Smoking Cessation Leadership Center



University of California San Francisco

2024 Cessation Updates: Year in Review

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Disclosures

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- CDC Tips® Campaign 2024
 - Tips From Former Smokers® Motivational Cards:
 <u>www.cdc.gov/tobacco/campaign/tips/resources/motivational-cards/index.html</u>
- Find resources at: www.cdc.gov/tobacco/campaign/tips/index.html





- Did you know that smoking cessation interventions, when offered concurrently with substance use treatment, were associated with a 25% increased likelihood of longterm drug and alcohol abstinence?
- Visit <u>samhsa.gov/observances/treatmentmonth</u> to learn more about treatment and support options that give those with substance use disorders the care they deserve.



Today's Presenter

Karin A. Kasza, PhD. Assistant Professor of Oncology, Department of Health Behavior

Roswell Park Comprehensive Cancer Center



Today's Presenter

Julia McQuoid, PhD. Assistant Professor

University of Oklahoma Health Sciences Center



Today's Presenter

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MBBS

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Annenberg School for Communication, University of Pennsylvania



UCSF Smoking Cessation Leadership Center 2024 Cessation Updates: Year in Review January 29, 2025

National Longitudinal Tobacco/Nicotine Product Cessation Rates Among Adults in the US: PATH Study 2013-2023

Spotlight on Sexual and Gender Identity



Karin Kasza, PhD Assistant Professor of Oncology Department of Health Behavior

Roswell Park Comprehensive Cancer Center Indigenous Land Acknowledgment

Roswell Park gratefully acknowledges and respects the Haudenosaunee Confederacy and the Onöndowa'ga:' "The People of the Great Hill" also known as the Seneca Nation, the original caretakers of the land upon which Roswell Park Comprehensive Cancer Center stands. We also recognize their strong connection to the Earth and its immeasurable value.

As we are all committed to our mission of eliminating cancer's grip on humanity, we celebrate the vital contributions of our Indigenous workforce, their cultural knowledge and traditions that deepen our scientific journey, guiding us with respect for the land and its history. In unity, we aim to foster an environment that values cooperation, respect, and lifelong learning while incorporating the wisdom and contributions of Indigenous peoples, both past, present, and future.

Funding & Disclosures

- The PATH Study is supported by the National Institute on Drug Abuse, NIH, and the Center for Tobacco Products, Food and Drug Administration, under contract to Westat (Contract Nos. HHSN271201100027C & HHSN271201600001C).
- The content of this presentation is solely the responsibility of the presenter and does not necessarily represent the views of the NIH, FDA, or any other agency.
- The information reported here was generated in accordance with a Data Use Agreement between Roswell Park Comprehensive Cancer Center and the Inter-university Consortium for Political and Social Research (ICPSR) National Addiction and HIV Data Archive Program (NAHDAP).
- The presenter has no conflicts of interest to disclose.

Data citation: United States Department of Health and Human Services. National Institutes of Health. National Institute on Drug Abuse, and United States Department of Health and Human Services. Food and Drug Administration. Center for Tobacco Products. Population Assessment of Tobacco and Health (PATH) Study [United States] Restricted-Use Files. Interuniversity Consortium for Political and Social Research [distributor], 2024-06-14. https://doi.org/10.3886/ICPSR36231.v39.

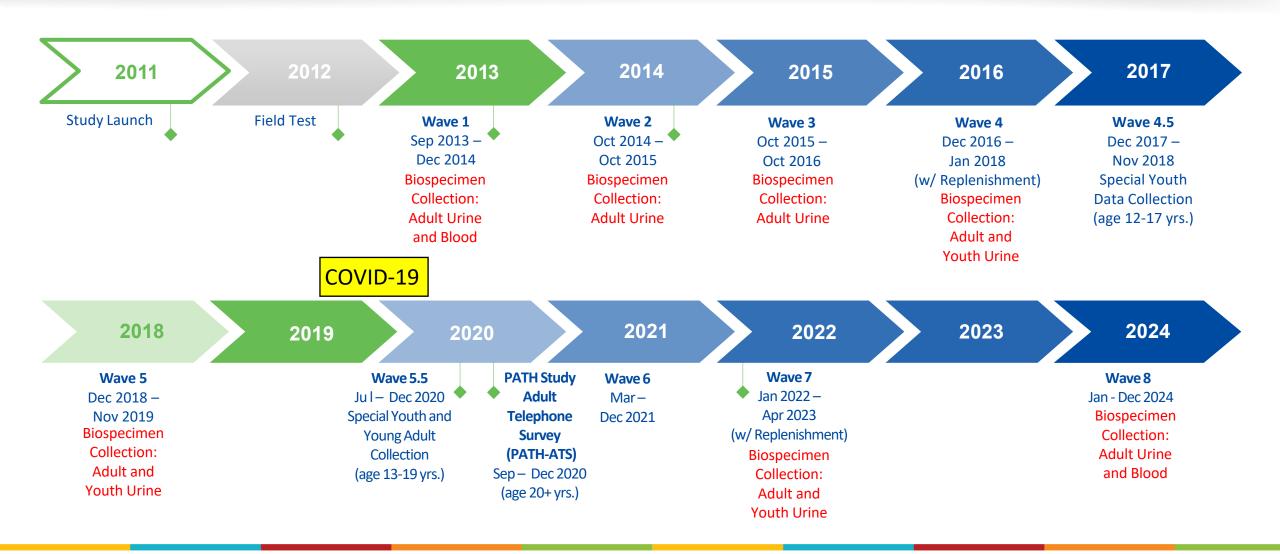
The PATH Study



Population Assessment of Tobacco and Health (PATH) Study

- Nationally-representative, cohort study of ~45,000 youth and adults in the United States (ages 12+ years)
- Study design allows for assessment of transitions in tobacco/nicotine product use over time, and for assessment of factors associated with transitions in use
- Biospecimen collections from adults and youth, used to measure biomarkers of exposure and potential harm related to tobacco use
- Data are available to research community via ICPSR/NAHDAP https://doi.org/10.3886/Series606

PATH Study Data Collections



Tobacco/Nicotine Product Cessation Rates: 2013/14-2018/19

National longitudinal tobacco product cessation rates among US adults from the PATH Study: 2013–2019 (waves 1–5)

Karin A Kasza , ¹ Zhiqun Tang , ² Haijun Xiao, ³ Daniela Marshall, ^{4,5} Cassandra A Stanton , ² Amy L Gross, ³ Kathy M Jackson, ³ Dannielle Kelley, ³ Megan J Schroeder, ³ Juan C Vivar, ³ Andrew Hyland ¹

ABSTRACT

Objective To report on longitudinal tobacco product cessation rates, by product type, among adults (ages 18+ years) in the USA between 2013 and 2019.

Methods The Population Assessment of Tobacco and Health Study, a nationally representative, longitudinal cohort study was used to report on annual and biennial rates of the following three cessation behaviours across 2013–2019: (1) discontinuing tobacco product use (ie, transition from past 30-day use to no past 30-day use), (2) attempting to quit tobacco product use and (3) quitting tobacco product use among those who attempted to quit. Each cessation behaviour was evaluated separately for cigarettes, electronic nicotine delivery systems (ENDS), cigars, hookah and smokeless tobacco. Generalised estimating equations were used to evaluate linear and nonlinear trends in cessation rates across the study period. Results Between 2013 and 2019, rates of

WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ Tobacco product transition behaviours from the Population Assessment of Tobacco and Health Study in the USA covering 2013–2016 were previously published. Since then, the tobacco product marketplace has expanded, and new tobacco regulatory actions have been implemented.

WHAT THIS STUDY ADDS

⇒ Rates of discontinuing cigarette smoking among adults in the USA increased between 2013 and 2019, with there being increases in both cigarette quit attempt rates and rates of quitting among attempters, while rates of discontinuing ENDS use among adults decreased across this same time period. Kasza KA, Tang Z, Xiao H, et al. National longitudinal tobacco product cessation rates among US adults from the PATH Study: 2013– 2019 (waves 1–5). *Tobacco Control* 2024;33:186–192.

Tobacco/Nicotine Product Cessation Rates: 2013/14-2018/19

- National-level increases in cigarette discontinuation rates among adults
- Cigarette discontinuation rates remained low compared to discontinuation rates for other types of tobacco/nicotine products
- Between 2016/17–2018/19, e-cigarette discontinuation rate sharply decreased compared to previous years
 - Aligns with growth of salt-based nicotine e-cigarettes in the US

Kasza KA, Tang Z, Xiao H, et al. National longitudinal tobacco product cessation rates among US adults from the PATH Study: 2013–2019 (waves 1–5). *Tobacco Control* 2024;33:186–192.

