The Identification of Covid-19 Fake News Factors on Social Media in Indonesia

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Abstract. Social media is a protocol for people's interaction and disseminating new ideas. The spread of fake information can occur on social media because there is no control and verification from the legal account. During the COVID-19 corona virus outbreak, the government issued a self-isolation policy. However, people use social media to find information about COVID-19 and spread news about COVID-19 greedily, especially in Indonesia. Therefore, this study explores the factors influencing the spread of fake news related to COVID-19. The sampling used in this study was non-random/non-probability sampling with the Convenience Sampling technique, including two hundred and twenty-two respondences from several regions in Indonesia. These phenomenons are studied using the Uses and Gratification framework by eliminating entertainment variables, adding altruism motivation, and adding moderating variables for demographic factors of individual psychological well-being, including age, education, income, and gender. Data were analyzed using Smart Partial Least Squares (PLS) to determine the effect of five variables. The analysis results show that all the variables, e.g., altruism, socialization, time elapsed, information sharing, and information seeking, as well as moderating variables and demographic factors of individual psychological well-being have no positive and significant effect on the spread of fake COVID-19—news on social media in Indonesia.

Keywords: social media, COVID-19, Indonesia, sharing fake news.

1. Introduction

Sharing fake news is rampant in today's digital world. This is marked by the increasing issue of fake news worldwide [1]. The popularity of social media allows interaction and dissemination of new ideas [2]. Today, social media can be used to spread misinformation and fake news quickly [1]. Social media is a powerful tool for disseminating abundant, unfiltered content [2]. So, fake news has reached almost every aspect of people's lives [3], and what is worrying is the circulation of fake content in the 2019 corona virus disease (COVID-19) outbreak [4]. In December 2019, a new virus called COVID-19 was reported in China, and in months the virus has spread to several other parts of the world, killing many people.

Initially, it was thought that it was transmitted from animals to humans. However, it is now transmitted from human to human via fomites, contacts, and droplets [5].

According to the latest research, many rumors and fake news are circulating about COVID-19. It is increasingly more work to distinguish fake news from unquestionable news [6]. As a result, misinformation on social media has sparked panic among public members regarding the COVID-19 pandemic, prompting the government and authorities to urge citizens to confirm the authenticity of the news before circulating it [6] [4].

This study focuses on social media users in Indonesia. Several countries have studied the spread of fake news, including the UK, the US, and Nigeria. Therefore, for this study, Indonesia, as a developing country, was chosen to provide a different perspective on understanding the global problem of the proliferation of fake news.

Therefore, to understand the predictors of the spread of fake news on social media, this research developed a comprehensive model from previous research [7]. The novelty of this study is the addition of a moderating variable literature model in the form of demographic factors of individual psychological well-being about news sharing to examine the spread of fake news during the COVID-19 pandemic.

2. Hypothesis Development

Some of the concepts that form the basis of the theory in this research are understanding the use and gratification theory or Uses & Gratification Theory (U&G Theory), individual psychological well-being, and developing hypotheses. An explanation of these concepts, among others, is as follows.

2.1. Theoretical Background

U&G theory was originally a theory that discussed the use of traditional media, but in recent years, U&G theory has been applied to internet studies, mainly social media studies [8]. Therefore, the U&G theory has been adopted by social media researchers to realize the gratifications that individuals get from using social media platforms. U&G theory tries to find out the reasons behind people's use of certain media. The theory explains to understand the motivation of people to choose media and the satisfaction they get from it [9]. U&G theory related to the use of internet media has seven satisfactions, including information seeking, aesthetic experience, monetary compensation, diversion, personal status, relationship maintenance, and virtual community [10]. U&G is a psychological perspective that proposes that a person's traits influence how a person chooses to use media [11].

One of the factors that affect human psychological well-being is demographic factors, including age, gender, income, education and socio-economic status, race, marital status, experience and interpretation, temperament, and personality [12]. Previous researchers often used U&G theory to predict the determinants of news sharing [7]. The spread of fake news is still rare because most past and current research has yet to develop a theoretical model to empirically improve the understanding of the behavior of spreading fake news on social media [13]. In the previous study, cultural background, age, income, and gender as moderators of sharing fake news were not added. In this study, the authors add moderating variables in the form of psychological well-being through demographic factors of age, education, income, and gender.

