

## A Corpus-based Approach to Frame 'COVID-19 Vaccination' in Malaysian English Newspapers

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### ABSTRACT

Most studies on COVID-19 have been massively dedicated on how the disease was framed in the newspaper, its psychological effects, and its message or content disinformation. Research on the COVID-19 vaccination in newspapers and its acceptance among the masses is still quite scarce. The study adopted a corpus approach that involves wordlist, keyword list, collocates, and concordance analysis to analyse how 'COVID-19 vaccination' was framed in a focused and specialised English Malaysian newspapers corpus. #Lanscbox 5.0 corpus tool was employed in conducting the empirical analysis. The empirical analysis revealed that 'COVID-19 vaccination' was positively framed in different ways in the newspaper. The analysis of collocates and concordance lines revealed that the news reports mainly used Solution-oriented Frame which highlighted the Malaysian government's effort in combating the pandemic. The newspaper was also found to use Mathematical frame in the effort to convince the public with regards to the updates and statistics of vaccine takers. Nevertheless, the results also revealed the usage of sensational phrases that framed the COVID-19 vaccination negatively. These findings can enlighten newspaper practitioners on what should be done and avoided in framing such an issue in their writings as well as how the public will perceive it.

**Keywords:** *Corpus-based analysis, COVID-19, mass media, news article, vaccination.*

### INTRODUCTION

The alarming spread of the coronavirus infection (COVID-19 henceforth) has halted the world. Tragically, more than two million people have lost their lives to this disease which has impacted humanity in many ways (WHO, 2021). This pandemic has been described as 'the worst global health crisis of our time', causing massive damage to people's health, jobs, and wellbeing (OECD Economic Outlook, 2020 cited in Abdullah, 2020). Due to this, measures such as immediate lockdown and vaccination are imposed in most countries around the world, which in turn has triggered feedback from the society. In Malaysia, the Movement Control Order (MCO) was imposed by the government on 18th March 2020 to contain the disease. As of January 2021, Malaysian government announced a national target for an immunisation programme to curb the infection rate. It is reassuring to note that there is a high acceptance of COVID-19 vaccines in Malaysia as reported by the Ministry of Health, in which 85% of people are willing to get vaccinated (WHO, 2021). Even though the report shows that the people of Malaysia echo the sentiment, the government still receives plenty of objections from the public, especially through social media channels.

Since COVID-19 is the most pertinent issue that is currently being discussed, the vaccination programme has received extensive newspaper coverage in dealing with the outbreak. News framing becomes an important aspect not only in shaping the public perception and discourse, but more towards communicating the disease outbreak management (Mutua & Ong'ong'a, 2020). However, the news released and shared can be

misleading at times, and some of it may be false (Hua & Shaw, 2020). It is also a norm to see newspapers that are often rife with health misinformation, and this includes misinformation on vaccination (Altay & Mercier, 2020). Gislason (2013) states that the use of a particular news frame during health emergence has significant effects on both societal understanding and reactions to the outbreak. Thus, the way news is framed should be taken into account as the message may influence the public acceptance towards COVID-19 vaccine. This is relevant since exaggerating news coverage especially on the vaccine side effects would create vaccine refusal among individuals (Altay & Mercier, 2020; Betsch & Wicker, 2012).

Based on the recent literature, studies related to COVID-19 have gained a lot of attention from researchers around the world, compared to other epidemics previously (Mutua & Ong'ong'a, 2020). Numerous studies have been conducted to explore the impact of COVID-19, which include studies that cover perceptions related to the pandemic (Mohd Zain & Che Mut, 2020) and psychological effects of COVID-19 (Azif Azuddin, 2020; Loheswar, 2020). Others have highlighted the impact of COVID-19 on various sectors like economic and tourism (Foo, Chin, Tan, & Phuah, 2020; Khan & Hashim, 2020) as well as education (Caliskhan et al., 2020; Chandra, 2020). Besides that, there is also a growing body of research on COVID-19 in relation to linguistic perspective. For instance, examining newspaper framing on COVID-19 in newspaper or mass media (Mohd Nor & Zulcafli, 2020; Mutua & Ong'ong'a, 2020; Joharry & Turiman, 2020), corpus-based study on COVID-19 fake news (Tan, 2020; Singh et al., 2020), and analysing COVID-19 posts in social media (Hashim, 2020). Although research on COVID-19 has been largely studied, not much has been done in examining how the issue of vaccination is framed in the Malaysian context.

Therefore, it is crucial to study and understand how information on 'COVID-19 vaccination' is framed through the lens of Malaysian newspapers corpus. Specifically, this paper aims to fill the gaps by analysing how the 'COVID-19 vaccination' keywords are used in Malaysian online newspapers, as well as to know whether the 'COVID-19 vaccination' keywords are positively or negatively framed in the Malaysian newspapers. The objectives of this study are to:

1. To examine how the 'COVID-19 vaccination' related keywords are used in English Malaysian newspapers.
2. To learn whether the 'COVID-19 vaccination' keywords are positively or negatively framed in the Malaysian newspapers.

