

A Descriptive Content Analysis of Anti-Smoking Messages among Indonesians on Instagram

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ABSTRACT

Background: Many people turn to social media platforms to obtain information including information related to health. Understanding how the anti-smoking messages have been done is important to develop more structured and efficient Anti-smoking campaigns. **Objective:** This study aims to characterize current anti-smoking messages on Instagram in 2023 among Indonesians by employing descriptive content analysis. **Methods:** In March 2024, anti-smoking messages were searched on Instagram using several anti-smoking relevant hashtags such as #bahayamerokok #berhentimerokok and selected top posts for each hashtag. After eliminating duplicates, 210 Instagram posts were coded for the type of creator (individuals, company, education institution, community), message appeal (threat/fear, humor, social), and message form (picture, videos). **Results:** The main creator and message appeal were organizations/companies (48.1%), and threat/fear (60%) respectively. The main months of the posts being uploaded were during May or June, especially to celebrate World No Tobacco Day. The main form of the postings was in pictures (92.4%) compared to videos (7.6%). The number of likes was positively associated with the number of followers on the accounts ($r=0.452$, $P<0.05$) and the number of hashtags being used ($r=0.256$, $P<0.05$). **Conclusion:** Indonesian anti-smoking campaigns on social media should involve an Instagram account that has large followers to receive higher audience engagement. Routine anti-smoking messages throughout the year will ensure that the audience receives continuous education and information about the dangers of cigarette use.

Keywords: campaign, Instagram, smoking, social media

INTRODUCTION

Smoking is one of the biggest health issues worldwide. Cigarette consumption is the primary cause of fatal health problems, resulting in about 8.7 million tobacco-related deaths each year (WHO, 2023). While smoking prevalence has declined in many countries (Dai *et al.*, 2022; WHO, 2023), Indonesia stands out with the highest adult smoker prevalence in Southeast Asia. Additionally, it ranks third globally, after India and Egypt, in terms of the largest absolute increase in the number of male smokers aged 15-24 years old (Reitsma *et al.*, 2021). Moreover, smoking prevalence among teenagers was about 38.3% (WHO, 2020) with an average age of smoking, initiation around teenage age (Reitsma *et al.*, 2021; TCSC-IAKMI, 2020)

Although exposure to advertisements and promotions on social

media is positively associated with both ever using and current use of e-cigarettes (Wulan *et al.*, 2022) and cigarettes (Leung *et al.*, 2023), it is essential to have effective anti-tobacco campaigns on social media that inform about the risks of smoking to mitigate the impact of online tobacco promotions. One unique characteristic of social media is its ability to allow users to create and own their messages, as well as to share opinions through online comments. This creates a conducive audience engagement where users can actively participate in the information-sharing process and communicate with each other. Thus, popular social media platforms can be effective in spreading health information and encouraging positive behavioral changes (Lee & Chen, 2016).

In January 2023, Indonesia ranked fourth globally in internet users, following China, India, and the United States, with

over 200 million internet users (Petrosyan, 2024). Social media usage reached 191.4 million users (68.9% of the Indonesian population), and Instagram was the third-largest social media platform (Kemp, 2022). Instagram lets individuals upload images and videos using hashtags as search keys. With keyword searches, people can explore images connected with those hashtags, thus allowing interaction with content created by users (Gao *et al.*, 2020).

Instagram has become a powerful tool for public health campaigns. The large number of Instagram users has encouraged activists to use it as a medium for spreading social issues to attract public attention and shape public discourse. In Indonesia, these platforms are being leveraged to combat the tobacco epidemic. Recent studies, such as the Indonesian 2019 Global Youth Tobacco Survey, have shed light on the complex relationship between anti-smoking campaigns and youth smoking behavior (Megatsari *et al.*, 2023). Despite the challenges, young Indonesians are increasingly vocal on Instagram, advocating for a tobacco-free future. They call for smoke-free areas and a ban on tobacco advertising, promotion, and sponsorship (Syakriah, 2022). With a significant presence on Instagram (Nurhayati-Wolff, 2023), anti-smoking messages can effectively reach millions, especially youth at risk of smoking. This research aims to characterize the anti-smoking messages on Instagram in 2023 among the Indonesian community using descriptive content analysis to understand what kind of posts gain significant attention from public awareness.

