

ANALYZING THE VIRALITY OF DIETARY SUPPLEMENT ON FACEBOOK USING SEIR MODEL

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ABSTRACT - Facebook's usage has increased to the point that it had become a crucial marketing tool for businesses. With the growth of online marketing, it was essential for sellers to understand the viral marketing ideas that complemented their products. In this study, the Susceptible Exposed Infected Recovered (SEIR) model was used to assess the virality of nutritional supplements on Facebook. The model considered variables including the total number of followers, users who saw and shared the post, followers who reached the post, and people who followed the marketing page but did not view or share the content. From 15 May 2022 to 19 June 2022, information was gathered from Rabella's "Rabella Kota Bharu" Facebook account. The account administrator regularly used two post kinds, namely Photos and Videos, to improve user interaction. The analysis of the most popular posts of each genre showed that Photos had the largest reproduction number on June 6, 2022, which also happened to be a public holiday honoring the Yang di-Pertuan Agong's birthday. This study was essential for marketers who wanted to learn how users responded to various post formats and make content more accessible to customers.

Keywords: Viral marketing, facebook, dietary supplement, SEIR model

1. INTRODUCTION

Nowadays, social media has become a prominent platform for networking, sharing content, and online access. Among the various social media platforms, Facebook stands out with its vast user base of over 2.9 billion active users, making it a popular choice for both social and business interactions (Tracy, 2022). This case study aims to examine the viral potential of promotional posts for a dietary supplement product on Facebook. The use of dietary supplement for weight loss has gained significant popularity as individuals seek effective solutions for combating the obesity related concerns (Saper et al., 2004). With over 1.9 billion overweight adults and 650 million classified as obese worldwide, the associated health risks, including heart disease, diabetes, and high blood pressure, have become pressing issues (Mayo Clinic, 2021). In this context, products like Rabella offer potential solution for weight reduction, appealing to individuals striving for a slimmer physique. Therefore, by using SEIR model it can provide accurate predictive information to help to increase customer interest in the brand's dietary supplements. By analyzing viewer reactions to different posting formats, such as photos and videos, marketers can create engaging and informative content that resonates with their target audience. The findings of this study will provide valuable insights for marketers, enabling them to enhance their online marketing strategies and improve their overall marketing skills.

2. METHODOLOGY

The data for this study was collected using the Insights feature of the Rabella Kota Bharu Facebook account between 15 May 2022 and 19 June 2022. The collected data included gender, age range, and locations information of the reached uses as generated by the Insight feature. Furthermore, the study recorded the number of followers, the number of users who received the marketing information, the number of followers who were reached by the post and shared it, and the number of users who followed the marketing page but neither viewed nor shared the information. The model used was the SEIR model, which is based on the epidemiological model. Since viral marketing spreads similarly to pandemic infections, this study investigated how viral marketing spread, specifically for Rabella products via Facebook.

3. RESULTS AND DISCUSSION

The data are obtained from a Facebook business account in Insight feature, from 15 May 2022 and 19 June 2022. The target market was focused on Facebook users, especially their followers. The total number of followers on Facebook until 19 June 2022 was 4521. During the time frame mentioned, 18 postings were made, with two types of posting

gaining the greatest attention from followers. The two types of posting that the admin of Rabella's Facebook account frequently used and gained customer interaction were Photo and Video. Among 18 posting, four with the highest total number of reaches were taken to analyze in this study.

4. NOVELTY OF RESEARCH / PRODUCT

The novelty of this study lies in its application of the SEIR (Susceptible, Exposed, Infected, Recovered) model to analyze the virality of dietary supplement marketing on Facebook. While the SEIR model is traditionally used in epidemiology to study disease transmission, adapting it to the realm of marketing provides a unique framework to understand the spread and impact of promotional campaigns. By employing this model, we can uncover the underlying factors that drive the success or failure of dietary supplement marketing campaigns on social media, enabling marketers to make informed decisions and optimize their strategies for maximum reach and engagement.

5. CONCLUSION

In conclusion, the application of the SEIR (Susceptible, Exposed, Infected, Recovered) model to analyze the virality of dietary supplement marketing on Facebook has provided valuable insights into the dynamics of information propagation in this domain. By utilizing this model, we have gained a deeper understanding of the factors influencing the success of marketing campaigns and the potential drivers of their viral spread. This research serves as a foundation for marketers to develop more effective strategies for promoting dietary supplements on social media platforms, ultimately enhancing their reach and impact in a highly competitive market.

REFERENCES

- Zhao, D., Sun, J., Tan, Y., Wu, J., & Dou, Y. (2018). An extended SEIR model considering homepage effect for the information propagation of online social networks. *Physica A: Statistical Mechanics and Its Applications*, 512, 1019–1031. <https://doi.org/10.1016/j.physa.2018.08.006>
- Institute of Disease Modelling. (2018). *SEIR and SEIRS models*. <https://docs.idmod.org/projects/emod-generic/en/latest/model-seir.html>
- Gardner, J. T., Sohn, K., Seo, J. Y., & Weaver, J. L. (2013). *A sensitivity analysis of an epidemiological model of viral marketing: When viral marketing efforts fall flat*. http://m.www.na-businesspress.com/JMDC/SeoJY_Web7_4_.pdf