Cessation Rates: 2018/19-2022/23



Sexual Identity and Gender Identity

Sexual/Gender Minority (SGM) Self-Identification

"Do you think of yourself as...Gay/Lesbian or gay; Straight, that is, not [gay/lesbian or gay]; Bisexual; Something else; I am not sure about my sexual identity; Don't know; Refused"

"Some people describe themselves as transgender when they experience a different gender identity from their sex at birth. For example, a person born into a male body, but who feels female or lives as a woman would be transgender. Do you consider yourself to be transgender?" with response options: "Yes; No; Don't know; Refused"

Tobacco/Nicotine Products

- Cigarettes
- E-cigarettes (includes all types of electronic nicotine delivery products)
- Cigars (includes traditional cigars, cigarillos, filtered cigars)
- Hookah
- **Smokeless** (includes snus)

Tobacco/Nicotine Product Use and Cessation Behaviors

P30D Use:

 For each product, in the past 30 days, [smoked/used] the product, even one or two [puffs/times]

Current Established Use:

- For cigarettes, currently smoking every day or some days and smoked at least 100 cigarettes in lifetime
- For each other product, currently using the product every day or some days and ever used the product 'fairly regularly'

Discontinue Use: No P30D Use

Made Quit Attempt: Tried to quit completely in the past 12 months or is currently not [smoking/using] the product at all

Quit Use: Among those who tried to quit, currently not [smoking/using] the product at all

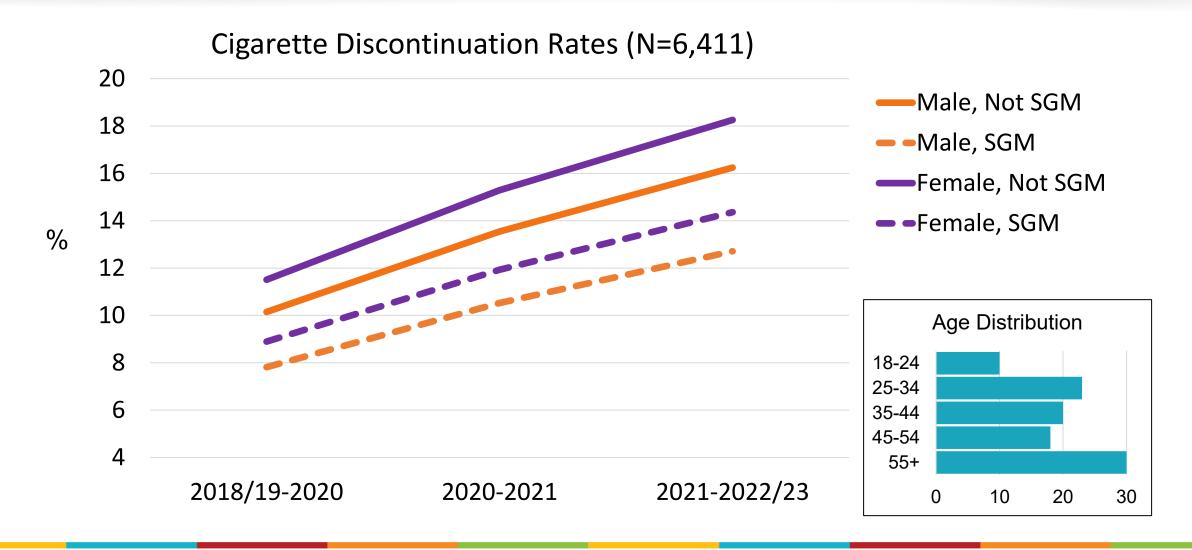


National Tobacco/Nicotine Product Discontinuation Rates: 2018/19-2022/23

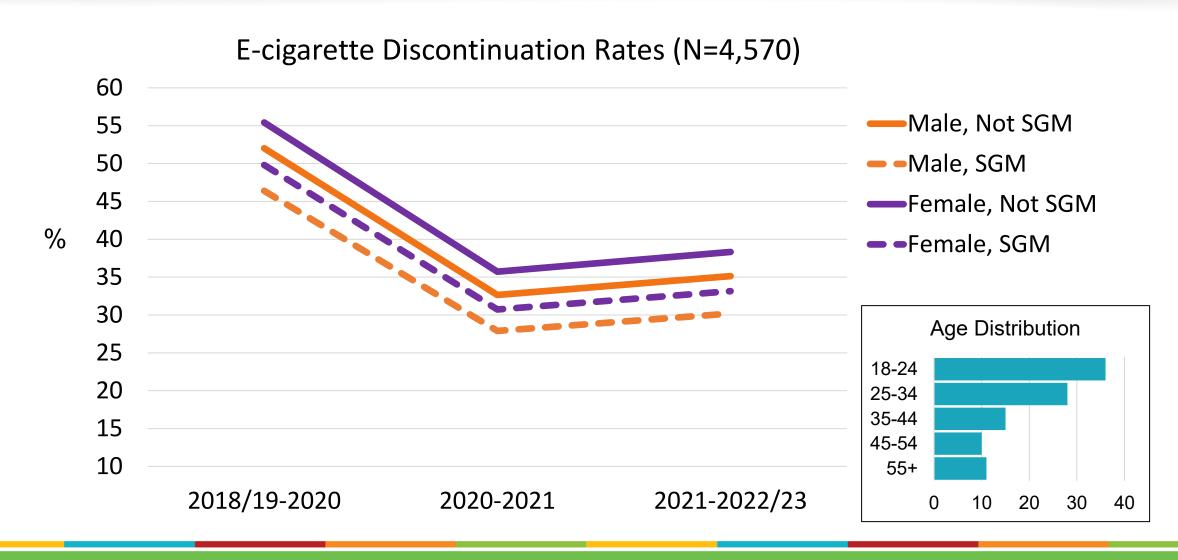
Three time periods:

- 2018/19 2020
- 2020 2021
- 2021 2022/23

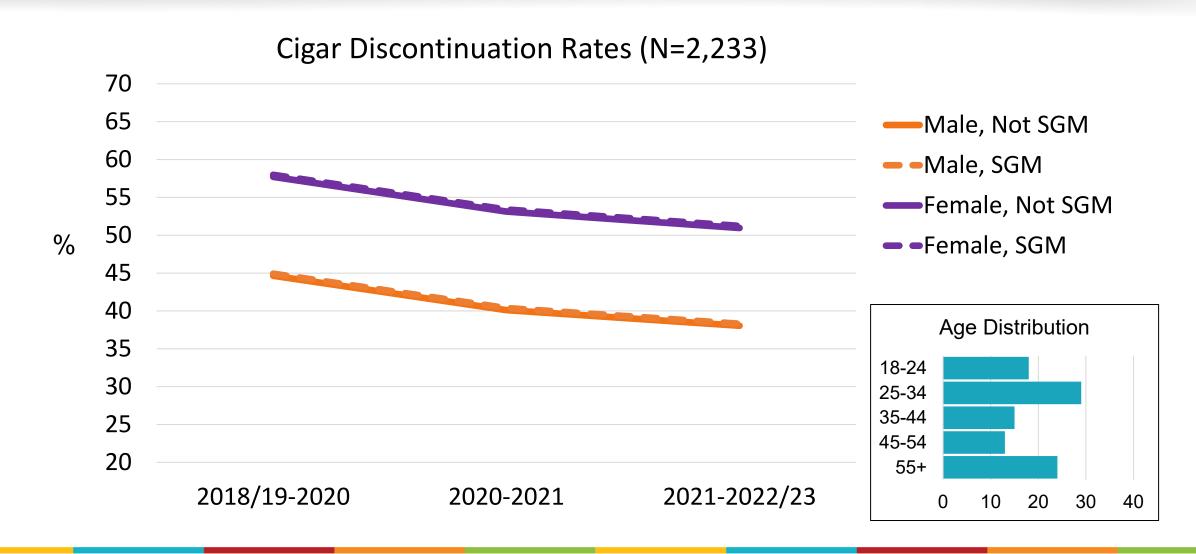
Cigarette Discontinuation Rates: 2018/19-2022/23



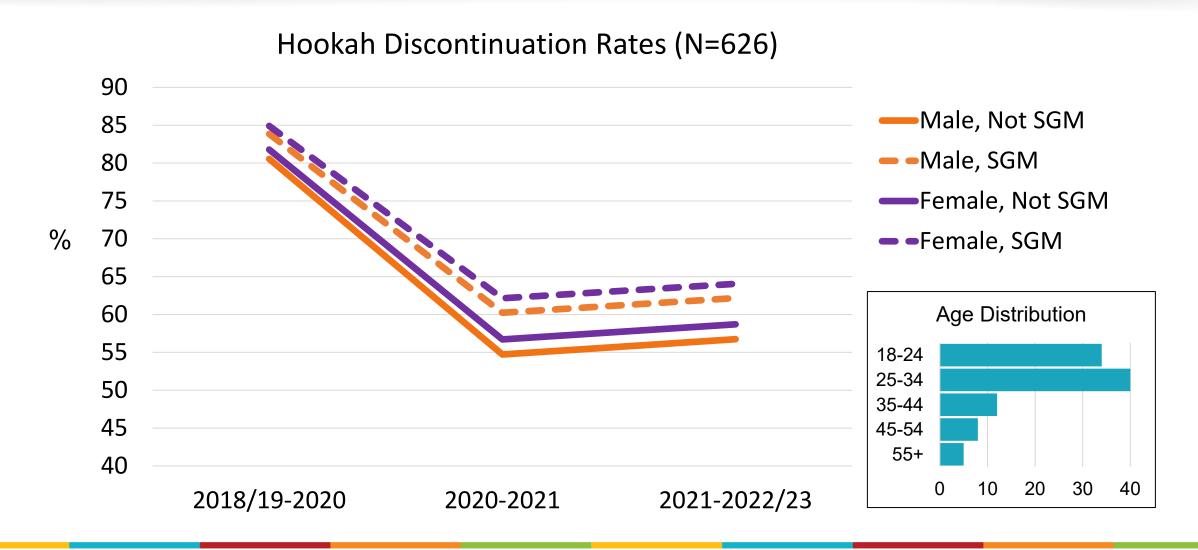
E-cigarette Discontinuation Rates: 2018/19-2022/23