2.2. Hypothesis Development

This research model refers to the U&G theory and previous research conducted by [7]. The researcher hypothesizes the relationship between several selected variables; altruism, socialization, free time, information sharing, and information seeking by sharing COVID-19 fake news on social media.

2.2.1 Altruism and Sharing COVID-19 Fake News on Social Media

Altruism is giving someone something without expecting anything in return. Behavior is called altruistic. Regarding sharing information or news, the act of spreading news and information without expecting anything in return is called altruism [14]. Previous research concluded that altruism is positively related to the voluntary collection and dissemination of information, suggesting that social media users will help without expecting anything in return [15]. People have a habit of sharing information to help others without considering whether it is factual, as long as it brings some precautions on specific issues [7]. As a result, a link between altruism and fake news-sharing behavior can be expected. Therefore, the hypothesis is:

H1: Altruism will positively affect the spread of hoaxes related to the COVID-19 pandemic.

2.2.1. Socialization and Sharing COVID-19 Fake News on Social Media

Socialization, or social interaction, includes the need for connectedness or the desire to form associations and relate to others [16]. Social media is used to express yourself and build relationships [17]. Concerning the sharing of misinformation, socialization satisfaction is predicted to positively influence the spread of false information [18]. Therefore, amid the COVID-19 pandemic, many people may want to share and contribute to the news, which may spread fake news. Then, the hypothesis is:

H2: Socialization will positively affect the spread of hoaxes related to the COVID-19 pandemic.

2.2.2. Pass Time and Sharing COVID-19 Fake News on Social Media

Pass time significantly predicted general social media use [19]. Social media platforms can reduce boredom and pass time [19]. Pass time and misinformation sharing have been established to have a positive relationship [20]. This shows that if someone fills their spare time using social media, they will not verify whether the message to be shared is valid or not [7]. Meanwhile, satisfaction with free time is the most significant predictor of news sharing besides socialization [21]. Therefore, during the isolation or quarantine period due to the COVID-19 pandemic, someone can share news about COVID-19 to fill his spare time on social media without verifying the truth. Then, the hypothesis is:

H3: Satisfaction with free time will positively correlate with the spread of hoaxes related to the COVID-19 pandemic.

2.2.3. Information Sharing and Sharing COVID-19 Fake News on Social Media

The use of social media platforms accelerates the circulation of fake content online [22]. One possible reason is that sharing news on social media becomes more accessible because people can participate in creating and disseminating information [23]. The circulation of misinformation is positively related to the dissemination of information [8]. From this perspective, the argument is that the abundance of information about COVID-19 on social media makes it possible to share misinformation if individuals do not verify it. Therefore, the hypothesis is:

H4: Sharing information will positively correlate with the spread of fake news (hoaxes) related to the COVID-19 pandemic.

2.2.4. Information Seeking and Sharing COVID-19 Fake News on Social Media

In this study, information seeking is included as one of the variables because individuals can choose which news on social media is considered essential and up-to-date. The increasing number of COVID-19 cases worldwide is confusing for many people, so that it may be a factor in the emergence of misleading or false news or information related to COVID-19 [24]. Therefore, the authors think that due to the movement of people being restricted due to the COVID-19 pandemic and due to the ever-increasing cases of the pandemic, individuals will search for information on social networking sites without considering whether the content is accurate or not to the extent that it contains some suitable means of combating the

virus. They may also share the information among their networks, which could increase the wave of fake news and hoaxes reported in recent months [4] [6]. The hypotheses are:

H5: Searching for information positively correlates with the spread of hoaxes related to the COVID-19 pandemic.

H6: Individual Psychological Well-being is significant as moderating the relationship between Altruism and Sharing of COVID-19 fake news on social media

H7: Individual Psychological Well-being is significant as a moderating relationship between Socialization and Sharing of COVID-19 fake news on social media

H8: Individual Psychological Well-being is significant as moderating the relationship between Pass Time and Sharing of COVID-19 fake news on social media

H9: Individual Psychological Well-being is significant as a moderating relationship between Information Sharing and Sharing of COVID-19 fake news on social media

H10: Individual Psychological Well-being is significant as a moderating relationship between Information Seeking and Sharing of COVID-19 fake news on social media

This research model develops a model from previous research conducted by [7], where the research hypothesizes the relationship between entertainment, socialization, leisure, altruism, information seeking, and information seeking, with the spread of fake news on social media. In this research model, the author does not include the entertainment variable because, in previous studies, the entertainment variable did not affect fake news. However, the authors have control variables such as psychological well-being that affect individual well-being, including age, education, income, and gender [12]. The conceptual model modified by the author is shown in Figure 3.1

