ORIGINAL ARTICLE

Challenging the Journalistic Ideal of Objectivity in Reporting Vaccination

Mohamed S, Wan Mohd Ghazali WN, Yusoh MH

Department of Communication, Kulliyyah of Islamic Revealed Knowledge and Human Sciences, International Islamic University Malaysia, Malaysia

ABSTRACT

INTRODUCTION: The resurgence of vaccine-preventable diseases such as polio, diphtheria, measles, mumps, among others demonstrate the anti-vaccine movement's growing popularity and efficacy in spreading its views. To overcome the vaccine fallacies that are now prevalent, effective news media coverage on vaccination that emphasises the urgency and necessity of vaccination to the public is required. To determine whether such emphasis is made in the mainstream media, this study analysed vaccine coverage in two English newspapers in Malaysia, The Star and the New Straits Times (NST). **MATERIALS AND METHODS:** Framing analysis was performed on a total of 308 vaccine-related news items gathered over 14 months, from January 2019 to March 2020. **RESULTS:** Both publications used almost similar patterns in reporting vaccine-related issues. They relied heavily on official or government institutions as sources of information with high emphasis given on creating awareness and providing information about vaccines. In broad, vaccination is primarily covered as news to be reported, rather than a problem to be highlighted and further explored in-depth. **CONCLUSION:** Considering contemporary health realities, newspapers must play a persuasive and consistent role in publicising the necessity of immunisation.

Keywords
Anti-vaccination, framing, health-communication, newspapers, vaccination

Corresponding Author
Dr. Wan Norshira Wan Mohd Ghazali
Department of Communication, Kulliyyah of Islamic Revealed Knowledge and Human Sciences, International Islamic University Malaysia, Malaysia
E-mail : wannorshira@iium.edu.my

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INTRODUCTION

Availability of medical information on the internet has enabled patients and the public to make more educated healthcare decisions. Although this is beneficial in the development of a health-informed society, the spread of ambiguous and false information has had negative consequences, such as an increase in the number of parents refusing to vaccinate their children due to a variety of ideas found online. Several studies pointed out that vaccine refusals in Malaysia are educated1, located in urban areas[2,3], and are marginal but persistent in sharing their anti-vaccination sentiment online such as on Facebook.[2] Political agenda, religious arguments, and conspiracy speculation are said to be the factors contributing to low registration for vaccination among the Malay Muslim and professional groups in Malaysia.[4] For example, the conspiracy stories related to biological warfare research in USA and China circulating on social media, further contributed to the widespread misinformation on vaccines.[5] Studies on the effects of social media on vaccination showed that there is a considerable anti-vaccination sentiment.[6,7] Incorrect information abounds and is easy to locate with 60% of the Internet content being biased towards anti-vaccination campaigns.[7] Most of the time, these tactics are convincing and effective particularly to undermine the scientific validity of vaccination through dishonest and fraudulent approaches.[8] These anti-vaccination websites contain disproved hypotheses and inaccurate information about vaccine ingredients that encourage parents to spread "vaccine injury stories" without scientific evidence[9] and also promote emotionally charged arguments rather than evidence-based logic, which appears to resonate with their target audiences.[10] In this case, vaccine injury stories are viewed as a compelling narrative utilised by anti-vaccine groups due to the lack of medical specialists to explicitly dispute the disinformation.[11] A similar scenario was

revealed in an online Malaysian newspaper, Berita Harian, about how a deceptive Facebook page might have amassed 40,000 followers despite its contents that contradict scientifically proven medical treatments.[12] The Facebook page has become a venue for people to share ideas on how to refuse vaccines and criticise the Malaysian government's national immunisation programs.

Based on these arguments, this study suggests that the Malaysian media can play a significant part in disseminating vaccination-related information and raising awareness about the dangers of vaccine misinformation, which justified the selection of the online version of The Star and NST as the sources for this study. Despite the gradual fall in popularity of the traditional media (e.g., television and online versions of hardcopy newspapers), they are still much valued and considered an accountable source of information for crucial issues.[13,14] In times of health crisis, the public would prefer to get information from traditional and mainstream media, which they deem more authoritative and trustworthy.[15,16] Communication of health information through mass media is beneficial since it reaches the public more quickly than face-to-face meetings between health practitioners and patients. Both mass media and its online components can play a significant role in disseminating vaccination safety messages to help spread vaccination acceptance and to counteract anti-vaccination notions that are widely available online.