METHODS

Hashtags on Instagram

This study began exploration using several relevant anti-smoking hashtags. After reviewing hundreds of anti-smoking-related posts and their hashtags, the list of root smoking-related keywords such as cigarette, smoking, and tobacco. The negative-root keywords included quit, stop, anti, and danger. The combination of negative-root keywords and root of smoking-related keywords created a new

group of smoking-warning keywords such as the danger of smoking or stop smoking.

Data collection

The posts were collected through Instagram's application using 16 hashtags such as #bahayamerokok, #berhentimerokok, #rokok, #suaratanparokok, #haritanparokoksedunia, #berani berhenti merokok, #htts, HariTanpa TembakauSedunia, #beraniberhenti, #hentibukanganti, #wntd, #sehattanparokok, #mahalkanrokok, #upayaberhentimerokok, #janganmerokok. The top posts were selected for each hashtag. The posts were collected in March 2024. Most posts use multiple hashtags, resulting in duplicated posts. Duplicated posts were excluded using the Instagram user ID and posting date.

Data coding and analysis

After removing duplicates, 210 Instagram posts were selected. The codebook contained both metadata and other features created. To increase the accuracy, the codebook was further revised during hand coding. All hand coding was performed independently by two authors and the principal author checked 10% of the total posts randomly.

This study uses descriptive content analysis. The posts are coded based on several categories. The type of creator (individual, company, educational institution, community), message appeal (threat/fear, humor, social), and message form (image and video). This study compares the type of content creator and message appeal based on the number of followers of the Instagram user accounts and the number of "likes" on the posts.

RESULTS AND DISCUSSION

In 2023, anti-smoking campaign posts peaked in May and June, coinciding with the World Health Organization's (WHO) World No Tobacco Day (WNTD) on May 31st. WHO annually selects a theme for WNTD to guide member countries in their anti-smoking efforts. Indonesia also hosted various events in May, such as conferences, competitions, and campaigns. Figure 1 shows the highest number of anti-smoking messages posted during the month of WNTD.

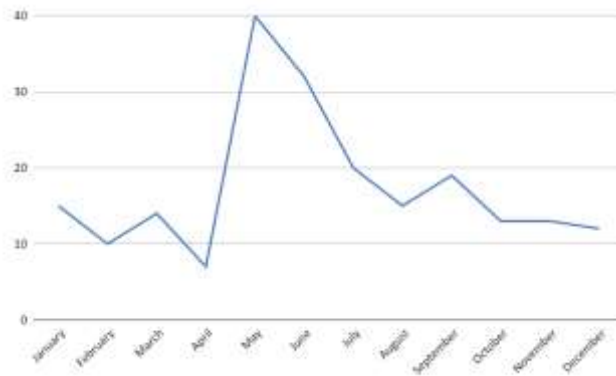


Figure 1. Number of Instagram posts per month of anti-smoking messages during 2023

This study could not provide evidence of the effect of inconsistent anti-smoking Instagram posts on the increased tendency of smoking among Indonesians. However, given the expansive online cigarette marketing, the Tobacco Enforcement and Reporting Movement (TERM), initiated by Vital Strategies, was established. It is an ongoing real-time digital monitoring system that detects online tobacco marketing as it occurs, which provides critical data to inform tobacco control policies and combat tobacco advertising on social media platforms and news sites (WHO, 2023). Furthermore, it is important to make sure that Indonesian social media users read anti-smoking messages consistently.

Evidence-based tobacco prevention campaigns play a strategic role in combating the impact of large-scale pro-tobacco messages. Continuous exposure to health messages on social media can better stimulate community engagement,

especially in refraining from smoking. The ability of social media to reach a wider target audience opens up significant opportunities for health promotion efforts (Majmundar *et al.*, 2020).

