



**Faculty of Language and Communication**

**Covid-19 Vaccination Sentiment in Malaysian Social Media Networks: A  
Computer-Mediated Discourse Analysis (CMC-DA).**

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**(70709)**

Bachelor of Arts in Linguistics with Honours

UNIVERSITI MALAYSIA SARAWAK

2022

**Covid-19 Vaccination Sentiment in Malaysian Social Media Networks: A  
Computer-Mediated Discourse Analysis (CMC-DA).**

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**(70709)**

A final year project report submitted in partial fulfilment of the requirements for Bachelor of Arts  
in Linguistics

Fakulti Bahasa dan Komunikasi  
UNIVERSITI MALAYSIA SARAWAK

2022

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## ABSTRACT

Vaccination sentiment is a critical issue that must be addressed as it affects the outcome of vaccination acceptance in the community. Since most research is focused on the west, more information on non-western sentiments about vaccination is needed. Hence, the purpose of this research was to examine the social media platforms used by pro-vaccine and anti-vaccine, the main arguments and themes of the conversation, and the individual characteristics behind these arguments, with particular emphasis on Computer Mediated Communication Discourse Analysis. A total of 15,000 words were analysed from Twitter, Instagram, and Facebook with a focus on key leaders in the fight against Covid-19, namely the Ministry of Health, Khairy Jamaluddin, and Datuk Noor Hisham Abdullah. The data of this study will be taken on 13 October 2021 to 13 December 2021. The results of the study show that Malaysians use Facebook to express vaccination sentiments and anti-vaccine groups have the greatest influence. In addition, pro-vaccine and anti-vaccine groups have their respective themes of conversation and argument with respect to vaccination. Researchers found a new group namely the pro-booster and anti-booster groups. All of the group characteristics used social thought behaviors in expressing their vaccination sentiments. The findings of this study help the government in gaining a better understanding of Malaysian's concerns about vaccines as well as raising awareness about vaccine opinions on social media.

**Keywords:** Vaccination sentiment, vaccine, Covid-19, characteristics, key arguments and conversation themes

## ABSTRAK

*Sentimen vaksinasi merupakan isu kritikal yang mesti ditangani kerana ia memberi kesan kepada hasil penerimaan vaksinasi dalam masyarakat. Oleh kerana kebanyakan penyelidikan tertumpu di Barat, lebih banyak maklumat mengenai sentimen bukan Barat tentang vaksinasi diperlukan. Hasilnya, tujuan penyelidikan ini adalah untuk mengkaji platform media sosial yang digunakan oleh pro-vaksin dan anti-vaksin, hujah utama dan tema perbualan, dan ciri-ciri individu di sebalik hujah ini, dengan penekanan khusus pada Analisis Wacana Komunikasi Pengantaraan Komputer. Sebanyak 15,000 perkataan telah dianalisis dari pelbagai platform, termasuk Twitter, Instagram, dan Facebook, dengan tumpuan kepada pemimpin utama dalam memerangi Covid-19, iaitu Kementerian Kesihatan, Khairy Jamaludin, dan Datuk Noor Hisyam Abdullah. Data diambil dari laman rasmi sosial mereka. Data kajian ini akan diambil pada 13 Oktober 2021 sehingga 13 Disember 2021. Hasil kajian menunjukkan bahawa rakyat Malaysia menggunakan Facebook untuk menyatakan sentimen vaksinasi dan kumpulan anti-vaksin mempunyai pengaruh yang paling besar. Selain itu, kumpulan pro-vaksin dan anti-vaksin mempunyai tema perbualan dan hujah masing-masing berkenaan dengan vaksinasi. Pengakaji menjumpai kumpulan yang baru iaitu kumpulan pro-booster dan anti-booster. Kesemua ciri-ciri kumpulan tersebut menggunakan kelakuan sosial berfikir dalam menyatakan sentimen vaksinasi mereka. Penemuan kajian ini membantu kerajaan dalam mendapatkan pemahaman yang lebih baik tentang kebimbangan rakyat Malaysia terhadap vaksin serta meningkatkan kesedaran mengenai pendapat vaksin di media sosial.*

**Kata kunci:** *Sentimen vaksinasi, vaksin, Covid-19, tema perbualan, hujah utama dan ciri-ciri*



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# CHAPTER 1

## INTRODUCTION

### 1.1 Chapter overview and introduction

This chapter comprises the background of the research and research problems, and it will explain the aim, objectives of the study, followed by an operational definition of terms, and the significance of the study. The end of the chapter will have the review for this chapter.