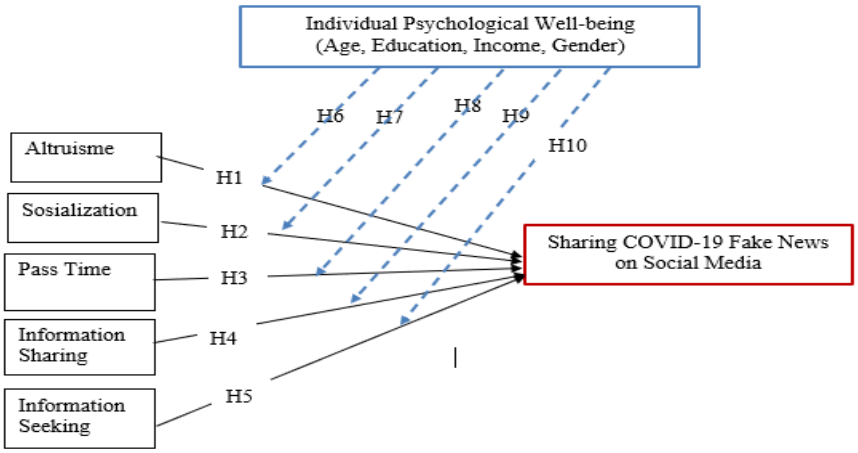

Figure 2.1 Conceptual Model

The following is a structural model formed from the formulation of the problem:

