

Social Media in Controlling Tobacco Epidemic Among Adolescents and Young Adults: A Literature Review

Adi Saputra, I Gusti Agung Ayu Ari Febiyanti

Universitas Udayana, Indonesia

Email: adisaputra.fis@unud.ac.id

*Correspondence: adisaputra.fis@unud.ac.id

ABSTRACT

Keywords:

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This study aimed to gather information from the literature regarding the role of social media in tobacco control among adolescents and young adults, both domestically and internationally. The study utilized a literature review from articles on Google Scholar and PubMed published between 2019 and 2023. Inclusion criteria encompassed open-access articles related to interventions using social media to control tobacco consumption among adolescents and young adults, excluding modeling studies. Intervention outcomes were assessed and extracted in narrative form. Fourteen articles met the inclusion criteria (11 original research articles and 3 articles with secondary data). Research designs in the original research articles included Randomized Control Trials (RCTs) and in-depth interviews. Studies utilizing WeChat and WhatsApp demonstrated favorable intervention outcomes in delivering tobacco control messages. Peer mentoring through Instagram was also considered easily accessible for adolescents. Other social media platforms facilitating global discussions, such as Twitter, can enhance public literacy on electronic cigarettes and facilitate the implementation of electronic cigarette policies. Social media interventions in tobacco control are more readily accepted by adolescents, easily accessible, cost-effective, and provide post-intervention social support. The presence of Key Opinion Leaders (KOLs) and message-writing techniques on social media should be considered in health promotion. Research on public perceptions of tobacco control messages delivered by KOLs could be considered for further studies.



Introduction

Tobacco consumption represents one of the behaviors associated with non-communicable diseases, alongside alcohol consumption and insufficient physical activity. The various forms of tobacco consumption constitute hazardous health practices, with the World Health Organization (WHO) stating that there is no safe level of tobacco exposure (Organization, 2019). As a primary risk factor for non-communicable diseases, tobacco

consumption poses numerous health challenges on both national and international scales. It is a leading cause of diseases related to the nervous system, cardiovascular system, and respiratory system. The detrimental effects of tobacco exposure extend beyond active smokers, impacting the health of passive smokers and potentially leading to premature death. Children exposed to secondhand smoke within households with smoking members face an increased risk of severe asthma, acute respiratory infections, and impaired lung development (Adams, 2020). The tobacco epidemic results in more than 8 million deaths annually, with approximately 1.2 million deaths attributed to passive smoking. Over 80% of the 1.3 billion tobacco consumers reside in low- and middle-income countries, where the burden of tobacco-related diseases and deaths constitutes an urgent health issue¹. The Southeast Asian region, in particular, has the highest tobacco consumption rates globally, with over 45% of individuals aged 15 and above in Southeast Asia consuming cigarettes daily (Organization, 2019).

Indonesia stands out as one of the countries with the highest prevalence of smokers worldwide. Data reveals that 62.9% of adult males in Indonesia are smokers. This high prevalence contributes to around 225,700 deaths nationally each year. As a behavior associated with non-communicable diseases, tobacco product consumption influences various sectors of life, including health and the economy. The morbidity and mortality rates resulting from tobacco consumption impose a financial burden on healthcare systems for the treatment and care of individuals suffering from non-communicable disease. The estimated cost burden ranges from IDR 17.9 trillion to IDR 27.7 trillion, with 56.3% to 58.6% of these costs borne by the National Social Security Agency (BPJS) for hospitalization and patient referrals (Meilissa, Nugroho, Luntungan, & Dartanto, 2022). This significantly contributes to the deficit in the national health insurance budget, hindering the realization of Universal Health Coverage (UHC) in Indonesia. Tobacco consumption also contributes to the poverty rate among the population by diverting household expenditures towards tobacco products at the expense of basic needs such as food and shelter.

Based on age groups, the highest proportion of smokers is experienced by the population aged 30-34, with the majority of individuals initiating smoking between the ages of 15-19⁶. The predominant tobacco use within this workforce raises concerns regarding its potential to disrupt economic growth, competitiveness, and the innovation of existing human resources. Morbidity and mortality resulting from tobacco consumption can directly impact workforce productivity through lower output and absenteeism due to deteriorating health conditions (Duke et al., 2019). The World Health Organization (WHO) states that high tobacco consumption among adolescents has globally eradicated approximately 6 million years of life. As the years progress, the age of initial smoking in Indonesia is gradually shifting to younger ages. Data from the National Commission for Child Protection indicates that the number of child smokers under 10 years old reaches 239,000, with 19.8% of them trying cigarettes before the age of 10, and approximately 88.6% starting before the age of 13 (Hasanah & Hayati, 2022).

The initiation of smoking in adolescents, and even children in general, is influenced by environmental and individual factors. Influencing factors related to smoking behavior are associated with the development of behavior and decision-making during the self-exploration stage. Smoking becomes a compensation or means of escaping perceived mental issues such as depression, anxiety, and stress among adolescents. Additionally, various environmental factors surrounding adolescents and children also influence their smoking behavior, such as cigarette advertising in mass media, peer pressure, and the

modeling of parental behavior (Oxa et al., 2022). Advances in science and technology now enable adolescents to easily access information without limitations. One example of technological advancement is the use of social media as a platform for adolescents to express themselves. Adolescents tend to utilize social media to gain social recognition and self-existence, leading them to be inclined not to miss ongoing trends, including the trend of smoking.

