Hoax behavior tendencies among Indonesian students: An analysis during the COVID-19 pandemic

Afdal Afdal[1,3], Miftahul Fikri[1], Neviyarni Neviyarni[1], Mega Iswari[1], Indah Sukmawati[1], Firman Firman[1], Yeni Karneli[1], Mardianto Mardianto[2,3], Rezki Hariko[1,3]

[1]Department Guidance and Counseling, Faculty of Education, Universitas Negeri Padang, Padang, Indonesia
[2]Faculty of Psychology and Health, Universitas Negeri Padang, Padang, Indonesia
[3]Cyberpsychology Intervention and Research Centre, Universitas Negeri Padang, Padang, Indonesia

Article Info

ABSTRACT

The objective of this study was to analyze the hoax behavior tendencies among Indonesian students during the pandemic, viewed from the aspects of analytical thinking, basic science knowledge, trust in news sources, satisfaction, and action. A total of 633 male and female students from Indonesian universities were sampled used a simple random sampling technique. Data were collected through the hoax tendency behavior scale (HTBS) on 30 questions using a Likert scale. Then, the data were analyzed descriptively to evaluate the hoax behavior tendencies in adolescents during the pandemic, which the results revealed to be in the medium category. Therefore, the analytical thinking skills of adolescents need to be improved, as 31.75% and 2.53% were in the low and very low categories. The study showed that adolescents with an average age of 20 years spreading hoaxes were motivated by basic knowledge of science, trust in news sources, satisfaction, and action. However, there was no significant influence of gender, parental income, and areas of residence, such as rural, urban, and suburban, on those that exhibit hoax behaviors.

Corresponding Author:

Afdal
Department Guidance and Counseling, Faculty of Education, Universitas Negeri Padang
Padang, West Sumatera, Indonesia
Email: afdal@konselor.org; afdal.kons@fip.unp.ac.id

1. INTRODUCTION

The new outbreak called coronavirus disease-19 (COVID-19), which originated from Wuhan, China [1]–[6], was declared a global pandemic and resulted in thousands of deaths in 216 countries [7], including Indonesia [8]. Hence, this situation has become the focus of the today world's attention. Individual responses while facing the COVID-19 situation are very diverse, depending on their perceptions and processing of available information [9], and many people downplay the danger of the pandemic [10], [11]. Attitude denial or underestimation of the disease influences a person's judgment, perception [12] and behaviors [13]. Nevertheless, they must still follow the government rules of handwashing, social distancing [14], and facemask use [15]. Explained that various forms of belief are positively correlated with different behaviors. For instance, confidence develops in stressed or critical situations [16]. Furthermore, doubts or a lack of conviction are caused by the inability to obtain accurate information regarding the current pandemic, alongside the deployment through mass media, especially social media, among adolescents [17]–[20]. However, the acquisition of information via print publications is less attractive to people that have started to depend on accessibility through the internet [19], [21]–[26].

Social media can be categorized based on four considerations: i) The capacity to influence virtually all aspects of community life; ii) The ability to reach many people from different classes; iii) The possibility of using various features of the new media, such as internet premises and rapid transmission process; iv) The involvement of all social media aspects, including the role as a communicator and communicant, interacting simultaneously in the same space and time [27], [28]. Therefore, social media is an important medium because its presence has exerted a great influence on the delivery of messages. Currently, communication is performed more often through the internet [25], [29], [30]. The role of social media in public has also improved, stimulating recent research, health care in education, directing people to websites and landing pages for reliable information on the latest health advances, and marketing innovative services such as social fund services and related posts. Consequently, the provision of permitted case information, photos, and results, alongside the communication of reviews and testimonials of recovered patients, offer support among Indonesian citizens during the COVID-19 pandemic [31].