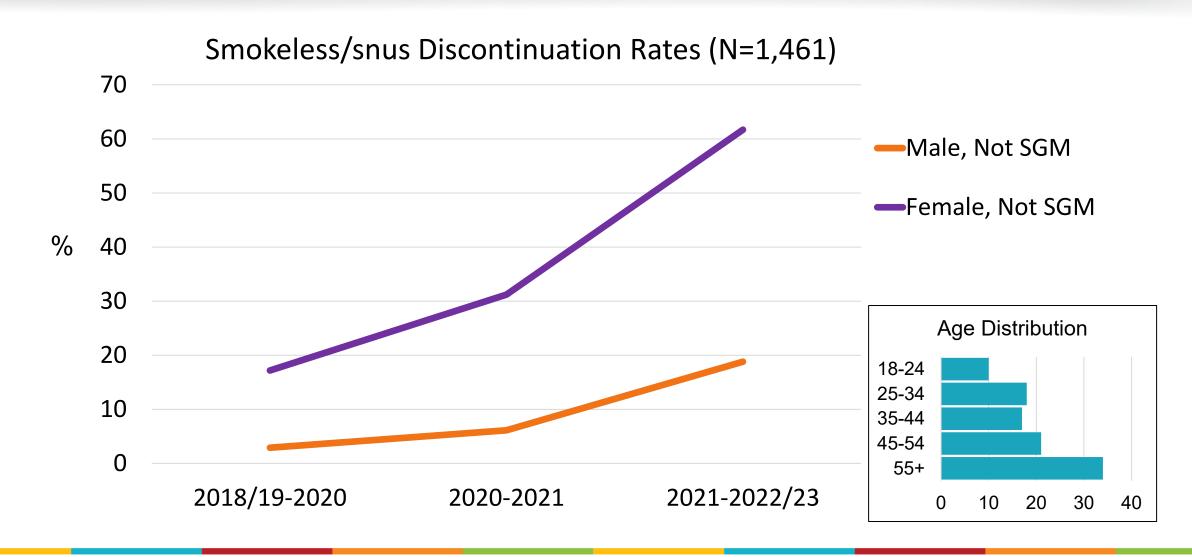
Cigar Discontinuation Rates: 2018/19-2022/23

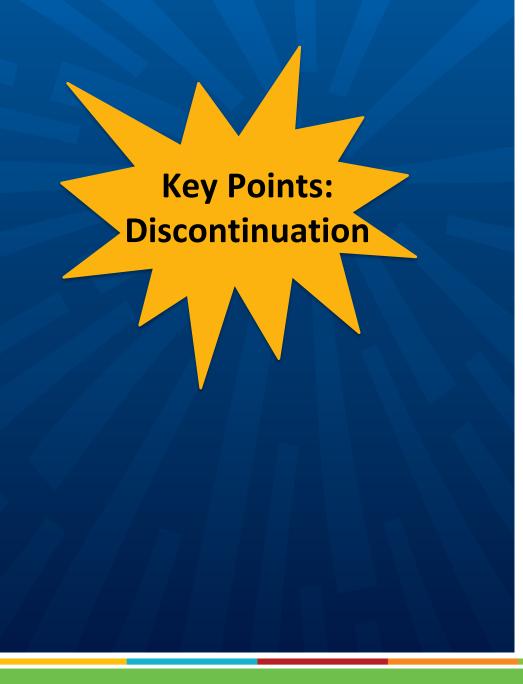


Hookah Discontinuation Rates: 2018/19-2022/23



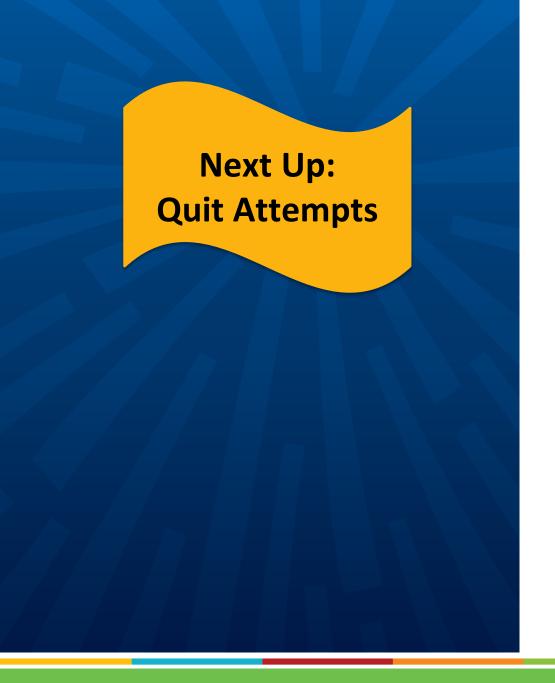
Smokeless/snus Discontinuation Rates: 2018/19-2022/23





National Tobacco/Nicotine Product Discontinuation Rates: 2018/19-2022/23

- <u>Cigarettes</u>: Increasing discontinuation rates
 - Remain lower than other tobacco/nicotine products
 - Lowest among SGM males and SGM females
- <u>E-cigarettes</u>: Decreasing discontinuation rates
 - Lowest among SGM males and SGM females
- <u>Cigars</u>: Slightly decreasing discontinuation rates
 - Similar across SGM strata
- <u>Hookah</u>: Decreasing discontinuation rates
- <u>Smokeless/snus</u>: Increasing discontinuation rates

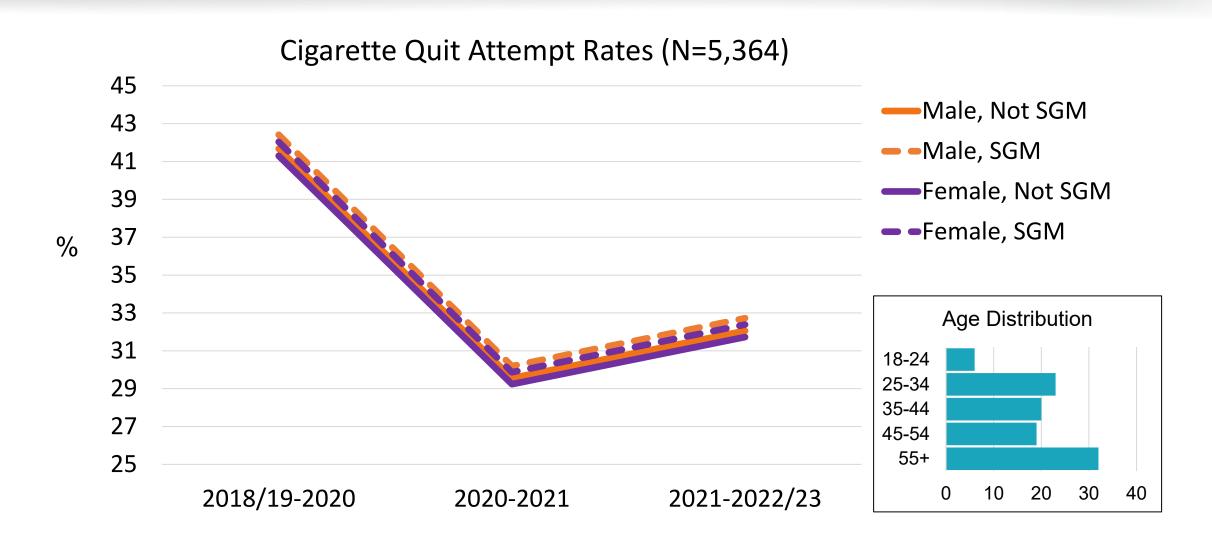


National Tobacco/Nicotine Product Quit Attempt Rates: 2018/19-2022/23

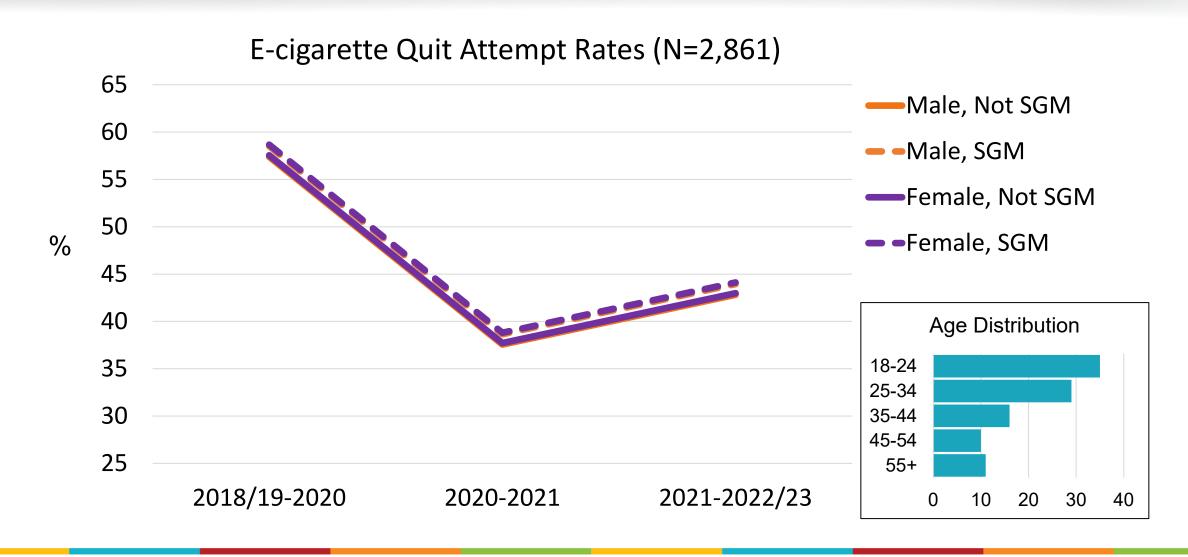
Three time periods:

