



Faculty of Resource Science and Technology

**The Knowledge and Acceptance of Rural Community toward Covid-19  
Vaccine in Belaga, Sarawak.**

Claierisa Anak Marcos Bujang (69399)

Bachelor of Science with Honours  
(Resource Biotechnonology)  
Year 2021/2022

**The Knowledge and Acceptance of Rural Community toward Covid-19  
Vaccine in Belaga, Sarawak.**

Claierisa Anak Marcos Bujang (69399)

A thesis submitted in partial fulfilment of the Requirement of The Degree Bachelor of  
Science with Honours  
(Resource Biotechnology)

**SUPERVISOR: DR. SAMUEL LIHAN**

Programme of Resource Biotechnology  
Faculty of Resource Science and Technology  
UNIVERSITI MALAYSIA SARAWAK

2022

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CLAIERISA ANAK MARCOS  
BUJANG (69399)

\_\_\_\_\_  
Name of the student (Matric No.)

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Dr Samuel Lihan  
Research Fellow  
Institute of Biodiversity and  
Environmental Conservation  
UNIVERSITI MALAYSIA SARAWAK

(15 JULY 2022)

Current Address:

LOT 79 TAMAN AUSTRALIA HEIGHT PHASE 3, JALAN SIBIYU B, 97000 BINTULU, SARAWAK.

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## **ACKNOWLEDGEMENT**

First of all, I would like to say thank you to my supervisor, Dr. Samuel Lihan for advising me very well in finding some related questions for the online survey and also guiding me well in writing my thesis. Dr Samuel has been guiding me from last semester for the proposal of final year project. I am honor to have him as my supervisor.

Hence, I would like to say thank you to Faculty of Resource Science and Technology for giving me this opportunity in doing this research which involving rural community as myself from this community as well.

Hence, I would like to say thank you to the Belaga community for willing to participate in this study. Without them, I would not able to finish successfully for this research although it takes much more time. I am glad that this community cooperates well with me by participating in this questionnaire.

Next, I wanna thanks to God for giving me a good day and healthy mind, and body every day. Not to forget my family, for always supporting me from home. Without their prayers and blessings, I would not be able to finish my research successfully.

Last but not least, I wanna thank myself too for able to successfully finish this research even though there many challenges during working on this research.

CLAIERISA ANAK MARCOS BUJANG

# The Knowledge and Acceptance of Rural Community toward Covid-19 vaccine in Belaga, Sarawak.

Claierisa Anak Marcos Bujang

Resource Biotechnology Programme  
Faculty of Resource Science and Technology  
Universiti Malaysia Sarawak

## ABSTRACT

Despite entering the endemic phase, the Covid-19 vaccination program should still be carried out to further strengthen our levels of immunity. Although the program has been successfully continued, do the people in Malaysia especially the rural community have a piece of knowledge about vaccination or even do they accept the Covid-19 vaccination? Therefore, this study was conducted to find out whether the rural population has knowledge about this vaccination and whether they accept this vaccination program. For this study, the Belaga community which is located in a rural area in Sarawak, Malaysia, is selected to participate in this study. This study was conducted online using a google survey and distributed on various media platforms such as Facebook and WhatsApp. There are 110 respondents answered this survey. Almost all the rural Belaga residents know about the Covid-19 vaccination through social media and even from local TV or radio. Not only that, most of them accept the Covid-19 vaccination even if the vaccine is fully developed in the future. The average highly educated population is prone to know those who are not eligible for vaccination. People with chronic diseases and infants have a high percentage of categories not eligible for vaccination. Therefore, it is important to know more about this vaccination in order to accept any vaccination program in the future without worrying its consequences because nowadays, vaccines are created for our health and immunizations.