It was discovered that media coverage is linked to public acceptance of the HPV vaccine as a potential cervical cancer preventative measure.[17] Another study found that the information is given on television enhanced acceptance of pneumococcal vaccination among Australia's elderly.[18] Contrasting evidence however showed that there was a significant rate of vaccination reluctance and refusal among individuals in an urban context in Vietnam after hearing about AEFIs in the media.[19] Furthermore, media coverage on the side effects of the hepatitis B vaccine has eroded public trust in the vaccine.[20] The media's approach to fair and objective reporting has been chastised for contrasting scientific evidence since it may lead to skewed perspectives and narratives on vaccines[21] and lowered public confidence in vaccination effectiveness. The mixed responses to vaccination acceptance discussed above suggested that there is a need for addressing vaccination fear by offering more specific messages, persuasive, scientific, and reliable information about the necessity of vaccination by the mass media.

Media practitioners should provide vaccine information that goes beyond facts and information due to the increased professional standards and societal accountability of creating a news story. An example of an approach, media should assume an instructional role in order to provide a clear understanding of scientific knowledge in addition to accurate and clear coverage of health news.[22] This method will result in influencing people's attitudes and behaviours.[23] In other words, the effectiveness of such news will be determined by its strategic placement and presentation. Furthermore, when covering vaccination news, the media is supposed to reflect contextually based on society's demands and challenges. They should consider defining their target audience, aims, attributing stories to reputable sources, addressing concerns connected to facts, the risks and advantages of vaccines, and various other factors. In view of these, the mass media can play a powerful role when it comes to challenging the anti-vaccine sentiments and emphasising the importance of vaccination. Unlike unverified Internet materials, news media can become a rational and trusted source for immunisation. Notably, positive coverage that emphasises the need for immunisation can raise public knowledge of the dangers of vaccine-preventable diseases and increase vaccination compliance.

As a result, investigating how Malaysian media outlets approach vaccination issues can help to explain whether the media is effective in upholding its responsibilities to correct vaccine falsehoods. It should be mentioned that, to the best of the researchers' knowledge, there have been few empirical investigations on the mainstream Malaysian media's coverage of vaccination problems. Based on the preceding debates and the findings of earlier research, this study intends to highlight the state of newspaper coverage on vaccination by investigating the news sources, news frames, and news slants.

MATERIALS AND METHODS

Framing

Using framing as a framework to understand how the New Straits Times (NST) and The Star cover's vaccination stories, this study employed a content analysis approach. Framing is a process of drawing attention to some aspects of reality while obscuring others, which may result in different reactions.[24] It is also known for its function to select a limited number of thematically related attributes for inclusion in the media agenda when a specific object is discussed.[25] Framing has been widely employed in health communication research.

Data Collection

From January 2019 to March 2020, 308 news stories were collected throughout 14-month from the NST and The Star. The unit of analysis was all stories in the newspapers' online archives that included, but were not limited to, the words 'vaccination,' 'vaccine,' 'immunisation,' and 'anti-vaccine' in their headlines and text.

Table I: Description of the Sampled Newspapers

Newspaper	Readership	Total news analysed
New Straits Times	261, 000	139
The Star	1, 185, 000	169
Total		308

** Source: https://www.adqrate.com/search/quicksearch?s=new%20straits%20times*

Reliability and Validity Analysis

Two coders were hired to investigate the NST and The Star vaccination news. Before data collection, both coders received training to become acquainted with a codebook and code sheet. The coders were briefed face-to-face about the nature of the research, the research aims, and the codebook used in the study. The codebook's primary duty is to lay out detailed instructions and describe each code with a definite definition for researchers and coders to follow in order to complete the study.[26] Inter-rater reliability was conducted to help researchers estimate the degree of agreement among coders on the data set. Inter-rater reliability relates to the circumstance in which coders are asked to associate predetermined codes to related bits of data and the level of agreement is measured.[27,28]

An inter-rater reliability test was conducted by the coders on 31 news items from the same newspaper. The trustworthiness of news sources, news frames, and news slants in both newspapers was calculated. For all categories, the percentage agreement measures were above 83%, and the average Cohen kappa was greater than 0.611, which achieved the minimum acceptable level and was described as substantial. The minimum acceptable level of Cohen kappa reported in this study might be due to the small sample size used for the pilot test. Despite this issue, the percentage of the agreement should be considered to show that both coders had a similar comprehension of the research items since 80% agreement between coders is acceptable to ensure the inter-rater reliability.[29]

