JOURNAL
of Health Inequalities

Misinformation and public health: lessons from tobacco for global pandemics

Mark Parascandola (ID)

U.S. National Cancer Institute, Bethesda, United States

ABSTRACT

The COVID-19 pandemic has raised global concerns about the impact of misinformation on health behavior and outcomes. New technologies and social media have provided tools to disseminate health information on an unprecedented scale, but they can also be used to spread unfounded claims and erroneous information. Recent studies have shown how misinformation can influence preventive health behaviors and impact some groups more than others. The past several decades of experience with tobacco control provides some useful lessons in addressing misinformation. Even after the 1964 report of the Surgeon General which concluded that smoking was a cause of lung cancer, public beliefs about the harms of smoking were slow to change. For several decades, the tobacco industry actively promoted misleading claims about the science of smoking and health. Studies of tobacco prevention programs have demonstrated how attention is needed not only to the information content conveyed but also how it is communicated. The experience of tobacco control over the past several decades provides useful lessons in effective communication and combating misinformation.

KEY WORDS: COVID, tobacco, health communication, population health.

ADDRESS FOR CORRESPONDENCE: Mark Parascandola, U.S. National Cancer Institute, Bethesda, United States, e-mail: paramark@mail.nih.gov

The COVID-19 pandemic has been accompanied by another epidemic of misinformation and fake news. In September 2020, the World Health Organization and other United Nations agencies warned about potential harm from the large scale spread of misinformation and called on Member States to develop and implement action plans to combat the 'infodemic' [1]. Technology and social media have played an unprecedented role in the spread of information around the COVID-19 pandemic, but this has also been accompanied by the prevalence and promotion of misleading and erroneous information around the origins of the virus, the seriousness of the disease, the risks and benefits of vaccination, and the efficacy of various treatments. The WHO and many country governments and health organizations have developed resources and toolkits to combat fake news and misinformation [2].

In the United States, confidence in health and scientific leaders has eroded amidst the pandemic, particularly among some segments of the population. According to a 2022 survey, only half (50%) of Americans said that they trust organizations like the Centers for Disease Control and Prevention or the World Health Organization to provide accurate information about COVID-19, and 62% said that they trust local health workers or clinics [3]. This gap in trust has likely contributed to the slow uptake of vaccination among some segments of the population, which has been a challenge in the U.S. and other countries. The same survey reported that those with higher education were more likely to say that they would get vaccinated. Another U.S. national survey to understand health literacy of adults also found that people who believed the COVID-19 vaccine was unsafe were less willing to receive the vaccine, knew less about the virus and

were more likely to believe COVID-19 vaccine myths. On average, they were less educated, had lower income, and more likely to live in rural areas compared with people who believed the vaccine is safe. The results highlight the importance of developing clear health communications accessible to individuals from varied socioeconomic and educational backgrounds [4].

Health communication researchers at the U.S. National Cancer Institute studied the effects of misinformation on health behavior in the context of the COVID-19 pandemic. A rapid, cross-sectional survey of over 1800 U.S. adults in September 2020 posed questions about intentions and awareness of preventive behaviors during the pandemic. The results showed that those who had positive attitudes towards preventive behaviors, such as community mask wearing or social distancing, were more likely to receive a COVID vaccine. This study also compared different modes of communication and found that narrative explanations were more effective than non-narrative explanation in communicating the risks of unproven treatments or the benefits of vaccination. In other words, respondents were more likely to be motivated by hearing a personalized story rather than a neutral description of risks and benefits. These results suggest that the way in which information is communicated may be especially significant when communicating about emerging topics and when targeting individuals who may be initially resistant to behavioral recommendations [5].

However, studies have also shown that some groups may be more vulnerable to misinformation. Researchers conducted a survey of around 900 adults to determine differences in endorsement of COVID-19 misinformation among cancer survivors in active treatment, cancer survivors no longer in treatment, and a control group with no cancer history. They found that cancer survivors currently undergoing treatment were more likely to believe misinformation related to COVID-19 than those without a cancer history or cancer survivors no longer in treatment. Misinformation endorsed by respondents included the following statements among others: "It is unsafe to receive mail from China"; "Pets at home can spread COVID-19"; "5G mobile networks spread and worsen COVID-19"; "Eating garlic can help prevent infection with COVID-19"; "The future COVID-19 vaccine will contain microchip." These results suggest that cancer patients undergoing treatment, a population especially vulnerable to the impact of COVID-19 and other infections, may be especially vulnerable to health-related misinformation [6].

MISINFORMATION AND THE TOBACCO INDUSTRY

In the field of cancer prevention, misinformation and its impact on population health is not new. The most illustrative example is the decades long history of cigarette smoking and health. When in 1964 the U.S. Surgeon General published a landmark report concluding that cigarette smoking is a cause of lung cancer, based on then dozens of epidemiologic and laboratory studies, it was thought that people would quit smoking once they knew the truth. But changing behavior on a population scale was not so simple. In fact, it took decades for smoking prevalence to come down, following numerous policy and other interventions to control cigarette advertising, increase the price of cigarettes through taxes, and control smoking in public spaces.

