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Social media or word of mouth: Maintaining a healthy lifestyle during the COVID-19 pandemic in Indonesia

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Abstract

The purpose of this study is to examine how public opinions about maintaining a healthy lifestyle during the COVID-19 pandemic are influenced by social media and word-of-mouth (WOM). The research method used is a quantitative approach. This research was conducted in Jakarta by collecting data through the distribution of questionnaires to 200 respondents. The respondents were selected through a purposive sampling technique with several characteristics. Hypothesis testing in this study uses multiple linear regression analysis. The findings of this study show that there is a significant influence between social media and WOM on people's healthy lifestyles during the COVID-19 pandemic. This is indicated by the results of the regression equation which shows a positive correlation. In other words, health promotion during the COVID-19 pandemic is influenced by social media and WOM. The study also concluded that during the COVID -19 pandemic, people relied heavily on opinion leaders in their communities and on social media which they followed. This is due to the impact of technological advances. They are used to accessing social media for health information. So the role of WOM is very influential in people's attitudes towards healthy living. This research has implications for the healthy lifestyles of people in Indonesia. In addition, interpersonal WOM communication strategies are important in building a society that values healthy lifestyles after the COVID-19 pandemic.

Keywords: COVID-19, Health communication, Health information, Health lifestyle, Social media, Word-of-Mouth.

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Transparency: The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

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1. Introduction

Since 2020-2023, the COVID-19 pandemic has affected almost all countries in the world [1]. Various scientists are trying to conduct research related to the pandemic as a strategy to overcome the effects of COVID-19 [2]. Previous studies suggest that the COVID-19 pandemic also has a positive impact especially on health maintenance [3].

Maintaining health during the COVID-19 pandemic is generally carried out by the community to minimize the spread of the virus. The spread of the COVID-19 virus can be caused by saliva released when talking, sneezing or coughing [4]. In addition, indirect contact with objects can also cause the transmission of the virus. Therefore, almost all countries require the use of masks when doing activities outside the home [5]. Socialization to maintain a healthy life and the use of masks are also carried out through social media [6, 7]. Social media is an information tool commonly used by the public during the COVID -19 pandemic [8]. Various information, news and learning activities use social media [9]. The high intensity has made various government agencies and health care activists as well as academics and doctors use social media to conduct health promotion [6]. One of the most frequently used functions of social media is to socialize. Generally, social media becomes the go-to information medium because there is no difference between virtual friends and real-world friends. This condition occurs as long as they feel supported and their presence is considered by the community [7]. Social media is here to strengthen the relationship between them through various features such as videos and photos [10]. Since the COVID-19 pandemic, the level of hoax spreading through social media has also increased. Such as the news about wearing masks which has become hoax news material. Thus, many people think that the news is true.

In addition to social media, Word-of-Mouth (WOM) is also a supporting factor for promotion for the community in maintaining health amid a pandemic. WOM is generally used as a way to market to consumers. The existence of this WOM phenomenon as a form of conveying information and opinions can certainly change everyday life significantly. The extraordinary growth of communication has made academics increase their interest in one of the theories, namely WOM, including the researchers themselves [11]. This study attempts to analyse WOM in addressing people's healthy living attitudes during the pandemic because WOM is generally conducted face-to-face. However, this study becomes much more interesting given the government's policy of distancing and isolation during the pandemic [12].