Nowadays, people use multiple sources of social media. Therefore, the selection of social media channels needs to be considered to target the audience in the prevention and cessation of cigarettes. A 2021 study in the United States on 1,275 anti-tobacco health messages across three social media platforms—Twitter, Facebook, and Instagram—found that the same health message, when posted on different platforms, would elicit different audience responses. Instagram became one of the platforms focused on distributing photo and video content with the highest overall average engagement rate (AER), statistically significant compared to Facebook and Twitter (Reuter *et al.*, 2021).

Table 1. Descriptive statistics of the Instagram posts

No	Sample Characteristics	
1	Type of Creator, n (%)	
	Individuals	38 (18.1)
	Education institutions	14 (6.7)
	Government	40 (19.0)
	Community	17 (8.1)
2	Private company/organizations	101 (48.1)
	Message appeal, n (%)	
	Threat	126 (60)
	Social	53 (25.2)
	Humor	3 (1.4)
3	Others	28 (13.3)
	Forms, n (%)	
	Pictures	194 (92.4)
4	Video	16 (7.6)
	No of likes, mean ± SD	623 ± 4,125
	No of followers, mean ± SD	26,041.3 ± 89,961.1
6	No of hashtags, mean ± SD	8.8 ± 6.0

Smoking-related content on Instagram is diverse and abundant. It covers various aspects, including content creators, post formats, message appeal, and the timing of anti-smoking campaigns. Organizations, companies, and private entities play a significant role in creating this content, indirectly impacting public health. Image-based posts are prevalent on Instagram, often accompanied by threatening messages. Health warnings have influenced the anti-smoking campaign trend throughout 2023. Table 1 shows the descriptive statistics of the Instagram posts. Based on the content creators, the largest and the least number of posts were made by organizations/private companies' entities (48.1%) and education institutions (6.7%), respectively. The main message appeal and forms were threat/fear (60%) and pictures (92.4%). The average likes for anti-smoking posts were $623 \pm 4,125$ and the account creator had an average number of followers of $26,041 \pm 89,961$.

While the Indonesian internet users spent, on average, 8 hours and 36 minutes online (Kemp, 2022), it is important to note their engagement with the anti-smoking messages. Audience engagement could be measured in several ways:

“comment on”, “reshare”, “DM/Send this to a friend”, and/ or “like”. In this study, “likes” was the only audience engagement indicator that could be analyzed since the other indicators were either difficult to trace or had too much zero data.

A study conducted over 18-30 years found that the more social media sites are used, the more likely individuals will “like” the posts and the daily internet users tend to “comment” and “like” more (Liu *et al.*, 2023). Given the high percentage of internet users in Indonesia, the audience engagement in anti-tobacco smoking was quite low in several posts, for example, 80 posts received less than 10 likes. The highest proportions (40-45% of posts) of receiving <10 likes came from individuals or government institutions. However, a few posts had a high number of likes, 11 posts with more than 1000 likes. The majority of those posts (45%) came from private companies/organizations and none of them from educational institutions. It showed that engagement from educational institutions was low and therefore required to improve the way messages developed.

Table 2. Spearman correlation analysis between no of likes, no of followers, and no of hashtag

Variables	No of likes	No of followers	No of Hashtag
No of likes	1.000		
No of followers	0.452*	1.000	
No of hashtag	0.256*	0.246*	1.000

*P<0.05 analyses were conducted in STATA 18.0

Table 2 indicated a positive correlation between the total likes and both the follower count of the account posting anti-smoking content and the usage of hashtags. Nonetheless, when hashtags were categorized into four groups, it was observed that utilizing over eight hashtags did not correlate with an increase in likes for the pertinent post. It is readily apparent that an anti-smoking message shared by an account with a substantial follower base, coupled with the use of multiple pertinent hashtags, is more likely to gain visibility among Instagram users. Consequently, this enhances the chances of audience interaction with the post.

One reason that explains how audiences not only want to engage with the posts but also effectively motivate smokers to stop smoking was to choose the right content. Figure 2 showed that in all types of messages, the number had a positive association of likes and total number of followers. However, given the very low number of messages using humor, the results of this type of message were not significant statistically. At the same time, several studies concluded that messages using humor were not recommended (Huang *et al.*, 2018; Reis, 2019) since it lacked emotional content related to smoking consequences.

