An analysis of Twitter posts about the U.S. FDA's menthol ban

Jon-Patrick Allem, PhD, MA,[1] Scott I. Donaldson, PhD,[1] Erin A. Vogel, PhD,[1] Raina D. Pang, PhD,[1] Jennifer B. Unger, PhD.[1]

[1]Department of Population and Public Health Sciences, Keck School of Medicine, University of Southern California, Los Angeles, CA

Corresponding Author:

Jon-Patrick Allem

1845 N. Soto Street, 3rd Floor, SSB 312D

Los Angeles, CA 90032

Email: allem@usc.edu

Phone: 323-442-7921

Abstract

Background:

Although the U.S. Food and Drug Administration (FDA) banned characterizing flavors in cigarettes in 2009, this initial ban exempted menthol. After examining numerous reports on the adverse health effects of menthol cigarettes, the FDA proposed a menthol ban in April 2022. This study analyzed Twitter data to describe public reaction to this announcement.

Methods:

Posts containing the word "menthol" and/or "#menthol" were collected from April 21, 2022, to May 5, 2022, from Twitter's Streaming Application Programming Interface (API). A random sampling procedure supplied 1,041 tweets for analysis. Following an inductive approach to content analysis, posts were classified into one or more of 11 themes.

Results:

Posts discussed the FDA announcement (n=153, 14.7%), racial discrimination (n=101, 9.7%), distrust in government (n=67, 6.4%), inconsistencies between policies (n=52, 5.0%), public health benefits (n=42, 4%), freedom of choice (n=22, 2.1%), and health equity (n=21, 2.0%). Posts contained misinformation (n=20, 1.9%), and discussed the potential for illicit markets (n=18, 1.7%) and the need for cessation support (n=4, 0.4%). 541 (52.0%) tweets did not fit into any of the prescribed themes.

Conclusion:

Twitter posts with the word "menthol" commonly discussed distrust in government and mentioned racial discrimination. Findings demonstrated the possibility of near real time Twitter monitoring of public opinion on a menthol ban. These data may be valuable for designing tobacco control health communication campaigns in the future.

Keywords: menthol; twitter; social media; tobacco control.

Implications:

The U.S. Food and Drug Administration proposed a ban on menthol cigarettes in April 2022. This study content analyzed Twitter posts from a two-week period to understand the public's response to the proposed menthol ban. Twitter posts with the word "menthol" often discussed distrust in government and mentioned racial discrimination. Findings demonstrated the possibility of near real time Twitter monitoring of public opinion of regulatory action. Findings underscore the need to educate the public about the potential health benefits of banning menthol from cigarettes, particularly for populations that experience tobacco-related health disparities.

INTRODUCTION

Menthol cigarettes facilitate and perpetuate nicotine dependence by producing a cooling sensation that masks the adverse sensory experience of smoking[1,2] and by increasing the bioavailability of nicotine.[3] People who smoke menthol cigarettes report higher levels of nicotine dependence and are less successful at quitting compared to non-menthol smokers. Menthol cigarettes are also problematic for public health because they have been marketed extensively to populations that experience tobacco-related health disparities, including African Americans[4–6] and sexual minorities,[7] and they are popular starter products for youth because they are perceived as less harsh.[2]

Public health advocates have recommended a ban on menthol cigarettes for decades.[4] However, the U.S. Food and Drug Administrations (FDA)'s 2009 ban on flavored cigarettes exempted menthol.[8] In the absence of Federal regulation, several local jurisdictions have passed menthol bans, resulting in reductions in availability and use of menthol cigarettes.[9] However, the current patchwork of local menthol bans is not ideal because local jurisdictions typically lack funds for strong enforcement, and people who smoke menthol cigarettes can purchase menthol cigarettes in nearby cities without bans.[9] There is ample evidence that a nationwide menthol ban would benefit public health; a recent review[10] concluded that a menthol ban would lead to decreased cigarette smoking, increased cessation attempts, and increased switching from combustible cigarettes to less harmful products. However, although the FDA and other agencies have published several comprehensive reports that concluded that a menthol ban would benefit public health,[11] such a ban has not yet been enacted.[12]

On April 28, 2022, the FDA announced a proposed product standard to ban menthol cigarettes and flavored cigars, stating that a menthol ban would have "the potential to significantly reduce disease and death from combusted tobacco product use, the leading cause of preventable death in the U.S., by reducing youth experimentation and addiction, and increasing the number of smokers that quit".[13] Although the menthol ban has not yet been enacted, it has generated extensive public

debate. An improved understanding of public reactions to a proposed menthol ban could help public health advocates design effective health communication messages to counter misinformation.