## LITERATURE REVIEW

### *Vaccine Roll-out in Malaysia*

No matter from which perspective we are looking at it, the COVID-19 pandemic is unprecedented in ways more than one. It has altered our lives forever and inevitably forced us to embrace new norms of life. With increasing cases and emergence of various new COVID-19 variants, the future looked so bleak at one point of time, until the arrival of multiple types of COVID-19 vaccines.

In Malaysia, the first batch of COVID-19 vaccination produced by Pfizer-Biontech arrived in early February 2021, with batches produced by Sinovac delivered later that same month. In April 2021, COVID-19 vaccine from Oxford-AstraZeneca also started to be used in the country. However, news reporting on these diverse types of vaccine is not without its share of controversy, especially in terms of its framing (Shak, 2021). For instance, when a minister in the country, Khairy Jamaluddin decided to take the second type of vaccine (Sinovac) instead of the first one by Pfizer-Biontech, headlines accompanying news reports

about this were initially framed as if there is something unsettled about the first batch of vaccine from Pfizer-Biontech which has compelled the minister to opt for another vaccine, when it is solely done to tackle vaccine hesitancy and add more confidence among the masses to embrace vaccination (Babulal, 2021; Chie, 2021; Chung, 2021).

Another example involves the introduction of Oxford-AstraZeneca type of vaccine in the country. Initially, news reports on this type of vaccine were more focused on its supposed side effect, due to multiple cases of blood clot reported by its recipients around the world. Despite being experienced only by a minuscule percentage of its recipients, it has prompted the Malaysian government to offer Oxford-AstraZeneca vaccine on a voluntary basis to its citizen, instead of making it as a part of the nation's vaccination drive, National COVID-19 Immunisation Programme (Jun, 2021; Rahim, 2021).

This framing of news reports seems to play right into the playbook of those who are sceptical about vaccination while providing opportunities for them to amplify their pessimistic anti-vaccination messages and to continue planting the seed of doubts among Malaysians. This will only encourage vaccine hesitancy among Malaysians, which is already an issue in the country even before the COVID-19 pandemic hit (Wan Taib et al., 2017; Wong et al., 2020). Perhaps, this could explain why up until early June 2021, only one-third of Malaysians registered to be vaccinated. These discouraging statistics could hamper the government's effort to inoculate 80% of the population in ensuring herd immunity among Malaysians by the end of 2021 (Hashim et al., 2021) while threatening the success of the nation's vaccination drive since any vaccination programme "can only be effective when they are accepted by large segments of the population" (Palm et al., 2021).

### *News Framing Theory*

Throughout the years, framing theory has been employed in numerous academic fields which include sociology, psychology, cognitive science, politics, and communication (e.g., Borah, 2011; D'Angelo, 2002; Scheufele, 1999). The theory is considered to be helpful to researchers who are keen in examining health communication (Borah, 2022). The way an event is framed in newspaper can influence the way a population thinks and views the event as well as the people involved (Uribe, 2020), therefore, research related to news framing of COVID-19 is significant to assist people to understand the critical situation and allow them to be more aware and able to curb the spread of the disease (Almahallawi & Abdul Rahim, 2022).

The lexical framing involves content analysis of the identified collocates and their contexts based on the spread of concordance lines. Through content analysis, researchers can recognise the unit of meaning, frequency and the classification of how the meanings are grouped (Almahallawi & Abdul Rahim, 2022). Meanwhile, lexical framing may assist researchers to discover different arguments pertaining to a particular issue (Almahallawi & Abdul Rahim, 2022). To execute these analyses, the descriptions and indicators of frames as proposed by Fatima (2020) are used as a guideline. The frame descriptions and indicators are illustrated in Table 1.

Table 1: Constructive/Positive and Negative Frames

<b>Constructive/Positive</b>	
Solution-oriented	Includes causes, response, implementation and limitation of the problem (Hermans & Gyldensted, 2019).
Future-oriented	Discussion on how a situation will unfold in the future and inclusion of what-now? (Hermans & Gyldensted, 2019).

Public-oriented/Empowerment	Should include common grounds and variety of perspectives to engage the public (Hermans & Gyldensted, 2019).
Inclusiveness/Diversity	Should include perspectives/ stories from all over the world. It should develop an argument against the polarisation created by the newspaper (Hermans & Gyldensted, 2019).
Mathematical	Should include statistics and proper context of the situation (Hermans & Gyldensted, 2019).
Co-creation	Should use the kind of language which reflects upon empowerment and engagement through highlighting the effort of the public (Hermans & Gyldensted, 2019).
Concern	Expression of concern for unaffected areas and people who are likely to be heavily impacted by the crisis as well as its international spread (Baron, 2006; Arnold, 2004; Lazard et al., 2015).
Solidarity	Showing empathy for the parties involved and using language that makes the party being attributed to looking strong, speaking in a party's defenses and suggesting possible recovery rather than entirely focusing on the damage (Mackie et al., 2000; Collins, 2004).
<b>Negative</b>	
Blame-attribution	Use of language or words that reflect the attribution of responsibility to a certain party (Semetko & Valkenburg, 2000).
Conflict	Focusing on the conflict and arguments of different parties (Dotson et al., 2012). Debating the opinions and different approaches of stakeholders.
Consequences	Focusing on negative consequences that may generate anxiety rather than positive outcomes (Fatima, 2020). E.g., events of losses or benefits on an institutional, national, or global level (Dotson et al., 2012)
Sensational Language	Use of sensational, exaggerating words and language structure (Klemm et al., 2016).
Uncertainty	Use of expression of doubts about the unknown and fear of anticipated risks (Scholte et al., 2013).
Use of us and them	Often affiliated with the warmongering and conflict which is considered as a way to divide the world into categories while focusing on sexuality, ethnicity and nationality (Kellner, 2003)
Denial	Refusing to accept the intensity of crisis by downplaying it and reducing the perception of responsibility (Coombs & Holladay, 2010).

