

This Free Life Campaign: Increasing Intention to Quit Among LGBTQ+ Young Adult Nondaily Smokers in Minneapolis

Tobacco Use Insights
Volume 15: 1–10
© The Author(s) 2022
Article reuse guidelines:
sagepub.com/journals-permissions
DOI: 10.1177/1179173X221133978



Shiloh Beckerley¹, Priscilla Fernandez¹, Chris Matter²,
Dana Wagner¹, Brandon Tate¹ and Jeff Jordan¹

¹Research, Rescue Agency, San Diego, CA, USA. ²Center for Prevention, Blue Cross and Blue Shield of Minnesota, Eagan, MN, USA.

ABSTRACT

PURPOSE: LGBTQ+ young adults smoke at disproportionately higher rates than their non-LGBTQ+ counterparts, but prevention efforts are limited. Furthermore, prior to *This Free Life (TFL)*, no known campaigns target LGBTQ+ nondaily smokers. In this study Blue Cross and Blue Shield of Minnesota evaluated a local partnership extension of the Food and Drug Administration (FDA) Center for Tobacco Products' *TFL* campaign.

METHODS: The intervention featured a variety of LGBTQ+-tailored events, social/digital media, and out-of-home media placed in locations with a high density of LGBTQ+ young adults. Cross-sectional surveys (n = 1215) were collected from LGBTQ+ young adult (18-26) nondaily smokers at 4 time points between 2016 and 2019. The national *TFL* campaign was tracked in a separate evaluation conducted by the FDA.

RESULTS: 43.0% of nondaily LGBTQ+ smokers reported awareness of the campaign (n = 522), and 63.4% of those also engaged with *TFL* (n = 330). Engagement was highest for gay, lesbian and transgender participants, and for Asian and Black/African American participants. Each additional instance of campaign engagement increased participants' odds of intending to quit smoking by 20% (AOR = 1.20; 95% CI = 1.05, 1.36). The relationship between campaign engagement and intention to quit was fully mediated by the campaign's impact on attitudes against smoking and perceived normative trends, but not by perceived behavioral control.

CONCLUSION: The local extension of *TFL* increased intentions to quit for LGBTQ+ nondaily smokers. Future research should further explore the relationship between perceived behavioral control and intentions to quit for nondaily smokers.

KEYWORDS: LGBTQ+, tobacco, nondaily smoking, social smoking, theory of planned behavior

RECEIVED: April 4, 2022. ACCEPTED: October 3, 2022.

TYPE: Original Research Article

FUNDING: The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This work was supported by the Blue Cross and Blue Shield of Minnesota.

DECLARATION OF CONFLICTING INTERESTS: The author(s) declared the following potential conflicts of interest with respect to the research, authorship, and/or publication of this article: Authors are employed by Rescue Agency, a health behavior change marketing

agency, or Blue Cross and Blue Shield of Minnesota. S. Beckerley, P. Fernandez, C. Matter, D. Wagner, B. Tate, and J. Jordan contributed to conception or design of the work, acquisition, analysis or interpretation of data, drafted the manuscript or critically revised the manuscript, and gave final approval for this manuscript.

DISCLAIMER: This publication represents the views of the author(s) and does not represent FDA/CTP position or policy.

CORRESPONDING AUTHOR: Shiloh Beckerley, Research, Rescue Agency, 603 NW Morelock Ct., Bend, OR 97703, USA. Email: sbeckerley@rescueagency.com

Introduction

Although rates of daily smoking have decreased in recent years, rates of nondaily smoking have significantly increased, particularly among young adults.¹⁻³ Additionally, research over the past 10 years highlights disparities in tobacco use among certain populations, and the prevalence of both daily and nondaily smoking is disproportionately high among LGBTQ+ young adults compared to non-LGBTQ+ young adults.⁴⁻⁶

