

# Conspiracy Beliefs and Covid-19 Vaccine Hesitancy Among Acehese People

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**Abstract.** Believing in conspiracy theories often serves as a coping mechanism to alleviate uncertainty and regain a sense of control during crises like the Covid-19 pandemic. However, the proliferation of conspiracy beliefs during this pandemic has led to adverse consequences, including an upsurge in Covid-19 vaccine hesitancy. This study aims to examine the relationship between conspiracy beliefs and Covid-19 vaccine hesitancy among the Acehese populace. Employing a quantitative approach with the correlation method, this research selected Banda Aceh, Aceh Besar, and Sabang through one-stage cluster sampling. A total of 396 adult respondents registered for the Covid-19 vaccine in Aceh participated. The study employed modified versions of the Adolescent Conspiracy Beliefs Questionnaire (ACBQ) and the Adult Vaccine Hesitancy Scale (AVHS) instruments. The findings, revealed through Pearson correlation analysis, unveiled a significant link between conspiracy beliefs and vaccine hesitancy ( $p = 0.000$ ,  $r = 0.411$ ). This indicates that higher conspiracy beliefs correspond with elevated levels of Covid-19 vaccine hesitancy among the Acehese population. In essence, conspiracy beliefs play a pivotal role in shaping vaccine hesitancy behaviors within the Acehese community. The implications of this research underscore the necessity for enhanced educational endeavors, transparent communication, and vigilant monitoring of social media content to heighten public awareness and engagement in government-sponsored vaccination initiatives.

## 1 Introduction

During the Coronavirus Disease 2019 (Covid-19) pandemic, misinformation and conspiracy theories regarding Covid-19 have significantly increased worldwide [1]. In Indonesia, within just one month of its emergence, the Ministry of Communication and Information recorded over 1125 instances of misinformation and conspiracy theories spreading across various online media [2]. These rumors and wild speculations encompass various issues, such as Covid-19 being a biological weapon created in a laboratory, or the virus being caused by the presence of 5G cellular network technology, spreading rapidly through both online and offline media [3]. Although the accuracy of such information is often doubted in the end, in many cases, believing in conspiracy theories is considered as a perspective to understand surrounding situation [4].

Several studies conducted during the pandemic have found a significant prevalence of conspiracy beliefs regarding Covid-19 among the general public. For instance, Duplaga found that 43% to 56% of adult internet users in Poland believed in Covid-19 conspiracy theories [5]. Similar findings were observed in a study by Freeman et al. where 50% of

adult participants in the UK expressed support for Covid-19 conspiracy-related beliefs [6]. The prevalence of Covid-19 conspiracy beliefs was also evident in various major cities in Indonesia, such as Surabaya (21%), Jakarta (18%), and Bogor (16.5%) [7].

Conspiracy beliefs refer to the acceptance of specific conspiracy theories or a series of conspiracy theories [4]. According to Douglas et al. individuals may embrace conspiracy theories when essential psychological needs are not met, including the need to avoid uncertainty (epistemic), the need for control and security (existential), and the need to view oneself and one's group positively (social) [8]. In the same context, the COVID-19 pandemic provides an almost ideal situation for fostering and expanding conspiracy thinking [9]. Feelings of frustration with the ongoing events, uncertainty about the end of the pandemic, and fears about what the future holds have successfully engendered despair in many people [10].

In such circumstances, individuals tend to seek crucial information that they believe can answer all their questions. However, the information provided by relevant authorities such as governments is often perceived as complex and difficult to understand, leading many to view it as merely complicating

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matters [10]. Consequently, conspiracy theories emerge, attempting to provide simple explanations that social or political events are part of a plot involving influential actors (powerful individuals, organizations, governments) working covertly to achieve nefarious objectives [4, 11].

Thus, believing in conspiracy theories is considered a palliative step in fulfilling the need to avoid uncertainty and the need for controlling and security when facing crisis situations like the Covid-19 pandemic [4, 8, 10]. For instance, by believing that a specific country (such as China or the United States) intentionally created the virus in a laboratory for use as a biological weapon (despite no evidence supporting such claims), it provides a simplistic explanation about the origin of Covid-19 and specific actors to blame for the ongoing pandemic [12].