**Keywords:** Covid-19, vaccines, rural community, knowledge, acceptable

## ABSTRAK

*Walaupun sudah memasuki fasa endemik, program vaksinasi Covid-19 tetap perlu dijalankan bagi mengukuhkan lagi tahap imuniti kita. Walaupun program ini telah berjaya diteruskan, adakah masyarakat di Malaysia khususnya masyarakat luar bandar mempunyai sedikit pengetahuan tentang vaksinasi atau menerima vaksinasi Covid-19? Oleh itu, kajian ini dijalankan untuk mengetahui sama ada penduduk luar bandar mempunyai pengetahuan tentang vaksinasi ini atau sama ada mereka menerima program vaksinasi ini. Untuk kajian ini, masyarakat Belaga yang terletak di kawasan luar bandar di Sarawak, Malaysia, dipilih untuk menyertai kajian ini. Kajian ini dijalankan secara atas talian menggunakan kaji selidik google dan diedarkan di pelbagai platform media seperti Facebook dan WhatsApp. Terdapat 110 responden menjawab tinjauan ini. Hampir semua penduduk luar bandar Belaga mengetahui tentang vaksinasi Covid-19 melalui media sosial dan juga dari TV atau radio tempatan. Bukan itu sahaja, kebanyakan mereka menerima vaksinasi Covid-19 walaupun vaksin itu dibangunkan sepenuhnya pada masa hadapan. Rata-rata penduduk berpendidikan tinggi cenderung mengenali mereka yang tidak layak untuk vaksinasi. Orang yang mempunyai penyakit kronik dan bayi mempunyai peratusan yang tinggi bagi kategori yang tidak layak untuk vaksinasi. Oleh itu, adalah penting untuk mengetahui lebih lanjut mengenai vaksinasi ini untuk menerima sebarang program vaksinasi pada masa hadapan tanpa perlu risau akibatnya kerana pada masa kini, vaksin dicipta untuk kesihatan dan imunisasi kita.*

**Kata kunci:** Covid-19, vaksinasi, penduduk luar bandar, pengetahuan, penerimaan

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## LIST OF ABBREVIATIONS

Covid-19	Coronavirus disease
SARS-CoV-2	Severe acute respiratory syndrome coronavirus 2
WHO	World Health Organization
ACE-2	Angiotensin-Converting Enzyme 2
NIP	National Immunization Programme
SPSS	Statistical Package for Social Sciences

# CHAPTER 1

## INTRODUCTION

A severe virus named Coronavirus disease (COVID-19) is spreading worldwide. This coronavirus strain severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is too responsible, then it takes to become a serious health issue worldwide (Pal et Al., 2020). The World Health Organization (WHO) declared that the COVID-19 outbreak became a pandemic on March 11, 2020 (Cucinotta & Vanelli, 2020). According to World Health Organization (WHO) (2021), this pandemic had affected 223 countries as of early February 2021, the confirmed cases are over 104.37 million and 22.71 million deaths worldwide. Unfortunately, there is no cure for this disease until these days. Therefore, the Covid-19 vaccine is created to trigger the immunization of the body where it is to defend from this disease.

Vaccines are the greatest major public health measure and the most beneficial approach for safeguarding the population against COVID-19 because SARS-CoV-2 is a highly infectious virus that affects populations across the world. The fight to develop a COVID-19 vaccine to curb the disease's spread and devastation continues (Chan et al., 2015) (Wibawa, 2021). As the epidemic progresses, new vaccinations that are more effective are expected to be created. With vaccine distribution begun, it's critical to assess community acceptance of COVID-19 immunizations (Reiter et al., 2020).

Vaccines have been distributed in Malaysia to help keep Malaysians safe from vaccine-preventable illnesses. However, there has been discussion concerning the permissibility of vaccines publicly, which has contributed to vaccine apprehension in some circumstances (MacDonald et al., 2015). According to the Ministry of Health Malaysia, in

response to the current COVID-19 pandemic, Malaysia has increased its vaccination rate to the point when 62% of the country has been completely vaccinated as of October 1, 2021. The nationwide COVID-19 vaccination campaign is seen as vital for social protection and economic recovery planning in the future.

Vaccine acceptability and knowledge are impacted by a variety of cultural, socioeconomic, and awareness variables, according to prior international reports (Harapan et al., 2020) (Malik et al., 2020). As a result, healthcare practitioners have launched vaccination advocacy campaigns to promote public awareness about the importance of vaccines in the fight against the COVID-19 pandemic (Society, 2021). However, although the campaign has received a lot of positive feedback, there are few closed-minded netizens who think that the Covid-19 vaccination is not necessary.

To conduct the most effective vaccination plan in Malaysia, we need to determine the level of knowledge and acceptability of COVID-19 vaccination among Malaysians, particularly those from rural regions. This is because government and policymakers need people's knowledge and acceptance of COVID-19 to remove all the circumstances of vaccination distribution. There has never been prior research that looked into the general public's understanding and acceptability of the COVID-19 vaccine in Malaysia, especially for the community of the rural area. The aim of this study is to learn if the rural community is able to understand the purpose of vaccination and aid the government in planning future attempts to enhance vaccine uptake of Belaga community.