The development of the internet and information technology directly affects humans' basic needs, and the rapid, precise, and accurate acquisition of information plays an important role in many aspects of life. However, the comfort and convenience offered in the information age also invite acts of crime or criminality in cyberspace [32], such as hoaxes [33]–[39]. Despite the efforts of social media to limit its spread [40], [41], hoaxes are difficult to contain, leading to increasing popularity and massive circulation of the term. Many people are tricked into believing false news on social media and often do not realize their role in the spread. Since the COVID-19 outbreak, the crux of the misleading information circulated is the assumption that the virus and symptoms are fake, leading to problems concerning the government policies in each country. The spread of false information or hoaxes related to this pandemic is not limited to Indonesia but occurs in other countries [15], [42]–[44]. Generally, social media plays similar but more extensive roles than the old media in conveying or misinforming the public about the virus [15], [38], [43]–[48]. The predominant means of spreading hoaxes was social media, such as Facebook, Twitter, and Instagram. Chat applications, such as WhatsApp, Line, and Telegram, are also phenomenal in disseminating false information, and approximately 60.80% of the public use applications to spread hoaxes [28]. Encountering hoaxes is an implication of the massive use of electronic technology, especially information and communication. Social media enables receiving, sharing, as well as commenting on issues, meanwhile overlapping, implosive, and explosive information are reproduced through share and copy options available on the platform's system. Hence, people can comment on received information without confirmation, causing social media to become a virtual trend for today's society. Besides being a communication medium, it has developed into a means of sharing information or responding to trending issues in cyberspace [49]–[53].

Meanwhile, information and communication technology (ICT) are currently evolving with various media, including online systems. The ease and efficiency offered by online media facilitate its application for disseminating influential information to the community. It has also changed the way messages are conveyed and consumed. Currently, dissemination is not solely performed through online media by known news sites but also other people that use the internet. This has led to the irresponsible distribution of news individually or in groups, making the discovery of accurate information difficult [54]–[59]. Although the positive effect of ICT development on humans cannot be denied [26], [60]–[62]. the latent negative effects, especially in the social networking aspect, are troubling. This is majorly due to hoaxes or false information spread on social media about an uncertain or unclarified fact, occurrence, or source. Consequently, the information can lead to the interpretation desired by interested persons. Hoaxes are booming in this current information age, and their existence majorly impacts various aspects, especially supported by the people's increased use of the internet for accessing social networks and instant messaging [63], [64]. Furthermore, the circulation of negative news and hoaxes among the public leads to many dangers, including causing inciting people's emotions, division of society, provocation, and the spread of animosity, anger, and hate speech [24], [39].

Hoaxes are more prevalent in cyberspace than broadcast media, such as television, and are easy to spread and attract followers for at least three reasons. First, the virtual world, indicated by the existence of social media, provides freedom of accessibility without restrictions or complicated rules as in society. Second, broadcasting media, such as television, are mostly controlled by people or groups with political tendencies, and third, hoax booms are determined or even supported by the increasing number of internet users. Consequently, this phenomenon is causing various problems in Indonesia [34], [49], [50], [65], [66], as the people are also prone to sharing false news. This is obvious from the existence of about 170 million Indonesians, who own at least one cellphone or SIM card [67]. The spread of hoaxes is very worrying [68], [69] and should not be disregarded because it can be penalized by law [25]. Generally, hoaxes are created intentionally for jokes, fun, to form a public opinion, and gain profits based on the number of people that access and share the news through various other media [14], [19], [33]–[35], [70]–[74]. The increase in hoaxes regarding the COVID-19 pandemic is an important problem in society presently, and persons that do not abuse social media for personal gain are also likely to spread false.

In Indonesia, the presence of social media influences political, social, cultural, and economic changes. Social media shifts and penetrates boundaries from hierarchical interaction patterns in political and cultural spaces to become egalitarian, influencing everyone who reads hoax news [35], [37], [66]. Facts show that the rapid spread of hoaxes comes from reliable information, resulting in a very complex problem [37], [75], [76]. Many people are getting active access to COVID-19 and health-related information during this pandemic period, causing increased anxiety levels due to the incorrect information from social media [70], [71], [73]. This affects the government's ability to reduce illness and death from the disease due to people's wrong beliefs about the virus [14], [77]. Belief in information circulating through the media makes users vulnerable to hoaxes and affects their perceptions and behavior. An interesting finding showed that people look for more information on the internet or social media [78]–[80]. However, such information could trigger feelings of anxiety especially in the millennial generation, indicating exposure to hoaxes.