- 2018/19 2020
- 2020 2021
- 2021 2022/23

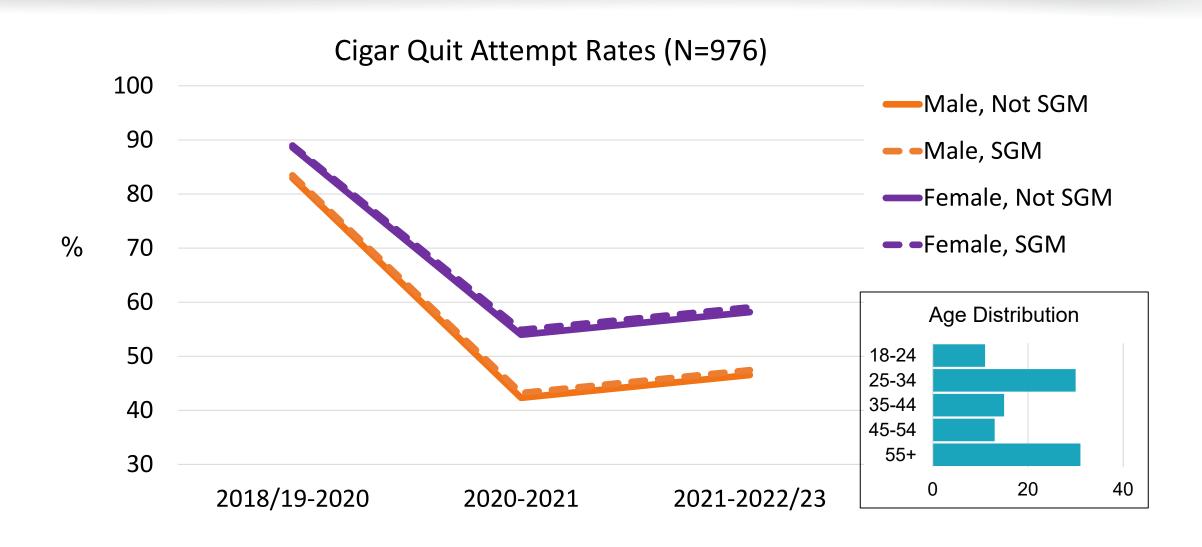
Cigarette Quit Attempt Rates: 2018/19-2022/23

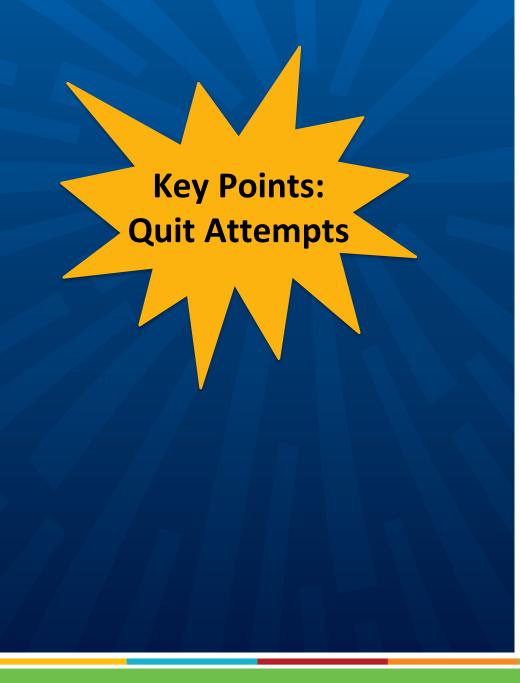


E-cigarette Quit Attempt Rates: 2018/19-2022/23



Cigar Quit Attempt Rates: 2018/19-2022/23





National Tobacco/Nicotine Product Quit Attempt Rates: 2018/19-2022/23

- <u>Similar pattern across products</u>: Rates highest between 2018/19-2020 (pandemic onset), then dropping between 2020-2021, then increasing slightly between 2021-2022/23
- <u>Cigarettes</u>: Quit attempt rates relatively low
 - Similar across sex-SGM strata
- <u>E-cigarettes</u>:
 - Similar across sex-SGM strata
- Cigars:
 - Similar across SGM strata



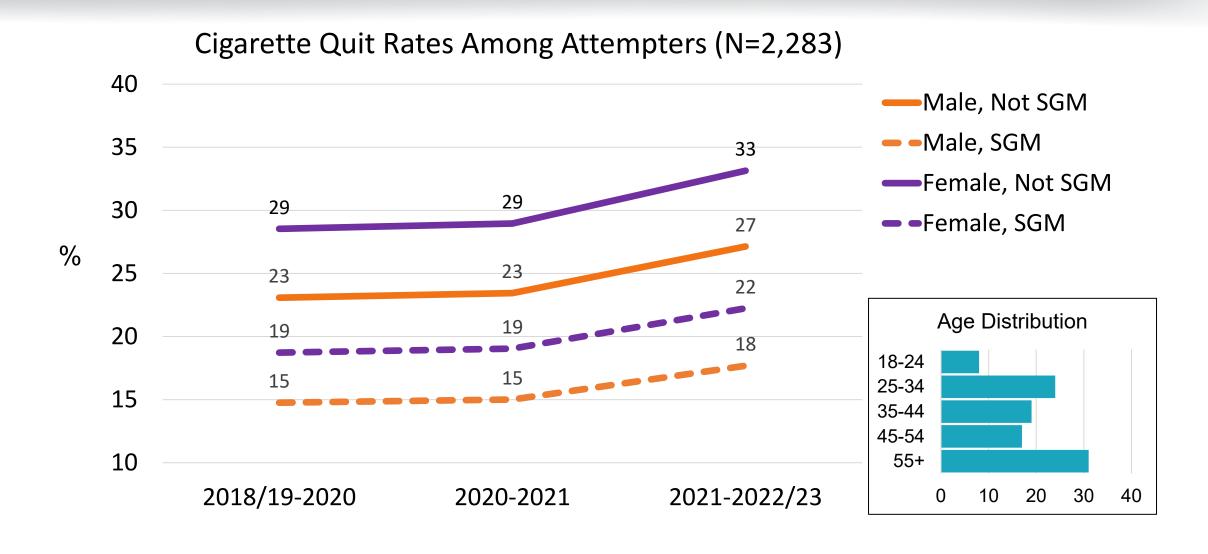
National Cigarette Quit Rates Among Those Who Attempted to Quit: 2018/19-2022/23

Current Established Use Quit Attempt Qui

Three time periods:

- 2018/19 2020
- 2020 2021
- 2021 2022/23

Cigarette Quit Rates Among Attempters: 2018/19-2022/23





National Cigarette Quit Rates Among Those Who Attempted to Quit: 2018/19-2022/23

• Cigarettes:

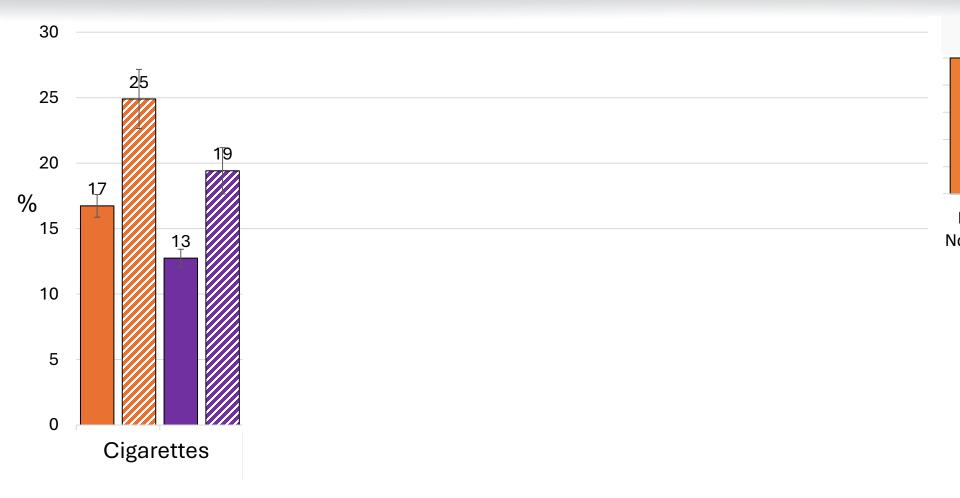
- Quit rates among attempters increasing
- Remain lower among SGM males and SGM females than heterosexual cisgender counterparts

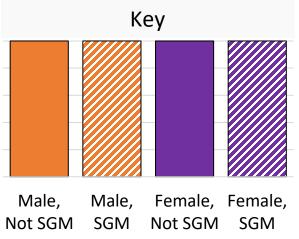


National Tobacco/Nicotine Product Use Prevalence in 2022/23

Prevalence: P30D Use

Tobacco/Nicotine Product Use Prevalence: 2022/23





Takeaways

US nationally representative findings from 2018/19-2022/23:

- Cigarette discontinuation rates among adults in the US remain lower than discontinuation rates for every other type of tobacco/nicotine product
 - Disparities in discontinuation rates by SGM status persist
- Cigarette smoking prevalence among adults in the US remains higher than prevalence of every other type of tobacco/nicotine product
 - Disparities in cigarette smoking prevalence by SGM status persist

If current trends in cigarette discontinuation rates were to persist, and absent any differences in trends in cigarette initiation rates by SGM status that would impact cigarette smoking prevalence, then disparities in cigarette smoking prevalence by SGM status are expected to persist in the US

Limitations

- Did not investigate poly-product use, switching to/from product types
- Did not disaggregate cigars
- Did not disaggregate beyond sex-SGM strata
- Did not investigate whether experiencing a change in SGM status may be associated with a change in tobacco use behavior
- Sample sizes small for some products/inability to estimate all rates for all products

Future research to address a range of posthoc hypotheses based on these broad population-level findings

Acknowledgements

- PATH Study participants
- PATH Study interviewers
- Colleagues

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Tobacco Cessation and Prevention Interventions for Sexual and/or Gender Minoritized (SGM) People and the Theories that Underpin

Them:

Taking Stock and Exploring New Directions

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Smoking Cessation Leadership Center

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Stephenson Cancer Center's Tobacco Treatment Research Program

TSET Health Promotion Research Center



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Evan Mooney (OUHSC)

Summer G. Frank-Pearce (OUHSC)

SGM tobacco use disparities

Sexual and/or gender minoritized (SGM) people – LGBTQIA2S+. Those of us with non-heterosexual orientation and/or gender not aligned with sex assigned at birth

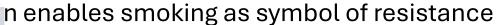
Persistently high rates of tobacco use and related health disparities (e.g., lung cancer risk)

Roots in social, political, and physical environments where SGM people live

Coping with hostile/unsupportive environments

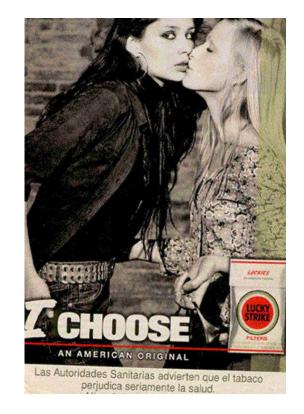
Tobacco industry targeting promotes pro-tobacco norms