The descriptions proposed by Fatima (2020) will be used in the present study to unearth the frames used by the selected newspapers with regards to the COVID-19 vaccination.

### *Past Studies on News Framing of Vaccination*

Numerous studies have been conducted on the news framing of news reports in relation to vaccination and its effect on vaccine hesitancy. In China, Yu et al. (2016) found that the newspaper reports on infant deaths following Hepatitis B administration in China's hospitals have weakened the public's confidence towards the vaccine.

In Vietnam, Tran et al. (2018) reported that after learning the adverse effects of vaccination through the nation's newspaper, there was a significant increase of vaccine hesitancy and refusal rates among the urban settlers in Northern Vietnam.

In Spain, Catalan-Matamormos and Penafiel-Saiz (2019) analysed the visual content of vaccine coverage in print newspapers. They reported a majority of vaccine-related articles analysed in the Spanish newspapers had either a positive or a neutral tone towards vaccine and highlighted the essential role of visual messages aimed at persuading or informing the

public about vaccines in the print newspaper. Nevertheless, all of these studies are not related specifically to COVID-19 vaccination and Malaysian context.

Since the beginning of the COVID-19 vaccination at the end of 2020, studies on the framing of the COVID-19 vaccination news reports are still in their preliminary stage. For example, Piltch-Loeb et al. (2021) studied the effect of different information channels on COVID-19 vaccine acceptance in the United States at the beginning of the COVID-19 vaccine rollout there. In the study, they found that “traditional channels of information, especially National TV, National newspapers, and local newspapers increased the likelihood of vaccine acceptance” (2021, p.1).

Meanwhile, Palm et al. (2021) conducted a survey experiment to learn the effects of different framings of COVID-19 vaccination messages on vaccine acceptance among Americans. The findings revealed proper messages on COVID-19 vaccination can have a powerful influence on public’s decision to be vaccinated and the messages tend to be more effective if there is an emphasis of safety and efficacy, use of constructive social norms, as well as the independence of the vaccine development from any political influence.

In Malaysia, research on how news reports on the COVID-19 vaccine or vaccination are still scarce. One of the available studies that was conducted by Wan Mohd Ghazali et al. (2020) looked into the coverage of vaccination in the Malay newspapers. Nevertheless, the study was performed before the COVID-19 outbreak hit the country. The study reported that the Malay newspapers did not highlight enough coverage on vaccination efforts in Malaysia.

The scarcity of research on how Malaysian news reports on the COVID-19 vaccine and vaccination in general have affected the public’s belief and intention to take the vaccine. Thus, there is a dire need to examine how the mass media like newspapers highlight the issue in the news reports.

#### METHODOLOGY

The study adopts a mixed-method approach in examining this corpus. The initial stage of the data analysis involves quantitative approach, involving corpus analysis on wordlist, keyword list, and collocates analysis. The later stage of the data analysis involves qualitative approach comprising the content analysis of the collocates, as well as the media frames based on the analysis of concordance lines. The analysis of concordance lines to unearth the media frames in the corpus was guided by the descriptions and indicators of frames suggested by Fatima (2020).

#### *The Corpus: COVID-19 Vaccine Related News Reports in Malaysian English Newspapers Corpus (CovVac-MEN Corpus)*

The corpus consists of one of the nation’s major English newspapers, The Star in the period between July 23, 2021 to August 8, 2021. The newspaper was chosen because of its wide circulation within Malaysia. Since the present study focuses on ‘COVID-19 vaccination’, only articles where the terms associated with ‘COVID-19’, ‘coronavirus’, and ‘vaccination’ were mentioned in the headline and the news content were included. Hence, relevant articles were collected in the newspaper’s official website, <https://www.thestar.com.my/>. The search capitulated 538 news articles. These articles were analysed in #LancsBox 5.0. The corpus has a total of 12420 word types (178675 word tokens & 9870 lemmas). Even though the size of this specialised corpus is small, but it is big enough to have a preliminary insight on/into how COVID-19 vaccination is framed in the corpus. To generate significant keywords and

collocates, the wordlist of the corpus was compared against a reference corpus, i.e., British National Corpus (BNC) Baby 2014.

### *Corpus Analysis*

The corpus analysis used the #Lancsbox 5.0 that offers wordlist, keyword list, and collocate features for text analysis. By analysing the ‘COVID-19 vaccination’ related keywords in the keyword list and collocates, news framing of the pertaining notion can be revealed. Significant keywords were identified based on Log-Likelihood (LL) test before they were further analysed. McEnery and Hardie (2012) suggest keywords that possess LL value of over 7.0 are considered as significant. The next stage involves collocates analysis to learn what words that highly correlated with the ‘COVID-19 vaccination’ in the corpus. MI statistical test was conducted to calculate the collocational strength (Cheng, 2012; Hunston, 2002). The collocates with MI score of 3.0 or above are considered to be significant (Hunston, 2002). The final stage involves the analysis of concordance lines to unearth the media frames in the corpus that was guided by the descriptions and indicators of frames suggested by Fatima (2020).