Despite the perceived positive impact of conspiracy beliefs on individuals, particularly when facing crisis situations, in reality, conspiracy beliefs actually have negative consequences, especially on various health behaviors [4]. During the Covid-19 pandemic, numerous studies have shown that the development of conspiracy beliefs is associated with negative consequences, such as reduced intentions to comply with government recommendations and decreased engagement in preventive health behaviors aimed at minimizing the spread of the Covid-19 virus (e.g., social distancing, good hygiene) [9, 13, 14, 15]. Furthermore, recent studies have found that conspiracy beliefs during the pandemic are linked to increased doubt and rejection of the COVID-19 vaccines [9, 16, 17, 18, 19, 20].

As one of the effective health intervention methods, vaccines have become the primary choice in efforts to stop the spread of the Covid-19 pandemic and achieve herd immunity. The effectiveness and efficiency of vaccines have been proven in preventing various cases of infectious diseases. It is estimated that vaccination programs prevent 2.7 million deaths from measles, 2 million deaths from tetanus, 600,000 deaths from polio, and 300,000 deaths from diphtheria each year [21]. Despite the significant positive impact, vaccination programs are often overshadowed by controversies, leading to vaccine hesitancy in the community [22, 23].

According to the WHO-SAGE (Strategic Advisory Group of Experts) working group, vaccine hesitancy refers to a delay in acceptance or refusal of vaccination despite the availability of vaccination services. There are three factors that influence vaccine hesitancy, namely perceived risk of the preventable disease through vaccination (complacency), convenience of accessing vaccination

services (convenience), and confidence in the type and safety of the vaccine (confidence) [24].

Since the implementation of the Covid-19 vaccination program in Indonesia, the public's acceptance response to vaccination has varied across different regions. Based on a national survey conducted by the Ministry of Health and UNICEF, the average acceptance rate of Covid-19 vaccination in the community is only 64.8%, with the province of Aceh having the lowest vaccine acceptance rate (46%) and West Papua having the highest vaccine acceptance rate (74%) [25]. The low acceptance response to Covid-19 vaccination in some regions, such as in Aceh, is attributed to various pros and cons related to the Covid-19 vaccine that are circulating within the community. Some members of the community still appear to distrust or doubt the safety, effectiveness (efficacy), and halal status of vaccines designated by the government [26].

Indeed, the phenomenon of vaccine hesitancy in Aceh is not a new issue. Several studies have shown that vaccine hesitancy has been a significant concern in Aceh during various national vaccination programs. For example, Yufika et al. found that 15.9% of parents in Aceh and North Sumatra were hesitant about the Zika vaccine [27]. Similarly, a study conducted by Pida in 2020, revealed that parents in Aceh had a high percentage of vaccine hesitancy (49%) in the diphtheria immunization program [28].

The emergence of vaccine hesitancy in Aceh, especially concerning the Covid-19 vaccine, is not without reason. The spread of misinformation and conspiracy beliefs about vaccines in the community is considered a significant predictor that has a substantial influence. This is further supported by several cases of Covid-19 vaccine refusal that occurred in various regions of Aceh, such as in the districts of Southwest Aceh, Central Aceh, and North Aceh, where these cases emerged due to the influence of conspiracy theories on social media and vaccine safety hoaxes [29, 30, 31].

Indeed, while conspiracy beliefs may be considered a trigger for vaccine hesitancy, several studies have shown that the presence of conspiracy beliefs often does not directly impact vaccine hesitancy. Another study conducted by McCarthy et al., in Australia found that Covid-19 conspiracy theories influence vaccine hesitancy through increasing perceptions of anomy and decreasing perceptions of health threat posed by Covid-19 [32]. Thus, while conspiracy beliefs have a significant relationship with vaccine hesitancy in individuals, they tend to play an indirect role in vaccine hesitancy. Individual beliefs in Covid-19 vaccine conspiracy theories may lead them to engage in behaviors with

real consequences, such as avoiding or even refusing the Covid-19 vaccine [10].

However, two years after the pandemic, fewer stories found in the media talk about vaccine hesitancy. The Indonesian government has implemented Covid-19 vaccination program massively. Several regulations have been applied to bind people and the vaccine, such as Covid-19 vaccine uptake proven by the certificate is one of the requirements for processing certain official document, traveling, public facilities, office, and school entries. Therefore, this study aims to examine the relationship between conspiracy belief and vaccine hesitancy in Aceh, a region positioned as below average at the initial national program of Covid-19 vaccination.

By understanding the relationship between conspiracy beliefs and the phenomenon of Covid-19 vaccine hesitancy in Aceh society, it is hoped that it can initiate preventive and intervention efforts for various vaccination programs in the future.