Data Analysis

This study utilised a deductive approach to analyse data in which specific frames were predetermined as content analytical variables to validate the frequency with which these frames appear in the news. Since frames that are not predefined may be disregarded, this methodology necessitates that the researcher has a clear notion of the possible frames. This study compiled different framing types from a review of the literature as well as a study of local coverage of the vaccination topic. As a result, this study looked at framing through the following categories: 1) news sources, 2) news frames, and 3) news slants. The following tables illustrate how coding items were operationalised:

Table II: Operational definition of the news sources

News Sources	Descriptions
Government/ Ministries/ Authorities	Official governmental institutions such as the Ministry of Health, Public Hospitals, ministers, and government health operators
Medical Practitioners	Individual or groups that are certified and skilled in the science of medicine which includes doctors, physicians, and surgeons
Non-medical Experts	Non-medical Institutions or organizations like universities and research groups that do research and provide scientific evidence regarding the issue
NGOs or Government-to-government Corporations	Private companies, organizations, institutions such as the United Nations (UN) and the World Health Organizations (WHO)
News Agencies	Other media institutions such as international news agencies like Reuters and AP
Profit-seeking Companies	Profit-making businesses that may sponsor news or organize events relating to the issues
Others	Sources that do not fit in any of the categories above

Table III: Operational definition of the framing categories

Framing Category	Operational Definition
Informative/ awareness	The frame addresses the cognitive side, in which the news is to offer information utilising facts, evidence, and scientific data to report on current vaccination developments and announcements.
Proactive	The frame tackles the behavioural part such as activities that should be taken after reading the news. Readers will be influenced to make vaccination decisions as a result of the news.
Warning	The frame focuses on the ramifications of failing to follow vaccine-related guidelines or rules. The frame emphasises the risk and harm if not vaccinated. The government, health practitioners, the media, people, and others may issue a warning about vaccination concerns.
Commercial	The frame presents issues with profit-making intentions and based on market or economic prospects in focus that addresses certain companies, NGOs, individuals' interests.
Policy/action	The frame focuses on the policy measures implemented by the government or any responsible parties to deal with and address the issue at hand. It covers vaccination prevention and control as well as explains the process of resolving any issues related to vaccination, with an emphasis on actions done by relevant parties and their results.

Table IV: Operational definition of the news slants

News Slants	Descriptions
Positive	News written slanted towards perceiving vaccinations positively
Negative	News written slanted towards perceiving vaccinations negatively
Neutral	News has been written with no obvious slant to push for vaccine uptake. It only provides objective information and knowledge for general understanding

RESULTS

The research findings can be categorised in terms of the news source, news frames, and news slants. Each finding will be reported by means of a comparison between the two newspapers analysed in this study.

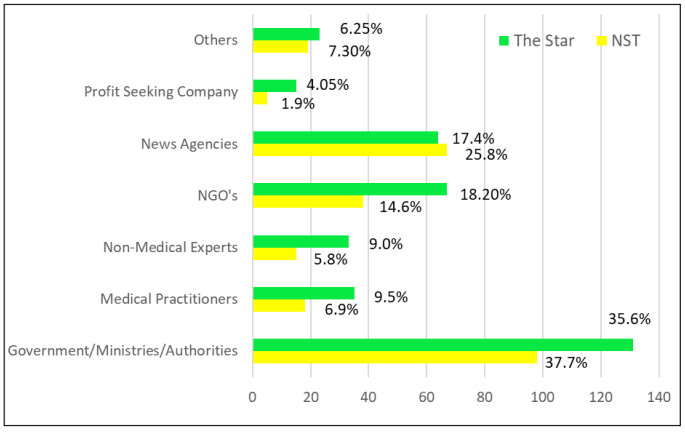

Figure 1: The source of news used by the selected newspapers

The findings, as shown in Figure 1, revealed that both publications relied heavily on official or government institutions in their coverage of vaccination. For example, the NST employed official informants 37.7% of the time, while The Star used them 35.6% of the time. Local and international news agencies were also important sources of information for both papers, accounting for 25.8% of NST and 17.4% of The Star. The publications also prominently referenced and sourced news from non-governmental organisations (NGOs) and government-to-government corporations (G2G) such as World Health Organisation (WHO) and the United Nations (UN) (NST=14.6%, The Star=18.2%). Medical practitioners, such as doctors (NST=6.9%, The Star=9.5%), and non-medical professionals, such as academic researchers (NST=5.8%, The Star=9%), received the least amount of attention. In comparison, The Star (4.05%) showed more news from Profit Seeking Companies that may sponsor stories or organise immunisation events than NST (1.9%).

