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# Exploring the Importance of Social Listening to Mitigate Anti-Vax Propaganda: A Retrospective Analysis

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**Abstract.** This study was undertaken to understand anti-vaccination narratives that propagated on the Covid-19 booster related posts on Facebook page dedicated for health promotion, under the purview of Ministry of Health, Sri Lanka. Comments in the post were categorised into five broad groups: anti-vaccine, pro-vaccine, information-seeking, sarcastic, and not relevant. Eight booster related posts with a total of 6514 comments were identified, among the comments 72.78% were categorised as anti-vaccine. Comment section can be an ideal environment for propagation of anti-vaccination propaganda, therefore, both offline and online social listening should be done timely and vigorously to identify these narratives and immediate action needs to be taken.

**Keywords.** Infodemic management, vaccine hesitancy, social media, social listening

## 1. Introduction

Immunisations is considered an essential factor in protecting individuals and communities from serious infectious diseases. Immunisation has helped in the reducing the disease burden as well as eliminated many diseases that caused widespread harm and death. Since the launch of the first vaccine, it has played a crucial role in eradicating smallpox worldwide and preventing more than 20 life-threatening diseases [1].

The World Health Organization (WHO) identifies vaccine hesitancy as a global health concern, which challenges the efforts to achieve optimal immunization rates. Vaccine hesitancy, defined as the delay in acceptance or refusal of vaccination despite availability of services, has been identified as a global health threat [2,3]. Past studies have shown that vaccine hesitancy rates vary widely across populations, with general population hesitancy ranging from 25% to 39% [4]. Factors contributing to hesitancy

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include perceived risks versus benefits, religious beliefs, lack of knowledge, and concerns about vaccine safety and effectiveness [3,5]. Interestingly, higher-income regions tend to show lower certainty regarding vaccine safety compared to lower-income areas [3]. Social media platforms have become important factor in shaping public attitudes towards vaccination, particularly during the COVID-19 pandemic. Studies have shown that dependance on social media for vaccine information is associated with increased vaccine hesitancy [6,7] and anti-vaccine content on social media tends to generate more user engagement [8].

Even though, anti-vaccine rhetoric and myths have been spreading globally causing vaccine hesitancy, Sri Lanka has achieved an impressive 99% vaccination coverage in 2019 through its Expanded Programme of Immunisation (EPI) [9,10]. However, despite this high overall coverage, vaccine hesitancy was seen with the Covid 19 vaccination in Sri Lanka. A national-level survey conducted revealed that over one-fifth of the unvaccinated population exhibited vaccine hesitancy [11]. Sri Lanka initiated the Covid-19 vaccination campaign in January 2021; by the beginning of 2022, less than 70% of the eligible population had received two doses [12]. However, there was less enthusiasm among the community for receiving the booster dose, where less than 40% of the eligible population had taken the booster dose four months following its launch [12].

The Health Promotion Bureau (HPB) which comes under the direct purview of the Ministry of Health, Sri Lanka, is the centre for health education, health promotion and publicity of health information in Sri Lanka [13]. The HPBs educational initiatives on vaccination have been met with mixed reactions during the immunization campaign. While there has been positive feedback, social media platforms have also seen a surge in negative posts and comments. This influx of negative sentiments online has contributed to vaccine hesitancy among members of the public. Despite the growing global concern about vaccine hesitancy on social media, there is a notable absence of research studies on anti-vaccination narratives on digital platforms in Sri Lanka. A social listening approach, that is the listening undertaken to understand the information needs and concerns of the target population, was undertaken to discover the anti-vaccination narratives that propagated on the Facebook page dedicated for health promotion, under the HPB.

## 2. Methodology

A search was carried out on the Facebook page dedicated for health promotion, under the purview of the Ministry of Health, for posts that were related to the Covid-19 booster vaccines dose. A combination of search terms such as search “Covid-19”, “Booster” and “Vaccine” and hashtags were used to identify the posts. The search was carried out in all three primary languages of Sri Lanka, which are English, Sinhala and Tamil. Using Export Comments software, the selected publicly accessible posts together with user reactions and comments were extracted. The comments were then anonymised and cleaned before commencing the thematic analysis. The anonymised comments were then categorised by four researchers into five broad groups: anti-vaccine, pro-vaccine, information-seeking, sarcastic, and not relevant. The anti-vaccination comments were further categorised using the codebook which included 24 codes which were created during a previous study [14]. In addition to assigning the relevant anti-vaccination code, important keywords within the comments were recorded for all vaccine related comments wherever possible, with the purpose of identify any patterns within the

vaccine codes. The comments that were categorised thematically and coded were analysed to understand the composition. In addition, the keywords identified within the information seeking comments were analysed to gaining a better understanding of the COVID-19 booster vaccine-related issues that the general public was concerned about.