## 2 Material and Methods

The data collection was conducted from November 9 to November 24, 2022, with a total of 396 participants in this research. The sample criteria for this study included individuals aged 18 to 59 years residing in Aceh province who were willing to participate as respondents. The sampling method used in the research was probability sampling with the simple one-stage cluster sampling technique. The cluster sampling resulted in three districts and cities as the locations for data collection: Banda Aceh city, Aceh Besar district, and Sabang city.

Data collection was carried out using a questionnaire distributed through Google Form and in-person data collection. The questionnaire used in this study consisted of several sections. In the first section, participants were asked to provide demographic data, including age, gender, religion, domicile, marital status, educational status, occupation, income, and the last vaccine dose received. In this section, participants were also asked to answer questions related to their knowledge and sources of information about conspiracy theories they have encountered.

In the next section, participants were asked to respond to 9 items from the Adolescent Conspiracy Beliefs Questionnaire (ACBQ). ACBQ was developed by Jolley et al. as an instrument to measure Conspiracy Beliefs in adolescents. Although designed for use with adolescent respondents, a study by Jolley et al. on adult respondents found that ACBQ had good validity and reliability and correlated with two

conspiracy beliefs measurement tools designed for adults, namely the General Notions Of Conspiracy Theorizing scale, and the Belief In Real-World Conspiracy Beliefs scale [34].

In this study, the researchers adapted the wording of the items into Indonesian and modified the items in the ACBQ for use with adult respondents. Item modifications were made to make the items relevant to the context of the Covid-19 pandemic. For example, one item was modified from "*The government intentionally hides important information from the public*" to "*The government intentionally hides important information about Coronavirus Disease 2019 (Covid-19) from the public.*" Based on the conducted pilot test, ACBQ showed a reliability alpha value of 0.943.

In the last section of the questionnaire, participants were asked to respond to 10 items from the Adult Vaccine Hesitancy Scale (AVHS). AVHS was developed by Akel et al. to measure vaccine hesitancy in the general adult population [35]. AVHS is a modification of the Vaccine Hesitancy Scale (VHS) developed by the WHO-SAGE working group to measure vaccine hesitancy, particularly in parents with children [22].

In this study, the researchers modified the items in AVHS to specifically assess vaccine hesitancy related to the Covid-19 vaccine. For example, one item was modified from "*Vaccination is important for my health*" to "*The Covid-19 vaccine is important for my health.*" Based on the conducted pilot test, AVHS showed a reliability alpha value of 0.847. The modification and adaptation process for the data collection instruments used in this study were conducted through expert judgment involving three faculty members from the Psychology Program, Faculty of Medicine, Syiah Kuala University.

Data analysis for the collected data was carried out using descriptive analysis and the product-moment correlation technique to test the research hypotheses. Normality testing was conducted using the one-sample Kolmogorov-Smirnov test, and linearity testing was performed using the ANOVA test for linearity, as these tests were prerequisites for hypothesis testing. Data processing was done using Statistical Package for Social Science (SPSS) version 22.00 for Windows.

### 3 Result

#### 3.1 Characteristics Of The Study Group

**Table 1.** Characteristics of the study group

Variable	Respon Options	(n)	(%)
Age	18 - 30 Years	331	81,5
	31 - 45 Years	57	14,1
	46 - 59 Years	8	2
Gender	Male	90	22,9
	Female	306	77,1
Religion	Islam	371	91,6
	Catholic Christian	9	2,2
	Protestant Christian	10	2,5
	Hindu	4	1
	Confucianism	2	0,5
Marital Status	Single	319	80,6
	Married	67	16,9
	Divorced, separated, or widowed	10	2,5
Residence	Banda Aceh City	224	56,6
	Aceh Besar District	123	31,1
	Sabang City	47	11,9
Education	Junior High School	14	3,5
	Senior High School	127	32,1
	Diploma/ Bachelor's Degree	253	63,9
	Master's / Doctoral Degree	2	0,5
Occupation	Student	261	66,4
	Civil Servant or Government Employee	18	4,5
	Teacher or Lecturer	22	5,6
	Private Employee / State-Owned Enterprise	38	9,3
	Entrepreneur	26	6,6
	Armed Forces	4	1
	Retiree	1	0,3
	Unemployed	20	5,1
	Other	7	1,8
	Monthly Income (Indonesian Rupiah)	< 1 million	188
1 million – 5 million		108	27
5 million – 10 million		83	20,2
> 10 million		17	4,1

In this study, the majority of respondents were aged 18-30 years (81.5%), mostly female (77.1%), and Muslim (91.6%). The majority were unmarried (81.3%) and lived in Banda Aceh city (56.6%). Most respondents had completed college education (63.9%) and were students (66.4%) as their main occupation. The majority had a monthly income below 1 million Indonesian rupiahs (48.7%). Detailed socio-demographic characteristics are shown in **Table 1**.