WOM is one of the oldest ways of conveying information but it is arguably the most effective [13]. Some scholars consider that WOM is an information exchange activity between consumers and sellers [14, 15]. The promotional communication process plays a fundamental role in shaping the treatment and changing the nature between the product produced and the service provided. Katz [16] pointed out that the use of WOM can be adapted through health communication especially in terms of information exchange. In health information exchange, the internet provides information to other parties and then other parties provide information again to other parties. Thus, WOM activities occur even though they are online-based. In other words, WOM can be summarised as a person-to-person communication model between communicators and communicants [17]. The reception of information carried out by WOM is very diverse. WOM is used to receive information about brands, products and even non-commercialized services that have an impact on the person who receives it based on the research of Meilatinova [18]. Both recipients will eventually implement the information received [19]. Acceptance of the information can be implemented by buying the same product or applying the information in daily life such as in health communication [20]. WOM can be modified as a good information dissemination suggestion and can be used by the community Taheri, et al. [21]. This is called the amount of WOM in elasticity. WOM is present due to certain information uncertainty defined as the lack of availability of health information regarding information alternatives during the pandemic as well as the public's handling of receiving information through its theory and hypothesis in information dissemination [14]. People themselves need to seek health information and trust its credibility enough to make decisions based on the information available to achieve a significant impact in the use of electronic WOM theory [15]. The pandemic itself is essential to WOM's effect on people's search for health information. The pandemic has forced people to be isolated at home. When the feeling of isolation exists, the only way for people to know the outside world is by accessing electronic media. Opened electronic media presents several kinds of information moving from person to another through social media platforms [22]. The public can then receive information and re-distribute it which of course includes health information. This literacy search is then complemented by a wealth of contextual factors to understand the effects of eWOM in an elastic way with the broad characteristics of the internet. In the context of health information, for example, it can be divided into two parts, namely long-term or short-term health information. People's expectation as readers of information is to get more benefits from what they want to know. Therefore, long-term messages will be more complex in delivery and have more readers than short-term information. Short-term information also plays an important role in knowing news on certain days that are up-to-date such as information on COVID-19 patients who are positive, recovered or have died.

The scholars focused on community adaptation and hoaxes in the middle of the COVID-19 pandemic based on previous studies [11, 16, 18]. Then, how do people maintain a healthy life? Do they maintain a healthy life because of influencers from social media or word of mouth? For this reason, this research aims to analyse the influence of social media and WOM on public attitudes towards maintaining a healthy life during the COVID -19 pandemic.

1.1. Research Question

The following questions have been explored based on the background and objectives of this research:

1. Is there an influence of social media usage on people's healthy lifestyles during the COVID -19 pandemic?
2. Is there an influence of WOM on people's healthy lifestyles during the COVID -19 pandemic?
3. Is there an interaction between the use of social media and WOM on healthy lifestyles during the COVID-19 pandemic?

1.2. Hypothesis

The following is the formulation of the research hypothesis based on the background and research questions that have been explored:

H₁: There is a significant influence of social media usage on people's healthy lifestyles during the COVID -19 pandemic.

H₂: There is a significant influence of WOM on people's healthy lifestyle during the COVID -19 pandemic.

H₃: There is an interaction between the use of social media and WOM on healthy lifestyles during the COVID -19 pandemic.

2. Literature Review

2.1. Health Information by Social Media and Word-Of-Mouth

Health information is part of health communication. Health communication is a development of the study of communication science which examines communication between people with a focus on how an individual in a group or community deals with health-related issues and seeks to maintain health [10]. Therefore, health communication is the delivery of information related to disease prevention, health promotion, health maintenance policies and regulations in the health sector [23]. In communication science, health information is important for society. In relation to communication science, Laswell introduced a communication model with five important components: the communicator, the message conveyed, the media used, the communicant and the effect of the message conveyed. Thus, health information cannot be separated from the communicator's strategy to influence the behaviour of the other party and it is hoped that the other party can understand what is conveyed by the party receiving the message.

According to Schiavo [24] health communication plays a role in supporting people to have healthy behaviours. Health communication also encourages the government to make policies that are able to meet needs and encourage medical personnel to provide the best possible health services. Therefore, health communication can be done in two ways either through social media or WOM. Humphreys [25] assessed that social media is related to context and content because social media allows users to exchange information in the form of content and news. Carr and Hayes [26] assessed that social media provides opportunities for users to interact as a form of connectivity and continuity. WOM is also a phenomenon that is usually done for marketing. Jalilvand, et al. [27] assessed that WOM is a type of communication with non-commercial messages that has a higher persuasive level of trust and credibility.