Public beliefs around the risks of smoking were slow to change, even as evidence mounted [7]. In a 1966 Harris poll, only 40% recognized smoking as a major cause of lung cancer, 27% considered it a minor cause, and one-third were uncertain, saying that "science had not yet determined the relation between smoking and lung cancer" [8]. In general, although there was widespread awareness of reports of findings on smoking and health, including lung cancer, people were unsure whether to believe the results were conclusive. It was not until the 1970s that a majority of Americans stated that smoking was a cause of lung cancer, climbing from about 70% in the 1970s to 80% in the 1980s. By the 1990s, Gallup polls consistently showed 95% of Americans claiming to believe cigarette smoking to be harmful to health and 90% believing it to be a cause of lung cancer [9].

Some early studies hinted at the complexity of beliefs about health risks and the factors determining those beliefs. For example, having a higher education level among nonsmokers was associated with acceptance of statements that a link between smoking and health had been proven; but among smokers, the relationship was the opposite, and smokers with a higher education level were more likely to be skeptical of the evidence [10]. Further studies found that male smokers were more optimistic about their cancer risk compared with female smokers [11].

The tobacco story was complicated by two factors: 1) the fact that nicotine is addictive makes it very difficult for many smokers to quit, even in the face of information about the harms of smoking [12]. 2) Although antismoking publicity and news reports did have an impact on beliefs and behavior over time, there were also forces working against this trend. The tobacco industry devoted substantial resources to a longstanding, organized public relations campaign to promote doubt around the science on smoking and health. In 1953, the major U.S. tobacco companies, through the Tobacco Industry Research Committee, placed a full page advertisement in major newspapers across the country titled A Frank Statement to Cigarette Smokers, in response to the emerging science linking cigarette smoking and lung cancer. They claimed that "there is no proof that cigarette smoking is one of the causes" of lung cancer [13]. A 1966 PHS survey found that more than 60% of smokers agreed that the cancer link was "not yet proved" because it was "only based on statistics," a line frequently used by the tobacco industry [14].

Early health promotion efforts around cigarette smoking focused on informing the public about the health consequences of smoking, such as through health warning labels and school education programs. But these efforts were not as successful as expected. Through years of research, health scientists learned that, in health promotion, some forms of communication are more effective than others. For example, school-based education programs have had mixed success; warning kids in school that smoking is bad for them was not sufficient for changing their behavior [15]. But when the Truth Initiative was launched over 20 years ago, it focused on revealing how the tobacco industry uses manipulative marketing tactics to sell cigarettes. The campaign was particularly effective because, instead of lecturing kids about the health effects of smoking, it empowered them to see for themselves how the tobacco industry's misinformation attempted to deceive them. The campaign has been shown to be affective across diverse segments of the youth and young adult U.S. population [16].

TRUST AND HEALTH INFORMATION

Challenges around trust and misinformation are not limited to cigarette smoking, but impact many areas of cancer prevention and population health more broadly. Researchers at the have NCI long studied public attitudes and knowledge about cancer prevention. The NCI Health Information National Trends Survey (or HINTS) has been fielded for 20 years in a nationally representative sample of US adults. It provides a critical tool to understand public awareness of cancer risk factors and related behaviors [17].

The questionnaire includes several items around confidence in cancer prevention recommendations, and the results suggest that many adults find cancer prevention advice or recommendations challenging to follow. For example, in an earlier wave of the survey, almost half of respondents agreed with the statement 'it seems like everything causes cancer' and over 70% said there are so many recommendations its hard to know which ones to follow. About 27% said 'there is not much people cancer do to lower their chances of getting cancer' [18]. These findings reflect attitudes that can present an obstacle to cancer prevention efforts, as people may be less likely to follow prevention recommendations if they feel they will not make a difference. Additionally, a surplus of information may lead to fatigue, as daily news headlines warn about new cancer risks or provide seemingly conflicting information.

Research also suggests that both "fatalism" and "ambiguity" predict lower adherence to cancer prevention recommendations. "Fatalism" is defined as an outlook that all events are inevitable and controlled by fate, and humans are powerless to influence them, while "Ambiguity" is defined as uncertainty regarding the reliability, credibility, or adequacy of information about risks. Several fatalistic beliefs about cancer are associated with a lower

likelihood of engaging in behaviors known to reduce cancer risk, including regular exercise, not smoking, and eating five or more servings of fruits and vegetables per day. Additionally, research using the HINTS survey has shown how smokers who are especially concerned about the health risks of their smoking may actually be more vulnerable to misinformation related to the cancer risks of tobacco products [19].

Similar attitudes may arise in the context of COVID or other pandemics, as people become weary over time in response to the volume of evolving health information and misinformation. Research has shown that falsehoods tend to spread further and faster over social media and other platforms, when compared with accurate information. Thus, is it essential to develop guidelines and strategic to address misinformation. Chou and colleagues, who have studied health misinformation in a variety of contexts, have provided several recommendations for countering misinformation, calling for enhanced surveillance and tracking, understanding of psychological drivers (such as fear and anxiety), and measurement of the impact of misinformation on health [20].

