

PENGUNAAN SOSIAL MEDIA “TWITTER” DALAM MEMBANGUN WACANA BERHENTI MEROKOK DI INDONESIA

EXPLORING SMOKING CESSATION DISCOURSES ON INDONESIA SOCIAL MEDIA: OPPORTUNITIES AND CHALLENGERS

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ABSTRACT

Background. The use and availability of social media have grown exponentially, providing new opportunities to support smoking cessation efforts. Social media encompasses various interactive web and mobile platforms, enabling individuals and communities to exchange information, ideas, photos, or videos within a virtual network. This study aims to identify discourses related to smoking cessation encouragement among Indonesian people in social media. *Methods.* To collect data on social media, particularly Twitter, the researchers used Netlytic as a tool and limited the keyword to "rokok" in the Indonesian language. Twitter was chosen due to its word-based communication, which allows users to share their opinions and thoughts. Narrative theory in health context and content analysis was used to analyse collected tweets and identify themes related to smoking. Moreover, social network analysis was also conducted to identify actors and relationship between actors. *Results.* The study found that discourse around smoking can either support smoking cessation intervention, normalise smoking and cigarettes, which may not support cessation efforts, or be neutral. Themes that support smoking cessation efforts include sharing experiences as a second-hand smoker either in a home or public space environment, discomfort having a smoking partner, family members' sickness due to smoking, reporting health disadvantages of smoking, and using humour to encourage quitting smoking. On the other hand, smoking was normalised, and its devastating health effects were neglected since people saw smoking as a "teman ngopi" and casually discussed which cigarettes were better than others. Some discussions around smoking were not related to smoking cessation, such as discussion about cigarettes worker in May Day. *Conclusions.* Social media can either reinforce smoking cessation or normalise smoking behaviour among Indonesian youth. Smoking cessation campaigns on social media can use relevant threads on Twitter to make them more grounded and relatable to encourage smoking cessation.

Keywords: content analysis, smoking cessation, social media, twitter

ABSTRAK

Penggunaan dan ketersediaan media sosial di Indonesia telah tumbuh secara pesat, memberikan peluang baru untuk mendukung upaya berhenti merokok. Media sosial mencakup berbagai platform web interaktif yang memungkinkan individu dan komunitas untuk bertukar informasi, ide, foto, atau video dalam jaringan virtual. Penelitian ini bertujuan untuk mengidentifikasi diskursus di media sosial terkait anjuran berhenti merokok di kalangan masyarakat Indonesia. Pengumpulan data di media sosial, khususnya Twitter, menggunakan Netlytic dengan kata kunci “rokok” dalam bahasa Indonesia. Media sosial Twitter dipilih karena sifatnya yang berbasis kata sehingga memungkinkan pengguna untuk berbagi pendapat dan pemikiran mereka. Teori narasi kesehatan dan analisis konten digunakan untuk menganalisis *tweet* yang dikumpulkan dan mengidentifikasi tema yang berkaitan dengan rokok. Selain itu, *social network analysis* juga digunakan untuk mengidentifikasi aktor-aktor yang terlibat serta hubungan antar aktor yang terbentuk. Studi ini menemukan bahwa diskursus seputar merokok dapat mendukung intervensi berhenti merokok namun juga dapat menghambat karena terdapat normalisasi kegiatan merokok di kalangan anak muda. Tema yang mendukung upaya berhenti merokok antara lain berbagi pengalaman negatif sebagai perokok pasif baik di lingkungan rumah atau ruang publik, ketidaknyamanan memiliki pasangan perokok, penyakit anggota keluarga akibat merokok, melaporkan efek negatif merokok, dan menggunakan humor untuk mendorong berhenti merokok. Di sisi lain, cuitan di sosial media mengabaikan efek negatif rokok terhadap kesehatan karena orang melihat merokok sebagai "teman ngopi" dan dengan santai mendiskusikan rokok mana yang lebih baik daripada yang

lain. Media sosial dapat memperkuat penghentian merokok atau menormalkan perilaku merokok di kalangan remaja Indonesia. Kampanye berhenti merokok di media sosial dapat menggunakan utas yang relevan di Twitter agar lebih membumi dan relevan untuk mendorong berhenti merokok.

Kata Kunci: analisis konten, berhenti merokok, media sosial, Twitter

1. INTRODUCTION

Smoking is still prevalent in Indonesia and the impact on public health is ongoing. Indonesia has the world's third highest smoking prevalence, with approximately 67% of men and 5% of women being smokers (WHO, 2021). Smoking-related illnesses are also a major public health issue in Indonesia, with tobacco-related illnesses being the leading cause of death in the country. In 2018, smoking caused 14.7% avoidable death in Indonesia and contributed to all cardiovascular diseases among Indonesian adolescents (WHO, 2018). Unfortunately, Indonesia has a high prevalence of youth smoking, with many individuals starting to smoke at an early age (Sari et al., 2022). The high prevalence of smoking in Indonesia not only has a detrimental influence on public health, but it also adds to the economic burden, air pollution, and negative social norms (Astuti et al., 2020; Firmansyah et al., 2022; Meilissa et al., 2022).