### 1.2 Background of the research

Coronavirus is still creating havoc globally. The novel coronavirus (Covid-19) problem was declared a pandemic global health crisis by the World Health Organization (WHO) on March 11, 2020 (WHO, 2020). The Covid-19 caused virus was isolated in late 2019 when China reported a cluster of cases of pneumonia in Wuhan, Hubei that was eventually identified (WHO, 2020). As of October 28, 2021, there have been 244,897,472 confirmed cases of Covid-19 including 4,970,435 deaths reported to WHO with the United States of America recording the highest number of confirmed cases globally (WHO, 2020). The year 2021 has come to a close, but normalcy has yet to return. Among the approaches used to curb the spread of Covid-19 by requiring the use of face masks and practicing social distancing.

Vaccinating the people, on the other hand, is one of the safest methods to stop any pandemic, including the present Covid-19 crisis. The year 2021 is a year of optimism for the globe, as the daily spike of Covid-19 has discovered human vaccination. The United Kingdom's Medicines and Healthcare products Regulatory Agency (MHRA) gave temporary regulatory approval for the Pfizer-BioNTech vaccine (Gov. UK, 2012) thus becoming the first country to approve the vaccine and the first country in the Western world to approve the use of any Covid-

19 vaccine (Boseley & Halliday, 2020). Balicer (2020) in the Clalit Research Institute in collaboration with researchers from Harvard University examines the safety of the Pfizer-BioNTech vaccine against Covid-19 and the result shows that the vaccine is safe to use.

All three vaccines, Pfizer-BioNTech, Oxford-AstraZeneca, and Moderna has shown great vaccination effectiveness in clinical studies. For the Pfizer-BioNTech vaccine, 95% efficacy was reported against laboratory-confirmed Covid-19 (Polack et al., 2020), while the Oxford-AstraZeneca vaccine was found to have 70% efficacy against symptomatic Covid-19 amongst seronegative participants (Voysey et al., 2021) and the Moderna vaccine was reported to have 95% efficacy against confirmed Covid-19 (Baden et al., 2021).

The efficiency of the vaccine and the MOH's advice was the most influential reasons in the choice to be vaccinated (Islam, et al., 2021). This is consistent with research conducted in Indonesia, which found that 93.3 percent of respondents would prefer to get vaccinated if the vaccine was 95 percent efficient, but only 60.7 percent would accept a vaccine with 50 percent efficiency (Harapan et al., 2020). A prior study conducted in Malaysia found that as the COVID-19 pandemic proceeded, people's perception of vulnerability to infection increased (Wong & Alias, 2020). Personal cleanliness and physical distance are effective prophylactic behaviours for controlling SAR-CoV-2 transmission, but their effectiveness is heavily dependent on the perceived vulnerability to infection (Abdelrahman, 2020; Commodari et al., 2020)

In Saudi Arabia, willingness to accept the Covid-19 vaccine was relatively high among the older age groups, married, education level postgraduate degree or higher, non-Saudi, and those employed in the government sector (Al-Mohaithef & Padhi, 2020). Although the acceptance rate is similar to Saudi Arabia, one distinct difference is that in Malaysia, the

younger age groups showed greater acceptance (Mohamed et al., 2021). Worryingly, we discovered that those who already have chronic conditions have considerably lower acceptance rates than healthy people. Patients with cardiovascular disease, hypertension, diabetes, congestive heart failure, chronic renal disease, and cancer have all been proven to benefit from this treatment. Patients with COVID-19 who do not have these comorbidities have a higher chance of death (Ssentongo et al., 2020) thus, early immunization is crucial for this population's health and safety.

The effectiveness of vaccination programs and the global objective of eradicating the pandemic require optimal acceptance of the vaccine across all countries. The success of any vaccination program is largely dependent on how well the vaccines are accepted among the population and the willingness of people to be vaccinated. As of October 28, 2021, a total of 6,838,727,352 vaccine doses have been administered (WHO, 2021). As of 18 February 2021, first dose vaccine coverage of over 22% has been reported in Scotland with over 1.3 million vaccines administered across the Scottish population, and delivery targeting specified priority groups of those most at risk of harm including the elderly and healthcare workers (Gov. UK, 2012). While Malaysia as of March 29, 2021, recorded almost 90% for the first phase dose that consists of frontliners in Malaysia (Mohd Noor, 2021). Malaysia reached its target of fully vaccinating 80% of the adult population in line with achieving herd immunity for adults against Covid-19 (Prime minister said in Ngui, 2021).