Previous research has demonstrated that Twitter can provide insights about how the public reacts to tobacco-related policies.[14,15] For example, our team recently documented the emerging themes pertaining to the hashtag "#FlavorsSaveLives" on Twitter over a 12-month period.[16] This hashtag started appearing on Twitter in fall of 2019, when people took to social media to voice their opposition of potential local, state, and national bans on specifically flavored (i.e., non-tobacco/non-menthol) e-cigarette products. Themes in these Twitter posts included intentions to vote against politicians who favored flavor bans, distrust of the government and public health organizations, and freedom of choice to use flavored products.

To provide a rapid snapshot of public reaction to the FDA's announcement, this study examined Twitter posts about the proposed menthol ban over a two-week period around when the proposed ban was announced. We identified common themes in public reactions, with the goal of informing the development of health communication messages that could increase support for the menthol ban.

METHODS

Posts containing the word "menthol" and/or "#menthol" were collected from April 21, 2022, to May 5, 2022, from Twitter's Streaming Application Programming Interface (API). Past research has used the hashtag #menthol and keyword "menthol" to understand perceptions of menthol cigarettes among Twitter users, justifying this inclusion criteria.[17] There was a total of (n=14,856) posts containing these terms during this time. Similar to previous research,[18] and after excluding all retweets (n=10,367), a random sampling procedure supplied (n=1,041) tweets for content analysis. The authors worked together to become familiar with the data, then created a codebook and identified 11 themes, using the text of each tweet as the unit of analysis. The purpose of the approach was to condense the raw text-based data into summary format and report the underlying themes that were evident in the data.[19] Themes and definitions can be seen in Table 1 and were as follows: 1) *Racial*

discrimination (i.e., post mentions negative implications of a menthol ban on African Americans or other minority groups)*;* 2) *Health equity* (i.e. post mentions positive implications of a menthol ban on African Americans or other minority groups); 3) *Misinformation* (i.e., post mentions menthol can be protective against COVID or other illnesses); 4) *Freedom of choice* (i.e., post mentions individual freedom or right to choose to smoke); 5) *Inconsistencies between policies* (i.e., post mentions or attacks approaches to harm reduction); 6) *Government distrust* (i.e., post mentions an issue separate from tobacco control and compares it to menthol); 7) *Public health benefits* (i.e., post mentions public health benefits that are expected from banning menthol); 8) *Cessation support* (i.e., post mentions the need for free products, discounts or coupons for smoking cessation); 9) *Illicit markets* (i.e., post mentions the purchase or sale of menthol from an illicit market following a menthol ban)*;* 10) *Announcing FDA action* (i.e., post mentions FDA announcement to ban the sale of menthol cigarettes)*;* 11) *Other or unrelated* (i.e., miscellaneous post that does not fall into the other categories). A tweet could be classified to more than one theme. **Table 1 in Supplementary Material** provides themes, definitions, and paraphrased tweets, providing an example illustration of each theme.

To establish interrater reliability, two coders analyzed a subsample of posts (n=150). Discrepancies between the coders were resolved with the help of the lead author. Overall percent agreement as well as positive percent agreement (i.e., sensitivity, how often each coder agreed on the presence of a theme) was used to assess interrater reliability.[20] In contrast to typical interrater reliability metrics, such as Kappa coefficients that control for chance agreement due to guesses, [21] overall percent agreement, including positive percent agreement, provides information relevant to coder accuracy.[22] The average percent agreement was 93.3% (SD=4.5) across all 11 themes. The average positive agreement (i.e., sensitivity) was substantial at 88.5% (SD=17.2). [23]

All posts in this dataset were publicly available and anonymized, and all analyses adhered to the terms and conditions, terms of use, and privacy policies of Twitter, and were performed under University of Southern California Institutional Review Board approval. To further protect privacy, posts exemplifying themes are paraphrased; no tweets are reported verbatim.