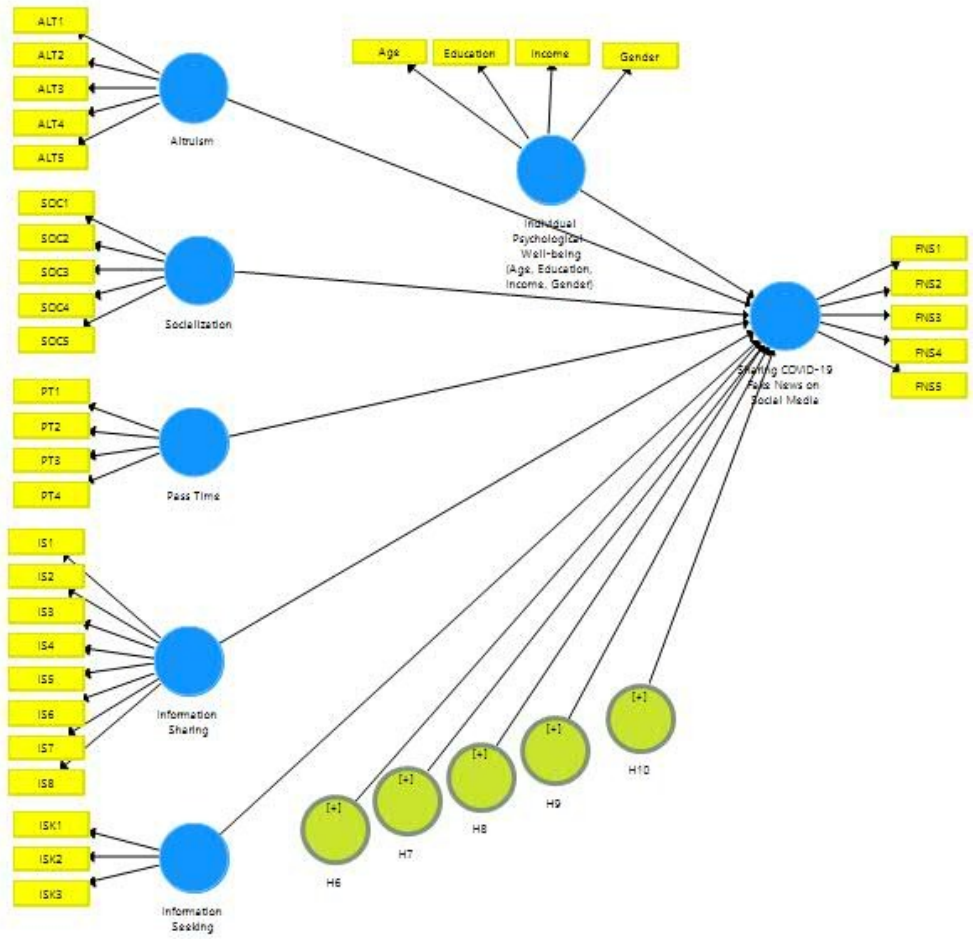

Figure 2.2 Model Construct with Smart Pls

3. Research Methods

3.1. Data Collection

For data collection with questionnaires, this study used a Likert scale of 1-5 points, with strongly disagree for a value of 1 and strongly agree for a value of 5. Respondents were free to determine the value of each question without providing predetermined criteria. The abolition of this criterion aims to avoid biased opinions given by respondents because of the tendency to provide the answers with safe values. The sampling used in this study was nonrandom sampling/nonprobability sampling with convenience sampling techniques or samples chosen considering the ease of sampling techniques based on chance and members of the population met by researchers. They were willing to become respondents and were used as samples [25]. The author collected 222 responses. The instrument questions were then translated into Indonesian for the purpose of this study. The list of instruments is presented in Table 1 below:

Table 1. Questionnaire

Items	Sub-Items	Question
Altruism	ALT1	I share content related to COVID-19 on social media because I love assisting others
	ALT2	I share content related to COVID-19 on social because it feels right to assist others to resolve their issues
	ALT3	I share content related to COVID-19 on social media because I want to motivate and inspire others
	ALT4	I share content related to COVID-19 on social media because I want to offer information to others
	ALT5	I share content related to COVID-19 on social media because I want to admonish others
Socialization	SOC1	I share content related to COVID-19 because I can freely talk about issues with others
	SOC2	content related to COVID-19 because I feel involved with other people's issues
	SOC3	content related to COVID-19 because I can effortlessly interact with other members in my network when sharing
	SOC4	content related to COVID-19 because I can easily exchange views with other members in my network efficiently
	SOC5	content related to COVID-19 because it helps me keep in contact with other members in my network
Pass Time	PT1	I share content related to COVID-19 on social media because I scarcely like to work around social media
	PT2	I share content related to COVID-19 on social media because it is a habit, just something to do
	PT3	I share content related to COVID-19 on social media because I have nothing much to do
	PT4	I share content related to COVID-19 on social media because I can pass the time away, especially whenever I am bored
Information Sharing	IS1	I share content related to COVID-19 that might be valuable to others
	IS2	I share content related to COVID-19 on social media to get feedback on the information I have found
	IS3	I share content related to COVID-19 on social media to provide information
	IS4	I share content related to COVID-19 on social media to share practical knowledge or skill with others
	IS5	I share content related to COVID-19 on social media to express myself easily
	IS6	I share content related to COVID-19 on social media to disseminate

Items	Sub-Items	Question
		information that might interest or entertain others
	IS7	I share content related to COVID-19 on social media to provide personal information about myself
	IS8	I share content related to COVID-19 on social media to inform others a little about myself
Information Seeking	ISK1	I share content related to COVID-19 to assist me to store valuable information
	ISK2	I share content related to COVID-19 on because it is easy for me to retrieve information when needed
	ISK3	I share content related to COVID-19 on social media to keep abreast on the current news and events
Fakes News Sharing on COVID-19	FNS1	I have shared information related to COVID-19 virus that I later found out as a hoax
	FNS2	I have shared content on social media related to COVID-19 that seem accurate at a time and I later found was made up
	FNS3	I have shared content on social media related to COVID-19 that was exaggerated, but was not aware it was exaggerated at the time of sharing
	FNS4	I share content on social media related to COVID-19 without checking facts through trusted sources
	FNS5	I shared content on social media related to COVID-19 without reading the entire article

4. Results

This section describes the results of research and data analysis that has been conducted collected through the distribution of questionnaires that the author did from January until March 2022. The authors analyzed the data collected by the main problems described at the beginning of the chapter. The data processing results are information that will later show whether the hypothesis that has been formulated is acceptable or not.

Table 2. The demographic information of the respondents (n = 222).