There is also a need to develop responses and counter measures to combat health misinformation, not only within the context of a global pandemic. There is still much to learn about how to do this, not only for COVID-19 but for other health challenges as well, including cancer. Accurate information is essential, but not sufficient by itself; attention is also need to how that information is communicated and how it is received across diverse segments or the population. The experience of tobacco control over the past several decades also provides useful lessons in effective communication and combating misinformation. While much progress has been made in raising awareness about the harms of smoking, and in changing behavior, the need to combat misinformation remains.

DISCLOSURE

The author reports no conflict of interest.

References

1. Managing the COVID-19 infodemic: Promoting healthy behaviours and mitigating the harm from misinformation and disinformation Joint statement by WHO, UN, UNICEF, UNDP, UNESCO, UNAIDS, ITU, UN Global Pulse, and IFRC 23 September 2020. Available from: https://www.who.int/news/item/23-09-2020-managing-the-covid-19-infodemic-promoting-healthy-behaviours-and-mitigating-the-harm-from-misinformation-and-disinformation (accessed: 10 October 2023).
2. WHO. Health Topics: Infodemic. Available from: https://www.who.int/health-topics/infodemic (accessed: 20 October 2023).
3. Johns Hopkins Center for Communication Programs. COVID Behaviors Dashboard. Available from: https://covidbehaviors.org/ (accessed: 10 October 2023).
4. Kricorian K, Civenb R, Equilsa O. COVID-19 vaccine hesitancy: misinformation and perceptions of vaccine safety. Hum Vaccin

Immunother 2022; 18(1): e1950504. DOI: 10.1080/21645515. 2021.1950504.

5. Lama Y, Budenz A, Gaysynsky A, et al. Factors associated with COVID-19 behavioral intentions: findings from an online survey. Am J Health Promot 2022; 36(7): 1183-1192. DOI: 10.1177/08901171221093036.

6. Guidrya JPD, Carlyleb KE, Millerb CA, et al. Endorsement of COVID-19 related misinformation among cancer survivors. Patient Educ Couns 2022; 105(2): 265-268. DOI: 10.1016/j.pec.2021.05.026.

7. Parascandola M. Cigarettes and the US Public Health Service in the 1950s. Am J Public Health 2001; 91(2): 196-205.

8. Saad L. A half century of polling on tobacco: most don't like smoking but tolerate it. Public Perspective 1998; 9: 1-4.

9. Moore DW. Nine of ten Americans view smoking as harmful: public blames smokers more than tobacco companies for smoking related problems. Gallup. Oct 7 1999. Available from: www.gallup.com/poll/3553/nine-ten-americans-view-smoking-harmful.aspx (accessed: 10 October 2023).

10. Cannell CF, MacDonald JC, Delchamps WF. The impact of health news on attitudes and behavior. J Mass Commun Q 1956; 33: 315-323.

11. Toch H. Long term effects of the cancer scare: the residue of news impact. J Mass Commun Q 1961; 38: 25-34.

12. U.S. Department of Health and Human Services. Smoking Cessation. A Report of the Surgeon General. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2020.

13. Cummings KM, Morley CP, Hyland A. Failed promises of the cigarette industry and its effect on consumer mispercep-tions about the health risks of smoking. Tob Control 2002; 11 (Suppl 1): i110-i117.

14. National Clearinghouse for Smoking and Health. Use of tobacco practices, attitudes, knowledge and beliefs: United States, Fall 1964 and Spring 1966. Washington DC: US Department of Health, Education and Welfare, Public Health Service, 1969.

15. National Cancer Institute. The Role of the Media in Promoting and Reducing Tobacco Use. Tobacco Control Monograph No. 19. Bethesda, MD: U.S. Department of Health and Human Services, National Institutes of Health, National Cancer Institute. NIH Pub. No. 07-6242, June 2008.

16. Vallone DM, Perks SN, Pitzer L, et al. Evidence of the impact of a national anti-tobacco prevention campaign across demographic subgroups. Health Educ Res 2022; 36(4): 412-421.

17. Nelson DE, Kreps GL, Hesse BW, et al. The Health Information National Trends Survey (HINTS): development, design, and dissemination. J Health Commun 2004; 9(5): 443-460.

18. National Cancer Institute. HINTS Brief 9: Confusion about Cancer Prevention: Association with behavior. January 2008. Available from: https://hints.cancer.gov/docs/Briefs/HINTS_Brief_9_010708.pdf (accessed: 10 October 2023).

19. Parascandola M, Augustson E, O'Connell ME, Marcus S. Consumer awareness and attitudes related to new potential reduced-exposure tobacco product brands. Nicotine Tob Res 2009; 11(7): 886-895. DOI: 10.1093/ntr/ntp082.

20. Chou WYS, Gaysynsky A, Cappella JN. Where we go from here: health misinformation on social media. Am J Public Health 2020; 110 (Suppl 3): S273-S275.