RESULTS

Overall, the most prevalent theme was *Announcing FDA action* (n=153, 14.7%), followed by *Racial discrimination* (n=101, 9.7%). Additional themes had relatively lower prevalence in the dataset: *Government distrust* (n=67, 6.4%), *Inconsistencies between policies* (n=52, 5.0%), *Public health benefits* (n=42, 4.0%), *Freedom of choice* (n=22, 2.1%), *Health equity* (n=21, 2.0%), *Misinformation* (n=20, 1.9%), *Illicit markets* (n=18, 1.7%), and *Cessation support* (n=4, 0.4%). 541 (52.0%) tweets did not fit into any of the prescribed themes. Table 1 shows the prevalence of themes pertaining to Twitter posts about the U.S. FDA's menthol ban. The most common dyadic combination of themes were *Racial discrimination* and *Government distrust* (n=10, 0.96%), *Government distrust* and *Inconsistencies between policies* (n=10, 0.96%), and *Racial discrimination and Announcing FDA action* (n=8, 0.77%); additional theme combinations had relatively low prevalence (e.g., *Public health benefits* and *Cessation support:* n=1, 0.10%).

DISCUSSION

This study documented public reactions to the proposed menthol ban on Twitter by collecting tweets that contained the word "menthol" or hashtag "#menthol". Other than straightforward announcements of the FDA's proposed rule, topics included *racial discrimination, government distrust*, and *inconsistencies between policies*. The *racial discrimination* tweets perpetuate a common anti-regulation argument: because most African Americans who smoke use menthol cigarettes, a ban on menthol cigarettes would unfairly target the African American community.[24] The disproportionately high prevalence of menthol smoking among African Americans is a result of a century of marketing to the African American community by the tobacco industry,[4] leading to an intergenerational tradition of menthol smoking in African American families.[25] Tobacco companies created specialized menthol cigarette brands and marketed them extensively in African American neighborhoods and magazines by linking them to jazz and hip-hop music and aspirational themes of wealth and freedom.[26] The tobacco industry has continued to lobby against menthol bans by convincing African American community leaders and legislators that menthol bans would restrict

freedom of choice and criminalize African Americans who smoke menthol cigarettes, potentially exacerbating police brutality and mass incarceration of African Americans.[26,27] Health communication efforts are needed to counter these claims and remind legislators and voters that a menthol ban would prosecute manufacturers and retailers, not consumers.[28,29] Communications also are needed to inform the public that a menthol ban would benefit the African American community by reducing smoking prevalence and preventing tobacco-related morbidity and mortality.[29,30]

The theme of *inconsistencies between policies* suggests that some Twitter users perceive that lawmakers are incorrectly prioritizing tobacco regulation instead of focusing on more dangerous substances such as heroin, methamphetamine, or cocaine. However, because the population prevalence of tobacco use is much higher than that of harder drugs, tobacco causes far more deaths than other drugs.[31] A recent simulation study found that a ban on menthol cigarettes—even if non-menthol cigarettes were still allowed— would have prevented 10.1 million extra smokers, 3 million life years lost and 378,000 premature deaths from 1980 to 2018.[30] Furthermore, regulation of menthol cigarettes does not preclude regulation of other drugs.

It is encouraging that some tweets reinforced the potential public health benefits of a menthol ban; however, these tweets represented only 5% of the corpus. Organizations such as Truth Initiative[32] have developed a strong social media presence and continue to publish anti-tobacco messages. However, pro-tobacco messages far outweigh anti-tobacco messages on Twitter.[33] Increased efforts are needed to publicize the potential benefits of a menthol ban on social media.

Similar to previous Twitter analyses,[34] our data contained misinformation (e.g., that menthol smoking prevents against disease, that tobacco and menthol are safe because they are derived from plants), conspiracy theories (e.g., that the menthol ban will somehow generate money for President Joe Biden to protect his son Hunter from prosecution), and distrust in the government for prioritizing menthol when there are more serious problems. Although these arguments are factually untrue, they could impact the opinions of the public and legislators. Continued efforts are needed to educate the

public that a ban on menthol cigarettes could reduce tobacco-related morbidity and mortality, especially among populations that currently experience tobacco-related health disparities.

