Reactions on Twitter towards Australia's proposed import restriction on nicotine vaping products: a thematic analysis

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Australia prohibits the sale of nicotine vaping products (NVPs) unless they are approved by the Therapeutic Goods Administration (TGA) and prescribed by a doctor.[1] The TGA has not approved any NVPs but medical practitioners can enable access via four pathways: i) prescribe for extemporaneous compounding where pharmacists prepare NVPs for the patient; ii) apply for TGA approval to prescribe and organise the supply of NVPs to the patient (Special Access Scheme); iii) apply for TGA approval to prescribe and organise the supply of NVPs to a class of patients (Authorised Prescriber Scheme); or iv) prescribe NVPs for the patient, who personally imports the NVP of their choice (Personal Importation Scheme).[1]

On 19 June 2020, the Australian Government announced that within two weeks the personal importation of NVPs would be prohibited for 12 months, removing pathway four.[2] Although three pathways remained, this policy would impact the 27% of Australian NVP users who imported their NVPs from online retailers.[3] Many took to Twitter to tweet against the proposed policy resulting in a 'Twitter bombing' – a social media strategy to make a topic trend.[4,5] Pro-vaping sentiment in Australia is largely expressed by NVP retailers, NVP advocates, NVP users, some politicians and some public health researchers.[6] On

June 26, 2020, the government delayed the implementation of the policy.[7]

Analysis of Twitter data may allow policymakers to anticipate and respond to the types of reactions to proposed public health policies. We conducted a thematic analysis to analyse the content of the tweets posted one week after the announcement.

Abstract

Objective: In June 2020, the Australian Government announced that personal importation of nicotine vaping products (NVP) would be prohibited, pending a 12-month classification and regulation review by the Therapeutic Goods Administration. This brief report examines the themes of responses on Twitter to this announcement.

Methods: Simple random sampling was used to retrieve tweets containing keywords from 19 to 26 June 2020. Tweets were manually coded and descriptive statistics calculated for themes and policy position.

Results: The vast majority of the 1,168 tweets were anti-policy. Themes included: criticism towards government (59.8%), activism against NVP restriction (38%), potential adverse consequences (30.8%) and support for NVP restriction (1.4%). Tweets that identified potential adverse consequences of NVP restriction cited: smoking relapse for individuals currently using NVPs (75.6%); the impact of policy enforcement (8.6%); illicit market (8.3%); panic buying (3.6%); difficulty obtaining prescriptions (2.8%); and impacts on NVP businesses (2.8%).

Conclusion: Tweets predominately objected to the policy announcement. Approximately three-quarters of tweets that cited potential adverse consequences of the policy mentioned smoking relapse as their primary concern.

Implications for public health: User-generated content on Twitter was primarily used to lobby against the proposed policy, which was subsequently amended.

Key words: e-cigarette; vaping; nicotine; Australia; attitudes; regulation; policy

Method

Data collection

Publicly available tweets were obtained using GetOldTweets,[8] an open source API for Python that searches for tweets by keywords (GitHub link: https://github.com/Jefferson-Henrique/GetOldTweets-python). In a regular Twitter search, the most recent tweets appear

on top and older tweets can be accessed by scrolling down. The GetOldTweets package automates this process by going to all previous tweets within a given period. Tweets from 19 to 26 June 2020 were extracted. As with previous studies using GetOldTweets,[9] we included the country name in the search.

Keywords or phrases (see Supplementary Table 1) were identified and modelled on a study investigating reactions to NVP regulations on Twitter.[10] Original tweets were compiled (n=7,152). Duplicates were removed (n=676), leaving a total of 6,476 tweets. Simple random sampling[11] was used to code 25% of the sample (n=1,753). Data saturation was met after no new themes emerged. Our final analysis included 1,168 original tweets after removing those that only referred to other topics (e.g. COVID19; n=585).

Ethical clearance was obtained from the Office of Research Ethics at The University of Queensland (#20200011080).

Analytic procedure

Two researchers (TS, CL) coded each tweet as: i) pro-policy, ii) anti-policy or iii) neutral. The coding guide was informed using an inductive approach, then refined based

on previous research.[5,10,12,13] Themes identified were: 'criticism of the government', 'activism against NVP restriction', 'potential adverse consequences' and 'support for NVP restrictions'. Subthemes coded within potential adverse consequences were: 'smoking relapse', 'illicit market', 'policy enforcement', 'doctor's prescription', 'impact on NVP businesses' and 'panic buying'. Activism against the policy had two subthemes: 'calls for action' and 'arguments against the restriction'. Tweets that expressed multiple themes were coded under each. The kappa measure of agreement for each main theme ranged from 0.74 to 0.89. Discrepancies were resolved by discussion.