2.2. Healthy Lifestyle During the COVID-19 Pandemic

Lifestyle plays an important role in maintaining health because a good lifestyle will have an impact on your health Mbabazi, et al. [28]. According to Hautekiet, et al. [29] a healthy lifestyle is defined as a way of life that lowers the risk of serious illness or premature death In short, healthy lifestyle attitudes are all activities, both observable and non-observable that are related to maintaining and improving health. Since the COVID -19 pandemic, a healthy lifestyle has been demonstrated by the community by using health masks [30]. These health masks are used as an alternative to prevent and protect themselves from the spread of the COVID-19 virus. Thus, this maintenance improves health as well as finding healing solutions when sick or affected by health problems.

3. Materials and Method

3.1. Research Design

This study used the quantitative method developed by Stevens and De Bruycker [31]. This quantitative research was collected through a survey method conducted with 200 respondents (see Table 1). Respondents in this study were selected using the purposive sampling technique. Thus, researchers took samples based on considerations, namely Indonesian people who have lived in Jakarta for more than 15 years have been exposed to COVID -19 and are willing to fill out questionnaires for research activities. The questionnaire used by researchers is a closed questionnaire. Respondents were given a questionnaire with several alternative answers. Furthermore, respondents indicated according to the researcher's request.

Table 1.
List of characteristics of respondents.

Characteristics	Category	Number	Percent (%)
Gender	Men	92	46
	Women	108	54
Aged	21 – 31 years old	50	25
	32 – 42 years old	60	30
	More than 42 years old	90	45
Profession	Teachers or lecturers	20	10
	Medical personnel	55	27,5
	Entrepreneur	45	22,5
	Pensionary	80	40
Received information through social media	Facebook	30	15
	WhatsApp	100	50
	Instagram	50	25
	X (Twitter)	20	10

3.2. Research Instrument

This study presents three identified variables namely social media (X1), WOM (X2) and healthy lifestyle (Y). The indicators in the questionnaire were developed based on the Schiavo concept of health communication related to health promotion through social media and WOM as follows:

Table 2.

Indicators of variables.

No	Variables	Indicators
1	Social media	Content
		Context
		Connectivity
		Continuity
2	WOM	Reading reviews
		Gathering information through the internet.
		Feeling worried if you don't read reviews.
		Increased confidence after reading reviews.
3	Healthy lifestyle	Personal hygiene
		Using a mask
		Physical activity

3.3. Data Collection

The questionnaire became the tool for collecting data. The questionnaire was distributed online using Google Form. A Likert scale was used by researchers on each question with a range of 1 – 5. The process of filling out this questionnaire was carried out for four weeks with 200 respondents. However, before the researcher distributed the questionnaire, validity and reliability tests were conducted (see Table 3). We used the Kaiser Meyer Olkin (KMO) test to analyse the validity. KMO is used to test the accuracy of factor analysis related to the questions in the questionnaire. KMO has a test scale of 0 to 1. This test scale means that if the KMO value is lower than 0.5, then the results of the factor analysis are not feasible. If the result of the KMO value is greater, then the factor is feasible.

Table 3.

Validity and reliability.

Variables	Validity	Reliability
Social media	KMO = 0.729 Sign= 0.000	r= 0.812
WOM	KMO=0.882 Sign=0.000	r= 0.879
Healthy lifestyle	KMO=0.852 Sign= 0.000	r= 0.876

Table 2 shows that the KMO value of social media, WOM and a healthy lifestyle is above 0.5 which indicates that factor analysis is feasible.

