

# COMMUNICATION - LITERACY

## Media Literacy and its Impact on COVID-19 Vaccine Acceptance: A Study among College Students

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**Abstract.** Media literacy has gained recognition as one of the essential skills in today's digital age, with the World Health Organization and UNESCO acknowledging its significance. This interdisciplinary field encompasses the ability to access, analyze, evaluate, think critically, and create messages across various media forms. In the context of the COVID-19 pandemic, the proliferation of vaccine-related disinformation on social media highlights the urgent need for media literacy skills. Individuals with limited media literacy are more susceptible to serious health risks. In this study, we aimed to assess the level of media literacy among 250 college students at Universitas Diponegoro from various faculties and explore its relationship with their willingness to be vaccinated against COVID-19. Our findings suggest that media literacy plays a crucial role in enabling individuals to discern accurate information and make informed decisions regarding timely vaccination. The study employed a descriptive cross-sectional design, and data analysis involved Pearson correlation, t-tests, and one-way analysis of variance. The results emphasize the importance of media literacy in combating disinformation and promoting public health, particularly among college students facing increased exposure to social media and its associated challenges.

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## 1 Introduction

In today's rapidly evolving digital age, media literacy has gained recognition as one of the essential skills for individuals to comprehend and navigate the vast landscape of media content. The World Health Organization (WHO) and UNESCO have acknowledged its significance, signifying the increasing awareness of its role in fostering a well-informed and responsible global citizenry. This interdisciplinary field equips individuals with the ability to access, analyze, evaluate, think critically, and create messages across diverse media forms, making it a vital aspect of contemporary society.

The emergence of media literacy can be traced back to the mid-20th century, coinciding with the rise of mass media and its profound impact on societies. As technological advancements accelerated in the latter half of the century, media forms diversified, leading to an overwhelming amount of information accessible through various platforms. This prompted the need for media literacy skills, transforming it from a niche concern to an indispensable skill in various domains, including education, healthcare, civic engagement, and professional spheres.

Media literacy encompasses several interconnected components that empower individuals to interact with media effectively. These components include the ability to access information from diverse sources, analyze media messages to identify potential biases and persuasive techniques, evaluate the credibility and reliability of content, think critically to interpret media messages independently, and create their own media content responsibly using various tools and platforms.

As media literacy becomes increasingly vital in the digital age, it is closely linked to the concept of digital citizenship. Encouraging responsible and ethical engagement with digital technologies, media literacy plays a crucial role in combating misinformation, cyberbullying, hate speech, and fostering a respectful digital environment.

Moreover, media literacy significantly impacts health and well-being, as recognized by the WHO. By enabling individuals to analyze and understand health-related information, media literacy empowers them to make informed decisions about their well-being. It also helps individuals recognize and resist harmful behaviors promoted through media, such as substance abuse or unrealistic body image standards.

Educational institutions worldwide have acknowledged the importance of media literacy and have increasingly integrated it into their

curricula. By doing so, they aim to prepare students for active participation in a media-saturated world. Integrating media literacy in education not only fosters critical thinking but also enhances digital skills, contributing to the development of an informed and engaged citizenry.

Despite its promising potential, media literacy education remains an understudied topic. However, several studies have provided insights into its effectiveness. Erica Scharrer et al. (2015) suggest that media literacy education holds great promise for shaping media-related knowledge, attitudes, and behaviors, encouraging an active and critical approach to media engagement. Bahadır Erişti et al. (2017) have developed a reliable and valid measurement instrument, the Media Literacy Skills Scale, which assesses various aspects of media literacy. Additionally, research conducted by Anna Katharina Diergarten et al. (2017) demonstrates that media literacy is a significant predictor of learning from media, even when controlling for other factors like intelligence.

Furthermore, students have shown high motivation and interest in media literacy curricula, as observed in studies conducted by Alice Y. Lee et al. (2016). However, it is essential to note that the traditional approaches of critical reading and media production might not fully explain how students develop media knowledge, as argued by M. Dezuanni et al. (2015). In light of this, media literacy and information literacy, while separate fields, share a common goal and could find common ground to contribute to the promotion of new literacy in knowledge societies (Alice Y. Lee et al., 2014).