Characteristics	Frequency	Percentage (%)
Gender		
Male	102	46
Female	120	54
Age		
Less than equal to 19	0.11	11
20-24	0.46	46

Characteristics	Frequency	Percentage (%)
25-29	0.18	18
30-34	0.15	15
35-39	0.05	5
Greater than and equal to 40	0.05	5
Education		
Junior High School	0.006	6
Senior High School	0.21	21
Diploma	0.11	11
Bachelor's Degree	0.62	62
Master's Degree	-	-
PhD	-	-
Income		
not yet earning	0.41	41
less than 1 million	0.08	8
1 million - 2 million	0.1	10
2 million - 3 million	0.06	6
3 million - 4 million	0.18	18
5 million - 10 million	0.11	11
10 million - 20 million	0.05	5
more than 20 million	0.01	1

The results of the analysis of the characteristics of respondents by gender, age, education, and income can be shown in Table 2. Based on Table 2, it can be seen that the respondents are divided into two categories, namely men and women. From the data obtained from 222 respondents, the composition of respondents based on gender is 120 respondents are female, and the remaining 102 are male, as shown in Table 2. The results shown in Table 2 show that the largest number of respondents were women, as many as 120 people. Respondents are divided into six categories, namely ages less than and equal to 19 years, 20 years to 24 years, 25 years to 29 years, 30 years to 34 years, 35 years to 39 years and ages more than and the same with 40 years. From the data obtained from 222 respondents, the composition of respondents based on age, namely 25 people aged less than and equal to 19 years, 101 people aged 20-24 years, 40 people aged 25-29 years, 33 people aged 30-34 years, while the age of 35 -39 years old found only 12 people and age more than and equal to 40 years got 11 people. The results shown in Figure 4.2 are dominated by the number of respondents aged 20-24 years who are young people.

4.1. Analysis Test Instrument

4.1.1. Validity Test and Reliability Test

Validity and reliability testing can be done directly from the PLS. The validity of an indicator variable in measuring the latent variable can be assessed by looking at the value of the Loading Factor (LF). In general, the value of the LF indicator 0.7 is valid, but the development of new indicators, the value of LF 0.5 and 0.6 is still acceptable for validity; even 0.4 is still tolerable.

The instrument trial was carried out on 222 respondents. The results of the validity test using Partial Least Square (PLS) can be seen in Table 2. The correlation value between indicators and variables is considered to meet convergent validity if all indicators have an LF value > 0.6.

Table 3. *Validity Test Results*

Variable	Indicator	Loading Factor (LF)	Description
Altruism	ALT1	0,838	Valid
	ALT2	0,843	Valid
	ALT3	0,855	Valid
	ALT4	0,750	Valid
	ALT5	0,733	Valid
Socialization	SOC1	0,828	Valid
	SOC2	0,820	Valid
	SOC3	0,837	Valid
	SOC4	0,799	Valid
	SOC5	0,793	Valid
Pass Time	PT1	0,833	Valid
	PT2	0,862	Valid
	PT3	0,827	Valid
	PT4	0,877	Valid
Information Sharing	IS1	**0,279**	**Invalid**
	IS2	**0,583**	**Invalid**
	IS3	**0,416**	**Invalid**
	IS4	**0,541**	**Invalid**
	IS5	0,861	Valid
	IS6	0,786	Valid
	IS7	0,842	Valid
	IS8	0,853	Valid
Information Seeking	ISK1	0,858	Valid
	ISK2	0,899	Valid
	ISK3	0,816	Valid
Fakes News Sharing on COVID-19	FNS1	0,857	Valid
	FNS2	0,885	Valid
	FNS3	0,925	Valid
	FNS4	0,904	Valid
	FNS5	0,882	Valid

Source: Primary Data Processed, 2022

Table 2. shows that not all statements or items representing each indicator are said to be valid. The variable sharing information with the IS1, IS2, IS3, and IS4 indicators is declared invalid because it has an LF value below 0.6, namely 0.279; 0.583; 0.416, and 0.541. The cause of an item being invalid is that the data pattern is not evenly distributed, meaning that there is a pattern of inconsistent answers from respondents. So based on external loading validity, it is stated that all items or indicators have valid item validity, except for IS1, IS2, IS3, and IS4 indicators. The results of the validity test generally affect the reliability test, meaning that data with valid statement items will most likely also be reliable, except for the IS1, IS2, IS3, and IS4 indicators.

Then the next step is the analysis of construct reliability. The reliability construct measures the reliability of the latent variable construct. Values considered reliable should be above 0.70. The reliability construct is the same as Cronbach's Alpha. In Table 3 below are the results of the analysis.