## RESULTS AND DISCUSSION

### *Keyword List*

Table 2 displays the keyword list of the CovVac-MEN corpus when the wordlist was compared to BNC2014Baby, the selected reference corpus. From the keywords list, 11 words (with the highest Log Likelihood (LL) value) used to refer to ‘COVID-19 vaccination’ in the corpus were identified.

Table 2: List of keywords referring to ‘COVID-19 vaccine’ in the CovVac-MEN Corpus

No.	Keywords	Log L. Value
1	vaccination	5653.54
2	vaccine	5512.39
3	vaccinated	3381.98
4	vaccines	2078.15
5	immunisation	1332.97
6	vaccinations	874.28
7	jabs	573.87
8	vaccinate	310.16
9	shots	280.51
10	vaccinating	155.08
11	jabbed	83.84

From Table 2, it is evident that the word ‘vaccination’ was considered as the most salient keyword (LL=5653.54) in the corpus, while the words ‘jabbed’ was deemed as the least salient keyword (LL=83.84) in the selected Keyword List used to refer to ‘COVID-19 vaccine’ in the corpus. From Table 2, it is also evident that the salient ‘COVID-19’ related keywords are in noun and verb forms. To identify the lexical framing of ‘COVID-19 vaccination’ in the selected corpus, these salient keywords were further examined in collocation analysis.

### *Collocation Analysis*

Brezina (2016, p.90) defined collocation as words that systematically co-occur in a corpus “to create a range of cross-associations that can be visualised as networks of nodes and collocates”. In other words, collocation illuminates significant associations between words

used in a corpus using statistical evidence (Williams, 2001). To do this, GraphColl feature in #LancsBox 5.0 was employed to generate collocates of the selected salient keywords linked to COVID-19 vaccination: ‘vaccination’, ‘immunisation’, ‘vaccinations’, ‘jabs’, and ‘shots’.

### *Collocation Analysis of ‘COVID-19 Vaccination’ Collocates*

The nouns ‘vaccination’, ‘immunisation’, ‘vaccinations’, ‘jabs’, and ‘shots’ indicate the act of COVID-19 vaccination. The top 10 collocates of each keyword in COVID-19 vaccination list are tabulated in Table 3.

Table 3: Collocates of the COVID-19 vaccination keywords

Keywords	Collocates	MI score	Keywords	Collocates	MI score
vaccination	certificate	7.33	jabs	gotten	9.29
	coverage	7.19		categories	7.51
	mobile	7.16		booster	7.18
	film	7.03		get	7.10
	centres	7.02		given	6.89
	rates	7.00		Walk-in	6.35
	card	6.97		million	6.28
	drive	6.97		day	6.10
	process	6.91		ppv	5.54
	speed	6.75		centre	5.37
immunisation	public-private	9.61	shots	booster	9.87
	partnership	9.53		led	9.00
	coordinating	9.41		brings	8.80
	Jamaluddin	9.15		receive	7.31
	citing	9.11		Lumpur	6.96
	task	8.96		Kuala	6.72
	force	8.87		need	6.26
	programme	8.49		country	6.12
	national	8.33		should	5.54
	pick	8.16		their	5.08
vaccinations	Walk-in	9.00			
	start	6.62			
	Klang	5.89			
	up	5.73			
	Valley	5.58			
	Petaling	5.56			
	Khairy	5.41			
	Kuala	5.21			
	Jaya	5.07			
	ppv	4.94			

To ease the content analysis, the collocates in Table 3 were categorised according to Part of Speech (PoS) and only significant collocates were further analysed in the concordance analysis. The collocates of COVID-19 vaccination in the table can be categorised into four (4) categories of PoS:

- **Noun:** geography (Klang, Valley, Petaling, Jaya, Kuala, Lumpur); political figure (Khairy, Jamaluddin); proof of vaccination (certificate, card); reporting (coverage, rates); others (process, programme, day, centres, partnership, force, task, categories, country)

- **Verb:** film, drive, coordinating, citing, pick, start, gotten, get, given, led, brings, receive, need, should
- **Adjective:** mobile, speed, public-private, national, walk-in, booster, million
- **Pronoun:** their

To ease the data analysis, only the Noun collocates that can be clustered under a semantic set will be further analysed. Meanwhile, for Verb and Adjective collocates, the top three collocates with the highest MI score value will be further analysed and explained.