Implementing smoking cessation efforts can help deter young people from starting smoking, reduce the number of future smokers, and prevent negative impact of smoking behavior. Moreover, almost all Indonesian adolescents smokers want to quit, but few are successful, suggesting that there may be a misalignment between the needs of young people and the cessation methods available to them (Sari et al., 2022). Adolescents' smokers who are able to quit before the age of 30 will have a life expectancy nearly as long as those who never smoked, which holds hope for achieving population health impact (Baskerville et al., 2016). Therefore, effective, accessible and attractive interventions are needed to develop to approach this population.

Social media has emerged as a significant tool for health promotion, including efforts to influence health behaviors (Cortese et al., 2018; Rakhman et al., 2021). In Indonesia, social media platforms are extensively utilized, with around 60% of the population actively engaging on these platforms, particularly among individuals aged 18 to 34 years old (Kemp, 2023). This age group dominates the social media landscape, utilizing these platforms as primary sources of information and means of interaction. Social media, characterized by user contributions, engagement, and interaction, has become a crucial resource for young adults seeking information and connection (Baskerville et al., 2016). Leading social media platforms that include Twitter, Facebook, YouTube, and Instagram have been widely used for communicating health-related issues (Malik et al., 2022) and has potential to reach and engage with young smokers, to spread counter-marketing messages (Cortese et al., 2018).

Using social media, many studies have been conducted to analyse population health behaviours, particularly smoking behaviour. They collected data from various social media platform, including include Twitter, Facebook, YouTube, and Instagram and analyse the content, either photos or words (in form of captions or tweets), to gain information about peoples' sentiment toward smoking, smokers, and cigarette products as well as effectiveness of smoking cessation efforts using social media (Malik et al., 2022; Naslunda et al., 2017; Sari Kaunang et al., 2021; Setiyawati & Cahyono, 2023; van der Tempel et al., 2016). Some of them used machine learning approach, resulting in a quantifiable estimate of social media users sentiment. While Setiyawati & Cahyono (2023) grouped the social media users' sentiment of smokers into negative and positive, Anwar et al. (2022) examined Malaysia's smoker's perception also into negative, positive, and neutral. Both studies are heavily discussed about the methods of analysing sentiment and

perception, including Naïve Bayes, Decision Tree, Support Vector Machine, and Logistic Regression. On the other hand, Rocheleau et al. (2015) discussed about higher engagement of socio-emotional and encouragement content in Twitter compared to informational content by analysing the Twitter account campaigning smoking cessation. These studies have provided insightful information on social media to support smoke cessation initiatives. However, this research will add more insight into how Indonesian social media users view smoking issues by identifying discourses related to smoking behavior.

This study aims to explore discourses related to smoking behavior among Indonesian people on Twitter and map the themes/topics that arise, which may be useful to encourage smoking cessation behaviors in Indonesia. More studies on this topic have been undertaken in other countries, but to the best of the author's knowledge, no comparable studies have been completed in Indonesia. Sari Kaunang et al. (2021) analysed Twitter discourses related to smoking, but their focus was specifically on e-cigarettes. Setiyawati & Cahyono (2023) also explored Twitter discourses on smoking but with a heavy emphasis on developing appropriate data analysis methods. On the other hand Aditjondro et al., 2018 examined how social media was used to increase awareness of smoking behavior, but their study encompassed various social media platforms, not specifically focusing on Twitter. In this study, Twitter was chosen among other social media platforms since it is a text-based platform that allow the users to share their stories, opinions, and assessments on issues. It then allow researchers to analyse knowledge, opinions, emotions, and sentiments that people have toward an issue (Rakhman et al., 2021). These online opinions are as significant as those from formal or traditional data collection like surveys, interviews, and discussions, and can be use in social research. Moreover, Twitter has open data access policies for academic research that allow researcher to collect and analyse data from Twitter (Malik et al., 2022).

This study used one of health communication theory, which is narrative theory in health context, to broaden understanding of how health is discussed and defined by providing a number of voices. This health communication theory is suitable for this study since it believes that human is a storyteller and has the capacity to be rational. Within the narrative paradigm, everyone can tell stories and assess their value based on fidelity and probability (Littlejohn et al., 2017; Pallai & Tran, 2019). Narrative theory has multiple functions in the health context. As people become a storyteller, it can help them to create meaning of uncertain circumstances, reassert control in their lives, repair and recreate their identities, reveal consequences and build communities as people share same stories as well as humanize health care system by letting patients share their stories (Littlejohn et al., 2017). As people voices nowadays can be seen in social media platforms, analysing it may provide fruitful insight on the health issue, particularly in promoting smoking cessation efforts in Indonesia.