The issue of COVID-19 is circulating and troubling the public, and the fake information related to this disease on social media is often found associated with political issues. Meanwhile, the progress of the modern era can positively and negatively impact the development of adolescents. Individuals generally face many stressful events daily during adolescence. Also, teenagers in the millennial era are very attached to their gadgets, which are a means used to facilitate coping or release from stress. Information hoaxes spread to the millennial generation requires significant vigilance to prevent their interference with societal stability. In this case, adolescents that possess confidence in their abilities and develop positive personal and environmental assessments can face issues calmly including responses to hoax information about COVID-19. A person is judged to have good literacy about this disease by possessing adequate knowledge, behavior, and positive actions regarding the spread of hoaxes. Consequently, this research study will analyze trends in hoax behavior among adolescents during the COVID-19 pandemic. The importance of understanding and reviewing information circulating through social media is to decrease the level of hoaxes concerning the pandemic to avoid harming the community, alongside reduce the intensity of COVID-19 exposure.

2. RESEARCH METHOD

This study was conducted using a quantitative descriptive method to analyze hoax behavior tendencies in adolescents concerning the COVID-19 pandemic. A total of 633 students comprising male and female university students were selected by simple random sampling. Data were collected through the hoax tendency behavior scale (HTBS) on 30 question items using a Likert scale. The data employed descriptive analysis consisting of five aspects, including analytical thinking ability, basic science knowledge, and action (the tendency to spread) with six items each, alongside trust in news sources and satisfaction with the hoax news, with five and seven, respectively. Instrument validation using Rasch analysis shows that the overall instrument used is valid and reliable (person reliability is 0.83 and item reliability is 1.00) [81].

3. RESULTS AND DISCUSSION

The hoax behavior tendencies based on the domains revealed by the HTBS on Indonesian students are presented in Table 1. The table shows that the dominant misbehavior from all aspects occurred in the medium category with overall maximum (highest) and minimum (lowest) scores of 127 and 40, respectively, an 80.23 average and a standard deviation of 14.47. These findings obtained from the analysis of each aspect, the tendency to behave based on hoaxes is in the medium category.

Table 1. Description of the behavior trends according to hoaxes using sub-variables (N=633)

No	Aspect	Ideal	Max	Min	Mean	SD	Category (%)				
							Very high	High	Medium	Low	Very low
1	Analytical thinking ability	30	26	8	16.82	3.20	0.47	11.69	53.55	31.75	2.53
2	Basic science knowledge	30	29	6	16.18	3.54	0.16	9.32	50.24	33.97	6.32
3	Trust in News Sources	25	24	5	13.26	3.26	0	3.48	40.60	45.97	9.95
4	Satisfaction	35	31	7	19.4	4.07	0	2.52	39.94	50.31	6.76
5	Action	30	26	6	13.86	3.86	0.16	4.11	28.28	45.18	22.27
	Total	150	127	40	80.23	14.47	0.16	6.16	51.34	39.34	3.00

The ability to think analytically produced an average score of 16.82 and 53.55% in the medium category, meaning that a person's analytical thinking ability is sufficient to contribute to the tendency to exhibit hoax behaviors. Meanwhile, the basic science knowledge aspect had an average score of 16.18 as well 50.24% in the medium category, denoting that a person's knowledge base moderately influences their tendency to behave according to hoaxes. The trust in news sources aspect generated an average of 13.26 and

a 45.97% score in the low category (L), meaning the variable did not affect this tendency. Furthermore, the satisfaction aspect obtained an average of 19.4 and a 50.31% score in the low category (L), signifying that satisfaction influences hoaxes and a decrease result in reduced misbehavior tendencies. The last aspect was action, which had a 13.86 average and a 45.18% score in the low category (L), meaning that a lack of contributed action to the tendency to behave to hoax. Consequently, these results show that the analytical thinking abilities of adolescents need to be improved, as 31.75% and 2.53% were in the low and very low categories, respectively. Likewise, the basic science knowledge, trust in news sources, satisfaction, and action should be enhanced, as many teenagers spread hoaxes. Therefore, all the aspects contributed to an increase in hoax behavior tendencies in adolescents.