Social media is widely regarded as one of the most significant revolutions since television, and it is frequently lauded for the benefits it has provided to society and individual users. Individuals may access information and ideas from all around the world because of social media's worldwide reach. Social media, on the other hand, has been described as a "two-edged sword" because, despite the information supplied, some of the material presented is false.

Covid-19 vaccination programs which are already ongoing in the world may face the aforementioned challenges, especially due to the novelty of the disease, perceived controversies related to its origin, and the fast-tracked development of vaccines.

Vaccination is a critical concern, notably during the Covid-19 epidemic. Since mid-2020, much of the informational attention and debate in public opinion throughout the world has been centered on vaccinations against Covid-19, prompted in part by logistical and development issues that its fast study has generated in a pandemic scenario. To this must be added a portion of the population's historic aversion to vaccinations, which has already generated discussion regarding the role that social media should play in this topic (Dredze et al., 2016; Kang et al., 2017).

The argument promotes the existence of pro-vaccine and anti-vaccine groups throughout the world. Vaccination may become a tough task due to the rise of human rights concerns, anti-vaccine movements, and ambiguity regarding vaccinations and their effects. In contrast, pro-vaccine will help the government to achieve the herd immunity targeted for their cooperation and belief in the efficacy of vaccination provided. Thus, in the case of vaccination, it is highly important to examine the social media used for the pro-vaccine and anti-vaccine, the key arguments and conversation themes, and the characteristics of the individual behind the conversation themes.

### **1.3 Problem statement**

Research on content and comments on social media regarding pro- and anti-vaccine has been extensively conducted in Western countries and at least in non-western countries. However, research on content and comments on social media on pro-and anti-vaccination in Malaysia is relatively poor. Therefore, the extent of Covid-19 vaccination sentiment in Malaysian Social Media Networks should be analysed. It's crucial to assess how far Malaysia



has gone in studying these concerns, to look into the primary arguments and conversational themes of vaccination proponents and anti-vaccines, and to identify the people who are most likely behind these arguments. This research is crucial because we need to understand Malaysian attitudes toward the Covid-19 vaccine and raise vaccination knowledge. As a result, the purpose of this study is to identify and evaluate comments made by vaccination proponents and vaccine denialists on Malaysia's most popular social media platforms.

There have been a few studies conducted on pro-vaccine and anti-vaccine on social media. For an instant, the most social media used was Twitter (Blankenship et al. 2018; Deiner et al., 2019; Luo et al., 2021; Lyu et al., 2021; Massey et al., 2016; SV et al., 2021;), followed by Facebook (Deiner et al., 2019; Demuyakor et al., 2021; Hoffman et al., 2019). Besides, the research study also found that blogs (Unicef, 2013) and YouTube (Covolo et al., 2017; Ekram et al. 2018) are also being used to express their sentiment about vaccination.

The keywords used by pro-vaccine in previous studies was an improvement in global vaccination to prevent outbreaks and death (Blankenship et al., 2018), information about prevention and protection (Covolo et al., 2017; Massey et al., 2016), the duty to their child (Covolo, 2017), fear appeal and solidarity and herd immunization (Covolo, 2017) while the argument themes used by the anti-vaccine were mainly about use the side effects of vaccination theme (Ekram et al., 2018; Hoffman et al., 2019; Luo et al., 2021; Massey et al., 2016; Unicef, 2015), are risks and impact of vaccination (Blankenship et al., 2018; Demuyankor, 2021; Hoffman et al., 2019; Unicef, 2013) followed by the conspiracy theory (Ekram, et al., 2018; Luo et al., 2021; SV et al., 2021; Unicef, 2013) safety and efficacy of vaccine (Demeyankor et al., 2021; Luo et al., 2021; Scannell et al., 2021; SV et al., 2021), cause death (Ekram et al., 2018; Luo et al., 2021; SV et al., 2021), religious and ethical beliefs (Hoffman et al., 2019; Unicef, 2013) and developmental disabilities (Hoffman et al., 2019; Unicef, 2013).

In terms of individual characteristics of the arguments, a prior study discovered mainly two groups. The pro-vaccine persons are elderly (Lazarus et al., 2020; Lyu et al., 2021), whereas Syed Alwi et al. (2021) discovered that elderly people are vaccine apprehensive. Individuals who support vaccination also have a better level of education and a higher income (Lazarus et al., 2021). In any case, those in rural or suburban regions (Lyu et al., 2021) and those with lower income (Lazarus et al., 2021) are more likely to be anti-vaccine, whereas Lyu et al., (2020) found that the lower-income group is more likely to possess divided viewpoints. A previous study revealed that women are more likely to have hesitant opinions (Lyu et al., 2021), whereas a study by Lazarus et al., (2021) discovered that males were less likely than women to accept vaccinations. However, married and divorced people are more likely to be vaccination apprehensive than single and widowed people (Syed Alwi, 2021). According to Lyu et al., (2021), people who have more followers of friends or give more favorites are more likely to hold polarised opinions, religious people tend to hold polarised opinions, and Syed Alwi et al. (2021) discovered that people who follow Buddhism and other religions are more likely to be vaccine-hesitant than people who follow other religions.