2. METHODS

2.1 Study Design

The study utilised a descriptive study design, which provides structured and systematic description of tweets related to smoking issues in Indonesia. This design focuses on understanding populations or objects by carefully representing their meaning without establishing relationships between variables (Elliott & Timulak, 2021; Kriyantono, 2016), or in this case, themes arisen in the selected tweets. According to Elliott & Timulak (2021), descriptive study design include careful and systematic analysis, aware of the researcher's interest and background that might affect the study, organizing the the understanding into clusters of similar experiences (categories, themes, and codes), and integrating categories into some kind of coherent story. The research also employed a retrospective examination of a cohort of active Twitter accounts discussing smoking.

2.2 Setting and Sample

A search for smoking related tweets was conducted on Twitter using the terms “rokok” and “merokok”. The search did not differentiate between original tweets, retweets, and replies. The keywords were in Indonesian to limit the context to Indonesian people. Only tweets from Indonesia were included in the sample. Tweets in Malaysian were initially included at the initial search but later excluded. Additionally, tweets containing the word "rokok" but lacking context, being vague, or related to fictional stories were also excluded.

2.3 Data Collection

Data from social media, specifically Twitter, were collected using the tool called Netlytic. Twitter was chosen due to its easy accessibility and indexing. It allows users to express their opinions, thoughts, and engage in direct peer-to-peer exchanges (van der Tempel et al., 2016). Netlytic is a commonly used tool for collecting data from social media (Malik et al., 2022). The sample of tweets was collected on May 4, 2023, and the seven days preceding that date, as per Netlytic regulations. The tool retrieves tweets that are not older than seven days (Gruzd, 2023). Initially, an inventory cohort of 10,001 tweets containing the word "rokok" was identified. Then, the dataset was filtered to include only tweets that were meaningful, understandable, and relevant. Non-Indonesian and unrelated tweets were removed, resulting in a primary dataset of 1,378 tweets focused on smoking and cigarette-related issues.

2.4 Data Analysis

The selected tweets were analysed using content analysis, specifically an inductive thematic content analysis. This approach involved assigning one or more categories to a message based on its context or theme (van der Tempel et al., 2016). The analysis focused on identifying message attitudes, particularly explicit statements which are direct and clear statements made in the messages, expressing a particular attitude or opinion. Therefore, "message attitudes" refer to the underlying opinions, beliefs, or sentiments expressed in the messages being studied. The researcher read the tweets and address the keywords from each tweet. After that, the keywords are used to describe the tweets in more understandable sentences. Then, codes, which describes the tweets' sentiment, are assigned to the tweets. Although at the end there are three categories of codes, the coding categories emerge directly from the data without predetermined categories or theoretical frameworks. A tweet can contain several codes (or sentiments) but the main sentiment will be concluded to best describe the tweet main idea. While this study also used narrative theory in health context, the sentiment toward smoking behaviour or cigarettes was then analysed in the context of smoking cessation efforts. The attitudes expressed in messages, whether positive, negative, or neutral, toward cigarettes did not always align with the sentiments toward smoking cessation efforts. Therefore, the researcher carefully examined the context of tweets, considering the underlying social and cultural factors, to assign meaning to the tweets within the context of smoking cessation efforts.

Additionally, Social Network Analysis (SNA) was employed to gain a better understanding of key actors, the role of influencers, and the dissemination of smoking-related content on the platform (Malik et al., 2022). SNA aimed to identify the actors' involvement in relationships, the nature and medium of those relationships, the strength and direction of the relationships, and whether they were one-way or two-way. It also allowed for determining which actors had the most connections (nodes), the distance and extent of connections between each actor (nodes), identifying bottlenecks, and recognising key players (Rakhman et al., 2021). The actors involved could be public figures, press/media users, public health and healthcare users, or personal users.

Public figures referred to individuals with over 10,000 followers who were considered popular figures in mainstream entertainment and media, politics or business, or social media. Press/media users were linked to reputable press or other prominent media sources, including blogs. Public health and healthcare users were associated with public health organisations and healthcare providers, respectively, while personal users were private individuals' accounts not explicitly affiliated with organisations, movements, or other agendas. The network analysis results would be presented using visuals such as pictures and graphs.