Barriers to tobacco education and treatment





PBS news, Mar 31, 2023



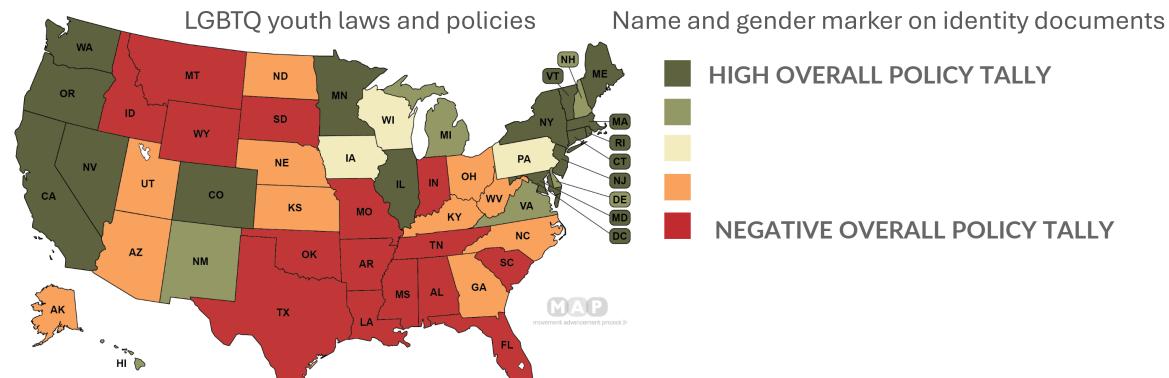
SGM tobacco use disparities

Disparities are more pronounced where stigma is higher (Hatzenbuehler et al, 2014; Pachankis et al,

2014) LGBTQ2S+ EQUALITY BY STATE

State non-discrimination laws Healthcare laws and policies

Relationship and parental recognitionCriminal justice laws and policies



SGM tobacco use interventions

SGM people express preference for **SGM-tailored and culturally-relevant** interventions that specifically address the unique needs, experiences, norms, and values of SGM communities.

Interventions are programs and strategies intended to influence health and/or health-related behavior positively (*Glanz & Bishop 2010*).

Past decade increase in tobacco education, cessation, and prevention efforts tailored for SGM people (Lee, et al 2014; Berger & Mooney-Somers 2016; Riley, et al 2023).



Frameworks: Vantage points for action



Gap: Identifying and reflecting on the social and behavior change theories underpinning SGM-tailored tobacco interventions thus far.

Theory-informed interventions more effective than those lacking explicit theoretical basis.

Theories are a set of interrelated concepts that explain or predict events or situations by specifying relations among variables (Glanz & Bishop 2010).

→i.e., evidence-based ways of explaining or predicting how and why people do what they do

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Frameworks: Vantage points for action



Aims:

- 1. Identify social and behavior change theories that have informed tobacco interventions for sexual and/or gender minority (SGM) people.
- 2. Consider these theories within the context of known drivers of SGM tobacco disparities.
- Identify new theoretical directions for SGMtailored tobacco interventions.

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Scoping review

N=22 pubs; 15 unique SGM-tailored tobacco interventions

Data sources: Medline (Ovid), Scopus, PubMed, Google Scholar (01/01/1946-10/27/2022)

Inclusion criteria:

- Peer-reviewed publications in English from anywhere in the world
- SGM-tailored tobacco education, cessation, and/or prevention intervention or campaigns

Documented:

- Theoretical frameworks cited in reference to design and/or implementation
- Intervention components (e.g., group counseling, 7-week program, began with educational focus and shifted to a social support focus in later weeks)
- Evaluation outcomes (e.g., sample size, use of comparison/control group, primary outcomes)





Findings				
i iliuliiga	#intervention			
	S (2.14 of 45)*			
	(out of 15)*			
No explicit theoretical framework	5			
Individual-level theories of behavior	8			
Transtheoretical Model	3			
Theory of Reasoned Action	3			
Social Inoculation Theory	2			
Theory of Psychological Reactance	2			
Health Belief Model	1			
Relational Frame Theory (RFT)	1			
Self-Determination Theory	1			
Theories of social context and				
behavior	4			
Diffusion of Innovations Theory *Multiple interventions cited more than 1 the Minority Stress Model	3 ory. 1			

Most (11/15) focused on cigarette smoking cessation. Individual-level behavior change theories were most prominent.

Findings

Theories of social context and behavior were less utilized

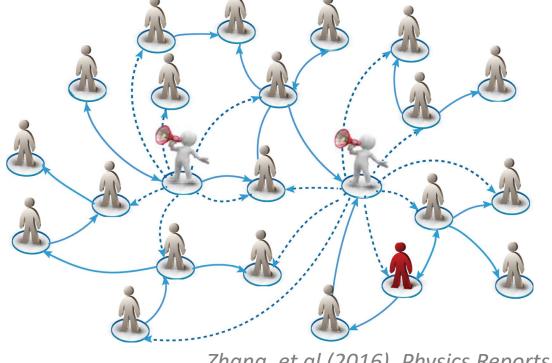
- Diffusion of Innovations Theory (Rogers, 1995)
 - 3 interventions

CRUSH

Break Up

This Free Life + local Social Branding

- Minority Stress Model (Meyer, 2003)
 - 1 interventionCourage to Quit (SGM-tailored)



Zhang, et al (2016). Physics Reports



https://www.lgbtqandall.com

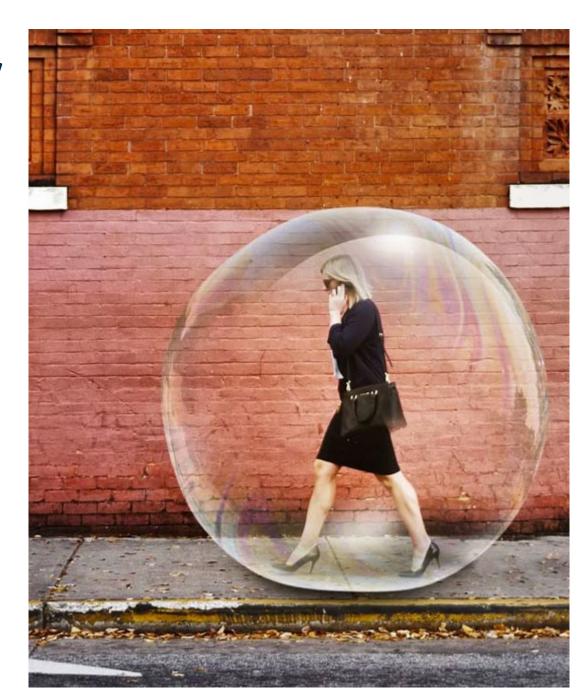
Scoping review summary

Most tobacco interventions tailored to SGM people thus far have:

- Targeted individual-level behavior
- Leveraged theories focusing on individual-level behavior change processes

Few leveraged theories that focus on the link between behavior and context.

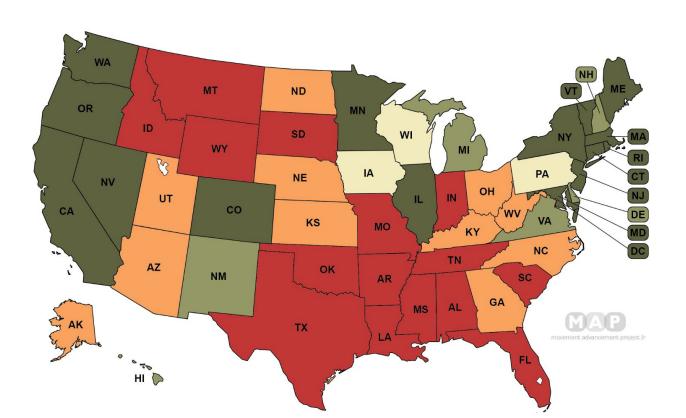
(McQuoid et al, 2023)



Aligning theory with the problem

35% of SGM people in US live in highly unsupportive environments

- No interventions to address unique challenges of smoking cessation in these environments
- More meaningful public health partnerships needed with SGM-serving organizations to address root causes of tobacco use



Frameworks for intervening

- Use theories that look beyond individual-level processes of behavior change?
- Less focus on smoking cessation by itself?
- Multi-level problem requiring multilevel solutions?

Exploring future directions

Empowerment Theory

Framework for understanding processes and consequences of efforts to exert control and influence over decisions that affect one's life, organizational functioning, and the quality of community life.

Individuals

Processes: Participation with others to achieve goals, gain access to resources, understand one's sociopolitical environment.

Outcomes: Perceptions of personal control and a proactive approach to life.

<u>Organizations</u>

Processes: Shared decision-making, responsibilities, and leadership.

Outcomes: Resource acquisition and networking with other organizations.

(Holden et al, 2004; Perkins & Zimmerman, 1995; Zimmerman, 2000)

Empowerment-based smoking cessation

Design premise

When SGM people in high stigma environments volunteer with community organizations and others in their community to support their community, they can experience positive change for themselves.

More empowered individuals

May enhance standard smoking cessation treatment success via:

- Greater social support
- Pride about SGM identity
- More adaptive ways of coping with minority stress
- Sense of efficacy in helping make positive change in the world

More empowered organizations

Volunteer hours support missions of organizations working to shift high stigma environments into places that support SGM people to thrive.

