



# Using the ELM to Explore the Impact of Fake News on Panic Vaccination Intention: Taiwan's COVID-19 Vaccination Phenomenon

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## ABSTRACT

The study explores the effects of COVID-19 vaccine fake news on social media from the perspective of the elaboration likelihood model (ELM). The research model theorizes that factors of the central route and factors of the peripheral route influence panic vaccination intention through the third-person effect of fake news, personal norm, and the individual's attitude toward panic vaccination (i.e., the vaccination equivalent of “panic buying”). Data were collected via an online survey with 409 valid responses. The study applies partial least squares (PLS) structural equation modeling (SEM) to test the hypotheses. The findings have theoretical and practical implications and provide insights to help reduce the spread of fake news on social media during an outbreak to better ensure that people are not misled by fake news.

## KEYWORDS

COVID-19, Elaboration Likelihood Model, Fake News, Outbreak, Panic Vaccination Intention, Social Media, Social Norms Theory, Third-Person Effect

## INTRODUCTION

In January 2020, COVID-19 rapidly disseminated globally and was classified as a global health emergency by the World Health Organization (WHO). Vaccination emerges as the foremost strategy to combat a pandemic. Responding to the crisis, an AstraZeneca (AZ) vaccine was developed, utilizing adenovirus vector (ChAdOx1) technology in a collaborative effort between Oxford University in the United Kingdom and the British-Swedish company AstraZeneca. However, after receiving the AZ

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vaccine, individuals with compromised immunity may experience distinct side effects, including severe pain, fatigue, headaches, muscle soreness, chills, joint discomfort, fever, and, in rare instances, even fatalities linked to low platelet count. While the epidemic persists with rising confirmed cases and shifting mortality rates, the development of other vaccine brands like Moderna and Pfizer-BNT is ongoing. Despite the government's recommendation that people receive the AZ vaccine, people remain skeptical about it. Due to apprehensions about potential side effects, many individuals prefer to wait for other brands of vaccines. This hesitancy can be linked to the proliferation of fake news and misinformation on social media, impacting people's receptiveness to embrace COVID-19 vaccines and dampening their vaccination intention (Gerts et al., 2021; Kang-Xing, 2020).

In response to the COVID-19 pandemic and the quest for vaccine-related information, the general population has turned to platforms like Facebook, Twitter, Instagram, and WhatsApp. However, the growth of the digital world has allowed fake news or misleading information to spread more rapidly via social media. People encounter a high volume of fake news, such as the following: wearing a mask increases the chance of getting infected; the injection of antibiotics can cure COVID-19; 5G mobile networks help spread COVID-19; COVID-19 has been used or developed as a bioweapon; and there are questions about the safety of some vaccines and their effectiveness at preventing COVID-19 (Carey et al., 2022; Loomba et al., 2021). This kind of disinformation continues to either diminish people's intention to get vaccinated (i.e., "vaccination intention") (Sanders et al., 2020; Tsao et al., 2021; Tseng, 2020), or induce people to panic in their pursuit of a particular vaccine (i.e., "panic vaccination," similar to "panic buying"). However, prior studies have paid less attention to how fake news impacts vaccination intention (e.g., Honora et al., 2022; Gursoy et al., 2022; Plechatá et al., 2023; Pokharel et al., 2023). Although some researchers have explored fake news in the context of vaccination (e.g., Samal, 2021; Salas-Paramo & Escandon-Barbosa, 2022), there has been a lack of examination of the impact of social media fake news on people's attitude toward vaccination and their vaccination intention from a theoretical perspective. Past research has also not examined both the positive and negative effects on individuals' attitude toward and intention to panic vaccinate. To fill this knowledge gap, this study provides a theoretical framework to explain the facilitators and inhibitors of individuals' attitude toward panic vaccination and their panic vaccination intention.

The way people accept any vaccine depends on personal values and prevailing public opinion (Thorakkattil et al., 2022). Social media is a big source of information, and people tend to follow their own ideas when judging things. They often think that mass communication affects others more than themselves (Davison, 1983), called the third-person effect. Therefore, it's important to fully understand the extent to which fake news related to AZ vaccines on social media can persuade individuals to panic about getting access to other brands of vaccines. Thus, this study draws upon elaboration likelihood model (ELM), theory of reasoned action (TRA), and social norms theory (SNT) to examine the relationships among the related variables and to predict attitude toward panic vaccination as well as panic vaccination intention. We address the following research questions: 1) To what extent does attitude toward panic vaccination matter in driving panic vaccination intention? 2) Which antecedents have the greatest influence on an individual's attitude toward panic vaccination? 3) Which features of the central route have a greater impact on the third-person effect of fake news? 4) Which kinds of social norms in the peripheral route have a greater impact on personal norm?

The study follows this structure. Section 2 examines existing literature on the ELM, along with the third-person effect of fake news, social norms theory, and TRA. In Section 3, we detail the research model (figure 1) development and hypotheses formulation. Section 4 outlines our research methodology, encompassing measurement development, survey administration, and data analysis outcomes. Section 5 offers a thorough summary of results, explores theoretical and managerial implications, acknowledges limitations, and concludes the study.

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