Hence, this study will contribute to addressing the gap of the extent of the pro-vaccine and vaccine deniers in non-western contexts, especially in Malaysia with a focus on the social media used by the pro-vaccine and anti-vaccine to voice their opinion, the key arguments, and conversation themes and the characteristics of the individual behind these arguments.

#### **1.4 Aim and the objectives of the study.**

This study aims to examine the Covid-19 vaccination sentiment in Malaysian Social Media Networks using the approach of Computer-Mediated Discourse Analysis Mediated Discourse Analysis (CMCDA). Thus, the objectives of the study are:

1. To identify the social media networks used by pro-vaccine and anti-vaccine groups to express their sentiments regarding the Covid-19 vaccination.
2. To analyse the key arguments and conversation themes among the pro-vaccine and anti-vaccine groups in addressing their vaccination sentiment.
3. To identify the characteristics of the pro-vaccine and anti-vaccine groups behind the vaccination sentiment.

The objectives in this study have been adapted and been modified by the researcher. The first two objectives were drawn from those addressed by Unicef (2013) who study the social media used by the public regarding vaccination and anti-vaccination themes in their study. The focus of Unicef's study was only on anti-vaccination sentiment while this current study will focus on the pro-vaccine and anti-vaccine sentiment. The third objective was inspired by Hoffman et al. (2019), which investigated the individual characteristics behind the arguments by identifying the demographics issue but in this current study, the researcher will only examine the characteristics of the groups behind the argument by the word or phrases used to determine whether the individual is pro-vaccine or anti-vaccine to protect the participant's personal information.

## **1.5 Research questions**

**RQ1: What is the popular social media platform used by the pro-vaccine and anti-vaccine to express Covid-19 vaccination sentiments?**

This question will be answered by calculating the number of comments on selected social media throughout the duration chosen. The researcher only chooses Khairy Jamaluddin, Datuk Noor Hisyam, and the Ministry of Health's social media including Instagram, Twitter, and Facebook as they are playing a crucial role in the vaccination program.

**RQ2: What are the key arguments and conversation themes among the pro-vaccine, and anti-vaccine groups Covid-19 vaccination sentiments?**

To address this topic, the theme will be taken through comments on official social media platforms, which are on Facebook, Instagram dan Twitter of the Ministry of Health official page, and Khairy Jamaluddin as Minister of Health dan Datuk Noor Hisyam Abdullah as Director-general of Health Malaysia. Key arguments and conversation themes were analysed using the categories from the previous study which is from Unicef (2013) which consists of safety and efficacy, side effects, developmental disabilities, risks and impacts, and conspiracy theory. The researcher also applies the CMCDA toolkit to this objective. The domain language used in this objective is structure and meaning. For the CMCDA section, the researcher will analyse the comments by word, phrases, and structure and analyse the meaning of each word and symbol in the data.

**RQ3: What are the characteristics of the pro-vaccine and anti-vaccine groups based on Covid-19 vaccination sentiments.**

The researcher will identify the individual based on their social behavior and participant using the CMCDA approach. For the social behaviour stage, the researcher will analyse whether the comments are pro-vaccine or anti-vaccine through linguistics of expression while in the

participant stage, the researcher will calculate the number of replies in the comments regarding the vaccination to see the influences.

## **1.6 Operational Definitions of Terms**

### **1.6.1 Covid-19**

Covid-19 is a new infectious disease that is spread by respiratory droplets and contact and is generally infectious to human beings (Ather et al., 2020). The World Health Organization (WHO) and the Centers for Disease Control and Prevention have declared Covid-19 a pandemic, a disease that strikes on a large scale, not limited to a single community or region alone, but can even spread worldwide. COVID-19 is a beta coronavirus virus with a higher transmission rate than SAR-CoV or MERS (Atmojo et al., 2020).