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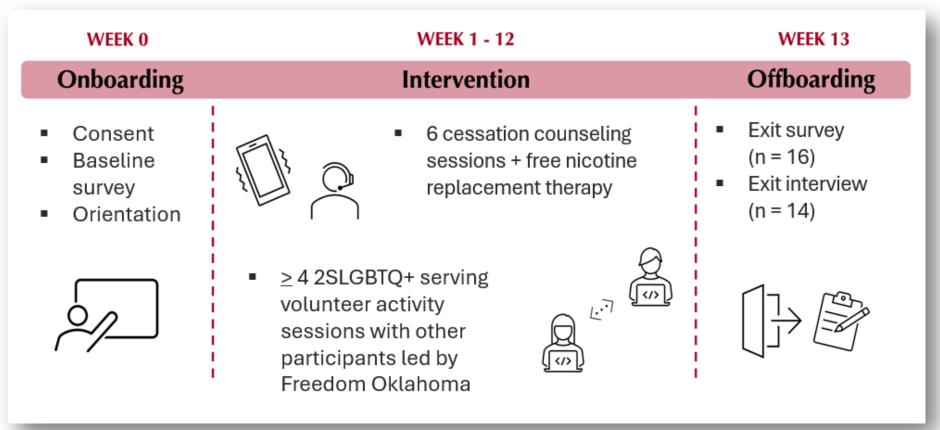




Pilot study (N=20, Oklahoma)



Remotely delivered smoking cessation support for SGM adults living in high-stigma places



Stephenson
Cancer Center's
Tobacco
Treatment
Research



Pilot study (N=20, Oklahoma)



EXAMPLES OF ONLINE VOLUNTEER ACTIVITIES

1.5 to 2 HOUR GROUP SESSIONS

WE HAVE COMPILED A LIST OF EVERY PUBLIC SCHOOL BOARD IN THE STATE

LOOK UP YOUR DISTRICT, AND ADVOCATE FOR LIVED EQUITY FOR ALL STUDENTS

OKLAHOMA SCHOOL BOARDS >

Collect publicly-available school board contact information to help community members participate in their school districts



Make follow-up phone calls with a script to Name Change and Gender Marker Correction Clinic clients to assess for further assistance needed



Identify HIV/AIDS resources for Oklahomans through internet searches





Participants	N=20
Sexual orientation	
Gay	13 (65.0%)
Bisexual, Pansexual, Queer	6 (30.0%)
Lesbian	1 (5.0%)
Gender	
Cisgender man	15 (75.0%)
Cisgender woman	3 (15.0%)
Woman, Non-Binary	1 (5.0%
Man, Two Spirit	1 (5.0%)
Age in years	39.6 avg (range: 21-65)
No. counties	18

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Participant outcomes

*missing = smoking

	Started the	Intervention (N=20)	
>	Retention (intervention start to exit survey)	16 (80.0%)	
>	Self -reported 7-day point prevalence abstinence at Week 12*	9 (45.0%)	
	Completed the Exit Survey (N=10		
	Attended ≥4 online volunteer activities	10 (62.5%)	
	Attended ≥4 cessation counseling sessions	14 (87.5%)	
•	Would recommend the intervention	13 (81.3%)	
	Agreed that the volunteer activities increased		
	connection to SGM community	11 (68.8%)	
	comfort with SGM identity	10 (62.5%)	
	ability to cope with SGM-based discrimination	8 (50.0%)	
	confidence in quitting smoking	6 (37.5%)	
	Increased internal quitting self-efficacy (e.g., stress coping)	8 (50.0%)	
	Increased external quitting self-efficacy (e.g., environment)	7 (43.7%)	
	Self -reported 7-day point prevalence abstinence at Week 12	9 (56.3%)	

Exploratory outcomes

Increased from baseline to exit	N=16
Sense of belonging to LGBTQ2S+ community	4 (25.0%)
Active Coping with Minority Stress	1 (6.3%)
Lesbian, Gay, and Bisexual Identity Pride	4 (25.0%)
Perceived Sociopolitical Control	6 (37.5%)
Participatory Competence	6 (37.5%)
Perceived Assertiveness	9 (56.3%)
Decreased from baseline to exit	N=16
Internalized Transphobia	9 (56.3%)
LGB Identity Concealment Motivation	9 (56.3%)
LGB Identity Acceptance Concerns	12 (75.0%)
Internalized Homonegativity	8 (50.0%)



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Reasons for endorsing the intervention

Community, identity, hope:

[I was able to] gain more insight into my own expression of my own identity when it comes to being an LGBT person. (P219)

It gives you a sense of belonging and gives you something to look forward to. [It] gives me hope for these new people that are coming out and transitioning and things like that, because it's hard. (P038)

Purpose, growth:

I can't stand the mean people no more. [...] I want to be able to get out there and make a difference and help. (P125)

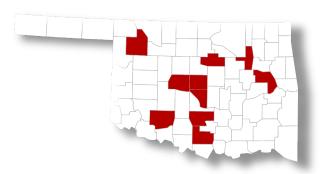
It took me on a journey other than just to stop smoking. I got to learn something new also. Something to get motivated about also. [...] I learned that even one person can help change something. (P368)



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Community partner outcomes



- Over 120 volunteer hours
- Finished School Board Contact Info List (start-to-finish); live on website
- Follow up phone calls with 54 former gender marker and name correction clinic participants
- Extended outreach throughout the state, especially rurally





Key pilot lessons learned

- Novel Empowerment Theory-based, community-engaged approach to SGM smoking cessation
 - Feasible, acceptable, preliminary efficacy for participants & organizations
- SGM-serving organizations are valuable partners in tobacco control efforts
- Empowerment Theory might best inform SGM cessation intervention design when paired with SGM-specific constructs that capture unique SGM experiences (e.g., SGM identity Pride)
- Per exit interviews, this approach may not be acceptable for people with time scarcity or extensive prior SGM advocacy experience



Conclusions – Theory & SGM cessation



- SGM tobacco use disparities are rooted in environments where SGM people live
- Most SGM-tailored tobacco interventions focus on supporting individual-level behavior change
- Employ contextually-engaged theory to complement strengths of individual-level theory
 - Especially where living environments are least supportive of SGM communities
- Minority Stress Model Diffusion of Innovations Empowerment Theory
- Other frameworks that help link SGM tobacco use to our living environments?

The Health Equity Promotion Model (Fredriksen-Goldsen et al, 2014)

Model of Resources that Promote SGM Resilience (Edwards et al, 2023)

Dyadic Health Model (Newcomb, 2020)

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Culturally Tailored Anti-Smoking Messages to Influence Intentions to Use Cigarettes & Quit Intentions Among U.S. Sexual Minority Young Women

SCLC Seminar Series 2025

Andy Tan (he/him)
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It Takes A Village!

Bob Gordon (CA LGBTQ Tobacco Education Partnership)

Mitchell Lunn, Juno Obedin-Maliver Zubin Dastur (Stanford University School of Medicine, The PRIDE Study) Ashley Sanders-Jackson, Qijia Ye, Faith Delle, Dominik Neumann, Lou Schiavone, Maral Zakharia (Michigan State University)

Julia Applegate (OSU)

K Viswanath (DFCI)
Shoba Ramanadhan, Jarvis
Chen, Meg Salvia, Ryan Keen
(Harvard Chan)
Jennifer Potter (The Fenway
Institute, HMS, BIDMC)

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- We acknowledge the courage and dedication of The PRIDE Study participants for sharing their stories; the careful attention of PRIDEnet Participant Advisory Committee (PAC) members for reviewing and improving every study application; and the enthusiastic engagement of PRIDEnet Ambassadors and Community Partners for bringing thoughtful perspectives as well as promoting enrollment and disseminating findings. For more information, please visit https://pridestudy.org/pridenet.



Study objectives

• Generate evidence base for an antismoking messaging approach to reduce smoking among young adult SMW.

• How do we support later adoption and implementation of this approach?

Rationale

Why focus on young adult sexual minority women (SMW)?

- Increased risks of smoking-related illnesses than heterosexual women
- Increased tobacco marketing among sexual minorities
- Lack of health campaigns designed for SMW

Why inoculation and culturally tailored intervention?

- Preferences among young LGBTQ audiences for representation & inclusion in campaigns
- Higher perceived effectiveness

Why engage stakeholders?

Enhance future intervention reach, adoption, and implementation



https://truthinitiative.org/researchresources/targeted-communities/lgbtqinfographic

Stress: victimization, sexual orientation concealment, discrimination events

Demographics: race, education, income, partnership status **Health:** substance use, mental health, health status, health

Cultural: identification with LGBT community, salience

of LGBT identity

Social: bonding, social support, social norms of smoking

and alcohol use, bar culture

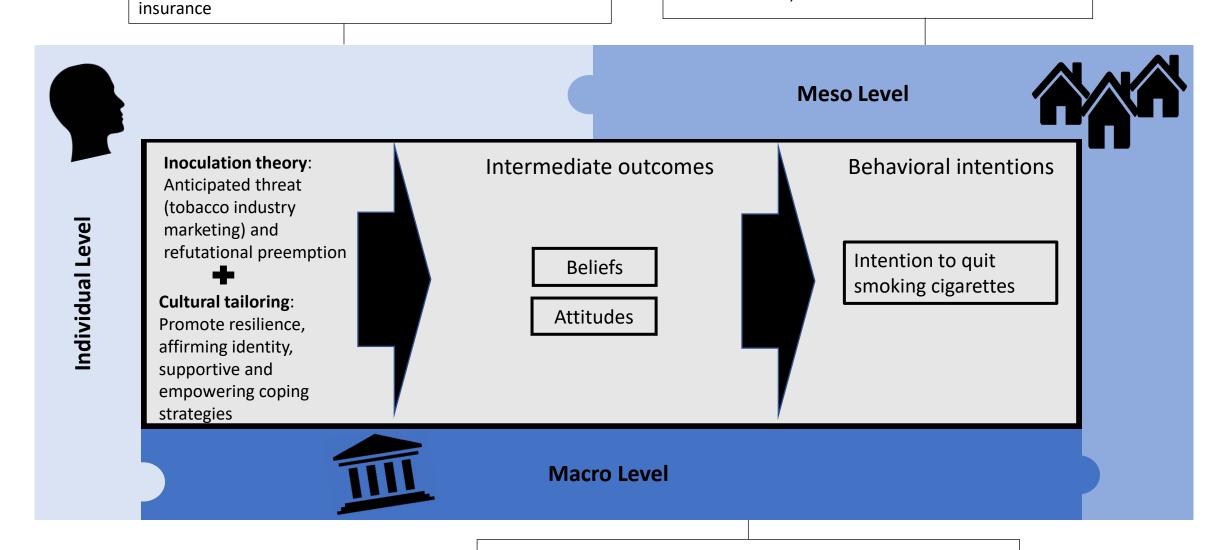


Figure 1 – Conceptual model

Policy: state level tobacco environments, tobacco control policies **Tobacco industry**: LGBT-targeted advertising, positive smoking-related imagery