Limitations

This study focused on the text of Twitter posts but did not code website links or images that were attached to posts. Previous work shows that there is value in examining both image and text,[35] and it is possible that some additional themes would have emerged had we coded images. Findings may not extend to other time periods or other social media platforms. Posts from this study may not reflect the attitudes from Twitter users with private accounts. Additionally, geolocation was not collected, and thus it was unclear whether themes varied by location or if most posts originated from one or many locations. Additionally, we did not code for the source of the posted tweets, precluding our ability to know if the tweets came from pro- or anti-tobacco sources, such as public health organizations, tobacco companies, or current menthol cigarette users among other sources. This study relied on the term "menthol" in data collection, which precluded us from capturing and understanding all menthol ban-related conversations on Twitter. While we did not restrict the key term to focus on one specific tobacco product, we were able to understand broad discussions about menthol. With that said, the prevalence of tweets classified as 'other' were relatively high, like our previous research.[36] Given the nature of the data source, and the terms used to cull posts, we've come to expect that a certain number of posts will be too nuanced and/or unrelated to the topic at hand to be classified into themes. In other words, the tweets classified as 'other' in this study were too varied to be classified into a single topic with meaningful coverage (i.e., coverage of each subsequent topic would be less than 1% of total tweets). The findings from this study should be considered with these points in mind.

Despite these limitations, this study examined Twitter posts about the proposed menthol ban over a two-week period after the proposed ban was announced. We identified common themes in public reactions, with the goal of informing the development of health communication messages that could increase support for the menthol ban. This study demonstrated that public health information campaigns could use the hashtag "#menthol" to communicate with audiences in opposition to the ban

or to reach individuals who could benefit from information on evidence-based tobacco cessation programs. For example, a counter marketing campaign could describe how menthol produces a cooling sensation that masks the adverse sensory experience of smoking and could explain how menthol has been marketed extensively to populations that experience tobacco-related health disparities. Capitalizing on hashtags like "#menthol" could help public health communication planners penetrate echo chambers that often develop on social media platforms like Twitter. Such targeting may be valuable to health communication programmers designing public health information campaigns in the future.

Author Disclosures

Role of Funding Source:

Research reported in this publication was supported by Grant #U54 CA 180905 from the National Cancer Institute and the Food and Drug Administration Center for Tobacco Products. Comments and opinion expressed belong to the authors and do not necessarily reflect those of the US Government, Department of Health and Human Services, or the FDA.

Contributors:

JBU and JPA conceived the study. JPA, SID, EAV, and RDP created the codebook for data analysis. SID and JPA oversaw coding procedure. JPA drafted the initial manuscript. SID, EAV, RDP, and JBU revised the manuscript for important intellectual content. JBU and JPA obtained the funding. All authors approved the final manuscript.

Conflict of interest:

None

Data sharing statement:

Data and coding can be received from the corresponding author.

References

1. Anderson SJ. Menthol cigarettes and smoking cessation behaviour: a review of tobacco industry documents. *Tob Control*. 2011;20 Suppl 2:ii49-56. doi:10.1136/tc.2010.041947

2. Carstens E, Carstens MI. Sensory effects of nicotine and tobacco. *Nicotine Tob Res*. 2022;24(3):306-315. doi:10.1093/ntr/ntab086

3. Wickham RJ. The biological impact of menthol on tobacco dependence. *Nicotine Tob Res*. 2020;22(10):1676-1684. doi:10.1093/ntr/ntz239

4. Gardiner PS. The African Americanization of menthol cigarette use in the United States. *Nicotine Tob Res*. 2004;6 Suppl 1:S55-65. doi:10.1080/14622200310001649478

5. Cwalina SN, Majmundar A, Unger JB, Barrington-Trimis JL, Pentz MA. Adolescent menthol cigarette use and risk of nicotine dependence: findings from the national Population Assessment on Tobacco and Health (PATH) study. *Drug Alcohol Depend*. 2020;206:107715. doi:10.1016/j.drugalcdep.2019.107715

6. Smith PH, Akpara E, Haq R, El-Miniawi M, Thompson AB. Gender and menthol cigarette use in the United States: a systematic review of the recent literature (2011 - May 2017). *Curr Addict Rep*. 2017;4(4):431-438. doi:10.1007/s40429-017-0175-6

7. Fallin A, Goodin AJ, King BA. Menthol cigarette smoking among lesbian, gay, bisexual, and transgender adults. *Am J Prev Med*. 2015;48(1):93-97. doi:10.1016/j.amepre.2014.07.044

8. Waxman HA. *Family Smoking Prevention and Tobacco Control Act*.; 2009. Accessed July 27, 2022. https://www.govinfo.gov/content/pkg/PLAW-111publ31/html/PLAW-111publ31.htm