Various forms of tobacco consumption exist worldwide, including kretek cigarettes, waterpipes, cigars, cigarillos, roll-your-own tobacco, pipe tobacco, bidis, smokeless tobacco, and Electronic Nicotine Delivery Systems (ENDS) as the latest innovation (Cornacchione Ross, Noar, & Sutfin, 2019). Electronic Nicotine Delivery Systems (ENDS), commonly known as e-cigarettes, are devices that heat e-liquid (glycerol and propylene glycol containing nicotine and flavorings), producing aerosol to be inhaled and exhaled by the user. These devices can be powered through a Universal Serial Bus (USB) port, and some types are discreetly designed to resemble flash drives, facilitating easy concealment (Kumar, Clark, Brinkman, & Saxena, 2019). Aggressive marketing, particularly targeting adolescents and employing social media platforms, has contributed to the positive perception of e-cigarettes among teenagers, leading to an increase in their usage (Shieun Lee, Han, Chow, & Seo, 2019). Despite the potential of social media to boost tobacco product marketing among teenagers, it also presents an opportunity to aid global tobacco control efforts through its extensive network and outreach to diverse community groups. In this study, researchers aim to gather information from relevant literature on the role of social media in tobacco control among teenagers and young adults, both domestically and internationally.

Research Methods

The study employed a literature review methodology, utilizing articles retrieved from searches conducted on Google Scholar and PubMed from May to June 2023. The search queries used were “*social media AND tobacco control*” and “*media sosial DAN pengendalian tembakau*” to filter articles within each respective database. The study encompassed articles published between 2019 and 2023 in both English and Indonesian languages. Inclusion criteria for articles in the study were centered around the role of social media (e.g., Facebook, Twitter, Instagram, WhatsApp, WeChat, YouTube, and other interactive applications) as an intervention medium in tobacco control efforts. The researchers excluded articles that did not utilize social media as an intervention medium (e.g., radio, television, direct campaigns, and print media advertisements) and those where tobacco control was not the primary outcome of the study (including non-communicable diseases, lifestyle, dietary patterns, and marketing). The titles of the articles were scrutinized based on their alignment with the study’s limitations. Subsequently, articles were downloaded and filtered for duplicates to eliminate redundancy in the research.

The screening process continued with abstract examination according to predefined inclusion and exclusion criteria, excluding articles that focused on subjects other than adolescents and young adults (ages 10-25 years) and modeling studies. Filtered articles were then assessed based on their entire content, and articles without open access were excluded. Intervention outcomes from each selected article were evaluated and extracted in narrative form.

Results and Discussion

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Social media is recognized as an engaging platform for behavioral interventions among young adults (Park et al., 2022). Various studies utilizing different types of social media have demonstrated the benefits of using this medium in tobacco control interventions among adolescents and young adults. Most studies show positive outcomes in sustained smoking cessation rates up to 6 months post-intervention. Results from Randomized Control Trials (RCTs) indicate that participants in smoking cessation interventions have better smoking cessation rates than the control groups, including progress in reducing daily cigarette consumption and nicotine dependence (Luo, Li, Williams, Fritz, Beiter, Phillippi, Yu, Kantrow, Lin, et al., 2022). Similar to the findings of Wanatabe-Ito’s research, social media, as an interaction platform for creating diet diaries on smartphone applications, can develop participants’ motivation and interest in cultivating healthier eating habits (Watanabe-Ito, Kishi, & Shimizu, 2020).

Different methods of message delivery can be chosen to disseminate information regarding the dangers of tobacco product consumption, but video-based intervention messages tend to be more captivating than image-based intervention messages (Luo, Li, Williams, Fritz, Beiter, Phillippi, Yu, Kantrow, Chen, et al., 2022). Thumbnails and video titles shared on social media can be decisive factors in interaction or content sharing, ensuring acceptance and comprehension by the public (Hefler, Kerrigan, Freeman, Boot, & Thomas, 2019). In interventions using online message delivery platforms such as WeChat, smoking cessation interventions using personalized text messages are more effective than interventions using non-personalized text messages (Lin et al., 2023). Anti-smoking message delivery emphasizing dangers and being fear-inducing is not always relevant to adolescent development and tends to be overlooked by adolescents (Havizoh & Widyatuti, 2020). Social media as an online message delivery medium is one of the most widely implemented interventions, showing progress in tobacco control in society,

both in the short and long term, making it worth considering as a national-scale smoking cessation intervention (McCausland et al., 2020).