3. RESULTS AND DISCUSSIONS

This study identified sentiment around as well as attitudes towards smoking behaviour and cigarettes, including positive, negative, and neutral. These attitudes may impact the smoking cessation efforts by supporting smoking cessation efforts or challenging the effort with normalising smoking behaviour and cigarettes. Positive attitudes about smoking included laughing about the negative effects of smoking, neutral attitudes were awareness of the smoking negative consequences, while negative attitudes included loathing smoking and smokers. However, these attitudes were not always linear with the smoking cessation efforts and may give different or mixed sentiment toward smoking cessation efforts. For example, some neutral tweets toward cigarettes or smoking behavior may support smoking cessation efforts, while other neutral tweets may normalise smoking behaviour which lead to hinder the smoking cessation efforts in the community.

“tapi case w emg sedikit berbeda sih.. jd dr awal w ga tau si mantan itu ngerokok. pas udah pacaran, lah ternyata ngerokoknya kuat shay.. udh bukan rokok yg sekali-kali lg”

(my case is quite different. I knew from the beginning that my ex is a smoker. When we were in a relationship, I was quite surprised that he was a heavy smoker, not a light one)

“Syukur banget dapet cowo ga ngerokok. Dan ga malu milih jajan cocolatos buat ngimbangin temen2nya yg megangnya rokok 🍷”

(I am so grateful to have a non-smoker partner. He was not ashamed to hold a choco wafer in order to ‘mock’ his friends that hold cigarettes)

“15 hari tanpa rokok, awal yang bagus” (15 days without smoking, a good start)

Tweets above are some examples of neutral sentiment on smoking behaviour but have positive impact on smoking cessation efforts. While the first tweet discussed about the author’s surprise feeling on having partner that turned out a heavy smoker, the second tweet talked about grateful feeling of the author to have a non-smoker partner. All of those tweets did not ‘hate’ or ‘love’ cigarettes or smoking behaviour but have meaning that may support smoking cessation efforts by promote a non-smoking behaviour.

“gabisa, harus dari diri dia sendiri. mau kamu ocehin was wes was kalau dia masih mau rokok itu karna pilihan dia”

(It should be from themselves. It does not matter if you talk blah blah blah. If they still want to smoke, it depends on themselves.)

“bahkan bapak yg udah belasan tahun stop rokok bisa balik ngerokok lagi. yaktul lagi lagi apa? kita gatau masa depan kek mana.”

(Even my father who had been stop smoking for years can smoke again. We never know the future.)

“Pagii Tuips. Met Hari Senin.. ☺ Libur Lebaran dah selesai, saat nya kembali dg rutinitas Masih

dlm Pembahasan polemik RUU Kesehatan OBL yg trs Kontroversi. Rakyat seperti gk Sanggup liat aturan Kemenkes yg Sewenangwenang krn rokok disamakan dg Narkoba #MenkesSuperbody” (Morning, fellas. Happy Monday! Ied holidays have finished, it is time to come back to reality. It was still in the controversy of health statue draft. We cannot afford to see Ministry of Health regulation that equalising cigarettes with drugs)

Conversely, netral tweets above may give challenges for smoking cessation efforts. Those tweets did not have any sentiment on cigarettes or smoking behaviour but it had meaning that may undermine smoking cessation efforts. While the first and second tweets argued that smoking behaviour is hard to change, the third tweet contained disagreement on a controversy regulation to prohibit cigarettes.

3.1 Discourse Around Smoking Behaviour and Cigarettes

This study found that discourse around smoking can either support smoking cessation intervention, normalise smoking and cigarettes, which may not support cessation efforts, or be neutral. According to Rocheleau et al. (2015), Twitter has the potential to be a new channel for smoking cessation interventions. The findings, on the other hand, highlight the complexity of discourse surrounding smoking on the analysed platform, with more themes that challenge smoking cessation efforts compared to conversations supporting efforts to quit smoking, while some discuss unrelated aspects of smoking. These diverse discourses provide valuable insights into the attitudes and beliefs surrounding smoking behaviors, which can inform targeted smoking cessation interventions and public health campaigns.

Several themes emerged that were found to be supportive of smoking cessation interventions. One such theme was the sharing of experiences as a second-hand smoker, either in a home or public space setting. They also expressed discomfort with having a smoking partner, recounted instances where family members felt ill due to smoking, and highlighting the negative consequences of smoking on health. Additionally, humor was used as a tool to encourage quitting smoking, potentially making the topic more approachable and relatable.

Conversely, the study also revealed some themes arises that may become challenges for smoking cessation efforts. It included some themes where smoking was normalised, and the detrimental health effects were downplayed. Participants viewed smoking as a social activity, referring to it as "teman ngopi" (coffee companion), implying that smoking was seen as a common and acceptable behavior during their activities, including while thinking, working, waiting or during leisure times. These discussions often revolved around casual comparisons of different cigarette brands and prices, focusing on preferences taste and qualities, rather than addressing the health risks associated with smoking.