3.4. Data Analysis

This study uses multiple regression tests to test whether there is an influence between social media and WOM on healthy living attitudes during the COVID-19 pandemic. This multiple analysis technique was carried out with the help of statistical software, namely SPSS 23 (Statistical Product and Service Solution). Researchers conducted three classic assumption tests as a step in analysing the data. The three classic assumption tests are the normality test, the multicollinearity test and the homogeneity test. Furthermore, researchers tested t-statistics to analyse the effect of each variable. This process is carried out to determine whether the independent variables in this study have a significant effect on the dependent variable. Therefore, the researcher compiled a hypothesis based on the analysis as follows:

Hypothesis test I

H₁: There is a significant influence of social media (X1) usage on people's healthy lifestyles during the COVID-19 pandemic (Y).

H₀: There is not a significant influence of social media (X1) usage on people's healthy lifestyles during the COVID -19 pandemic (Y).

H₂: There is a significant influence of WOM (X2) on people's healthy lifestyles during the COVID -19 pandemic (Y).

H₀: There is not a significant influence of WOM (X2) on people's healthy lifestyles during the COVID -19 pandemic (Y).

Based on the hypothesis, we use data analysis by calculating the significance value of 0.05. In other words, if the F count is greater than F table, then H₀ is rejected and H₁ is accepted.

4. Results and Discussion

4.1. Prerequisite Test

This research data consists of social media (X1) and WOM (X2) as independent variables based on the research method used. The dependent variable is a healthy lifestyle (Y). Therefore, we conducted a prerequisite analysis test before analyzing the data through a normality test, a linearity test and a homogeneity test as follows:

Table 4.
Normality test.

No	Variables	Factors	Score
1	Social media	KS Z value	1.896
		Probability	0.07
2	WOM	KS Z value	1.488
		Probability	0.12
3	Healthy lifestyle	KS Z value	1.558
		Probability	0.10

Table 4 indicates that the distribution value is normal and the Kolmogorov Smirnov (KS) test data requirements are greater than 0.05.

Table 5.
Linearity test.

Variables	Df	F-count	F-table	Sig.	Description
X1 and Y	200	0.788	3.86	0.620	Linear
X2 and Y	200	0.627	3.86	0.861	Linear

According to Table 5, the F-count value is smaller than the F-table value. Therefore, there is a functional relationship equation in the form of a straight line between the three variables.

Table 6.
Homogeneity test.

Variables	Levene statistic	Df1	Df2	Sig
X1	3.880	90	110	0.000
X2	2.885	90	110	0.000

Table 6 shows that the r values of the X1 and X2 variables are smaller than the level used in the study ($0,000 < 0,05$). Thus the scores of the two variables can be said to be homogeneously distributed.

4.2. The Results of the Hypothesis Test

The researcher conducted a hypothesis test on X1 and X2 on Y. The hypothesis test provides an overview of the influence between the three variables. The following are the regression results for the three variables:

Table 7.
Regression equations test X1 and Y.

Model	Unstandardized coefficients		Standardised coefficients	t	Sig.
	B	Std. error			
Social media	32.488	2.581	Beta	15.2495	0.000
	0.702	0.41			

Table 7 shows the regression equation: $X1 = 32.488 + 0.702 Y$. Thus, there is a positive influence of social media on health and lifestyle. Therefore, H1 is accepted because the r value is greater than a certain value.

Table 8.
Regression equations test X2 and Y.

Model	Unstandardized coefficients		Standardised coefficients	t	Sig.
	B	Std. error			
WOM	42.418	3.681	Beta	18.970	0.000
	0.862	0.54			

Table 8 shows that the regression equation $X2 = 42.418 + 0.862 Y$. Therefore, H2 is accepted and H0 is rejected. The following are the simultaneous variable results from Tables 7 and 8:

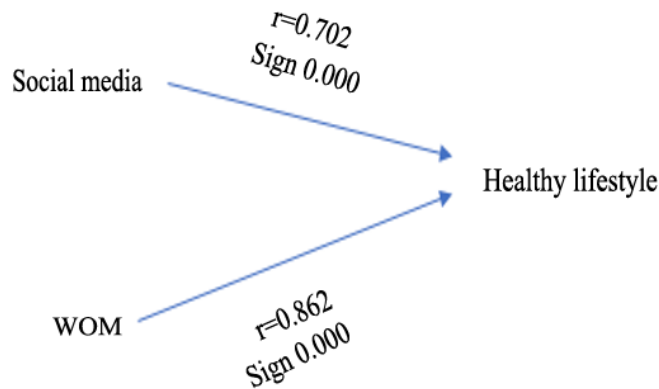


Figure 1
Simultaneous variables.