Generally, mastery of science and higher-level thinking capabilities are required to attain thought competence [82]. Thinking skills are very important [83], [84] and are needed alongside a conscious and tech-savvy attitude [85]–[87]. The ability to think is an awareness existing in a person that cannot be observed directly [88]. It ensures that individuals can have opinions in solving problems and analyze received information by first guessing, investigating, and then describing the subject of the problem. The ability to think analytically allows the provision of solutions to problems, which is one of the higher-order thinking skills that facilitate independence in individuals. Meanwhile, an understanding or mastery of the concepts related to the problem to be solved supports this analytical thinking ability and is an important asset in determining strategies [89]–[91]. This ability is therefore important against the spread of hoaxes concerning the COVID-19 pandemic. Fake news, also known as hoaxes [68], [92], [93] refers to information that is added or subtracted from the actual event or content and involves aspects of manipulation or modification to achieve various responses [42]. Therefore, the capacity of processing information individually is very influential during the emergence of hoaxes [64], [94]. There are two triggers or motives for hoax information, namely economic and political. For instance, sensational news is deliberately displayed on sites to obtain numerous visits, while the motives of others are to channel political aspirations through social media by creating fake news [58], [71], [95], [96]. Hoaxes that cause various physical and mental health problems can be found on social media [55], [63], [97]. Such news creates collective panic or fear [48], [95] and leads to behaviors [71] , that vary according to internal stimuli, including knowledge, attitudes, facilities, experience, culture, society, and beliefs. Table 2 shows the contribution of each sub-variable.

Table 2. Results of the simple linear regression analysis based on the tendency to behave according to hoaxes

Aspect	ATA	BSK	TiNS	S	A	HBT
Analytical thinking ability (ATA)		.308	.244	.391	.330	.635
Basic science knowledge (BSK)	.308		.366	.247	.217	.588
Trust in news sources (TiNS)	.244	.366		.302	.251	.593
Satisfaction (S)	.391	.247	.302		.549	.743
Action (A)	.330	.217	.251	.549		.686
Hoax behavior tendencies (HBT)	.635	.588	.593	.743	.686	

As shown in Table 2, the predisposition to exhibiting hoax behavior tendencies based on the contribution of the action sub-variable to satisfaction amounted to 54.9%, while 45.1% was influenced by other factors. Likewise, the hoax behavior tendencies influenced the satisfaction variable by 74.3%, while 25.7% was caused by other factors. The findings in this study show that higher satisfaction obtained from the hoax behavior tendencies resulted in increased action. However, basic science knowledge had the lowest contribution of 21.7% to the action aspect, meaning even a little scientific information leads to a reduction in this tendency. In addition, the influence of trust in the news sources on the analytical thinking ability was 24.4%, signifying that a small percentage of trust in information sources results in a tendency to misbehave. Hence, this study shows that the tendency to behave based on a hoax is mostly caused by satisfaction, while even small levels of basic science knowledge had an inverse effect.

Also, the hoax behavior tendencies produced scores of 74.3% and 58.8% for satisfaction and basic science knowledge respectively. This shows that high basic science knowledge will decrease the tendency and low satisfaction enhances this predisposition. The results revealed that hoax behavior tendencies are mostly caused by satisfaction and action, as shown by scores of 74.3% and 68.6%, followed by trust in news sources at 59.3%, and the analytical thinking ability at 63.5%. Therefore, the aspects regarding the tendency to behave based on hoaxes, which had the highest or dominant interconnection were satisfaction and action. Conversely, the least dominant was the influence of basic science knowledge on the action variable, followed by the effect of trust in news sources on analytical thinking ability. Meanwhile, there was no significant difference between men's and women's tendency to misbehave, as shown in Table 3.