Research questions

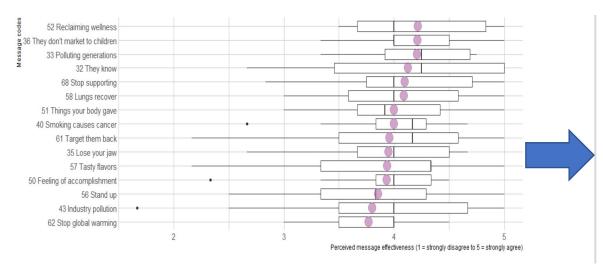
Main effects:

 Does exposure to LGBTQ+ culturally tailored anti-smoking ads change intentions to quit smoking at 1-month follow-up compared with exposure to control ads?

Mediation:

 Do anti-industry beliefs and attitudes mediate the main effect of exposure to culturally antismoking messages on quit intention?

Message Stimuli Design



2 rounds of surveys to obtain PME ratings and qualitative comments to select strong anti-smoking arguments



Pretest visual treatment comparing photos of people, abstract representation, and graphics















Pretest 21 images for identification, emotions, perceived targetedness, similarity, liking to select appropriate images

2 rounds of surveys to pretest close-to-final ads integrating the anti-smoking arguments and images to select the top ads

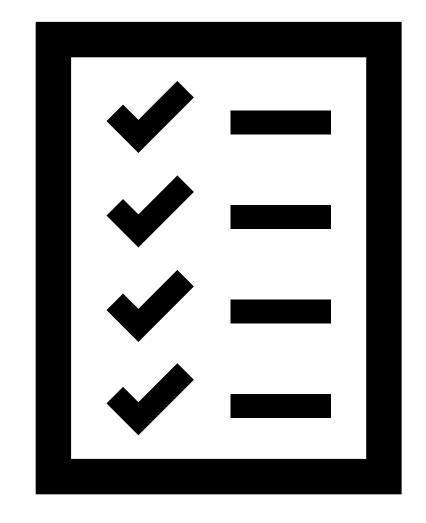
Message testing outcomes

Quantitative outcomes

- Perceived Argument Strength Scale
- Reactance
- Perceived targetedness
- Perception of the identity of individuals portrayed in ads
- Affect related to the message

Qualitative data

 Brief open-ended feedback on each message (optional)



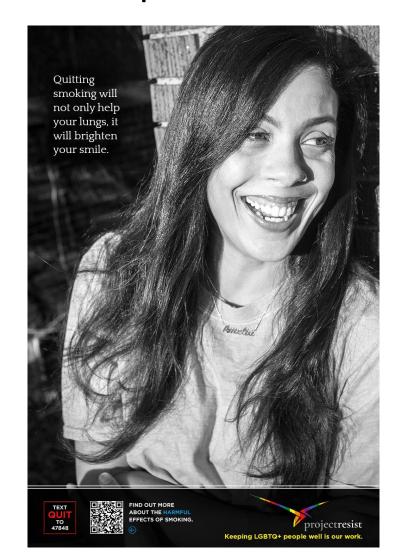
Synthesis of qualitative feedback from pre-testing

 Participants recommended against ads that stated LGBTQ+ people as smoking at higher rates and ads that stigmatize individuals for smoking

 They recommended including LGBTQ+ people and using subtler cues to indicate the intended audience of the ads

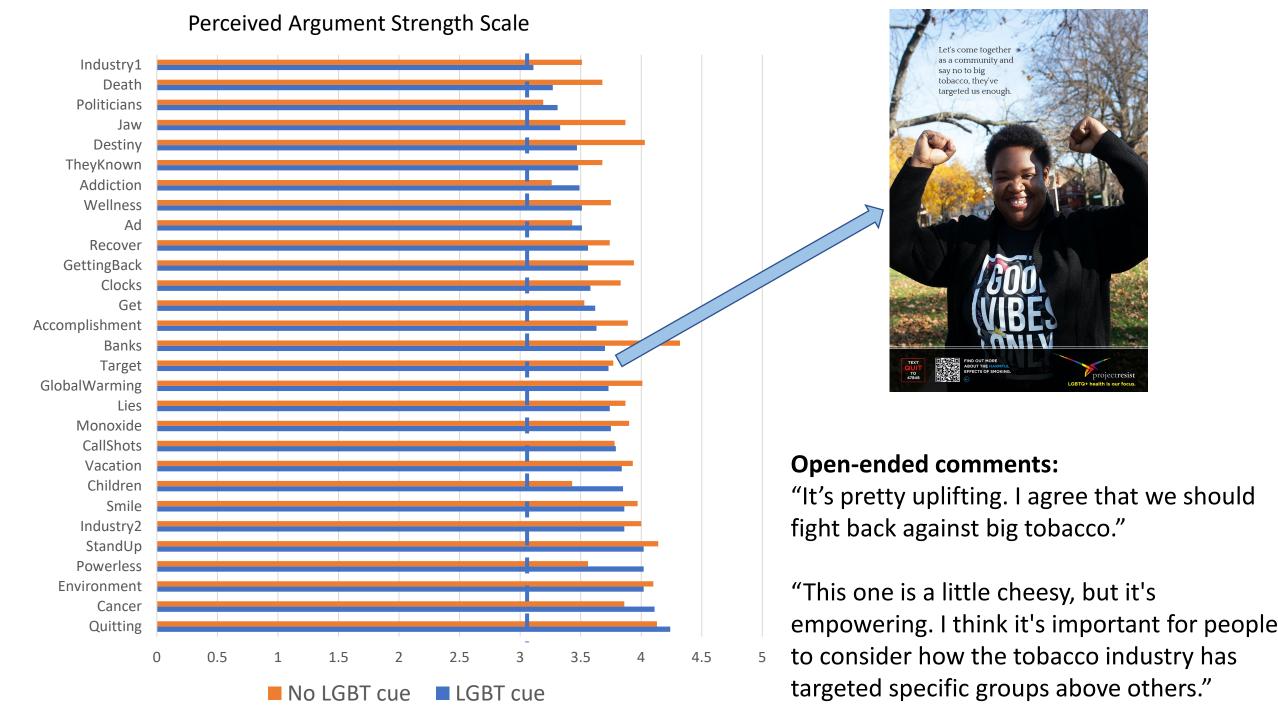
 They preferred statements that evoked positive emotions and provided encouragement among viewers

Examples of close-to-final ads for Aim 2 experiment





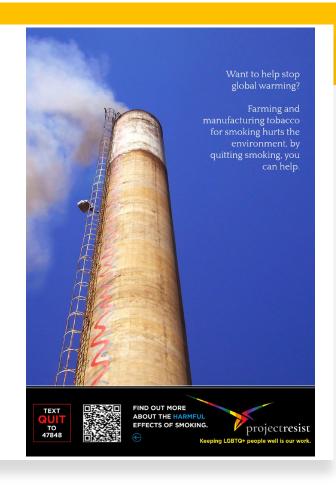




Anti-smoking message themes

- Harms of smoking
- Benefits of quitting smoking
- Tobacco industry targeting
- Environmental impacts of the tobacco industry





Study population and methods





Study Population Recruitment

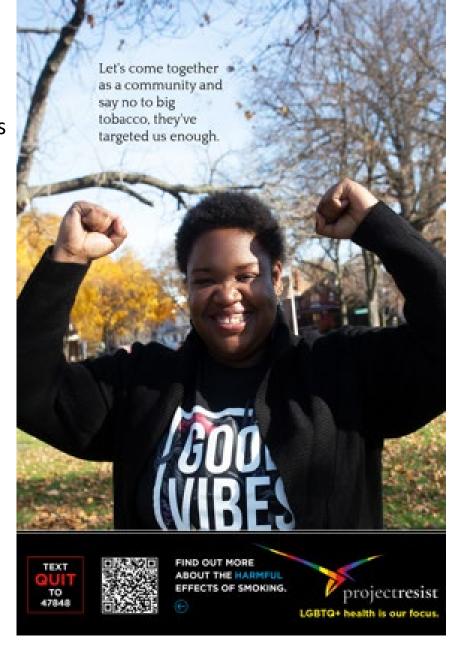
- **Study sample**: 1212 US SMW, cisgender or transfeminine, ages 18-30 years, who currently smoke, 966 had complete data in the 1-month follow-up (79.8%)
- **Recruitment**: The PRIDE Study cohort, online panel (Prolific), Instagram ads, dating app ads (HER), and through LGBTQ organizations' social media accounts
- Quality checks: Assessed fraud and duplicate scores via Qualtrics, attention check and honey pot questions, location, matching data from screener vs. baseline surveys

Identical image:

Volunteers
who identify as
young adult
SMW and
stock images

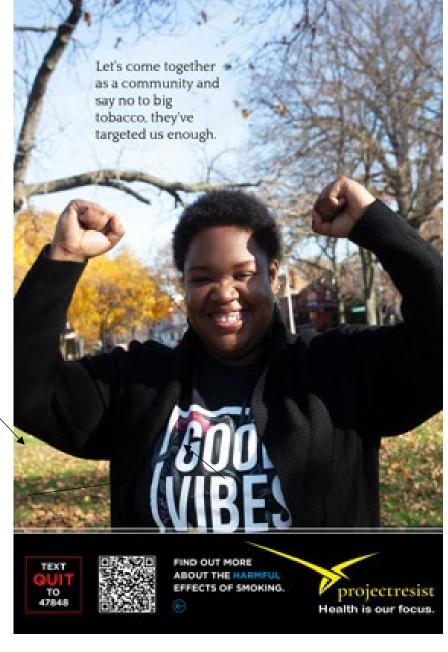


Text to quit number and QR code to CDC's website



"LGBTQ+ health is our focus" slogan

Campaign logo using LGBTQ+ Pride flag



Identical message:
Let's come together as a community and say no to big tobacco, they've targeted us enough.