Furthermore, the researchers identified discussions related to smoking that were not directly linked to smoking cessation efforts. For example, conversations surrounding cigarettes during May Day were found to be unrelated to quitting smoking but rather centered around the experiences of cigarette workers during the event. Other discussions around smoking that were not related to smoking cessation efforts are cigarettes industries, cigarettes waste, and other stories around smoking that were not have impact on smoking cessation efforts. More detailed on sentiments of selected tweets that related to smoking are presented in the table below.

Tabel 1. Sentiments related to smoking cessation efforts

NO	Toward smoking cessation efforts		
	Supporting	Challenging	Neutral
1	Advice not to date smokers since smoking behaviour is hard to change	Achieving goals by giving someone cigarettes	Being assumed to be smokers
2	Against cigarette industries	Appreciating someone by giving cigarettes	Cigarette waste after wedding party
3	Agree to the increase of cigarette price	Appreciating someone by giving money to buy cigarettes	Cigarette waste in mountains
4	Benefit of smoking in gaining calmness can be obtained even without smoking	Appreciating something that appears to be cigarettes	Encourage people not to throw cigarette waste carelessly
5	Cigarettes are expensive	Balancing smoking with other healthy lifestyles	Fact about promoting cigarette in Indonesia
6	Criticising people's respond to smoking campaign	Better to be smokers	History of cigarettes
7	Disagree with providing cigarettes during community meeting	Buying cigarettes is important	Industry and economy
8	Do not want to be a passive smoker	Can buy cigarettes but not food	Kindness of cigarette industry to their workers (maternity leave regulation)
9	Efforts to reduce smoking	Cannot live without smoking	Making jokes of a cigarette brand
10	Encouraging people not being passive smokers	Children being ask to buy cigarettes	Smoking research
11	Encouraging people not to try smoking	Choosing cigarettes over primary needs	
12	Encouraging people to quit smoking	Cigarette is precious	
13	Experience on obtaining cigarettes	Cigarette tax	
14	Hating cigarettes product, its smells, and the smokers	Cigarettes as a gift	
15	Having a partner that smokes is undesirable	Cigarettes as part of 'primary' needs	
16	Many things better than smoking	Cigarettes as pride	
17	Comparing cigarette and e-cigarette		
18	Negative experience of trying smoking	Comparing cigarette and daily needs	
19	Negative experiences of passive smokers	Disagree with the new statue draft that considering cigarettes similar with drugs	
20	Negative health impact of smoking (cigarettes and e-cigarettes)	Discussing cigarettes types, tastes, prices, and advertisements	
21	Negative health impact of smoking to passive smokers	Discussing where to buy cigarettes	

Contd Tabel 1. Sentiments related to smoking cessation efforts

NO	Toward smoking cessation efforts		
	Supporting	Challenging	Neutral
22	Not smoking gives additional values to a partner	Dissapointed when a cigarette product disappears	
23	Perceived smoking and cigarettes as negative things	Enjoying the time of smoking	
24	Prohibited by parents	Experience on bringing cigarettes	
25	Promoting certain cigarette	Happy getting free cigarettes products	
26	Proud to be non-smokers	Looking for cigarettes' seller	
27	Religious values supporting smoking cessation	Misperception of smoking cessation	
28	Satire on cigarettes and smoking behaviour	Neglecting smoking impact on health	
29	Satire on youth who often romantising smoking behaviour	Normalise cigarette products	
30	Sharing quitting smoking journey	Normalise smoking behaviour	
31	Success stories of smoking cessation experiences	One package with coffee	
32	Support cigarettes being ilegal	Parents support their children to smoke	
33	Supporting the control of eligibility for purchasing cigarettes	Part of daily activities	
34	There are other things better than cigarettes	Physical appearance that is not suitable to by cigarettes	
35	Trauma with cigarettes	Related to working, waiting, thinking, and leisure activities	
36		Relating with public figure	
37		Romantising smoking experiences	
38		Satire on non-smoker	
39		Setting cigarettes and daily needs side by side	
40		Sharing smoking activities	
41		Silent smoking experiences	
42		Smoking as coping behaviour of unpleasant experiences	
43		Smoking as self branding	
44		Smoking behaviour is hard to change	
45		Supported by teacher	
46		Switch to e-cigarettes	
47		Surprise on how cigarettes become easier to obtain	
48		The absence of smoking causes headaches	
49		What to do to promote smoking cessation	
50		Selling cigarettes as promising business	

a) Supporting Smoking Cessation Efforts

Certain themes emerged may potentially supported smoking cessation efforts. One theme involved the negative experiences of passive smokers, highlighting some people's resentment towards cigarette smoke and its detrimental effects on both smokers and those around them.

Another theme focused on individuals not wanting to have a smoking partner, as expressed by women who preferred non-smoking partners and men sharing their experiences as partners. Setiyawati & Cahyono (2023) found that more Indonesian people had negative sentiment towards smokers compared to positive sentiment. Informing young adults about the benefits of not smoking, thereby enhancing their personal worth, could be an effective strategy to promote smoking cessation.