According to **Figure 1**, it can be concluded that the hypothesis tested in the study is that social media or word of mouth affects the use of health masks during the COVID-19 pandemic in Indonesia.

Table 9.

A multiple regression test of the interaction between the use of social media (X1) and WOM (X2) on healthy lifestyles during the COVID -19 pandemic (Y).

Coefficients (a)					
Model	Unstandardized coefficients		Standardised coefficients Beta	t	Sig.
	B	Std. error			
1. (Constant)	8.532	9.707		0.959	0.508
Social media	0.687	0.386	0.756	3.647	0.041
WOM	0.489	0.367	0.563	2.568	0.180

Note: a. Dependent variable: Healthy lifestyle during the COVID-19 pandemic.

Table 9 shows that the results of the calculation of the multiple regression direction coefficient are $Y = 8.532 + 0.687 (X1) + 0.489 (X2)$. The following are the results of the multiple regression significance analysis:

Table 10.

A multiple regression test of the interaction between the use of social media (X1) and WOM (X2) on healthy lifestyles during the COVID -19 pandemic (Y).

ANOVA (b)					
Model	Sum of squares	df	Mean square	F	Sig.
Regression	4255.183	2	2110.059	15.608	0.000 (a)
Residual	910.885	198	44.889		
Total	4255.08	200			

Note: a. Predictors: (constant), Social media, WOM.

b. Dependent variable: Healthy lifestyle during the COVID-19 pandemic.

Table 10 shows that the r value is smaller than 0.05. There is a significant interaction between the use of social media and WOM on healthy lifestyles during the COVID -19 pandemic. This is shown by $Y = 8.532 + 0.687 X1 + 0.489 X2$, then Y: 15.608. Therefore, the correlation is positive.

4.3. The Interaction between Social Media and WOM during the COVID -19 Pandemic

This study supports the findings of **Yasir, et al. [32]** that WOM has an impact on society because during the COVID -19 pandemic, there is a quarantine that requires people to be at home all the time which allows them to participate more in social media to get various information, especially about the prevention and handling of COVID -19 such as one of them using health masks. Meanwhile, they cannot directly provide feedback related to the information they get. Thus, various information is analysed through reviews on social media. For this reason, it cannot be denied that the presence of social media really allows people to provide recommendations and important information about COVID -19 issues **[32]**. In addition to providing information, they also strengthen each other and rise from the pandemic through social media.

Although the COVID -19 pandemic has passed, its impact is not only negative because it has claimed many lives. There is also a positive impact namely changes in the style of health promotion through WOM and social media. This research descriptively assesses that social media consist of dimensions of self-interaction. Word-of-mouth consisting of non-commercial message dimensions has a higher persuasive level with trust and credibility of the message sender; positive value. Cognitive, affective and conative responses from respondents are positive. People have begun to show and implement healthy living attitudes in facing the COVID-19 pandemic.

The study of WOM has been reflected as part of the reasons why people undergo or implement information based on psychological perceptions which then have an impact on the habit of filtering information **[22]**. Health information plays a

major role and significantly increases the contribution of the community to understanding WOM. The presence of WOM is the answer to people's fear of visiting hospitals during the COVID-19 pandemic like marketing that spreads widely, that is how WOM works in disseminating information. The effect of mouth-to-mouth information dissemination has a more significant effect than the spread of traditional information activities both in response and the role of the media. People need to choose which information is considered relevant to their current conditions through the opinions of online media and close people who are increasingly widespread in disseminating information.