#### *Collocation Analysis of Noun Collocates*

Noun collocates occurred the most frequently with the 'COVID-19 vaccination' related keywords. Amongst the Noun collocates, 'Klang', 'Valley', 'Kuala', 'Lumpur', 'Petaling', and 'Jaya' collocates refer to geographical locations in Malaysia, i.e., Klang Valley, Kuala Lumpur, and Petaling Jaya. These geographical locations can be clustered under geography semantic set (Touri & Koteyko, 2014). From the analysis of the concordance lines of these collocates, the collocates 'Klang' and 'Lumpur' mainly highlight statistics and figures relating to cases of infection or vaccination rates. To further illustrate, the 'Klang', 'Lumpur', and 'Petaling' spread from concordance list is presented:

- ...30, a total of 2,113,511 people or 34.3% of the **Klang** Valley's adult population have received their second dose...
- ...from the CITF, 96.7% of the adult population in the **Klang** Valley have received at least a dose of vaccine...
- ...the highest daily number with 8377 cases, followed by Kuala **Lumpur** (2467), Kedah (1371), Johor (1162)...
- ...of Thursday, 71.9% of adult population in Selangor, Kuala **Lumpur**, and Putrajaya had been vaccinated with at least one dose...
- ...COVID-19: Over 550,000 vaccines doses administered on Wednesday (July 28) **Petaling** Jaya: Malaysia has maintained its momentum in the fight against COVID-19...
- Malaysia weekly COVID-19 cases rise by 29%, deaths up 8% **Petaling** Jaya: Malaysia's COVID-19 outbreak is showing no signs of easing...

The first, second, fourth, and fifth concordance lines indicate the figure and percentage of vaccinated adults in Klang Valley and Kuala Lumpur. Meanwhile, the third and sixth concordance lines indicate the figures of cases of infection and deaths in Malaysia. Hermans and Gyldensted (2019) state that, when news articles include statistics and proper context of the situation, there is an evidence of Mathematical Frame, a constructive frame. Koetsenruijter (2011) found that the news articles that include statistics or figures were considered to be more credible than the ones that exclude such information. In addition, numbers possess symbolic potency that have persuasive impact by inducing deeply embedded connotations and beliefs (Merriam, 1990). The numbers also signify the idea of complete vaccinations which involve taking at least one dose or both required doses, regardless the type of vaccine received. The high percentage of adult population that have received the first dose in example two and four also signify a wide acceptance of COVID-19 vaccination among the masses. This evidence reflects the results of the study conducted by Syed Alwi et al. (2021) who found a high rate of vaccine acceptance among Malaysians with an overall acceptance rate of 83.3%. Through this frame, it is believed to positively influence

the public's acceptance of the COVID-19 vaccination which then leads to curtailing the burden of the pandemic.

Apart from that, the collocates that indicate a Malaysian political figure, i.e., Jamaluddin and Khairy refer to Khairy Jamaluddin, who was at that time the National COVID-19 Immunisation Programme Coordinating Minister. From the concordance analysis, it was found that the newspaper highlighted the political role played by Khairy in increasing people's confidence of the COVID-19 vaccination by taking into account the public's complaints of the vaccination process. To further illustrate, 'Khairy' spread from concordance list is presented:

- ...COVID-19: Public can record themselves getting vaccinated, says **Khairy**. Putrajaya: The public can now film their vaccination process...
- ... which has somewhat been affected over recent days," he said. **Khairy** reiterated that all vaccination complaints reported by the public were taken seriously...
- ...empty vaccination doses are not linked to a vaccine-selling syndicate, says **Khairy** Jamaluddin. The National COVID-19 Immunisation...
- ...had occurred and the reason given was due to exhaustion," he said. **Khairy** added that the nurse has since been issued a warning by the...

The concordance lines refer to Khairy's response on the police reports lodged by the public on the issue of empty vaccine syringe shots at some vaccination centres (PPVs) (Bernama, 2021). In his responses, he permitted the public to record their vaccination process to give them a sense of assurance the vaccination was properly done and also claimed the nurse who committed such negligence had been warned. Khairy's response to the allegation made by the public is considered to be the government's response to the issue since he was in charge of the vaccination process. This evident indicates Solution-oriented Frame, a constructive frame. Hermans and Gyldensted (2019) found that Solution-oriented Frame comprises causes, responses, implementation and limitation of the problem. Fatima (2020) added the frame can be any response from the governments on the pertaining issue such as providing awareness or actions to solve the issue. Therefore, the evidence entails that the 'COVID-19 vaccination' notion in the examined corpus was framed positively and this framing may positively influence the readers' to 'COVID-19 vaccination'.

The 'certificate' and 'card' collocates refer to the proof of vaccination via MySejahtera (an application developed by the government of Malaysia in managing the COVID-19 outbreaks) or vaccination card. To further illustrate, 'certificate' and 'card' spread from concordance list is presented:

- ...that they can show proof of their digital vaccination certificate upon entry. In states under Phase Two of the National...
- ...come for solat prayers must show their digital COVID-19 vaccination certificate. He also said the same applies to non-Muslims, where they...
- ...show their MySejahtera digital vaccination certificate or vaccination **card** before they can check in to the hotel...
- ...vaccination for the undocumented migrants and to use a vaccination **card** instead, and also to get pro-migrant NGOs and...