## **Objectives**

1. To study the level of knowledge of rural area communities towards vaccination.
2. To study the acceptance of rural area communities towards vaccination.

## CHAPTER 2

### LITERATURE REVIEW

#### 2.1 SARS-CoV-2

SARS-CoV-2 is a coronavirus with a genome of around 30 kb. It is a large, spherical, enclosed, non-segmented positive-sense, and single-stranded RNA virus (Wormser & Aitken, 2010). There are four basic structural proteins present in the cell; spike glycoprotein (S), membrane (M), envelope (E), and nucleocapsid (N) (Fehr & Perlman, 2015). SARS-spike CoV-2s inhibit neutralizing antibodies from working. The Severe acute respiratory CoV-2 domain interacts with the Angiotensin-Converting Enzyme 2 host cell sensor to trigger a conformational change in the S protein (ACE-2). This virus's S2 domain induces conformational changes in the cellular membrane, allowing its virus to enter the cell (Lim et al., 2016).

The SARS-CoV-2 infection spread quickly from individual to individual, however, it has been previously thought that the disease was passed from animal to human by close interaction with an intermediate species. Consumption of infected uncooked or semi-cooked meat has the potential to transmit the infection. COVID-19 is a pathogenic illness in which an animal virus mutates, penetrates, multiplies, and spreads across the population. Infected individuals, both clinical and subclinical, transmit the virus by saliva drops, that is subsequently transmitted through the air via coughing or sneezing (Adhikari et al., 2020) (Singhal, 2020) (Liu et al., 2020).

COVID-19 symptoms include fever, hoarseness, and lethargy. Minor symptoms such as headaches, muscle cramps, nasal congestion, sore throat, or diarrhea may occur in some

persons who are ill. Infection with COVID-19 could result in severe asthma, organ damage (e.g., kidney failure), severe respiratory problems, and septicemia, and these can be fatal. 2020 (Huang and colleagues.) Several people who are affected, from the other side, exhibit no signs and may not feel really sick. Asymptomatic carriers are asymptomatic. Adults, young children, expectant mothers, as well as those with serious conditions such as hypertension, diabetes, heart problems, kidney, and liver respiratory illness, as well as compromised immune systems individuals like patients with cancer, HIV patients, autoimmune illnesses, and smokers, are all at a higher risk of COVID-19.

## **2.2 Knowledge and acceptability toward Covid-19**

Fears and concern about becoming infected with COVID-19 and dying from it were linked to greater mental distress in a population-based investigation of US people (Hologue et al., 2020). Furthermore, an individual's own sanitary care to prevent infecting others has raised the risk of becoming psychologically distressed (Hologue et al., 2020). According to a comprehensive study and meta-analysis of COVID-19's psychological and mental impacts, anxiety and depression were shown to be widespread in 33% and 28% of participants, respectively (Luo et al., 2020). People learned about COVID-19 via a number of sources during the pandemic, such as television, radios, newspapers, media platforms, colleagues, acquaintances, healthcare practitioners, scientists, government, etc. (Ali et al., 2020). Because such sources of information have a higher potential for people to accept or reject the COVID-19 vaccinations, it is hard to broadcast honest as well as precise info regarding vaccines to acquire the public's trust, safety and effectiveness must be demonstrated, particularly those reluctant or skeptical (Siegrist & Zingg 2014). As a result, it is crucial to

achieving a successful vaccination program in the future by recognizing the sources of information about COVID-19 vaccines.

Other research has discovered that a receptive perspective regarding vaccination seems associated with a sense of risk or vulnerability to infection (Rajamoorthy et al., 2019; Rajamoorthy et al., 2018; Sundaram et al., 2015). COVID-19's greater perceived risk should still be taken into consideration. The low perceived danger could be attributed to vaccine uptake, along with social distancing and other public health measures. The relations can be complicated; for example, someone who uses social distancing methods may believe their risk is low but still wishes to get vaccinated. Lesser vaccine acceptability among the elderly may be due to a lower perception of danger. Although the elderly is more susceptible to COVID-19, most retirees, especially in Southeast Asian countries, have less mobility and spend more time at home with less travel.