Table 3 shows that the group statistics in this study comprised 118 males and 515 females. The average or mean value for the males was 82.40 and 79.74 for females, showing a difference in the tendency of hoax-driven behaviors based on gender. Table 4 presents the interpretation of the independent samples t-tests to determine the significance of the difference.

Table 3. Description of gender data based on the hoax behavior tendencies

	Gender	N	Mean	Std. Deviation	Std. Error Mean
			Group statistics		
HBT	Male	118	82.40	16.462	1.515
	Female	515	79.74	13.946	.615

Table 4. Results of t-test analysis in terms of gender

		Levene's test for equality of variances		t-test for equality of means					95% confidence interval of the difference	
		F	Sig.	T	Df	Sig. (2-tailed)	Mean difference	Std. error difference	Lower	Upper
HBT	Equal variances assumed	6.479	.11	1.805	631	.072	2.660	1.474	-.235	5.556
	Equal variances not assumed			1.627	157.671	.106	2.660	1.635	-.569	5.890

According to Table 4, the value of sig. Levene's test for equality of variances was 0.11>0.05, meaning the data variance between male and female was homogeneous or the same. Also, independent sample t-test revealed a significance value of 0.072>0.05, denoting the absence of a difference in the point scores. This means there is no significant difference between the trend of hoax behavior in men and female The dissemination of misleading information in this pandemic can increase anxiety, suffering from paranoid, and health panics that can be observed through various symptoms. These include exaggerated maladaptive and logistical behaviors, avoiding medical treatment in hospitals, and distrust towards public authorities [98]. Therefore, the effects and types of hoaxes must be reviewed, and an accurate intervention level [99], [100].

4. CONCLUSION

This study showed that the tendency of hoax behaviors in student was in the medium category. Hence, their analytical thinking skills need to be improved, as 31.75% and 2.53% of the participants were in the low and very low categories. Likewise, basic science knowledge, trust in news sources, satisfaction, and action should be enhanced in teenagers that spread hoaxes. The dominant factor with the highest score that was closely linked to hoax behavior tendency was satisfaction at 74.3%, followed by action at 68.6%. Conversely, the lowest percentage and least dominant factor was the influence of basic science knowledge on the action variable at 21.7%, followed by the belief in news sources on the ability to think analytically at 24.4%. Hence, low levels of these aspects encourage people to behave according to hoaxes, while high levels will trigger a decrease in this tendency. This study also showed no significant influence of gender on adolescents' tendencies to misbehave due to hoaxes. Nevertheless, the creation of awareness, which can decrease these dangers, is the responsibility of all parties, especially education providers and parents. The role of educators, such as counselors, can help adolescents through the provision of various psychological interventions through guidance and counseling services and approaches. Likewise, future study should exploit social media as a means to impart literacy in students and encourage their analysis of the news spread throughout social media. Such actions are important, considering threatening news and hoaxes are a common threat, particularly for the millennial generation.

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BIOGRAPHIES OF AUTHORS

Afdal 🆔 🔃 SC 🔗 is an Associate Professor and Lecturer at Study Program Guidance and Counseling Universitas Negeri Padang. He was appointed lecturer in the university since 2008. He has been a lecturer at the Department of Guidance and FIP UNP. As a scientist and researcher, he often received research grants, both from UNP and from the ministry. Research topics that are usually carried out are related to Domestic Violence, Marriage Counseling, Careers and Counseling in various special populations. He is the founder of the Research Center for Adolescent and Family Development (RC-AFD) and member of Cyberpsychology Intervention and Research Center Universitas Negeri Padang since 2021. Apart from being a researcher, he has also been entrusted with the Coordinator of the Counselor Professional Education Study Program since 2018-2019. Currently serving as Secretary of the BK FIP UNP Department since 2019. He can be contacted at email: afdal@konselor.org, afdal.kons@fip.unp.ac.id.