Table 4. Construct Reliability and Validity

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Altruism	0,873	0,913	0,902	0,649
Socialization	0,878	0,902	0,908	0,665
Pass Time	0,872	0,877	0,912	0,722
Information Sharing	0,856	0,924	0,860	**0,460**
Information Seeking	0,821	0,824	0,893	0,737
Fakes News Sharing on COVID-19	0,935	0,936	0,951	0,794

Source: Primary Data Processed, 2022

And based on Table 3 above, it can be seen that all constructs have Cronbach's Alpha values > 0.6, and even if all of them are > 0.7, it can be said that all of these constructs are reliable. For example, if Cronbach's Alpha of the latent variable Altruism is 0.873 > 0.7, then Altruism is reliable. Likewise, with other variables where the value is > 0.7 so they are all reliable, the Average Variance Extracted (AVE) value for the Information Sharing variable is < 0.7, which is 0.460.

Convergent validity can be determined based on the principle that the measures of a construct should be highly correlated. The convergent validity of a construct with reflective indicators was evaluated by Average Variance Extracted (AVE). The AVE value should be 0.5 or more. An AVE value of 0.5 or more means that the construct can explain 50% or more of the item variance [26] [27].

4.1.2. Inner Model Testing (Structural Model))

4.1.2.1. Hypothesis Test

Hypothesis testing is carried out based on the results of testing the Inner Model (model structural), including the output r-square, parameter coefficients, and t-statistics. To see whether a hypothesis can be accepted or rejected, paying attention to the significance value between constructs, t-statistics, and p-values is important. Test This research hypothesis was carried out with the help of SmartPLS (Partial Least Squares) 3.0. These values can be seen from the bootstrapping results. The rule of thumb used in this study is t-statistic > 1.96 with a significance level of p-value 0.05 (5%), and the beta coefficient is positive.

Hypothesis testing value This research can be shown in Table 4, and the results of this research model can be described as shown in Figure 5:

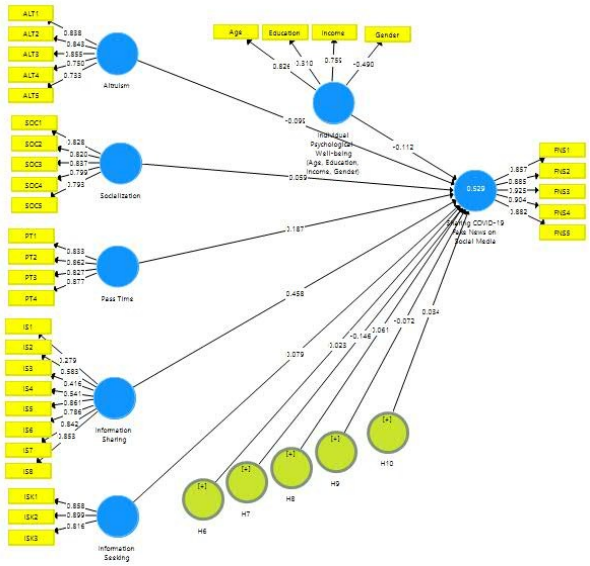

Figure 5. Research Model Results

Table 5. Path Coefficients Results

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
H1 -> FNS	-0,099	-0,101	0,071	1,406	0,160
H2 -> FNS	0,187	0,190	0,116	1,604	0,109
H3 -> FNS	-0,112	-0,113	0,059	1,904	0,057
H4 -> FNS	0,458	0,473	0,117	3,920	**0,000**
H5 -> FNS	0,079	0,080	0,078	1,021	0,308
H6 -> FNS	0,023	0,026	0,078	0,300	0,764
H7 -> FNS	-0,146	-0,120	0,124	1,173	0,241
H8 -> FNS	0,061	0,059	0,109	0,559	0,576
H9 -> FNS	-0,072	-0,089	0,107	0,669	0,504
H10 -> FNS	0,034	0,029	0,078	0,433	0,665

Source: Primary Data Processed, 2022

The first hypothesis tests whether Altruism affects Fake News Sharing during COVID-19. The test results show that the beta coefficient of Altruism on Fake News Sharing on COVID-19 is -0.099, and the t-statistic is 1.406. These results show that the t-statistic is not significant because it is <1.96 with a p-value <0.05, so the first hypothesis is rejected. This proves that Altruism is not proven to influence Fake News Sharing on COVID-19 positively.

The second hypothesis tests whether Socialization affects Fake News Sharing on COVID-19. The test results show that the socialization beta coefficient on Fake News Sharing on COVID-19 is 0.187, and the t-statistic is 1.604. These results show that the t-statistic is not significant because it is <1.96 with a p-value <0.05, so the second hypothesis is rejected. This proves that Socialization has not been proven to influence Fake News Sharing on COVID-19 positively.