These actions may contribute to a lower perceived the risk SARS-CoV-2 infection and, hence, a lower level of vaccination uptake. Furthermore, their acceptance may be influenced by their awareness of the disease. Much of the material regarding COVID-19 is disseminated via social media or internet media, which older adults use less regularly. As a result, older persons may be less exposed to COVID-19-related information that could influence their risk perception. Furthermore, decreased social media use among the elderly may be related to less information, which may alter their perception of risk and vaccine acceptance.



### **2.3 Covid-19 vaccinations in Malaysia**

SARS-CoV-2 vaccines are the most promising approach for containing the epidemic, and they are being researched aggressively. By the end of 2020, many immunizations were available for use in various parts of the world, with over 40 candidate vaccines in human research and over 150 in preclinical trials. Therefore, the Malaysian government has launched several programs to make vaccination successful for all Malaysians.

According to Jawatankuasa Khas Jaminan Akses, Bekalan Vaksin Covid-19, JKJABV (2021), the National COVID-19 Immunizations Programme (NIP or PICK) is a national immunization strategy developed and practiced by the Malaysian government with the objective of limiting the propagation of COVID-19 as well as accomplishing the COVID-19 pandemic in Malaysia by maximizing vaccines rate among Malaysian. The Special Committee for Ensuring Access to COVID-19 Vaccine Supply (JKJAV) are the committee that in charge of organizing the world's biggest vaccination election since early 2021.

The vaccination program was conducted in stages between February 24, 2021, and February 20, 2022, program begin at phase 1, which aim at healthcare professionals and frontline workers. Our previous Prime Minister, Muhyiddin Yassin was the very first person in Malaysia to get vaccination after Pfizer-BioNTech introduced in Malaysia (Amir, 2021). Malaysia averaged almost 244,588 doses each day in the third week of September 2021, and then it took additional 27 days to distribute enough doses to the remaining 10% of the country's population.

According to The Edge Markets (2021), eventhough the program was conducted smoothly, the program was surrounded by a lot of controversies and issues, include a slow vaccine rollout rate due to a lack of vaccine supplies despite the Malaysian government

purchasing more than enough for the population, poor prioritization of who will receive the vaccine first (Hibrahim, 2021), Malaysian citizen having issues with the MySejahtera's digital vaccination appointment and certificate system (Rashid, 2021), false news regarding vaccination (Kamarudin, 2021), outbreaks and overcrowding of vaccination clinics (Daud, 2021), to improper treatment of foreign employees by volunteers and authorities (Fadzil, 2021). According to The Star (2021) and South China Morning Post (2021), there is a video showing that recipients receive empty vaccines, with the government claiming that the problem was caused by human error as a result of the vaccinators' exhaustion. There were also rumors that vaccine patches were being sold by volunteers but these rumors were unfounded.

After 2 years Malaysia has battled with the pandemic, the new Prime Minister, Datuk Seri Ismail Sabri declared that Malaysia will enter the endemic phase so that the strategy would allow the Malaysians to return to their normal life. Lots of vaccination programs are still proceeding in some places, especially in rural areas. Although the program was successful, some people still lack knowledge and acceptance of the vaccine. It is either the individual is anti-vaccine or received the vaccination without knowing the benefits.

## CHAPTER 3

### MATERIALS AND METHODS

#### 3.1 Plan of study

This study was conducted online due to the difficulties of conducting face-to-face research during the present active Covid-19 outbreak. This survey involved those aged 16 years old & above, was conducted using Google Forms and distributed via social media platforms (WhatsApp, and Facebook). The survey also was conducted in bilingual Malay and English. Participants were asked to engage in the study willingly. For this study, the rural communities from Belaga which are located in the rural area of Sarawak, Malaysia were selected to participate in this study.

#### 3.2 Study Instrument

This questionnaire was divided into three parts, Part A, Part B, and Part C. Part A was about its demographic, for Part B consisted of the knowledge of rural communities in Covid-19 vaccines while Part C covered the acceptance of rural communities toward Covid-19 vaccines. Below were the questions asked in the Google Form which was distributed via social media platforms.

Table 3.2.1 shows the demographic questions of the survey.