9. Rogers T, Brown EM, Siegel-Reamer L, et al. A comprehensive qualitative review of studies evaluating the impact of local US laws restricting the sale of flavored and menthol tobacco products. *Nicotine Tob Res*. 2022;24(4):433-443. doi:10.1093/ntr/ntab188

10. Cadham CJ, Sanchez-Romero LM, Fleischer NL, et al. The actual and anticipated effects of a menthol cigarette ban: a scoping review. *BMC Public Health*. 2020;20(1):1055. doi:10.1186/s12889-020-09055-z

11. Samet JM, Pentz MA, Unger JB. Flavoured tobacco products and the public's health: lessons from the TPSAC menthol report. *Tob Control*. 2016;25(Suppl 2):ii103-ii105. doi:10.1136/tobaccocontrol-2016-053208

12. Lester JM, Gagosian SY. Finished with menthol: an evidence-based policy option that will save lives. *J Law Med Ethics*. 2017;45(1_suppl):41-44. doi:10.1177/1073110517703322

13. U.S. Food and Drug Administration. FDA proposes rules prohibiting menthol cigarettes and flavored cigars to prevent youth initiation, significantly reduce tobacco-related disease and death. Published June 27, 2022. Accessed July 27, 2022. https://www.fda.gov/news-events/press-announcements/fda-proposes-rules-prohibiting-menthol-cigarettes-and-flavored-cigars-prevent-youth-initiation

14. Allem JP, Escobedo P, Chu KH, Soto DW, Cruz TB, Unger JB. Campaigns and counter campaigns: reactions on Twitter to e-cigarette education. *Tob Control*. 2017;26(2):226-229. doi:10.1136/tobaccocontrol-2015-052757

15. Harris JK, Moreland-Russell S, Choucair B, Mansour R, Staub M, Simmons K. Tweeting for and against public health policy: response to the Chicago Department of Public Health's electronic cigarette Twitter campaign. *J Med Internet Res*. 2014;16(10):e238. doi:10.2196/jmir.3622

16. Kirkpatrick MG, Dormanesh A, Rivera V, et al. #FlavorsSaveLives: an analysis of Twitter posts opposing flavored e-cigarette bans. *Nicotine Tob Res*. 2021;23(8):1431-1435. doi:10.1093/ntr/ntaa276

17. Rose SW, Jo CL, Binns S, Buenger M, Emery S, Ribisl KM. perceptions of menthol cigarettes among Twitter users: content and sentiment analysis. *J Med Internet Res*. 2017;19(2):e56. doi:10.2196/jmir.5694

18. Unger JB, Escobedo P, Allem JP, Soto DW, Chu KH, Cruz T. Perceptions of secondhand e-cigarette aerosol among Twitter users. *Tob Regul Sci*. 2016;2(2):146-152. doi:10.18001/TRS.2.2.5

19. Bowen GA. Grounded theory and sensitizing concepts. *International Journal of Qualitative Methods*. 2006;5(3):12-23. doi:10.1177/160940690600500304

20. U.S. Food and Drug Administration. Guidance for industry and FDA staff: statistical guidance on reporting results from studies evaluating diagnostic tests. Published 2007. https://www.fda.gov/downloads/medicaldevices/deviceregulationandguidance/guidancedocuments/ucm071287.pdf

21. McHugh ML. Interrater reliability: the kappa statistic. *Biochem Med (Zagreb)*. 2012;22(3):276-282.

22. John Uebersax. The myth of chance-corrected agreement. Published 2009. Accessed June 22, 2022. https://john-uebersax.com/stat/kappa2.htm

23. Watson PF, Petrie A. Method agreement analysis: a review of correct methodology. *Theriogenology*. 2010;73(9):1167-1179. doi:10.1016/j.theriogenology.2010.01.003

24. Cheyne A, Dorfman L, Daynard RA, Mejia P, Gottlieb M. The debate on regulating menthol cigarettes: closing a dangerous loophole vs freedom of choice. *Am J Public Health*. 2014;104(7):e54-61. doi:10.2105/AJPH.2014.302025

25. Allen B, Unger JB. Sociocultural correlates of menthol cigarette smoking among adult African Americans in Los Angeles. *Nicotine Tob Res*. 2007;9(4):447-451. doi:10.1080/14622200701239647

26. Kong AY, Golden SD, Berger MT. An intersectional approach to the menthol cigarette problem: what's race(ism) got to do with it? *Critical Public Health*. 2019;29(5):616-623. doi:10.1080/09581596.2018.1478066