The collocate 'certificate' links to the use of MySejahtera app as a digital vaccination certificate. The app serves as a platform for vaccinees' selection, invitation, enrollment, side effects monitoring, and certification while also reminding vaccinees of their second jab

appointments when due (Khairil Anwar, February 12, 2021). The first three examples of concordance lines relate to the use of both digital and physical vaccination evidence in entering certain premises. During Recovery Movement Control Order (RMCO), the economic, education, religious, hospitality, and tourism sectors were reopened with strict standard operating procedures (SOPs) (Hashim et al., 2021). Therefore, the 'certificate' and 'card' collocates highlight the government's effort in curbing the spread of COVID-19 during RMCO implementation by only permitting vaccinated people to cross the state borders and enter certain premises or buildings such as religious premises, malls, or hotels. This finding entails Solution-oriented Frame as it relates to the government's response and action in combating COVID-19 (Fatima, 2020; Hermans & Gyldensted, 2019). Apart from that, the fourth example showed the 'card' collocate relates to the undocumented migrants that can use physical vaccination card as a proof of vaccination. This finding indicates the importance of COVID-19 vaccination to the immigrants and not just the Malaysians. This might be due to the increasing number of positive COVID-19 cases discovered among migrant workers (Wahab, 2020) forcing the government to take such action. The inclusion of immigrant community as one of the subjects in the immunisation programme indicates Public-Oriented/Empowerment Frame. Hermans and Gyldensted (2019) state media sometimes includes variety of perspectives, in this case the immigrants in Malaysia, to engage the public more. The use of this constructive frame helps to construct a positive frame to the COVID-19 vaccination.

The last semantic set of the Noun collocates is reporting words, i.e., 'coverage' and 'rates'. These collocates were found to be used in the examined corpus to report statistics of either vaccination rates or COVID-19 cases. To further illustrate, the 'coverage' and 'rates' spread from concordance list is presented:

- ...added that the overall registration rate was still below the target vaccination **coverage** of 80% under the COVID-19 National...
- ...UK and Israel, where their daily cases went down dramatically when the **coverage** of full vaccination went above 50%...
- ...its adult population. However, adult vaccination **rates** are still lagging in certain states such as Sabah (33.8%)...
- ...Johor and Negeri Sembilan had also reported slow vaccination **rates** for their workers. Jawahar Ali noted that...

Examples one, three and four of the concordance lines relate to the low percentage of vaccination rate or coverage in some states in Malaysia. Meanwhile, the second example relates to the low vaccination coverage in UK and Israel which led to a dramatic decrease of daily cases there. The use of the statistics indicate another Mathematical Frame (Hermans & Gyldensted, 2019) as previously found in the concordance spread of the geographical locations collocates. Since the news article which include statistics or figures were considered to be more credible (Koetsenruijter, 2011) and have more persuasive impact (Merriam, 1990) than the ones without the numerical details, the COVID-19 vaccination is believed to be framed positively in the corpus.

#### *Collocation Analysis of Adjective Collocates*

Adjectives play a prominent role in people's understanding attributes linked to nouns (Deveci, 2021), therefore it can be found in many types of discourse including news articles. From the list of collocates in Table 3, there were seven adjective collocates (i.e., 'mobile', 'speed', 'public-private', 'national', 'walk-in', 'booster', and 'million') which were statistically

significant with the 'COVID-19 vaccination' related keywords. Nevertheless, only the top three adjective collocates (i.e., 'booster', 'walk-in', and national') with the highest MI score will be further examined and discussed.

The first adjective collocate with the highest MI score is 'booster'. The collocate suggests the idea of uncertainty with regards to booster shots. To further illustrate, the 'booster' spread from concordance list is presented:

- ...Dr Awang Bulgiba also noted that the global scramble for **booster** shots may potentially worsen vaccine inequity issues worldwide. While some...
- ...likely to face supply issues when we decide to give **booster** doses (in the future) if we do not act to secure supplies now...
- ...variants, AstraZeneca says it is not yet sure whether a **booster** dose of its vaccine will be necessary for continued protection...
- ...period of time. So, whether we will need a third **booster** or not is not clear yet, only time will tell...
- ...The jury is still out among health experts on the need for COVID-19 **booster** shots. At this point, Universiti Malaya virologist...
- ...there was not enough data to support the need for **booster** shots although he noted that data from Israel has suggested...
- ...is less effective against the new variants. So, perhaps a **booster** shot with a slightly different vaccine version could overcome the...

From the concordance lines, it is evident that the 'booster' collocate was framed negatively in the corpus. The issue related to the uncertain need of booster shot was highlighted in the corpus as evident in examples three, four, five, and six. This uncertainty may negatively influence the public's decision to get the COVID-19 booster shots because the use of language reflects uncertainty of a situation related to the COVID-19 booster shot. The phrases such as 'not yet sure whether', 'is not clear yet', 'the jury is still out among health experts', and 'there was not enough data to support' found in the corpus reflect Uncertainty Frame, a negative media frame (Hermans & Gyldensted, 2019). Apart from that, in example one, there was a use of exaggerating words that is 'global scramble' to COVID-19 booster shot. The use of sensational, exaggerating words and language structure indicates Sensational Language Frame (Hermans & Gyldensted, 2019). This evidence shows the issue of booster shots is again framed negatively in the corpus.