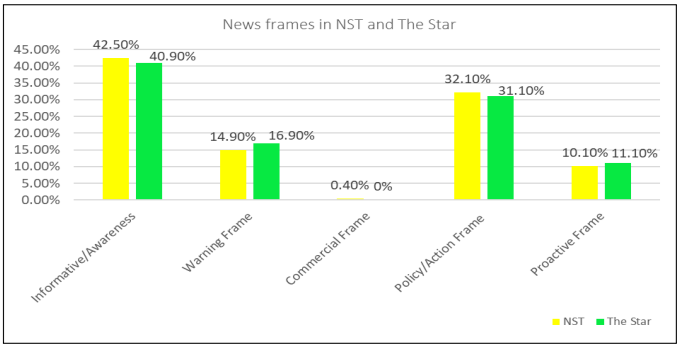

Figure 2: The news frames used by the Malaysian newspapers

The The informative/awareness frame is most frequently utilised by newspapers for framing vaccination news, as demonstrated in Figure 2. In accordance with the idea of objectivity in journalism, NST (42.5%) and The Star (40.9%) framed their stories by providing factual news without expressing opinions on vaccine concerns. The policy/action frame was the second most often utilised frame, with NST (32.1%) and The Star (31.1%) featuring news that described the process of resolving immunisation issues by highlighting policies and actions done by the government or any other responsible parties. The warning frame is the third most used frame. In their immunisation coverage, NST used 14.9% of it, whereas The Star used 16.9%. By employing warning frames, newspapers departed from their impartial and objective position by notifying readers about the risks and consequences of not getting vaccinated or failing to take vaccine-related concerns seriously. The proactive frame is the most significant in conveying the need for immunisation. Unfortunately, both newspapers used this frame only sparingly (NST=10.1%, The Star=11.1%). The

commercial frame was the least used, as The Star did not use it at all, while NST only used it three times, or 0.4% of the time.

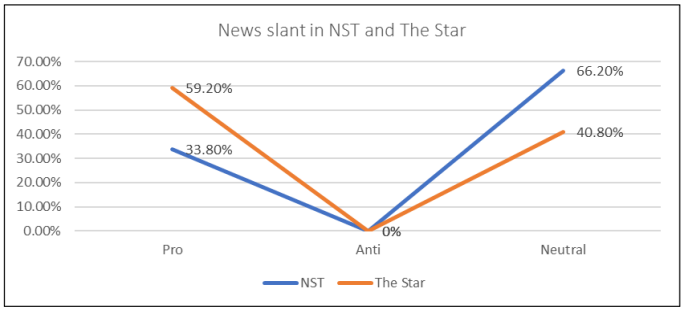

Figure 3: The news slants used by the Malaysian newspapers

The slant of a newspaper as shown in Figure 3 determines whether it supports or opposes the vaccination effort. Mainstream newspapers typically promote the existing quo, and when it comes to vaccination, scientific, institutional, and authority conventions favour vaccination adoption. Consequently, it is predicted that no anti-vaccination news was published in the newspapers. However, this does not imply that they are completely supportive. While, the majority of the news in The Star (59.2%) and a substantial number of news in NST (33.8%) are pro-vaccination, a substantial amount of news is neutral in the sense that the newspapers do not take a position and instead rely on reporting of events. Indeed, 66.2% of the news in the NST and 40.8% of the news in The Star took this stance.