27. Romeo-Stuppy K, Huber L, Phelps N, Jefferson D, McGruder C. Why menthol bans protect African Americans. *Tob Induc Dis*. 2021;19:87. doi:10.18332/tid/142932

28. Yerger V. What more evidence is needed? remove menthol cigarettes from the marketplace-now. *Tob Control*. 2022;31(4):493-494. doi:10.1136/tobaccocontrol-2021-056988

29. Unger J, Allen BJr, Leonard E, Wenten M, Cruz T. Menthol and non-menthol cigarette use among Black smokers in Southern California. *Nicotine Tob Res*. 2010;12(4):398-407. doi:10.1093/ntr/ntq016

30. Issabakhsh M, Meza R, Li Y, Yuan Z, Sanchez-Romero LM, Levy DT. Public health impact of a US menthol cigarette ban on the non-Hispanic black population: a simulation study. *Tob Control*. Published online June 14, 2022:tobaccocontrol-2022-057298. doi:10.1136/tobaccocontrol-2022-057298

31. Le Foll B, Piper ME, Fowler CD, et al. Tobacco and nicotine use. *Nat Rev Dis Primers*. 2022;8(1):19. doi:10.1038/s41572-022-00346-w

32. Colston DC, Xie Y, Thrasher JF, et al. Exploring how exposure to truth and state-sponsored anti-tobacco media campaigns affect smoking disparities among young adults using a national longitudinal dataset, 2002-2017. *Int J Environ Res Public Health*. 2021;18(15):7803. doi:10.3390/ijerph18157803

33. Hornik R, Binns S, Emery S, et al. The effects of tobacco coverage in the public communication environment on young people's decisions to smoke combustible cigarettes. *J Commun*. 2022;72(2):187-213. doi:10.1093/joc/jqab052

34. Allem JP, Dormanesh A, Majmundar A, et al. Topics of nicotine-related discussions on Twitter: infoveillance study. *J Med Internet Res*. 2021;23(6):e25579. doi:10.2196/25579

35. Kumar A, Garg G. Sentiment analysis of multimodal twitter data. *Multimed Tools Appl*. 2019;78(17):24103-24119. doi:10.1007/s11042-019-7390-1

36. Allem JP, Dharmapuri L, Unger JB, Cruz TB. Characterizing JUUL-related posts on Twitter. *Drug Alcohol Depend*. 2018;190:1-5. doi:10.1016/j.drugalcdep.2018.05.018

Table 1. Themes, definitions, and prevalence of themes related to Twitter posts about the U.S. FDA's menthol ban

Theme	Definitions	n (%)
Announcing FDA action	Post mentions FDA's announcement to ban the sale of menthol cigarettes.	153 (14.7%)
Racial discrimination	Post mentions negative implications of a menthol ban on African Americans or other minority groups. Post may suggest that a menthol ban unjustly targets African Americans or other minority groups.	101 (9.7%)
Government distrust	Post mentions an issue outside of tobacco control and compares it to menthol. Post may mention a conspiracy theory or hypocrisy with the menthol ban.	67 (6.4%)
Inconsistencies between policies	Post mentions or attacks approaches to harm reduction in response to a possible menthol ban. Post may make comparisons between the current ban and other substances that are currently banned or not banned.	52 (5.0%)
Public health benefits	Post mentions expected public health benefits from banning menthol cigarettes, such as reductions in smoking rates, lives saved, and/or reducing the burden of tobacco-related disease.	42 (4.0%)
Freedom of choice	Post mentions individual freedom or right to choose to smoke, and the importance of letting adults make their own choices.	22 (2.1%)
Health equity	Post mentions positive implications of a menthol ban for African Americans or other racial or ethnic groups. Post may suggest that a menthol ban is a step toward achieving racial, social, health, restorative, and/or criminal justice.	21 (2.0%)
Misinformation	Post mentions menthol can prevent and/or be protective against COVID-19 or other illnesses. Post may mention that menthol has certain health benefits.	20 (1.9%)
Illicit markets	Post mentions the purchase or sale of menthol cigarettes from an illicit market following a menthol ban. Posts may be joking or serious.	18 (1.7%)
Cessation support	Post mentions the need for free products, discounts, or coupons for smoking cessation or treatment. Posts may contain URLs or provide contact information for cessation programs and/or classes.	4 (0.4%)
Other or unrelated	Miscellaneous post that does not fall into the other categories.	541 (52.0%)