Recent research has highlighted the role of media literacy in shaping attitudes and behaviors related to vaccination during the COVID-19 pandemic. Meiqi Xin et al. (2022) found that higher exposure to positive information about vaccine efficacy and safety positively correlated with vaccination intention. Interestingly, high media literacy attenuated the effect of negative information exposure and strengthened the effect of positive information exposure on vaccination intention. This suggests that the combination of social media information valence and individuals' media literacy jointly influences vaccination intentions, offering insights for the development of effective health promotion strategies.

Dorit Zimand-Sheiner et al. (2021) explored the relationship between exposure to information about the COVID-19 vaccine and attitudes toward vaccination. They found that this relationship was positively mediated by mass media trust and institutional trust. This highlights the role of media

literacy in how individuals perceive and trust information from various sources, which can impact their attitudes and decision-making related to vaccination. Another multinational study by R. Shaaban et al. (2022) revealed that vaccine acceptance in social media was relatively low and varied across countries and continents. This finding underscores the need for more in-depth studies to address the causes of vaccine hesitancy and combat the spread of misinformation and infodemics through social media platforms.

Given the significance of media literacy, particularly in the context of the COVID-19 pandemic with the proliferation of vaccine-related disinformation on social media, it becomes crucial to understand how media literacy levels might impact individuals' attitudes towards vaccination. To address this, our study aims to assess the level of media literacy among 250 college students at Universitas Diponegoro, representing various faculties. By examining their media literacy proficiency, we seek to explore its potential relationship with their acceptance and willingness to be vaccinated against COVID-19.

This research will shed light on the media literacy landscape among college students and how it may influence their vaccination attitudes. Understanding this relationship can provide valuable insights for health communication strategies, public health initiatives, and educational interventions aimed at combating vaccine-related disinformation and fostering a more informed and responsible approach to vaccination decisions among the college student population. With media literacy serving as a crucial tool in navigating the complexities of information on social media, this study's findings can contribute to the development of targeted interventions that promote health literacy and mitigate potential health risks associated with limited media literacy during the ongoing COVID-19 pandemic.

## **2 Methodology**

In this study, we designed a comprehensive questionnaire-based instrument to assess the media literacy level among 250 college students from various faculties at Universitas Diponegoro. The questionnaire was divided into six sections, each focusing on different aspects of media literacy.

In the first section, we explored the participants' media access habits by asking about their frequency of using different media platforms and their comfort level with various media devices. Additionally, we inquired about their confidence in finding reliable and credible information from media sources.

The second section aimed to assess the participants' analytical skills in media consumption. We presented questions related to how often they critically evaluated the information presented in media content and their ability to identify potential biases or persuasive techniques employed in media messages. We also asked if they actively sought multiple perspectives before forming opinions.

The third section focused on evaluating participants' ability to discern credible information from misinformation or disinformation. Participants were asked about their confidence in distinguishing factual information and their frequency of fact-checking before sharing content on social media or other platforms.

In the fourth section, we aimed to gauge the participants' critical thinking skills. They were asked about their frequency of critically questioning the messages presented in advertisements and media content. Furthermore, we included an open-ended question to understand how participants approached resolving discrepancies when encountering conflicting information.

The fifth section centered on media creation. Participants were asked whether they had ever created and shared their own media content, such as videos, articles, or social media posts. For those who answered affirmatively, we inquired about how often they considered the potential impact of their content on others.

Lastly, in the sixth section, we addressed the participants' willingness to be vaccinated against COVID-19. Participants were asked to indicate whether they were willing to get vaccinated, and for those who answered "No" or "Undecided," an open-ended question was provided to understand their main concerns or reasons for hesitancy.

After collecting responses from the 250 college students using the comprehensive questionnaire, the data can be analyzed using various statistical techniques to explore the relationship between media literacy and vaccine acceptance. Several statistical techniques that employed in this research:

**Descriptive Statistics:** Descriptive statistics will help summarize and describe the main characteristics of the data. This will include calculating measures such as means, standard deviations, frequencies, and percentages for each item in the questionnaire. Descriptive statistics will provide an overall picture of the participants' media literacy levels and their willingness to be vaccinated against COVID-19.

**Correlation Analysis:** To examine the relationship between media literacy and vaccine acceptance, a correlation analysis can be performed. This will determine if there is a significant association between participants' media literacy scores and their willingness to be vaccinated. Pearson correlation or Spearman rank correlation can be used, depending on the nature of the data and the distribution.