DISCUSSION

The discussion will be presented by relating the results above with the role of newspapers to validate the importance of vaccination. Some intriguing questions can be raised for discussion from the findings of the types of news sources used. In addressing vaccine issues, for example, both newspapers relied primarily on official government agencies. This suggests that many journalists take a "neutral" stance when reporting on issues, emphasising accurate, verifiable, and verified information. It is known that news sources should be from independent, highly reliable, and respected medical practitioners who can reply to and verify any misconceptions while also sharing their knowledge on vaccine-related material.[30] However, very few sources in both media came from institutions that conduct vaccination research. This suggests that journalists may not have enough connections or networking with scientists or vice versa. As a result, scientific evidence is wasted when it is not communicated to the public, even though scientific advancements might persuade the public with verifiable and objective proof. For example, a study showed that significant media coverage of the Zika virus improves trust in science as a source of solutions.[31] News about scientific achievements can increase public views of science, particularly when it is placed on the public agenda.[31] It might be deduced from previous studies that if the media often reports research evidence on the benefits of vaccination, vaccine-hesitant and vaccine-refusal persons are more likely to have informed knowledge about vaccination.

With regards to the types of frames used, newspapers could be more persuasive by framing news items in ways that affect readers' decision-making process into actions that favour immunisation by adopting proactive frames. The newspapers, on the other hand, decided to stay neutral in their framing of vaccination by keeping their news content within the boundaries of fair and unbiased reporting. It would be difficult for mainstream media to give messages that could compete with the more persuasive and emotionally appealing anti-vaccine propaganda available online if only objective reporting was dominantly used. This is because anti-vaccine activists use persuasive methods to appeal to their audience and followers.[32] In addition to misinforming about childhood vaccination, anti-vaxxers dispute the safety and efficacy of vaccines and claim that vaccines cause illness. Personal testimony or better known as anecdotal evidence further reinforced their claims.[32] For these reasons, social media is claimed to nurture misinformation about vaccinations.[33] Hence, there is a need for the mainstream media to become the authoritative voice that can counteract the plethora of vaccine misinformation available online. Mainstream newspapers should do far more than just cover vaccine issues with facts and information. This study suggests that the media should respond to and address these misconceptions in order to help the government to promote immunisation coverage among Malaysian children. Government health organisations should

challenge anti-vaccination messaging on the Internet with more than just factual facts.[34] Rather, they should engage in "emotional communication [while also] acknowledging and recognising the true fears" (p. 13) of vaccine-hesitant individuals.[35] As the government's mouthpiece, the media should be more outspoken on vaccination in order to approach anti-vaxxers.

In view of the news slants reported in the results section, it can be seen that it corresponds with findings on the newspaper's news frames, which were dominated by basic news reporting focusing on informing and increasing awareness rather than featuring a more proactive style of reporting that could lead to the public's positive acceptance of vaccination. Thus, at a time when authoritative scientific voices are being challenged by powerful and persuasive anti-vaccine messages on the Internet, newspapers must step up and be the voices that unambiguously endorse vaccination. Transparent and coherent media communication to address misinformation should be enhanced unabatingly. Neutral messaging can no longer compete with the slew of anti-vaccination messaging that is spreading online and in the community. In this sense, when dealing with vaccine-related matters, the media practitioners should be adept with current developments so that combatting misinformation will be as rapid as its spread. To make these possible, different stakeholders such as government and health institutions should be actively involved.

Limitation of study

It is essential to mention that this study was carried out in Malaysia during a period where various vaccine-related issues occurred on a sporadic basis. As a result, the analysis was limited to this inconsistency in press coverage. The study ended before the COVID-19 pandemic swept the world and dominated daily media coverage, therefore it did not capture the torrent of vaccine-related stories that filled the media in its aftermath. It would be fascinating to see if there is a shift in how vaccination news is handled and presented in the context of a worldwide pandemic which can be suggested for future research. Besides, this study had only been carried out in two English daily newspapers in Malaysia. Admittedly, there are many others in the Malay language and are major newspapers for rural and some urban Malays who form a significant fraction of the anti-vaccination movement in Malaysia. Hence, analysis of the Malay newspapers should be considered in future research as they are relevant in the context of the topic of this study.

CONCLUSION

According to the study's findings, greater emphasis on vaccine issues is needed in Malaysian newspaper coverage so that vaccination can become a national priority. The newspapers examined in this study are national, mainstream publications with a good reputation and the ability to influence public policy. As a result, by providing more planned, consistent, and intentional coverage, the media can raise awareness about the need for vaccination while emphasising the hazards of anti-vaccination sentiments. Government institutions, researchers, and media practitioners, therefore, should work together to inform, educate, and raise public awareness about the importance of vaccination and its consequences. In short, this study is pertinent to providing reporting strategies as the government is currently working to procure COVID-19 vaccination for children aged five to twelve years which is estimated to begin in 2022.

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