Additionally, individuals shared success stories of quitting smoking and encouraged others to do the same. Their motivation to quit often stemmed from a desire to protect their family's health, particularly their children, who had experienced health issues as a result of smoking or exposure to secondhand smoke. Family discussions about the dangers of smoking played a role in influencing young people's desire to quit smoking (Sari et al., 2022), fostering an understanding of the negative health impacts associated with smoking behavior. Such tweets have the potential to inspire young smokers to recognize the adverse health consequences of smoking without having to personally suffer from smoking-related diseases.

Furthermore, practical advice was provided to encourage smokers to quit, including advocating for the prohibition of cigarettes, raising their prices, and excluding smoking-related health issues from national health insurance coverage. Some individuals also shared religious values that deemed smoking as forbidden (haram) due to its detrimental effects on well-being. These themes can serve as valuable insights for policymakers in crafting messages and initiatives aimed at promoting smoking cessation efforts. Social media can become drivers of behavioral change because of its precursors to peer-influence and social acceptability of certain behaviour (Malik et al., 2022).

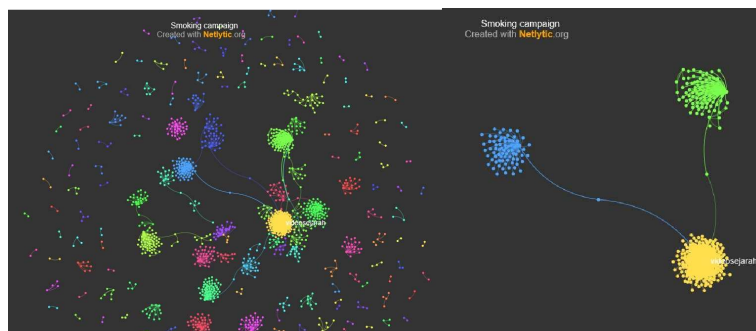
b) Challenges for Smoking Cessation Efforts

Tweets that have positive or neutral attitudes towards smoking behaviour and cigarettes often undermine the current smoking cessation efforts. Some tweets tended to normalise smoking behaviour by discussing about cigarettes (price, taste, brand, advertisement, etc), telling stories about obtaining cigarettes, and using cigarettes to appreciate someone. Impact of normalising smoking behaviour in undermining public health efforts to denormalise smoking has been mentioned by Cortese et al. (2018). They found that a number of smoking selfie taking by females may be seen as cool photographs and normalise smoking behaviour. More than that, some tweets mentioned about smokers who cannot live without smoking, wanting to smoke right after recover from sickness and considering smoking as breathing.

Another theme that may challenge smoking cessation efforts were considering cigarettes as primary needs and putting smoking above daily needs, including eating or health needs. Difficulties in economic condition would not change smokers to be non-smokers because they cannot afford buy cigarettes. Some tweets, on the other hand, mentioned how smokers willing not to eat to buy cigarettes and the spending on cigarettes tend to higher than buying foods. Smoking is hard to change was also a theme emerged that included complaining on how difficult to encourage smokers to quit even though they already know and experience the devastating impacts of smoking on health. Some people believed that willingness to quit smoking is only came from the smokers which this opinion may hinder current smoking cessation efforts. This finding is linear with other studies that found young adults tend to not use smoking cessations services due to the belief that the best way to quit smoking is on their own (Bader et al., 2007; Baskerville et al., 2016).

3.2 Actors Involved Smoking-Related Tweets: A Social Network Analysis

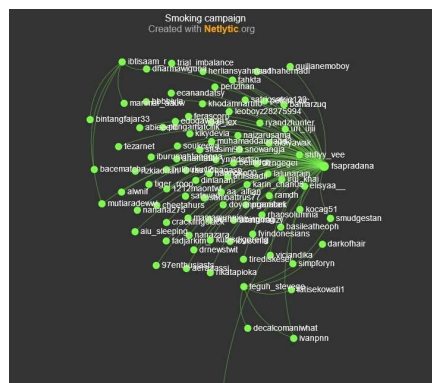
Twitter is a social media platform that allows the users to interact which may result in a social network. Actors involved in the smoking-related tweets consisted of personal and organization accounts. Organisation accounts included news and informational accounts such as detiknews, kumparan, and videosejarah as well as community-based account that encourage users to respond to an issue such as rokokindonesia, tanyakanrl, 18fesss, padangmenfess, pdgfess, sbyfess, UNSfess_, undipmenfess, etc. These organisation accounts often give informational tweets or question tweets that encourage other users to give their opinions. Social networks from those tweets are shown in the figure 1 below. The social networks are limited to tweets that had a number of responds from other users, including retweet and replies. The dots imply Twitter account, while the lines show other users' respond to the tweets. The left picture in figure 1 shows all social networks regardless the magnitude. The right picture, on the other hand, only shows three social networks with the biggest network.