The third hypothesis tests whether Pass Time has an effect on Fake News Sharing on COVID-19. The test results show that the coefficient of beta Pass Time on Fake News Sharing on COVID-19 is -0.112, and the t-statistic is 1.904. These results show that the t-statistic is not significant because it is <1.96 with a p-value <0.05, so the third hypothesis is rejected. This proves that Pass Time is not proven to positively influence Fake News Sharing on COVID-19.

The fourth hypothesis tests whether Information Sharing has an effect on Fake News Sharing on COVID-19. The test results show that the beta Pass Time coefficient on Fake News Sharing on COVID-19 is 0.458, and the t-statistic is 3.920. These results showed that the t-statistic is not significant because it is >1.96 with a p-value <0.05, so the fourth hypothesis is rejected. This proves that Information Sharing has not been proven to positively influence Fake News Sharing on COVID-19.

Based on the test results, the fifth, sixth, seventh, eighth, ninth, and tenth hypotheses showed that the t-statistic <1.96. These results stated that the t-statistic was not significant, so the fifth, sixth, seventh, eighth, ninth, and tenth hypotheses were rejected.

5. Discussion

This section will explain the results of the research analysis. This study aimed to determine the most influential factors in spreading COVID-19 fake news on social media in Indonesia. Given the previous literature, this study uses five variables, namely altruism (ALT), socialization (SOC), Pass Time (PT), Information Sharing (IS), and Information Seeking (UTI). In addition, the moderate effects of Individual Psychological Well-being (Age, Education, Income, and Gender) were examined. A total of ten hypotheses were developed and tested using the Structural Equation Modeling (SEM) method and assisted by the SmartPLS 3.0 software; the results of this study show the following:

First, the demographic characteristics of the respondents are summarized using descriptive statistics. The majority of respondents in this study were women aged 30 to 34 years with a strata 1 (S1) education. According to the author's observations, it is suspected that these women of adult age were not influenced to spread false news or information related to COVID-19 on social media in Indonesia.

Second, out of the ten hypotheses based on the test results, all were rejected. This proves that altruism, socialization, pass time, information sharing, and information seeking as well as moderate psychological welfare variables are not proven to positively influence Fake News Sharing COVID-19 on Media Socia in Indonesia. All hypotheses were rejected because there were a number of IS1, IS2, IS3, and IS4 indicator items that were insignificant or invalid. This affects the reliability test, meaning that data with invalid statement items is also likely unreliable. Conceptually, the treatment of invalid items is discarded or not used, or statement items are replaced with new ones, but the researcher only performs one step of Convergent Validity testing. So that all hypotheses may be rejected, so there are several indicators or sub-items whose loading factor values are <0.70 or have a low level of validity. Future researchers should carry out several stages of convergent validity testing if several indicators are found with a loading factor level <0.70 so that these variable indicators need to be removed or removed from the model. Then the test is repeated later until all indicators are declared valid.

In short, this study obtained findings showing that the spread of false news or information related to COVID-19 on social media in Indonesia is not influenced by factors of altruism, socialization, pass time, information sharing, and information seeking as well as individual psychological well-being (age, education, income, and gender).

6. Study Limitations

This study has some limitations. First, this research focused on the COVID-19 pandemic and the samples were taken from a small part of the Indonesian people. It is possible that the findings may not be generalizable to sharing false news or information in general. However, these findings can be generalized to other developing countries that share a culture similar to that of Indonesian society.

Second, this study was conducted only on Convergent Validity test step. So this allows all hypotheses to be rejected, so there are several indicators or sub-items whose loading factor value is < 0.70 or has a low level of validity. Future researchers should conduct several stages of testing convergent validity if several indicators are found with a loading factor level of <0.70 so that these variable indicators need to be eliminated or removed from the model. Then the test is repeated at the next stage until all indicators are declared valid. Third, future researchers can increase the sample for better statistical calculation results.

7. Conclusions

Based on the U&G theory with a moderating variable of psychological well-being with demographic factors such as age, education, income, and gender, it was not proven to affect the spread of information or fake news related to COVID-19 on social media in Indonesia. The samples were taken from a small part of Indonesian society. Based on the results, it is concluded that altruism, socialization, spending leisure time, information sharing, information seeking, and demographic factors of individual psychological well-being are not significantly associated with sharing fake news in this study. It should be noted that the conclusions are based on the analyzed selective constructs.

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