of the COVID-19 pandemic in India: Leveraging technology and social media. J Prev Med Public Health. 2020; 53 (5): 311–312. DOI: 10.3961/jpmph.20.345
14. Tsao SF, Chen H, Tisseverasinghe T, et al. What social media told us in the time of COVID-19: A scoping review. Lancet. 2021; 3 (3): 175–194. DOI: 10.1016/S2589-7500(20)30315-0
15. Islam MS, Sarkar T, Khan SH, Mostofa AH. COVID-19-related infodemic and its impact on public health: A global social media analysis. Am J Trop Med Hyg. 2020; 103 (4): 1621–1629. DOI: 10.4269/ajtmh.20-0812
16. Kouzy R, Abi Jaoude J, Kraitem A, et al. Coronavirus goes viral: Quantifying the COVID-19 misinformation epidemic on Twitter. Cureus. 2020; 12 (3): e7255. DOI: 10.7759/cureus.7255
17. Giustini D, Ali SM, Fraser M, Kamel Boulos MN. Effective uses of social media in public health and medicine: A systematic review of systematic reviews. Online J Public Health Inform. 2018; 10 (2): e215. DOI: 10.5210/ojphi.v10i2.8270
18. Al-Dmour H, Masa'deh R, Salman A, et al. Influence of social media platforms on public health protection against the COVID-19 pandemic via the mediating effects of public health awareness and behavioral changes: Integrated model. J Med Internet Res. 2020; 22 (8): e19996. DOI: 10.2196/19996
19. Kim S, Kim S. Analysis of the impact of health beliefs and resource factors on preventive behaviors against the COVID-19 pandemic. Int J Environ Res Public Health. 2020; 17 (22): 8666. DOI: 10.3390/ijerph17228666
20. Eichenberg C, Grossfurthner M, Andrich J, et al. The relationship between the implementation of statutory preventive measures, perceived susceptibility of COVID-19, and personality traits in the initial stage of corona-related lockdown: A German and Austrian population online survey. Front Psychiatry. 2021; 12: 596281. DOI: 10.3389/fpsyt.2021.596281
21. Leung GM, Lam TH, Ho LM, et al. The impact of community psychological responses on outbreak control for severe acute respiratory syndrome in Hong Kong. J Epidemiol Commun Health. 2023; 57 (11): 857–863. DOI: 10.1136/jech.57.11.857
22. Mertens G, Gerritsen L, Duijndam S, et al. Fear of the coronavirus (COVID-19): Predictors in an online study conducted in March 2020. J Anxiety Disord. 2020; 74: 102258. DOI: 10.1016/j.janxdis.2020.102258
23. Wyman O. A way forward for health promotion and wellness in a post-pandemic world; 2021.
24. Kington RS, Arnesen S, Chou WS, et al. Identifying credible sources of health information in social media: Principles and attributes. NAM Perspect. 2021; 2021: 10.31478/202107a. DOI: 10.31478/202107a
25. Tasnim S, Hossain MM, Mazumder H. Impact of rumors and misinformation on COVID-19 in social media. J Prev Med Public Health. 2020; 53 (3): 171–174. DOI: 10.3961/jpmph.20.094
26. Yustitia S, Ashrianto PD. An analysis on COVID-19 disinformation triangle in Indonesia. Komunikator. 2020; 12 (2): 116-128. DOI: 10.18196/jkm.122040