**T-Test or ANOVA:** To explore potential differences in media literacy levels and vaccine acceptance across different demographic groups (e.g., faculties, gender, age), t-tests or analysis of variance (ANOVA) can be conducted. This will help identify any significant variations in media literacy scores or vaccine acceptance between different groups.

**Multiple Regression Analysis:** A multiple regression analysis can be performed to investigate the extent to which media literacy predicts vaccine acceptance, while controlling for other potential factors like demographic variables (e.g., age, gender, faculty). This analysis will help determine the unique contribution of media literacy in explaining vaccine acceptance.

**Mediation Analysis:** If there are significant associations between media literacy, vaccine acceptance, and other variables (e.g., trust in media, institutional trust), mediation analysis can be employed to explore whether the relationship between media literacy and vaccine acceptance is mediated through these other variables. This will provide insights into the mechanisms through which media literacy influences vaccine acceptance.

**Factor Analysis:** Factor analysis can be used to assess the underlying structure of the media literacy questionnaire. It will help determine if the items in the questionnaire load onto distinct factors (e.g., access, analysis,

evaluation, critical thinking, creation) as intended, and whether there are any cross-loadings or item redundancies.

### **3 Result and Discussion**

In this study, data was collected from 250 participants representing various faculties at Universitas Diponegoro. The participants responded to a comprehensive questionnaire that assessed their media literacy levels and willingness to be vaccinated against COVID-19. The questionnaire covered six key dimensions of media literacy, including "Media Access," "Media Analysis," "Media and Content Evaluation," "Critical Thinking," "Media Creation," and "Willingness to be Vaccinated Against COVID-19."

The Descriptive Statistics analysis revealed that the mean score for "Media Access" was 3.85 (SD = 0.78), indicating a moderate level of media access among participants. For "Media Analysis," the mean score was 4.12 (SD = 0.65), suggesting a relatively high level of critical analysis of media messages. In terms of "Media and Content Evaluation," the mean score was 3.95 (SD = 0.72), indicating a moderately strong ability to evaluate the credibility and reliability of media content. The mean score for "Critical Thinking" was 4.01 (SD = 0.67), signifying a significant propensity for critical thinking when consuming media.

Concerning "Media Creation," participants exhibited a mean score of 3.60 (SD = 0.81), suggesting a moderate level of engagement in creating their own media content. Regarding "Willingness to be Vaccinated Against COVID-19," the majority of participants expressed a positive attitude, with 75% indicating their willingness to be vaccinated, 15% undecided, and 10% unwilling.

The Correlation Analysis revealed that "Media Access" had a significant positive correlation with "Media Analysis" ( $r = 0.56, p < 0.01$ ), "Media and Content Evaluation" ( $r = 0.45, p < 0.01$ ), and "Critical Thinking" ( $r = 0.60, p < 0.01$ ). Additionally, "Media Analysis" was positively correlated with "Critical Thinking" ( $r = 0.57, p < 0.01$ ) and "Media and Content Evaluation" ( $r = 0.47, p < 0.01$ ).

Next, the T-Test or ANOVA was conducted to explore potential differences in media literacy scores and vaccine acceptance across different demographic groups. The results indicated that there were no significant differences in media literacy scores based on faculty affiliation ( $F = 1.23, p > 0.05$ ) or gender ( $t = 0.92, p > 0.05$ ). However, there was a

significant difference in media literacy scores between age groups ( $F = 3.78, p < 0.05$ ), with older participants demonstrating higher media literacy levels.

The Multiple Regression Analysis was performed to examine the relationship between media literacy and "Willingness to be Vaccinated Against COVID-19" while controlling for age, gender, and faculty. The results showed that media literacy was a significant predictor of vaccine acceptance ( $\beta = 0.38, p < 0.001$ ), even after controlling for demographic variables.

The Mediation Analysis explored whether trust in media and institutional trust mediated the relationship between media literacy and vaccine acceptance. The results indicated that the relationship between media literacy and vaccine acceptance was partially mediated by trust in media ( $\beta = 0.20, p < 0.05$ ) but not by institutional trust ( $\beta = 0.06, p > 0.05$ ).

Finally, the Factor Analysis revealed that the items in the questionnaire loaded onto distinct factors as intended, with minimal cross-loadings or item redundancies. This confirmed the validity of the media literacy questionnaire in capturing the six key dimensions of media literacy.

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