#### 3.2 Statistics of Vaccination Status, Intensity, and Sources of Conspiracy Theory Media

This study conducted descriptive analysis on vaccination status and the intensity and sources of

conspiracy theory media exposure among the participants. The majority of respondents (96%) have been vaccinated against Covid-19, with 47.2% receiving a booster dose. Regarding the mandatory vaccination policy, 73% of respondents agreed with it. In terms of conspiracy theory media exposure, 78% of respondents were aware of or heard about Covid-19 conspiracy theories, with 46.4% receiving such information 1-5 times and 32.8% receiving it very often (>5 times). Social media platforms like WhatsApp, Twitter, Facebook, TikTok were the main sources of information on Covid-19 conspiracy theories for 82.3% of the respondents. Digital media served as sources for 1.3% of the respondents, and 16.4% stated that they never received any information about Covid-19 conspiracy theories. Detailed statistics of vaccination status, intensity, and sources of conspiracy theory media are shown in **Table 2**

**Table 2.** Descriptive Statistics of Vaccination Status, Intensity, and Sources of Conspiracy Theory Media

Variable	Respon Options	(n)	(%)
Covid-19 Vaccination Status	Vaccinated	380	96
	Not Vaccinated	16	4
Last Received Vaccine Dose	First Dose	35	8,4
	Second Dose	160	40,4
	Booster Dose	184	47,2
	Not Received at All	16	4
Views on Mandatory Vaccination Policy	Agree	289	73
	Disagree	92	23,2
	Unsure	15	3,8
Awareness of Covid-19 Conspiracy Theories	Aware	309	78
	Unaware	87	22
	Several Times (1 - 5 times)	188	47,5
Frequency of Exposure to Covid-19 Conspiracy Theories	Very Often (> 5 times)	133	33,6
	Never	75	18,9
	Sources of Covid-19 Conspiracy Theories	Social Media	326
	Digital Media	5	1,3
	Never Received	65	16,4

#### 3.3 Descriptive Statistics of Categorized Research Variables

Based on the categorization of the Conspiracy Beliefs variable, it was found that 156 respondents (39.4%) were in the low category, 83 respondents (21%) were in the moderate category, and 157

respondents (39.6%) were in the high category in terms of conspiracy beliefs level. Furthermore, the categorization of the Vaccine Hesitancy variable among the research participants showed that 139 respondents (35.1%) were in the low category, 257 respondents (56.2%) were in the moderate category, and there were no respondents (0%) in the high category in terms of vaccine hesitancy level. Detailed statistics of categorized research variables shown in **Table 3**.

**Table 3.** Statistics of Categorized Research Variables

Variable	Mean	SD	Category	n	%
<i>Conspiracy Beliefs</i>	33,04	13,38	High	156	39,4
			Moderate	83	21
			Low	157	39,6
<i>Vaccine Hesitancy</i>	23,94	4,11	High	0	0
			Moderate	139	35,1
			Low	257	64,9

### 3.4 Correlation Between Conspiracy Beliefs and Covid-19 Vaccine Hesitancy

Hypothesis testing to assess the relationship between the variables conspiracy beliefs and Covid-19 vaccine hesitancy in this study was conducted using the product-moment correlation analysis. Before conducting the product-moment correlation analysis, the data underwent assumption tests to assess normality and linearity. The normality test using the One-sample Kolmogorov-Smirnov Test showed that the data was normally distributed with a significance value of 0.069. The linearity test using the ANOVA test for linearity indicated a linear relationship between conspiracy beliefs and vaccine hesitancy with a significance value (p) of 0.000 and a deviation linearity of 0.396. The analysis continued with hypothesis testing using the Pearson Product-Moment Correlation analysis.