### **1.6.2 Vaccination**

Vaccination can protect the public against infectious diseases (Depelsenaire et al., 2017). Vaccination is a highly effective method to prevent infectious diseases. Vaccines are generally very safe and serious adverse reactions are uncommon. According to Abdul Hamid (2019), a vaccine is a type of agent that acts to stimulate the body's immune system to fight bacteria or viruses that attack humans. Vaccines can prevent disease and reduce mortality and morbidity rates in the world's population because they can have a positive long-term effect on long-term health security (Tengku Md Fauzi et al., 2018). Vaccines have substantially curbed the rate of vaccine-preventable diseases and early deaths (stated Hoffman et al., 2019). The researcher will only get data for the Covid-19 vaccination in this current study. Because of the Covid-19 pandemic, Covid-19 immunization was in high demand to prevent its spread.

### **1.6.3 Sentiment**

Luo et al. (2013) state that sentiment aims to determine the attitude of a writer concerning some topic or the overall contextual polarity of a document. The attitude may be his or her judgment or evaluation, affective state, or the intended emotional communication.

### **1.6.4 Social media network**

According to O’Keeffe & Clarke Pearson (2011), social media is primarily referred to as an online medium that provides an opportunity for social interaction to occur such as Facebook, Twitter, YouTube, and blog. While United Nations (2015) indicate that social media can be utilized as a medium to engage and strengthen the relationship between different stakeholders, increase awareness, and share information. Thus, this research uses social media to collect data by following the social media monitoring in Unicef (2013). Social media monitoring is by volume, channels, and networks, and engagement on how many users respond, like, share and participate with the content. This study also uses social media such as Facebook, Twitter, and Instagram.

### **1.6.5 Facebook**

Facebook is the most dominant player in the social media landscape. According to Manning (2014), the information posted to social networking sites allows a space for social or political viewpoints to be displayed. Hence, the researcher will use Facebook as one of the platforms to gain data because this platform involves interactive participation. In this study, researchers will collect data from the Ministry of Health's Facebook page via comments.

### **1.6.6 Twitter**

Twitter is a modern public platform where many voices discuss, debate, and share their views. According to Wojcik and Hughes (2019), Twitter users are younger, more likely to identify as Democrats, more highly educated, and have higher incomes than United States adults overall. Twitter users also differ from the broader population on some key social issues. In this current study, the data will be collected at the Ministry of Health's Twitter official page in the comments section.

### **1.6.7 Instagram**

Instagram is the most popular platform among young adults and teens. According to Schaeffer (2021), the site Instagram is known as the home for online influencers, political news, and disinformation campaigns or news. This platform is also used among teens and children to engage by sharing the information via posting and communicating via the comments section.

### **1.6.8 Computer-Mediated Discourse Analysis**

According to Herring (2004), Computer-Mediated Discourse Analysis (CMCDA) analyses logs of verbal interaction (characters, words, utterances, messages, exchanges, threads, archives, etc). CMDA can be used to study micro-level linguistic phenomena such as the online word-formation process (Cherny, 1999) and sentence structure (Herring, 1998). Four domains of language used to analyse the data in the current research are structure, meaning, social behaviour, and participants. For objective two, the current study will analyse the data using structure and meaning while in objective three, the researcher will use the behaviour and participants component to analyse the characteristics of the individuals behind the arguments.

### **1.6.9 Structural**

Herring (2004) stated that structural phenomena are identifiable based on a predefined set of structural features. Examples of structural CMC phenomena include syntax components. Syntax attempts to uncover the structure of sentences of human languages and relevant structure to the meaning (Adger, 2014). In this study, the researcher will analyse the data by analysing the type of words, phrases, and sentences to see the word or phrases used by the social media users to express their sentiments towards the vaccine. For example, the type of words are noun and verb, the type of phrases are verb phrases and sentences are mainly declarative sentences.

### **1.6.10 Meaning**

Herring (2004) said the meaning or semantic categories in CMCDAs hold the meaning or the function constant but vary in form. Linguistic semantics deal with conventional meaning conveyed by the use of words and sentences of a language (Abdurrahman, 2019). Thus, in this study, the researcher will operationalize and define each coding category in explicit terms and applies the codes consistently to the data.

### **1.6.11 Social behaviour**

Social behaviour phenomena in CMCDAs consist of linguistic expressions of status (Herring, 2004). The linguistic expression is a word, phrase, or sentence with a specific meaning and to express their emotions through writing. The four main types of linguistic expressions are mainly expressing observations, expressing thoughts, expressing feelings, and expressing needs (Minneapolis, 2016). According to Mackay et al. (1995), observations mean to report sensory experiences or memories, thought refers to the conclusion about or judgment of experiences and observations, the feeling is to communicate the emotions and the need is when the person stating the wants or requesting help or support in the communication. The study of linguistics