"Health is our focus" slogan

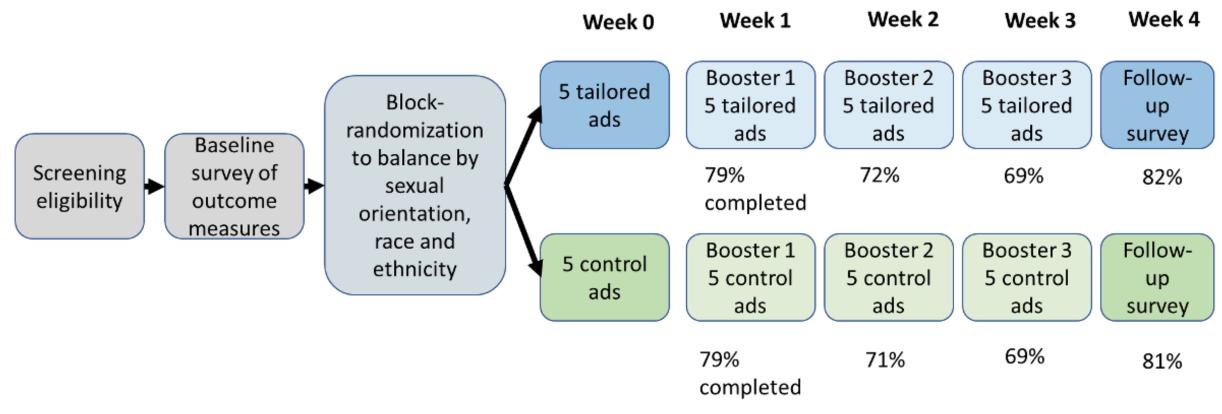
Campaign logo using yellow color

Manipulation check at post-test survey

- Participants were asked at post-test to indicate whether LGBT, gay or lesbian, bisexual, and transgender populations came to mind when they saw messages over the past month.
- Participants in the tailored condition were significantly more likely to report that all groups came to mind than those in the control condition
 - LGBT: 76.6% vs. 67.7%, χ 2(1, N=966) = 9.55, p < .01
 - Gay or lesbian: 66.9% vs. 58.0%, χ2(1, N=966)=8.08, p < .01;
 - Bisexual: 25.0% vs. 15.0%, χ2(1, N=966)=15.11, p < .01
 - Transgender: 19.5% vs. 10.6%, χ2(1, N=966)=15.12,p < .01).

Message Stimuli Exposures Protocol

Current Smokers



- Potential of viewing up to 20 unique anti-smoking messages over 4 weeks
- Participants in both arms were instructed that the ads will be shown for 1 minute before they can proceed to the next question

Study Outcomes & Analyses

Primary outcomes

- Intention to purchase cigarettes (Juster scale)
- Intention to quit smoking (4-item scale)

Mediator variables

- Anti-industry beliefs (4-item scale)
- Anti-industry attitudes (2-item scale)

Covariates

- Baseline scores of each outcome
- Previous quit attempt in the past 12 months

Analyses

- Linear regression models to predict changes each outcome
- Adjusted for baseline scores of each outcome
- Structural equation model and bootstrapping procedures
- Sensitivity analyses



Analyzed sample demographics

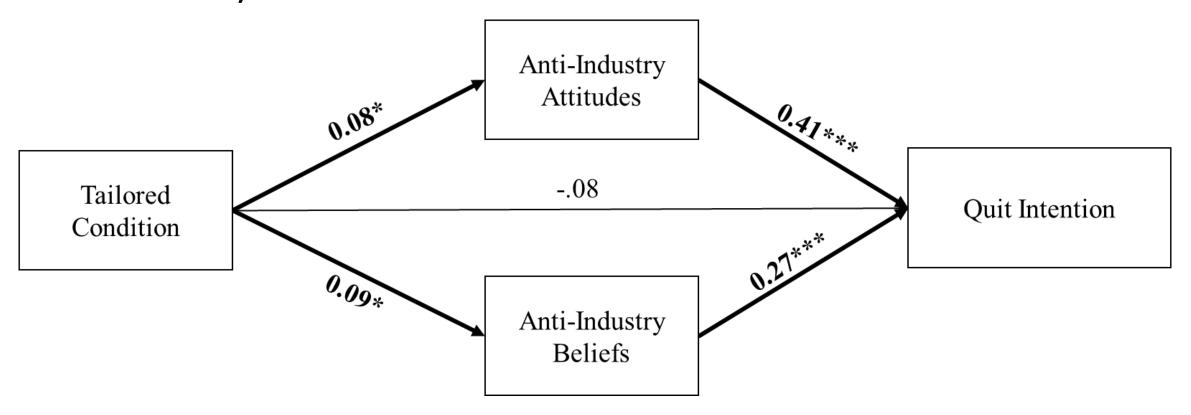
- 2.3% identified as transgender woman, 82.8% identified as cisgender woman, 66.5% as woman
- 72.0% of participants identified as lesbian or gay, 15.3% identified as bisexual, and 12.6% identified as another sexual orientation
- 30.5% were ages 18-23 and 69.5% ages 24-30
- 32.8% identified as non-Hispanic white, 22.7% as non-Hispanic Middle Eastern, Arab, or Arab American, 17.5% non-Hispanic and other racial identity, 11.5% non-Hispanic Black, 7.5% Hispanic, and non-Hispanic Asian or Pacific Islander (8.1%). Participants
- 52.1% attained a four-year college degree or higher
- Mean of 4 quit attempts in the past 12 months

Main effect – No significant tailoring effect on quit intentions

• Among those who smoked, there was no significant treatment effect of culturally-tailored ads versus control ads for their follow-up intention to quit (B=-0.041; 95%CI -0.649, 0.568; p=0.896)

- Ads used in both conditions were associated with changes in quit intention in the desirable direction between baseline and follow-up:
- Non-tailored (B=4.844; 95%CI 4.394, 5.295; p<0.001)
- Tailored (B=4.814; 95%CI 4.352, 5.276; p<0.001)

Mediation analysis – Significant mediation via antiindustry attitudes and beliefs



Structural equation model with standardized regression weights. Note: Error correlations and covariates (baseline anti-industry attitude, anti-industry beliefs, quit intention, and quit attempts) not shown to reduce visual clutter. * p < .05; ** p < .01; *** p < .001. Model fit: χ 2=3.196, df=3, CFI=1.000, TLI=0.999,RMSEA=0.008, SRMR=0.008.

	Effect size	Bias-corrected Bootstrap 95% Confidence Interval	
Total Effects (Direct + Indirect Effects)			
Tailored condition->Quit intention	-0.020	-0.163	0.148
Direct effects			
Tailored condition->Quit intention	-0.078	-0.215	0.079
Indirect effects			
Tailored condition->Anti-industry beliefs-> Quit intention	0.024	0.004	0.056
Tailored condition->Anti-industry attitude- > Quit intention	0.034	0.006	0.077

Total, direct, and indirect effects for mediation analyses

Limitations

- Brief exposures to cultural tailoring manipulation (slogan and logo) may not be sufficiently distinct from the control messages
- Controlled exposure to up to 20 anti-smoking messages for at least 1 minute across both arms differs from real-world exposure to health messages
- Brief follow-up of 1-month may not be sufficient to detect behavioral intention change
- Anti-industry beliefs and attitudes were not experimentally manipulated
- Non-representative sample of young adult SMW

Key Takeaways

- Anti-industry beliefs and attitudes mediated the effect of LGBTQ+-tailored anti-smoking messages on increasing quit intentions among young adult sexual minority women who smoke
- While the direct effect of tailored messaging on quit intentions was not significant, the study found that LGBTQ+ cultural cues in anti-smoking ads can work through changing shorter term outcomes such as beliefs and attitudes about the tobacco industry
- Future anti-smoking campaigns for young adult SMW should consider incorporating both LGBTQ+-specific elements and counter-industry messaging themes to promote quit intentions through these mediating pathways

Research dissemination to participants

Research in brief summaries

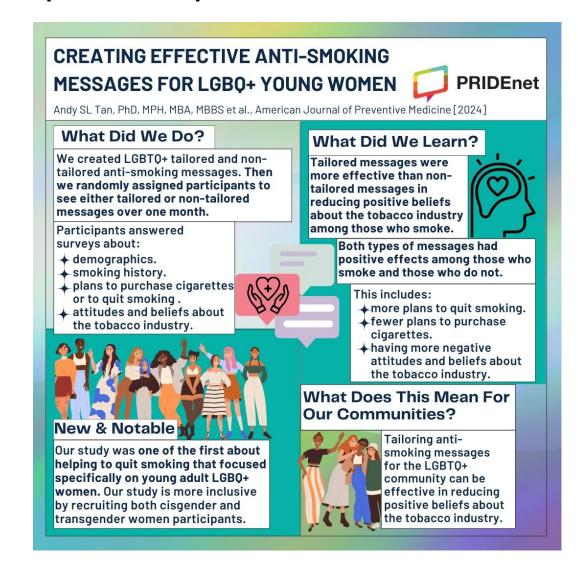




 Newsletters to The PRIDE Study participants and website



Infographics



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Questions



O&A



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