The Pearson Product-Moment Correlation analysis showed a correlation coefficient of 0.411 with a significance value (p) of 0.000 (p<0.05). This result indicates a significant positive relationship between conspiracy beliefs and Covid-19 vaccine hesitancy among the people of Aceh. Furthermore, the coefficient of determination (R-squared) value was 0.169, suggesting that 16.9% of the variance in vaccine hesitancy for Covid-19 among the people of Aceh can be explained by conspiracy beliefs, while the remaining 83.1% is influenced by other variables or predictors not examined in this study. Additionally, the correlation coefficient of 0.411 in this study indicates a significant and moderately

strong relationship between conspiracy beliefs and vaccine hesitancy.

## 4 Discussion

This study aimed to examine the relationship between conspiracy beliefs and Covid-19 vaccine hesitancy among the community in Aceh. The results of this research revealed a significant positive correlation between conspiracy beliefs and Covid-19 vaccine hesitancy among the people of Aceh, indicating that higher levels of conspiracy beliefs are associated with higher levels of Covid-19 vaccine hesitancy in the community and vice versa.

These findings are consistent with previous research, such as the study by Sallam et al. which found a link between the level of conspiracy beliefs and the high prevalence of Covid-19 vaccine hesitancy in several Arab countries [36]. The relationship between conspiracy beliefs and Covid-19 vaccine hesitancy was also observed in the study by Bertin et al, [17], which showed that conspiracy beliefs about Covid-19 were substantially negatively correlated with positive attitudes towards vaccination science and intentions to be vaccinated against Covid-19 in the future. Similarly, Jennings et al, found that the increase in cases of Covid-19 vaccine hesitancy was driven by conspiracy beliefs that the Covid-19 virus was man-made and used for human population control [37].

The relationship between conspiracy beliefs and Covid-19 vaccine hesitancy that found in this study is not a new phenomenon. Several studies have shown that conspiracy beliefs have long been a major predictor and play a strong role in shaping negative views of vaccination and the rejection of scientific evidence related to vaccines [4, 38, 39]. In Indonesia, the linkage between conspiracy beliefs and vaccine hesitancy has also been demonstrated by Zein et al, who found that beliefs in Jewish conspiracies and vaccine conspiracies significantly influence parents' decisions to delay or refuse vaccination for their children [40].

Douglas et al. stated that in times of crisis, such as the Covid-19 pandemic, people tend to seek important information that they believe can answer their questions [4]. Conspiracy theories in this case are considered to fulfill those needs, both in understanding what is happening around them and regaining a sense of control, security, and meaning in a world full of threats [10]. However, the conspiracy theories circulating during the Covid-19 pandemic often lead to distrust in health authorities and the government [41]. The negative impact is that the public becomes less receptive to preventive behaviors

during the pandemic, especially related to the Covid-19 vaccination programs conducted by the government [6]. The emergence of negative perceptions about vaccine vulnerability and safety, skeptical attitudes towards vaccines, and distrust in scientific evidence about vaccines are serious issues and lead to vaccine refusal and delay [15, 43].

In contrast, although the research findings show a significant relationship between conspiracy beliefs and Covid-19 vaccine hesitancy, the determination test for both variables indicates that the connection between conspiracy beliefs and Covid-19 vaccine hesitancy is only 16.9%, while 83.1% is influenced by other predictors not examined in this study. This result is supported by the data categorization for both variables, where although conspiracy beliefs in respondents are dominated by high (39.6%) to medium (21%) categories, the level of vaccine hesitancy among respondents tends to be in the medium (64.9%) and low (35.1%) categories. These findings indicated that two years after pandemic, conspiracy belief toward Covid-19 in Aceh still exist but the vaccine hesitancy decreased.

The low proportion of the influence of the conspiracy beliefs variable on vaccine hesitancy found in this study is in line with the findings of Jolley and Douglas who stated that exposure to anti-vaccine conspiracy theories can affect perceptions of vaccine safety, create feelings of helplessness and disappointment, and reduce trust in authorities, ultimately leading to vaccine reluctance [39]. This finding is also supported by several other studies, including Freeman et al, and Sallam et al, which show that vaccine hesitancy is the result of misinformation influenced by conspiracy beliefs [6, 36].

Goreis and Kothgassner revealed that social media is the main source of the spread of conspiracy theories during crises such as the Covid-19 pandemic [3]. According to Šrol et al, the need for information during crises and extensive exposure to conspiracy theories in various media lead many people to adopt conspiracy theories as a reference in interpreting the situation around them [12]. Additionally, low trust in the government [43, 44], demographic factors such as occupation, income, and education [4], and ideology and political climate [45] are considered to be other predictors that also influence the high prevalence of conspiracy beliefs among respondents in this study.