## 3. Results

Eight booster related posts were identified following the search, with a total of 6514 comments, Table 1 provides a synopsis of the users' interactions with the posts. Out of all the comments, 1862 were considered irrelevant and 651 were considered sarcastic. Among the 4001 vaccine related comments, 72.78% were categorised as anti-vaccine comments, whereas only 16.42% were pro-vaccine and 10.8% were seeking information. Further analysis of the anti-vaccine comments revealed that most commonly occurring codes were health hazards (29.5%), lack of trust (11.87%), motive is profit (8.92%), not effective (8.59%), and protest (7.38%). Under the code of health hazards, 'Death" was identified as the most common occurring keyword, followed by 'Myocardial Infarction.' 'Demanding consent prior to vaccination' was the most frequently occurring keyword under the code, 'Lack of trust in administrative structure.' The least occurring anti-vaccine codes were religious tenets (0.08%) and effective only for trivial diseases (0.08%). Analysing the key words added to the comments under the seek information theme revealed that the vaccine information that individuals were seeking the most was on the vaccination centres, side effects, and eligibility.

**Table 1.** User engagement with the posts

| Post | Number of comments | Number of reactions | Number of shares |
|---|---|---|---|
| Good news for you who are fully vaccinated! | 1600 | 2300 | 2400 |
| A booster dose is essential for good protection from the Omicron variant | 2900 | 14700 | 4000 |
| To make our children's dreams come true again | 188 | 2900 | 796 |
| Another new year has dawned with a bunch of new hopes | 260 | 2300 | 712 |
| The booster vaccine for protection against new COVID variants. | 460 | 2100 | 854 |
| Do I really need to get the booster vaccine? | 431 | 1800 | 1000 |
| Which booster do you need to get? | 88 | 389 | 138 |
| Who needs to get the booster vaccine? | 587 | 3500 | 1600 |

## 4. Discussion

This study highlights the nature of anti-vaccination narratives on social media platform, their potential to contribute to vaccine hesitancy, and the urgent need for more targeted strategies to counteract anti-vaccine rhetoric and address public concerns effectively.

The thematic analysis demonstrating that health hazards were the most frequently occurring code with keywords like "death" and "myocardial infarction," reflects on the publics fears of severe adverse events following vaccination. These findings align with previous studies showing that concerns about vaccine safety are a primary driver of hesitancy. Other codes such as lack of trust in administrative structures and the

perception that vaccination campaigns are profit-driven further highlight the multifaceted nature of vaccine hesitancy. The relatively low prevalence of codes such as religious objections suggests that cultural concerns were less significant factors in the Sri Lankan context compared to the dominant narratives of safety and trust.

Social media's role in amplifying anti-vaccine sentiments is evident from this study. The interactive nature of platforms like Facebook allows negative content to gain traction rapidly, creating echo chambers that reinforce misinformation. This is particularly concerning given studies showing that misinformation on social media generates higher user engagement compared to accurate information [15]. Therefore, social listening should be done timely to identify the information needs of the population and health misinformation and that gets circulated on social media, and immediate action needs to be taken to answer the public's concerns with scientifically based evidence and debunk the myths.

The prominence of information-seeking comments reveals an opportunity for public health authorities to provide timely and accessible vaccine information and highlights the gaps in communication and outreach efforts. Addressing these gaps through clear and concise messaging could reduce hesitancy and foster trust in public health campaigns [15].

## 5. Conclusion

While Sri Lanka's high overall vaccination coverage demonstrates the success of its immunization programs, the vaccine hesitancy during the COVID-19 booster rollout highlights the critical role of social media in shaping public perceptions. Moving forward, addressing vaccine hesitancy requires a multifaceted approach. This includes active social listening, countering misinformation, enhancing digital health literacy, and leveraging social media for proactive public health messaging.

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