Next, the adjective collocate with the second highest MI score is 'walk-in'. The collocate suggests the idea of accessibility to COVID-19 vaccination process. To further illustrate, the 'walk-in' spread from concordance list is presented:

- ...Prof Dr Sharifa Ezat Wan Puteh said **walk-in** PPV would help to ramp up the vaccination effort. She noted that walk-in vaccinations were already practised...
- ...Physician's Association president Datuk Dr Zainal Ariffin Omar said **walk-in** vaccinations would speed up the process in Selangor...
- ...COVID-19 Immunisation Task Force (CITF) has decided to open the **walk-in** initiative to all senior citizens nationwide from next week...
- ...the Setia SPICE Convention Centre will also carry out a **walk-in** initiative today to cater to senior citizens who have not...

The 'walk-in' collocate was framed positively in the examined corpus. The first and second example of the concordance list indicates the walk-in vaccination centre was expected to improve the vaccination process as it offers convenience to people who want to be vaccinated fast without waiting for MySejahtera app notification. This prediction indicates Future-oriented frame, because it offers the possible event that might happen in the future based on the action made in the present (Hermans & Gyldensted, 2019). Meanwhile, the third and fourth examples relate to the ease and convenience of COVID-19 vaccination process via walk-in initiative to the senior citizens. The finding signifies the target group of people that were prioritised in the walk-in vaccination. This might relate to the aim of the government in reaching the herd immunity of the senior citizens since they might not be familiar in using the MySejahtera application or unaware on how to properly use the application (New Straits Times, 2021).

The last adjective collocate with the third highest MI score is 'national'. The collocate majorly relates to the Malaysian Government's programmes of COVID-19 vaccination. To further illustrate, the 'national' spread from concordance list is presented:

- ...fully vaccinated individuals in Penang, which entered Phase Two of the National Recovery Plan on July 7. Under the strict SOP...
- ...said Perlis is expected to enter Phase Three of the National Recovery Plan (NRP) within a week. "Perlis will soon move..."
- ...briefings by the Prime Minister and Cabinet ministers on the National Recovery Plan, progress on tackling the COVID-19 pandemic...
- ...vaccines currently being administered under Malaysia's National COVID-19 Immunisation Programme with the recommended doses...

As evident from the examples of 'National' concordance lines, all of the collocates refer to the government's immunisation programmes, i.e., National Recovery Plan and National COVID-19 Immunisation Programme. National Recovery Plan is a four-phase plan by the Malaysian government to help the country achieve herd immunity; thus, boosting confidence in the financial markets and among industry players (Bernama, 2021). Meanwhile, the National COVID-19 Immunisation Programme specifically relates to the government's strategic plan to ensure the COVID-19 vaccination process runs smoothly, safely, effectively and in an orderly manner (JKJAV, 2021). The highlight of the government's programmes in the newspaper reflects a positive frame, i.e., Solution-oriented Frame, as it shows a strong commitment by the government to help the country completely recover from the pandemic.

#### *Collocation Analysis of Verb Collocates*

From the list of collocates in Table 3, there were 14 verb collocates that were statistically significant with the 'COVID-19 vaccination' related keywords. Majority of the verb collocates are action verbs. To make the content analysis manageable, only the top three of the verb collocates that possess the highest MI score will be further investigated and explained.

The first verb collocate with the highest MI score is 'gotten'. Generally the verb collocate refers to the act of receiving the COVID-19 vaccination. To further illustrate, the 'gotten' spread from concordance list is presented:

- ...and those who have passed away. "This pandemic has now **gotten** worse due to the spread of the Delta variant..."
- ...who are fully vaccinated. Pannir, a local councillor who has **gotten** both of his doses, said life has been difficult for the...

- ...programme on Friday (Aug 6) apart from those who had **gotten** their jobs through the MySejahtera application...
- ...the sectors like tennis and badminton, those who have **gotten** their second jobs and have passed the two-week period...

Examples two, three, and four show 'gotten' refers to act of receiving the COVID-19 vaccination. Yet, example two includes a reference of COVID-19 impact to someone's life that is 'life has been difficult'. Meanwhile, example one relates to the condition of COVID-19 pandemic that became worst due to the new Delta variant. Even though the newspaper was stating the actual condition of the pandemic, such remarks focus on negative consequences that may trigger anxiety among the masses (Hermans & Gyldensted, 2019). The discussion of any impacts or damages caused by the crisis is considered to be negative (Fatima, 2020) which represents Consequences Frame.

Next, the verb collocate with the second highest MI score is 'receive'. The collocate mainly refers to figures and statistics that indicates the presence of Mathematical frame. To further illustrate, the 'receive' spread from concordance list is presented:

- ...to 12000 hawkers throughout all five districts in Penang would **receive** their vaccines through Movak. Dining-in is permitted...
- ...is confident that 60% of the targeted adult population will **receive** at least one dose by early September. "Before the end..."
- ...42000 Orang Asli living in the peripheral areas of the state to **receive** the first dose of the vaccine by the end of August...
- ...be delivered to the states. "We are also scheduled to **receive** another batch of some 500000 doses of the AstraZeneca..."
- ...Datuk Azmi Rohani. "As a result of discussions, Johor will **receive** two million doses of vaccine in August with the first..."