Source: Netlytic (2023)

Figure 1. Social Network Analysis of tweets related to smoking

Actors who involved in the biggest social networks were videosejarah (yellow), fsapradana (green), and detikcom (blue). While both videosejarah and detikcom are organizational accounts, fsapradana is a personal account that criticise how people respond to smoking campaign versus sugary drinks. This tweet was retweeted by several Twitter accounts and raised other discussion about smoking cessation experiences which some lines was not just come from the main account as shown in Figure 2 below. While detikcom shared information about negative health impact of e-cigarettes (vape), videosejarah discussed about cigarette industry workers in the past. These findings showed that theme arises in tweets is significant to build social networks related to smoking issues. It can be done by anyone, not just an organisation account.



Source: Netlytic (2023)

Figure 2. Social Network Analysis of a personal account tweeted smoking-related issue

Finally, this study has both strengths and limitations. The strength of this study lies in the data collection tool, Netlytic, which includes friendly graphical user interfaces (GUIs), easy access with user's credentials, offering streaming features, and harvesting and visualizing data. Findings from this study may also provide insight for healthcare to frame their communications to maximise the engagement of smokers in the smoking cessation content-related. On the other hand, Netlytic that rely on API terms was sensitive to dysfunctional due to change in the terms (Malik et al., 2022). Moreover, sampled tweets in this study were limited to random samples captured through periodic keyword searches over short timeframes. The author also acknowledged her subjectivity as a non-smoker in analysing the sample tweets, particularly in doing the tweets content coding as well as identifying the sentiment.

4. CONCLUSIONS

This study found that sentiment around smoking-related tweets included negative, positive, and neutral. While some negative sentiments lead to support in smoking cessation efforts, neutral sentiment towards smoking behavior, cigarettes, and smokers may support or hinder smoking cessation efforts. Themes that may be used to support smoking cessation efforts, including negative experiences as passive smokers, success stories of quitting smoking behavior, and practical advice to quit smoking. On the other hand, themes that may undermine current smoking cessation efforts in public health included conversations that normalise smoking behaviour, considering cigarettes as primary needs, and belief that smoking behaviour is hard to change. This study further highlights the potential of Twitter as a smoking cessation information resource and indicates certain content strategies that can be used to encourage smokers or non-smokers engagement. While academicians can use this study as a foundation for further exploration in smoking behaviors/cessation in Indonesia, policymakers, healthcare practitioners or other practitioners in smoking cessation efforts can benefit from active monitoring of social media trends, ensuring interventions are relevant and impactful. Findings from this study can help practitioners develop more relatable and impactful smoking cessation campaigns. Moreover, public health initiatives can collaborate with suitable social media influencers to amplify their reach, using their positive narratives to inspire and motivate others to quit smoking as well as enable social media users to share their stories about smoking issues.

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DAFTAR PUSTAKA

- Aditjondro, E., Rachfiansyah, A., Rabindanata, Y., Svenson, D., Hamill, S., & Mullin, S. (2018). Using social media to mobilize grassroots advocates and raise awareness about tobacco harms in Indonesia. *Tobacco Induced Diseases*, 16(1). <https://doi.org/10.18332/tid/83967>
- Anwar, M. K. M. K., Marina Yusoff, & Kassim, M. (2022). Decision Tree and Naïve Bayes for Sentiment Analysis in Smoking Perception. *2022 12th IEEE Symposium on Computer Applications and Industrial Electronics, ISCAIE 2022*, 294–299. <https://doi.org/10.1109/ISCAIE54458.2022.9794558>
- Astuti, P. A. S., Assunta, M., & Freeman, B. (2020). Why is tobacco control progress in Indonesia stalled? - A qualitative analysis of interviews with tobacco control experts. *BMC Public Health*, 20(1), 1–12. <https://doi.org/10.1186/s12889-020-08640-6>
- Bader, P., Travis, H. E., & Skinner, H. A. (2007). Knowledge synthesis of smoking cessation among employed