Results

The highest proportion of tweets opposed the policy (1021/1168, 87.4%), followed by neutral (131/1168; 11.2%) and pro-policy (16/1168; 1.4%). For themes, 59.8% (698/1168) criticised the government, 38% (444/1168) promoted ways to oppose the ban through activism, 30.8% (360/1168) cited potential adverse consequences of the restriction and 1.4% (16/1168) cited support for the policy (Table 1).

Among tweets that promoted activism against the restriction, 70.9% (315/444) encouraged sharing petitions and 34.9% (155/444) promoted arguments against the restriction. Among tweets that cited potential consequences of the restriction, most cited smoking relapse (272/360; 75.6%), followed by the impact of policy enforcement (31/360; 8.6%), illicit market (30/360; 8.3%), panic buying (13/360; 3.6%), impacts on NVP businesses (10/360; 2.8%) and difficulty obtaining prescriptions (10/360; 2.8%).

Discussion

In line with previous studies,[5,6,10,12] most tweets in our sample posted in the week after the announcement objected to the government's proposal to end the Personal Importation Scheme. The majority criticised the proposed policy and promoted ways to oppose it. Some tweets expressed concerns about smoking relapse among NVP users. A minority of tweets supported the policy.

Tweets criticising the government's proposed policy expressed their objection by using negative language towards the health minister and/or claiming that the policy was

Table 1: Summary of key results and definitions used for coding sentiment and themes, 19 June – 26 June, 2020 (N = 1,168).				
	Definition	**Example[a]**	**n[b]**	**%**
Stance				
Pro-policy	Approval towards the restriction (proponents)	"Australians will be much healthier due to this ban."	16	1.37
Anti-policy	Disapproval towards the restriction (opponents)	"what an absolute ludicrous rule."	1,021	87.41
Neutral	Neutral towards the restriction (no clear position)	"nicotine poisonings from traditional cigarettes."	131	11.22
Themes and Sub-Themes				
Pro-policy				
Support for the restriction	Expressing general support for the restriction	"We should all be VERY clear on this subject. Vaping is deadly."	16	1.40
Anti-policy				
Criticism towards Government	Contains insults/incivility towards Australian politicians	"When I pass away it'll be because of you. You forced me back onto cigarettes, I'm definitely going to come and haunt you."	698	59.76
Activism	Advocating for ways to fight against the ban		444	30.01
i. Call for action	Campaigns, petitions, etc., to bring political change	"Join by signing the petition below so we can have this ban stopped."	315	67.02
ii. Arguments against policy	Includes scientific or personal evidence which tout the health benefits of EC use	"My husband and I haven't smoked cigarettes in 3 & 1/2 years thanks to vaping. I'm healthier, it's affordable, my food is tastier again and instead of stinking of smoke I smell like lavenders!"	155	32.98
Potential adverse consequences	References about potential consequences of this ban		360	30.82
i. Smoking relapse	Concerns about relapsing back to smoking cigarettes	"If I can't #Vape I can guarantee you I will return to #smoke."	272	75.56
ii. Enforcement	Reference to the $220,000 fine	"System is broken, and slapping $222K fines on ex-smokers trying to improve their health, what a cruel and unusual government. Where is democracy?"	31	8.61
iii. Illicit market	Mentions risk of black market sales	"Can someone give me a black market supplier? I'll need one after this ban."	30	8.33
iv. Panic buying	Panic buying behaviours; suggestions to buy large amounts of nicotine	"Ugh so anxious. Placed a huge nicotine order over the weekend… I hope customs won't mess with it."	13	3.61
v. Impacts on NVP businesses	Mentions a loss of business for vape owners	"Unfortunately, around 200 vape store owners and I, our families and employees are at risk of losing everything and thousands of lives are going to be lost because of this policy. Never voting Liberal."	10	2.78
vi. Prescription	Difficulties obtaining prescriptions	"It's so complicated and difficult to get a prescription from a local. Many don't have a license & won't contact the TGA, This is bullshit!."	10	2.78

Notes:

a Direct quotations are paraphrased to protect user anonymity.

b Sum does not equal the total of tweets because some tweets included more than one theme and sub-theme.

a collaboration between the government and 'Big Tobacco' to increase tobacco tax revenue. Activism against the policy included sharing petitions and personal stories with the hashtag '#vapingsavedme'. Support for free markets, limited government involvement in personal choices and the enjoyment of vaping were also cited. Previous research suggests public health groups and politicians often become a target for counter campaigns, with these comments often accompanied by toxic language and negative tones.[13] Such incivility has been used to counteract public health messages about the potential risks of NVP use.[13] Research is needed on how best to address such campaigns on Twitter.

Smoking relapse was the most frequently cited potential adverse consequence of the policy. People who had switched from smoking to NVPs were concerned about relapsing to cigarettes, which remained highly accessible. Other tweets claimed that the policy would encourage illicit purchasing of NVPs, cited difficulty in obtaining prescriptions, and argued that applying for permits and importation would deter doctors from prescribing. Panic buying and the risks of stockpiling large quantities of concentrated nicotine were mentioned. While some Twitter users cited the potential effectiveness of NVPs for smoking cessation,[14] other arguments, such as the risk of increasing the illicit market,[15] were not informed by evidence.