1. Age	<ul style="list-style-type: none"><li>• 16-20</li><li>• 20-30</li><li>• 30-40</li></ul>
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	<ul style="list-style-type: none"> <li>• 40-50</li> <li>• 50-60</li> <li>• 60-70</li> <li>• 70 and above</li> </ul>
2. Gender	<ul style="list-style-type: none"> <li>• Female</li> <li>• Male</li> </ul>
3. Marital Status	<ul style="list-style-type: none"> <li>• Single</li> <li>• Married</li> <li>• Divorce</li> <li>• Widow</li> </ul>
4. What is your highest level of education?	<ul style="list-style-type: none"> <li>• No education</li> <li>• Primary education</li> <li>• Secondary education</li> <li>• Tertiary education</li> </ul>
5. Have you completely taken the Covid-19 vaccination?	<ul style="list-style-type: none"> <li>• Yes</li> <li>• Not yet</li> </ul>

Table 3.2.1: Demographic questions.

Table 3.2.2 shows the knowledge of Belaga community toward Covid-19 vaccine questions.

Question	
6. What is the symptom of Covid-19?	<ul style="list-style-type: none"> <li>• Fever</li> </ul>

	<ul style="list-style-type: none"> <li>• Chills</li> <li>• Body ache</li> <li>• Head ache</li> <li>• Sore throat</li> <li>• Runny nose</li> <li>• Not sure</li> </ul>
7. What is the symptom that usually people get after vaccination?	<ul style="list-style-type: none"> <li>• Fever</li> <li>• Allergic</li> <li>• Runny nose</li> <li>• Headache</li> <li>• Nothing</li> </ul>
8. What type of vaccination that you know?	<ul style="list-style-type: none"> <li>• Pfizer-BioNTech</li> <li>• AstraZeneca</li> <li>• Sinovac</li> <li>• Not sure</li> </ul>
9. What are your main sources of information about the Covid-19 vaccination?	<ul style="list-style-type: none"> <li>• Healthcare provider</li> <li>• Social media</li> <li>• News from National TV/Radio</li> <li>• Discussion with family and friends</li> </ul>
10. Below are the group who may not be eligible for taking Covid-19 vaccination:	<ul style="list-style-type: none"> <li>• Infant &lt; 1 year of age</li> <li>• Children and adolescents</li> <li>• Adults</li> <li>• Pregnant ladies and lactating mothers</li> </ul>

	<ul style="list-style-type: none"> <li>• Patients with chronic disease (diabetes, hypertension or heart disease)</li> <li>• Persons that have active Covid-19 infection</li> <li>• Persons that recovered from Covid-19 infection</li> <li>• Persons that allergic to food items or drugs</li> <li>• I don't know</li> </ul>
11. In your opinion, protective immunity against Covid-19 infection will be achieved after:	<ul style="list-style-type: none"> <li>• First dose of vaccination</li> <li>• Second dose of vaccination</li> <li>• Booster of vaccination</li> <li>• Don't know</li> </ul>
12. In my opinion, might the Covid-19 vaccines cause health problems?	<ul style="list-style-type: none"> <li>• Yes. I think it might affect our health</li> <li>• No. I don't think it can affect our health</li> <li>• Not sure</li> </ul>
13. In your opinion, might the Covid-19 vaccines negatively impact individual privacy?	<ul style="list-style-type: none"> <li>• Yes</li> <li>• No</li> <li>• Not sure</li> </ul>

Table 3.2.2: Knowledge toward Covid-19 vaccines questions.

Table 3.2.3 shows the questions of acceptance of Belaga community toward Covid-19 vaccine.

Question	Yes	No	Not sure
14. Accept vaccinations if the Covid-19 vaccine is successfully developed and approved for listing in the future?			
15. Do you against the Covid-19 vaccination?			
16. In your opinion, should Covid-19 vaccination become legally mandatory?			
17. Do you think everyone should get vaccines?			
18. Do you think that the Covid-19 vaccines are effective in preventing Covid-19 infection?			
19. Do you think that the vaccines may reduce symptoms of Covid-19?			
20. Do you think vaccination can protect you 100% from Covid-19?			

Table 3.2.3: Acceptance toward Covid-19 vaccine questions.

### **3.3 Analysis data**

For the data analysis, all data were entered into a Microsoft Excel spreadsheet, which was then loaded and coded into the SPSS software. Demographic variables, COVID-19 vaccination knowledge scores, and COVID-19 vaccine acceptance were all subjected to a descriptive statistic analyzer that included frequencies, percentages, mean, and standard deviation (SD). The association between both two variables was conducted using crosstab which was available in SPSS software. P-value was determined at 0.05.