Examples one, two, and three relates to statistics of people that will receive their vaccination. While example one and two mention the receivers will be among hawkers in Penang and adult population, example three mentions the receivers will be among the Orang Asli, the aborigines in Malaysia. When a newspaper includes any reference of minorities or ethnic communities, it indicates that the newspaper frames the issue in Inclusiveness/Diversity Frame (Fatima, 2020; Hermans & Gyldensted, 2019). This evidence leads to a discovery of another constructive/positive media frame. Apart from that, the statistics in examples five and six relates to vaccine supply that will be received by the government for the immunisation programme. Since the number of COVID-19 cases escalated around the globe, there has been an increase of COVID-19 vaccine demand which may contribute to supply chain disruptions; therefore, leading to problems in providing sufficient COVID-19 vaccine (UNICEF, 2021). As the newspaper highlights the government's action in combating the pandemic, specifically in ensuring the vaccine supply is sufficient, it reflects another constructive or positive frame, i.e., Solution-oriented Frame. This positive frame may help to boost the public's confidence to the immunisation process and reduce their agitation on issues relating to low shortage of vaccine.

Last but not least, the verb collocate with the third highest MI score is 'led'. The collocate generally links to issues to the COVID-19 vaccine. To further illustrate, the 'led' spread from concordance list is presented:

- ...Exhaustion led to empty syringe case. Putrajaya: The recent case where a...
- ...proper vaccine dose, following claims of "empty" vaccination syringes that led many to doubt the integrity of the country's COVID-19 immunisation...
- ...audio recording claimed that COVID-19 vaccines were poisonous and had led deaths of 40 nurses who had taken...

The first example illustrates the issue of empty COVID-19 vaccine syringe as claimed by the public. The example refers to the government's prompt response to the 13 police reports on the issue of empty vaccine shots at several vaccination centres. Khairy Jamaluddin, the National COVID-19 Immunisation Programme (PICK) Coordinating Minister at that time responded that all of the reports made did not have a solid evidence except of one case in Sungai Petani Kedah due to an error while on duty or human error (Bernama, 2021). The response indicates Solution-oriented Frame which reflects constructive frame to the issue.

#### *Collocation Analysis of Pronoun Collocate*

From the list of collocates in Table 3, there is one pronoun collocate, i.e., 'their', that was statistically significant with 'COVID-19 vaccination' keyword in the studied corpus. From the content analysis of the concordance analysis, it can be found that 'their' refers to several groups of people. For instance, 'their' refers to Malaysians, youth, and illegal immigrants and refugees. To further illustrate, the spread from concordance list is presented:

- ...Of course, Malaysians must also play **their** part. While we need to get 26 million people vaccinated...
- ...a great desire and support among the youth to do **their** bit and assist in simplifying the vaccination process...
- ...encourage illegal immigrants and refugees to come forward for **their** COVID-19 vaccine shots...

These three instances refer to a call for action among Malaysians, youth and the immigrants to do their part in fighting the pandemic. Apart from that, in other instances, 'their' also refers to the frontliners, doctors, nurses and also workers. To further illustrate, the spread from concordance list is presented:

- ...thousands of frontliners, doctors and nurses who are risking **their** lives, vaccinating thousands of people every day...
- ...doing everything possible to ensure a safe working environment for **their** employees during the pandemic...

In the examples, the newspaper highlighted the risk taken by the frontliners, specifically the doctors and nurses, in combating the pandemic and effort made by the employers to ensure their employees can work safely during the pandemic. Lastly, 'their' collocate also refers to parents, senior citizens, and students. To further illustrate, the spread from concordance list is presented:

- ...Making more data available will give parents confidence to register **their** children for vaccination ahead of schools reopening...
- ...Senior citizens in Penang who have yet to get **their** COVID-19 shots can walk into selected centres for immediate vaccination...
- ...a campus bubble so that more students can return to **their** campuses in phases and undergo hybrid teaching and learning...

The first example links to the parents' concern of the safety of the COVID-19 vaccination to their children. Example two relates the newspaper's highlight on walk-in vaccination to the senior citizens. The last example refers to a solution for university students to return to their campuses. The inclusion of subjects (e.g., frontliners, immigrants, parents) in newspapers indicates a variety of perspectives with the aim to engage the public (Hermans & Gyldensted, 2019). This inclusion indicates the evidence of Public-oriented/Empowerment Frame, a positive frame.

### CONCLUSION

To recapitulate, the present study aims to examine how the 'COVID-19 vaccination' related keywords are used in the selected English Malaysian newspapers and seek whether the identified keywords are positively or negatively framed in the corpus. The findings indicate that the selected newspaper generally frame the 'COVID-19 vaccination' notion positively by mainly highlighting the Malaysian government's effort to combat the disease and include statistics as one of the ways to engage the readers. The newspaper also frames the 'COVID-19 vaccination' in a constructive manner by including perspective of various groups of people such as frontliners, parents, students, employers, and many more in the news reports. Yet, there are some use of sensational language and portrayal of negative impact that might cause anxiety among the readers and influence them negatively in their decision to take the vaccine. Positive emotions should be maximised in news coverage about COVID-19 vaccines, which will lead to greater public confidence in embracing the vaccines and fighting the pandemic (Kuang et al., 2021). This research offers some perspective of the ongoing public health crisis, empowers readers to be aware on the unnecessary fear mongering of COVID-19 vaccines, and subsequently aids the public to make informed decisions in taking the vaccines; hence, containing the spread of the pandemic.

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