Our results are not representative of the general population and are potentially biased towards the views of more frequent Twitter users or interest groups including lobbyists, and/or bots. Previous research has found that the number of suspected 'bot' accounts has declined from 18.3% in 2012 to 0.23% in 2018, making it unlikely that our key findings were heavily influenced by this automated activity.[6] The largely one-sided perspective from policy opponents may not reflect views in the wider Australian community.[6]

Conclusions

This brief report suggests that NVP policies will face opposition from Twitter users. Policymakers should anticipate the types of negative responses that policy proposals will receive on social media. Public health officials should deliver clear messages and cite evidence to counter the non-factual claims made by Twitter users, but also address any legitimate concerns with appropriate policy responses.[16] Future research can continue

monitoring and addressing social media policy advocacy strategies to understand how they may influence the development of and support for effective public health policies.

References

1. Gartner C, Bromberg M. One Does Not Simply Sell e-cigarettes in Australia: An Overview of Australian E-cigarette Regulations. In: Gruszczynski L, editor. *The Regulation of E-cigarettes*. Cheltenham (UK): Edward Elgar Publishing; 2019.
2. Therapeutic Goods Administration. *Prohibition on Importing E-cigarettes Containing Vaporiser Nicotine*. Canberra (AUST): Australian Department of Health; 2020.
3. Australian Institute of Health and Wlfare. *National Drug Strategy Household Survey 2019* [Internet]. Canberra (AUST): AIHW; 2020 [cited 2021 Apr 21]. Available from: https://www.aihw.gov.au/about-our-data/our-data-collections/national-drug-strategy-household-survey/2019-ndshs?fbclid=IwAR1ERxbOf6-5iBe0FGk1vL4PJR0XrjG9ijjnvgjLQe79Oc6R6KPTdl8t48k
4. Ratkiewicz J, Conover M, Meiss M, Gonçalves B, Flammini A, Menczer F, editors. Detecting and Tracking Political Abuse in Social Media. *Proceedings of the 5th International AAAI Conference on Web and Social Media*; 2011 Jul 17-21; Barcelona, ESP. California: Association for the Advancement of Artificial Intelligence Press; 2011.
5. 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.
6. McCausland K, Maycock B, Leaver T, Wolf K, Freeman B, Jancey J. E-cigarette advocates on Twitter: Content analysis of vaping-related tweets. *JMIR Public Health Surveill*. 2020;6(4):e17543.
7. The Office of Drug Control and Australian Border Force. *Australian Government Proposes Strengthening its Stance Against E-cigarettes Containing Vaporiser Nicotine* [Media Release]. Canberra (AUST): Australian Department of Health; 2020.
8. Henrique J. *GetOldTweets-python*. San Francisco (CA): GitHub Inc; 2016
9. Cecinati F, Matthews T, Natarajan S, McCullen N, Coley D. Mining social media to identify heat waves. *Int J Environ Res Public Health*. 2019;16(5):762.
10. Lazard AJ, Wilcox GB, Tuttle HM, Glowacki EM, Pikowski J. Public reactions to e-cigarette regulations on Twitter: A text mining analysis. *Tob Control*. 2017;26(e2):e112-e16.
11. Riffe D, Lacy S, Fico F, Watson B. *Analyzing Media Messages: Using Quantitative Content Analysis in Research*. 4th ed. New York (NY): Routledge; 2019.
12. Allem J-P, Escobedo P, Chu K-H, Soto DW, Cruz TB, Unger JB. Campaigns and counter campaigns: Reactions on Twitter to e-cigarette education. *Tob Control*. 2017;26(2):226-9.
13. Majmundar A, Le N, Moran MB, Unger JB, Reuter K. Public response to a social media tobacco prevention campaign: Content analysis. *JMIR Public Health Surveill*. 2020;6(4):e20649.
14. Chan GC, Stjepanović D, Lim C, Sun T, Anandan AS, Connor JP, et al. A systematic review of randomized controlled trials and network meta-analysis of e-cigarettes for smoking cessation. *Addict Behav*. 2021;119:106912.
15. Scollo M, Zacher M, Coomber K, Wakefield M. Use of illicit tobacco following introduction of standardised packaging of tobacco products in Australia: Results from a national cross-sectional survey. *Tob Control*. 2015;24(Suppl 2):ii76-ii81.
16. Madden M, McCambridge J. Alcohol marketing versus public health: David and Goliath? *Global Health*. 2021;17(1):45.

Supporting Information

Additional supporting information may be found in the online version of this article:

Supplementary Table 1: Key search phrases and their corresponding number of original tweets, collected from 19 to 26 June 2020.