Miftahul Fikri 🆔 🔃 SC 🔗 is a Doctoral Candidate, Study Program Guidance and Counseling, Universitas Negeri Padang, He has been a lecturer assistant, research assistant for lecturer research projects at UNP and has published several articles in reputable national and international journals. Research topics and scientific studies that are usually carried out are related to counseling for special populations, domestic violence, social anxiety in prisoners and family counseling. He can be contacted at email: fikri@konselor.org.

Neviyarni 🆔 🔃 SC 🔗 is Professor and Lecturer at Study Program Guidance and Counseling Universitas Negeri Padang. She has more than 20 years of experience as an Academician at Universitas Negeri Padang, where she currently serves as Professor and Head of the Masters and Doctoral Guidance and Counseling Study Programs at the Faculty of Education. Her current research interests include student learning and development at various levels and areas of education. The topics of publication are social, education, guidance and counseling, education, learning strategies. She can be contacted at: neviyarni.suhaili911@gmail.com.

Mega Iswari 🆔 🔃 SC 🔗 is Professor and Lecturer at Special Education Universitas Negeri Padang. She has more than 20 years of experience as an Academician at Padang State University, where he currently serves as Professor Special Education and Head GPMI *(Gugus Penjamin Mutu Internal* --Internal Quality Assurance) FIP UNP. Her current research interests include student learning and development at various levels and areas of education. The topics of publication are social, education, guidance and counseling, special education. She can be contacted at email: mega_iswari@yahoo.com.

Indah Sukmawati 🆔 🔃 SC 🔗 is Lecturer at Study Program Guidance and Counseling Universitas Negeri Padang. She was appointed lecturer in the university since 2008. The focus of research and publications is on Family Counseling, Domestic Violence and Marriage Counseling. Active in research and learning activities at UNP and has published several articles in accredited national journals and proceedings. She can be contacted at email: i.watsan@yahoo.com.

Firman 🆔 🔃 SC 🔗 is Professor and Lecturer at Guidance and Counseling Universitas Negeri Padang. He has more than 20 years of experience as an Academician at Padang State University, where he currently serves as Professor Guidance and Counseling and he is active has been Head Department Study Program Guidance and Counseling FIP UNP. He current research interests include student learning and development at various levels and areas of education. The topics of publication are social, education, guidance and counseling, culture social, sociology anthropology. He can be contacted at email: firman@konselor.org.

Yeni Karneli ⓘ 🔱 SC ◐ is an Associate Professor and Lecturer at Study Program Guidance and Counseling Universitas Negeri Padang. She was appointed lecturer in the university since 1986. She has been a lecturer at the Department of Guidance and FIP UNP. She is active has been entrusted with the Coordinator of the Counselor Professional Education Study Program since 2020.She can be contacted at email: yenikarneli.unp@gmail.com.

Mardianto ⓘ 🔱 SC ◐ is an Assistant Professor and Lecturer at Psychology at Faculty Psychology and Health, Universitas Negeri Padang. He was appointed lecturer in the university since 2006. His research on Social Psychology and Cyber Aggression led him to become the Chair of the Cyberpsychology Intervention and Research Center Universitas Negeri Padang since 2021. He currently serves as Deputy Dean III (Student and Alumni Affairs) Faculty of Psychology and Health, Universitas Negeri Padang. He can be contacted at email: mardiantopsi@fip.unp.ac.id

Rezki Hariko ⓘ 🔱 SC ◐ is a Lecturer at Guidance and Counseling Department, Faculty of Education, Universitas Negeri Padang. He was appointed lecturer in the university since 2014. His research on group, adolescent and positive psychology. He is member of Cyberpsychology Intervention and Research Center Universitas Negeri Padang since 2021. He can be contacted at email: hariko.r@fip.unp.ac.id