Researchers have proposed several factors that may contribute to elevated rates of tobacco use among LGBTQ+ young adults, including targeted marketing to the LGBTQ+ community by the tobacco industry and the use of smoking as a coping mechanism for feelings of stress associated with coming out, experiences of discrimination, and victimization.⁷⁻¹⁰ While there are an increasing number of

smoking interventions focused on adults within the LGBTQ+ community, recent reviews of smoking interventions have revealed a dearth of interventions focused on LGBTQ+ youth and young adults.¹¹⁻¹³ This is despite evidence that LGBTQ+ individuals report that tailored interventions would be more acceptable, salient and motivating than non-tailored interventions.^{14,15}

Prior to the *TFL* campaign, no existing interventions targeted nondaily smoking within the LGBTQ+ community, defined as smoking on some days in the past month but not every day. Nondaily smoking includes 'social smoking,' a term referencing the pairing of nondaily smoking with social situations.¹⁶ Long-term nondaily smokers have unique motivations that influence their smoking patterns and make them distinct from daily smokers.¹⁷⁻¹⁹ Many uphold the belief that nondaily smoking is low risk, despite findings that there are substantial



Creative Commons Non Commercial CC BY-NC: This article is distributed under the terms of the Creative Commons Attribution-NonCommercial 4.0 License (<https://creativecommons.org/licenses/by-nc/4.0/>) which permits non-commercial use, reproduction and distribution of the work without further permission provided the original work is attributed as specified on the SAGE and Open Access pages (<https://us.sagepub.com/en-us/ham/open-access-at-sage>).

risks associated with this behavior.²⁰⁻²⁴ Often nondaily smokers do not identify as ‘smokers’ or consider themselves addicted, and believe they can easily stop.^{16,20,25} As such, there is an important opportunity to tailor interventions to address the distinct motivations and behavioral patterns of LGBTQ+ nondaily smokers.

Description of *This Free Life*

This Free Life (TFL) is a Social Branding[®] intervention developed for LGBTQ+ young adult, nondaily smokers with funding from the U.S. Food and Drug Administration (FDA) Center for Tobacco Products (CTP). At the time of campaign launch, Minneapolis had a number of established community supports for the LGBTQ+ community, including Rainbow Health, Outfront Minnesota, Gender Justice, and the Aliveness Project, among others. However, there were no existing targeted intervention services that sought to address nondaily smoking for the LGBTQ+ community. FDA launched *TFL* in 2016 with paid digital, print, and out-of-home media focused primarily in 12 designated market areas. With the goal of increasing local campaign engagement, Blue Cross and Blue Shield of Minnesota funded a local campaign extension that supplemented the nationwide campaign with local on-the-ground efforts in Minneapolis. This included events at LGBTQ+ bars, local influencers, brand ambassadors, and a locally-focused evaluation to assess these efforts (Table 1, Figure 1).

Aligned with the Theory of Planned Behavior,²⁶ shifting attitudes about tobacco was a focal point of *TFL*, as LGBTQ+ young adults express permissive attitudes towards smoking that may facilitate use.⁹ The intervention leveraged LGBTQ+ young adults’ shared desire to be “free” in their lives and drew a connection between that value and the importance of being free from smoking, using the tagline, “Freedom to Be, Tobacco-Free.”

Shifting social norms, a second tenet of the Theory of Planned Behavior,²⁶ was also a central focus of the *TFL* campaign. It is widely recognized that normative perceptions of smoking are perpetuated through LGBTQ+ social venues where indoor and outdoor smoking is more common,^{27,28} and perceived as an acceptable ‘social lubricant’ that increases connection within the LGBTQ+ community.^{9,10} These locations can serve a particularly important role to young LGBTQ+ people given the difficulty finding other safe spaces to explore and establish the social aspect of their sexual and gender identity.^{29,30} In these settings, *TFL* offered appealing tobacco-free social events and provided opportunities for attendees to interact with local brand ambassadors, which increased the visibility of LGBTQ+ peers who choose to live tobacco-free.