Risk perception plays a crucial role in the decision-making regarding product use, including tobacco products. Society, especially adolescents, tends to easily believe information shared by their closest communities, especially information disseminated on social media. Opinion leaders are considered one breakthrough capable of influencing public perceptions, especially those originating from the celebrity or public figure circles. Therefore, the strategy of developing local Key Opinion Leader (KOL) networks can be implemented to spread tobacco control messages widely through personal social media networks and reach closer friendship circles²⁸. However, there are more strategies for promoting new tobacco products that need to be controlled, such as sponsored content using KOLs or promotional content on brand accounts and retailers widely disseminated through social media. Interestingly, newer social media platforms like Discord and Twitch have the loosest rules on tobacco promotion content. Facebook, Instagram, and YouTube are the only platforms that explicitly have age restriction policies to prohibit the sale of tobacco products to underage individuals (Kong et al., 2022). Over 60% of electronic cigarette brand social media have no age restrictions for followers, and 75% of KOLs have no age restriction notifications. The lack of electronic cigarette usage restrictions in Indonesia and Malaysia is one of the factors that make social media electronic cigarette KOLs in these countries more active and free to interact with their audiences, with higher reach among adolescents (Vassey, Galimov, Kennedy, Vogel, & Unger, 2022).

The exposure to pro-tobacco content on social media, particularly from electronic cigarette advertisements, has increased over time, enabling users to interact with similar content according to social media algorithms (Adu, Ismail, & Noor, 2022). The participatory, interactive, and self-selected nature of social media can rapidly and more detrimentally enhance adolescents' beliefs in pro-tobacco media compared to what traditional media might achieve. A study by (Albarracin, Romer, Jones, Hall Jamieson, & Jamieson, 2018) demonstrated that the inclination of teenage tobacco consumers to confidently respond to misinformation on YouTube could increase the likelihood of tobacco product consumption and exposure to misleading media with reinforcing effects. Social media algorithms will continue to display pro-tobacco content while sidelining anti-tobacco health content, influencing adolescents to initiate smoking and fostering distrust in health messages conveyed by health promoters (Colston et al., 2021; Diaz et al., 2022). Social media users engaged with pro-tobacco content generally have a higher likelihood of being exposed to similar information from pro-tobacco websites, which includes discussions against health policies by pro-tobacco groups, especially when new policies are being implemented (Majmundar, Chou, Cruz, & Unger, 2019). Policy discussions related to banning tobacco product advertisements need to be considered as early as possible to hinder the growth of adolescent smoking prevalence in Indonesia.

Framing electronic cigarettes as glamorous, popular, and socially acceptable reinforces positive perceptions among adolescents, encouraging them to use electronic cigarettes. Additionally, user testimonials describing electronic cigarettes as safe, convenient, with positive health effects, and less harmful than conventional cigarettes become appealing to adolescents (Juhan Lee et al., 2021). Another reason for the low acceptance of anti-tobacco campaign messages is the distrust and skepticism of the public, especially adolescents and young adults, towards the message deliverers (government institutions), and the strong cultural social ties among community groups, such as shisha,

which has become part of Arab traditions (Chan et al., 2022). The need for more personalized messages relevant to the community, especially teenagers, should be considered in tobacco control efforts. Tobacco control supporting media must include new and unfamiliar components in society, such as third-hand smoke (residual chemicals left by cigarette smoke), by exposing the negative impact of third-hand smoke, particularly persuasive messages emphasizing the impact of third-hand smoke on children and pets, as well as the prevalence of third-hand smoke in dust (Record et al., 2023). Social media posts that focus on children, feature native content, are considered practical, relevant, and credible with clear direct messages, are some characteristics of messages that have significant opportunities to be shared by the public. Indirect, unclear, sarcastic, and disgusting content without a clear message tends not to be shared, making it unable to reach the public widely.

Conclusion

This literature review encapsulates the role of social media in tobacco control among adolescents based on 14 selected research articles. Social media possesses the ability to reach the public on a broader scale, both regionally and globally. Social media interventions in tobacco control are more readily accepted by adolescents, easily accessible, cost-effective, and can provide post-intervention social support. The use of platforms such as WeChat and WhatsApp for message delivery is deemed beneficial due to the short time required for sending and receiving messages, eliminating barriers to intervention participation. Moreover, broader social media networks (non-personal) like Instagram, Twitter, Facebook, and others have no restrictions on space and time for accessing information. Increasing health promotion posts with compelling messages should be considered to exert a stronger influence on engagement and smoking cessation outcomes. Additionally, social media demonstrates smoking cessation performance similar to interactive platforms but with lower costs. The success of these campaigns is closely tied to the role of opinion leaders occupying central positions in social networks, with the potential to communicate and alter the perceptions of a wide audience. However, there are several challenges in social media campaigns, such as algorithms displaying only user-liked content, sponsored content featuring Key Opinion Leaders (KOL), promotional content on brand and retailer accounts, and the glamorization and perception of electronic cigarettes as safe.

Given the substantial influence of social media on society's interaction and tobacco product advertising, policymakers need to take further steps to discuss policies prohibiting tobacco product advertisements that have infiltrated social media and begin moving away from advertising in public spaces. Research on public perceptions of tobacco control messages conveyed by KOLs can also be considered for further studies.

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Social Media in Controlling Tobacco Epidemic Among Adolescents and Young Adults:
A Literature Review

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