With the excessive concern of the public when receiving information during the COVID-19 pandemic about their fear of being affected by the same disease, people are competing to live a much healthier life and have a good share in disseminating the information received. WOM plays a role as a massive and significant information dissemination tool. The dissemination of information through social media in the study of WOM theory has a statistical number of 0.702 and 0.862 which indicates that the alternative hypothesis is accepted. The acceptance of this alternative hypothesis is not without reason with a reliability value of more than 0.6 being a requirement for why the study results are considered relevant. During COVID-19, information dissemination is considered more efficient and accurate with massive information. The dissemination of positive information has led to the many roles of the community in accessing information, either leaving comments, liking health information posts or playing a role in eWOM by sharing health information that is read [33].

5. Conclusion

It can be concluded that respondents in Indonesia during the COVID-19 pandemic rely heavily on opinion leaders in their communities and the social media that they usually follow to access health information. So the role of WOM is very influential on people's healthy living attitudes. The healthy lifestyle is also spread by the community through WOM. This study also concluded that the presence of social media as a tool to access information allows people to provide recommendations and important information about COVID-19 issues. These recommendations are not only to strengthen each other and rise from the pandemic but also to maintain a healthy lifestyle so as not to be exposed to the COVID-19 virus. In addition, this research also has limitations in its development process and can be the basis for future research because this study only focuses on three variables and the research method used is only a quantitative approach. Therefore, future research can add variables by focusing on eWOM and the spread of hoax news after the COVID-19 pandemic. In addition, mixed methods can also be used to deepen the research.

6. Implication

This research has implications for the communication styles used by society. This communication style developed due to advances in technology and information such as the presence of social media. Therefore, WOM which is generally done face-to-face can be developed directly through online means. It becomes easier for people to get information. In addition, this research can encourage the government especially the ministry of health to collaborate with the ministry of communication in promoting health to the public through social media. In addition, it minimises the spread of hoax news related to health issues on social media. Thus, people get valid information and can still maintain a healthy lifestyle even though the COVID -19 pandemic has ended.

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Appendix A.

Questionnaire.

No	Statements	SA	A	N	D	SD
1	Health information content is more accessible through social media to encourage healthy lifestyle behaviour					
2	Social media influencers' message delivery to the public through images or photos is interesting, innovative, relevant and consistent.					
3	Health promotion content by social media encourages healthy lifestyle sharing.					
4	The delivery of health messages in social media content captions is clear and easy to understand.					
5	The delivery of health messages in content captions encourages healthy lifestyles.					
6	Social media helps to find networking that has an interest in maintaining a healthy lifestyle.					
7	Through social media, I often access information related to the Covid-19.					
8	I often access information by social media to maintain a healthy lifestyle in the middle of Covid-19.					
9	Social media admins build communication about strategies to maintain a healthy lifestyle during the Covid-19 pandemic.					
10	Social media admins build communication about questions related to healthy life.					
11	I know tips on healthy life information provided by social media influencers.					
12	I learnt various information about healthy life from reviews of health-promoting influencers on social media					
13	I feel hesitant when I don't read reviews of health-promoting influencers on social media					
14	I recommend a healthy lifestyle to my closest relatives and friends during the Covid-19 pandemic from health information on social media					
15	I promote the use of masks to relatives and friends during the Covid-19 pandemic as tips for maintaining a healthy lifestyle					
16	I recommend contents on social media related to healthy lifestyle to my closest relatives and friends.					
17	Information available on social media stimulates me to always maintain personal hygiene.					

Appendix A is a questionnaire given by researchers to respondents. There are 17 statements that are adjusted to Table 2. The following is a description of the Likert scale:

- 5: Strongly Agree
- 4: Agree
- 3: Neutral
- 2: Disagree
- 1: Strongly Disagree