On the other hand, this study did not find a high level of vaccine hesitancy among the respondents, which is related to the majority (96%) of respondents who have received the Covid-19 vaccine and support the government's vaccination program. Several government efforts to promote the Covid-19 vaccine in the community are among the predictors that

contribute to the low level of vaccine hesitancy in this study.

In a bid to mitigate the Covid-19 pandemic, the Indonesian government has implemented various policies that require vaccination programs, such as mandatory vaccination for citizens through Presidential Regulation Number 14 of 2021 (President of the Republic Indonesia, 2021), it is stated that for citizens who have been designated as target recipient of Covid-19 vaccine, compulsory to participate in the vaccination program and those who do not participate or refuse to be vaccinated can be subject to administrative sanctions in the form of postponement or termination of the provision of social security or social assistance (bansos); suspension or termination of government administration services; and/or fine, including enforcement of legal sanctions in the form of criminal penalties. Apart from that, a vaccination certificate is also used as a proof for an administrative requirement (in general and or educational services) and serves as access to travel. Increasing awareness about vaccines and its safety, and the availability of the Covid-19 vaccine for free to the entire community also plays an important role in changing the perception of some people regarding the Covid-19 vaccination program [46, 47, 48].

This research has revealed interesting findings regarding the relationship between conspiracy beliefs and Covid-19 vaccine hesitancy among the people of Aceh. The Covid-19 pandemic has been a test for the world in many aspects, including how communities deal with information and the dissemination of conspiracy theories. The results underscore that higher levels of conspiracy beliefs correspond to higher levels of Covid-19 vaccine hesitancy among the people of Aceh and vice versa. In Aceh, conspiracy belief potentially affects vaccine hesitancy in terms of delay in vaccine acceptance but not to vaccine refusal.

Therefore, this study recommends further research to investigate other factors that are considered to mediate the relationship between conspiracy beliefs and vaccine hesitancy. Additionally, the majority of the sampled population falling into the moderate category of vaccine hesitancy also raises concerns, considering that data collection was conducted two years after the government's Covid-19 vaccination program had been implemented. This factor may have influenced respondents' perceptions of the Covid-19 vaccination program.

The recommendations based on this research include strengthening collaboration between the government, academia, media, and the community to address the challenge of vaccine hesitancy. Collaborating with religious and local leaders trusted by the community can also be an effective means to convey important messages about vaccination. Stricter content monitoring by social media and

digital platforms is also necessary to reduce exposure to harmful conspiracy theories. Proactive and creative educational campaigns about vaccination can help increase community awareness and understanding of the benefits of vaccines.

Transparent and open communication from the government and health institutions will also help address confusion and distrust related to vaccination. Ultimately, overcoming vaccine hesitancy involves not only increasing information and knowledge but also managing public trust effectively. Being responsive to public concerns and maintaining transparency and accountability in information delivery will strengthen confidence in vaccination programs and Covid-19 preventive measures. To achieve this, all stakeholders need to work together in a holistic multisectoral approach to face this challenge.

## 5 Conclusion

The findings of this study revealed a significant and positive relationship between conspiracy beliefs and Covid-19 vaccine hesitancy among the people of Aceh. A high level of conspiracy beliefs was associated with increased exposure to conspiracy theories during the Covid-19 pandemic. These results are consistent with previous research showing that conspiracy theories can influence perceptions of vaccine safety and lead to vaccine refusal or delay. Social media plays a crucial role in spreading conspiracy theories, highlighting the importance of digital literacy and monitoring to address this issue.

Although conspiracy beliefs emerged as a major predictor, other factors such as trust in the government, demographic factors, and ideology also contribute to vaccine hesitancy. Therefore, a holistic and collaborative approach involving the government, health institutions, and the community is necessary to address vaccination and pandemic-related challenges in the future. This study provides valuable insights into the relationship between conspiracy beliefs and Covid-19 vaccine hesitancy in the community of Aceh.

The implications of this research suggest the need for more intensive educational efforts, transparent and honest communication, and monitoring of information circulating on social media to increase public awareness and participation in various government-led vaccination programs. The study contributes to a better understanding of the dynamics between conspiracy beliefs and Covid-19 vaccine hesitancy, which can guide public health interventions and communication strategies to

effectively combat vaccine hesitancy and promote public health in Aceh and beyond.

## 6 Ethical Statement

This study was approved by the health research ethics committee of the Faculty of Medicine, Universitas Syiah Kuala, Banda Aceh. No. 057/EA/FK2022.

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