- and unemployed young adults. *American Journal of Public Health*, 97(8), 1434–1443. <https://doi.org/10.2105/AJPH.2006.100909>
- Baskerville, N. B., Azagba, S., Norman, C., McKeown, K., & Brown, K. S. (2016). Effect of a digital social media campaign on young adult smoking cessation. *Nicotine and Tobacco Research*, 18(3), 351–360. <https://doi.org/10.1093/ntr/ntv119>
- Cortese, D. K., Szczycka, G., Emery, S., Wang, S., Hair, E., & Vallone, D. (2018). *Smoking Selfies: Using Instagram to Explore Young Women ' s Smoking Behaviors*. <https://doi.org/10.1177/2056305118790762>
- Elliott, R. K., & Timulak, L. (2021). *Essentials of Descriptive-Interpretive Qualitative Research*. American Psychological Association. <https://www.apa.org/pubs/books/essentials-descriptive-interpretive-qualitative-research>
- Firmansyah, C. A., Renaldi, R. G., Monikka, D., & Sihalo, E. D. (2022). the Effect of Smoking Behavior on Health Expenditure in Indonesia'S Rural Areas. *Jurnal Ekonomi Kesehatan Indonesia*, 7(1), 45. <https://doi.org/10.7454/eki.v7i1.5401>
- Gruzd, A. (2023). *Netlytic: Software for Automated Text and Social Network Analysis*. <http://netlytic.org>
- Kemp, S. (2023). *Digital 2023: Indonesia*. DataReportal – Global Digital Insights. <https://datareportal.com/reports/digital-2023-indonesia>
- Kriyantono, R. (2016). *Teknik Praktis Riset Komunikasi: disertai contoh praktis riset media, public relations, advertising, komunikasi organisasi, komunikasi pemasaran*. Kencana.
- Littlejohn, S. W., Foss, K. A., & Oetzel, J. G. (2017). Health Context: Narrative Theory and Health. In *Theories of Human Communication* (11th ed., Vol. 53, Issue 95). Waveland Press, Inc. <https://doi.org/10.1017/CBO9781107415324.004>
- Malik, A., Berggren, W., & Al-Busaidi, A. S. (2022). Instagram as a research tool for examining tobacco- related content: A methodological review. *Technology in Society*, 70(October 2021), 102008. <https://doi.org/10.1016/j.techsoc.2022.102008>
- Meilissa, Y., Nugroho, D., Luntungan, N. N. H. W., & Dartanto, T. (2022). The 2019 economic cost of smoking-attributable diseases in Indonesia. *Tobacco Control*. <https://doi.org/10.1136/tobaccocontrol-2021-056890>
- Naslunda, J. A., Kimd, S. J., Aschbrenner, K. A., McCulloch, L. J., Brunette, M. F., Dallery, J., Bartels, S. J., & Marsch, L. A. (2017). Systematic Review of Social Media Interventions for Smoking Cessation. *Addictive Behaviors*, 73. <https://doi.org/10.1016/j.addbeh.2017.05.002>
- Pallai, E. L., & Tran, K. (2019). Narrative Health: Using Story to Explore Definitions of Health and Address Bias in Health Care. *The Permanente Journal*, 23, 1–7. <https://doi.org/10.7812/TPP/18-052>
- Rakhman, F. R., Ramadhani, R. W., & Kuncoroyakti, Y. A. (2021). Analisis Sentimen Dan Opini Digital Kampanye 3M Di Masa Covid-19 Melalui Media Sosial Twitter. *Jurnal Ilmiah Ilmu Komunikasi*, 18(01), 08–20. <https://komunikologi.esaunggul.ac.id/index.php/KM/article/view/301>
- Rocheleau, M., Sadasivam, R. S., Baquis, K., Stahl, H., Kinney, R. L., Pagoto, S. L., & Houston, T. K. (2015). An observational study of social and emotional support in smoking cessation twitter accounts: Content analysis of tweets. *Journal of Medical Internet Research*, 17(1), e18. <https://doi.org/10.2196/jmir.3768>
- Sari Kaunang, C. P., Amastini, F., & Mahendra, R. (2021). Analyzing Stance and Topic of E-Cigarette Conversations on Twitter: Case Study in Indonesia. *2021 IEEE 11th Annual*

- Computing and Communication Workshop and Conference, CCWC 2021*, 304–310. <https://doi.org/10.1109/CCWC51732.2021.9375949>
- Sari, M. P., Ayunin, E. N., & Setyowati, Y. D. (2022). *Determinants of Adolescents ' Desire to Quit Smoking in Indonesia : Data Analysis of the 2014 Global Youth Tobacco Survey*. 16(2), 85–92.
- Setiyawati, D., & Cahyono, N. (2023). Analisa Sentimen Pengguna Sosial Media Twitter terhadap Perokok di Indonesia. *Indonesian Journal of Computer Science*, 12(1).
- van der Tempel, J., Noormohamed, A., Schwartz, R., Norman, C., Malas, M., & Zawertailo, L. (2016). Vape, quit, tweet? Electronic cigarettes and smoking cessation on Twitter. *International Journal of Public Health*, 61(2), 249–256. <https://doi.org/10.1007/s00038-016-0791-2>
- WHO. (2018). *Factsheet 2018 Indonesia*.
- WHO. (2021). *Global Adult Tobacco Survey Indonesia*.