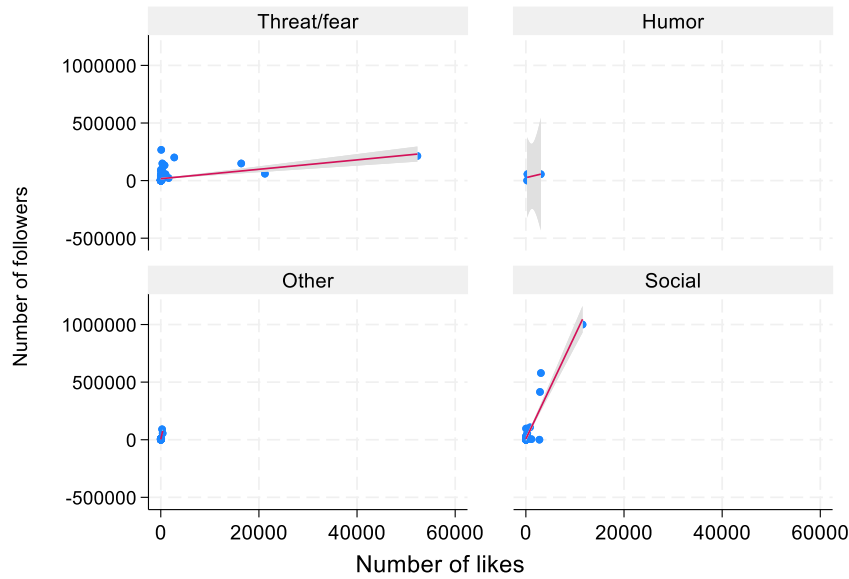


Figure 2. Spearman correlation analysis for the number of followers and likes by message appeals

On the other hand, fear/threat appeal seemed more promising to act as effective message (Huang *et al.*, 2018; Reis, 2019). To effectively engage with a fear appeal, individuals need to possess a strong sense of self-efficacy to manage both minor and major perceptions of threat (Reis, 2019). However, if the perceived threat is significant and the individual's self-efficacy is weak—particularly if they lack knowledge of effective actions to mitigate their perceived risk—they may either shun the fear-inducing stimulus or resort to alternative defensive strategies to interpret the message. Posts that communicated perceived risk and self-efficacy had a positive effect on engaging the online audience, while posts related to social expectations did not significantly predict audience engagement (Jiang & Beaudoin). Other research also found that the content of campaigns on the dangers of electronic cigarettes served as an effective way to engage the younger generation (Liu *et al.*, 2023).

Successful anti-smoking campaigns on Instagram often utilize compelling visuals and narratives to reach and engage their audience. Few approaches that have been noted for their effectiveness such as real stories (campaigns use personal stories to highlight the consequences of smoking) (Huang *et al.*, 2018; Truth Initiative, 2017), creative visuals (creative imagery using a variety of approaches

from graphic images of smoking damage to emotional appeals) (Huang *et al.*, 2018), educational content (providing factual information about the dangers of smoking), and youth engagement (engaging the youth through messages that resonate with their values and experiences) (Hair *et al.*, 2017).

Messages with strong emotional content and personal relevance were considered effective in motivating smokers to quit smoking (Huang *et al.*, 2018). Messages focusing on the individual are better for those who see themselves as independent, while messages that consider the group are better for those with a more collective view. Additionally, understanding smokers' habits and the symbolic importance they place on smoking can help create more meaningful public service announcements (PSAs) to encourage quitting (Önen & Watson, 2021).

CONCLUSION

This study finds that social media, Instagram in particular, has the potential to increase audience engagement related to anti-smoking campaigns. Regular anti-smoking messages throughout the year can facilitate public acceptance of education and information regarding the dangers of smoking. Future anti-smoking campaigns on Instagram in Indonesia should use a threat/fear appeal and focus

on personal and emotional content or images.

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