Attitudes and norms were the primary focus of the *TFL* strategy, while perceived behavioral control, a construct similar to self-efficacy in the Theory of Planned Behavior, was not a central focus. Given that the applicability of perceived

behavioral control may depend on the population and behavior,³¹ the current study sought to better understand the role of this construct for LGBTQ+ nondaily smokers. Additionally, exploring the relationship between these constructs and intentions to quit is important because intention to quit smoking is considered the first step before quitting smoking behavior, and is clearly correlated with the rate of successful smoking cessation.^{26,32}

The purpose of this study was to evaluate awareness and engagement with a local extension of *TFL*, an intervention targeting LGBTQ+ young adult nondaily smokers, in the Minneapolis designated market area, along with evaluating how constructs of campaign engagement are associated with intentions to quit smoking. To our knowledge, *TFL* was the first intervention targeting LGBTQ+ young adult nondaily smokers. We also hypothesized (1) increased engagement with *TFL* would predict greater intention to quit smoking and (2) the relationship between campaign engagement and intention to quit smoking would be mediated by attitudes and norms. As an exploratory component, we sought to assess the relationship between perceived behavioral control and intention to quit smoking.

Methods

Participants and procedures

A convenience sample of 1215 LGBTQ+ nondaily smokers in the Minneapolis area completed in-person (n = 443, 36.5%) and online (n = 772, 63.5%) surveys. Wave 1 data collection was from February to May 2016 (22.3%), Wave 2 from June to November 2017 (26.5%), Wave 3 from June to November 2018 (29.0%) and Wave 4 from May to July 2019 (22.2%). Campaign events and digital presence were ongoing during this time. Participants were recruited in-person from LGBTQ+ bars/clubs, and online through targeted social media advertisements, effective recruitment methods for LGBTQ+ young adults.³³ Data collection occurred at the same place as recruitment. Those recruited through social media completed the survey online, while those recruited in-person completed a paper survey.

Venues for in-person data collection were randomly selected from LGBTQ+ bars/clubs, and bars/clubs with LGBTQ+ themed nights, in the Minneapolis area. Data collection did not coincide with any *TFL* events, and was never conducted at a venue where *TFL* even had occurred in the past month. Data collectors approached young adults in the venues and invited them to complete a screener survey in exchange for a \$5 cash incentive. Online participants were recruited via Facebook (2016-2019) and Instagram (2017-2019) advertisements with ad-targeting features such as age-, geo-, and interest-based targeting applied. Respondents answered online screening questions to ensure eligibility. Eligible online participants were provided a \$10 gift card for participation. Inclusion criteria for all participants included reported ages 18-26, self-identifying as

Table 1. Key elements of a social branding intervention and relevant metrics for a local extension of “*This Free Life*” 2016-2019.

SOCIAL BRANDING KEY ELEMENT	MINNEAPOLIS “THIS FREE LIFE” INTERVENTION
Social Brand	The <i>TFL</i> brand reflects the desire of LGBTQ+ young adults to be “free” in their lives and personal experiences, and connects this driver to the importance of being free from tobacco. The tagline for the campaign was “Freedom to Be, Tobacco-Free”.
Branded Events	Sixty-four <i>TFL</i> events took place at LGBTQ+ bars, clubs, and events in the Minneapolis designated market area. All venue spaces, inside and out, were tobacco-free for the event duration, and often required that all venue staff wear <i>TFL</i> apparel. All available screens at the venue were often leveraged to promote <i>TFL</i> messages. Events were attended by local influencers eager to promote tobacco-free living, including DJs and drag queens. The total estimated LGBTQ+ young adult attendance at bar/club-based events was 13 450, with an additional 38 250 LGBTQ+ young adults reached at the Twin Cities Pride Festival.
Brand Ambassadors	Brand Ambassadors were tobacco-free LGBTQ+ influencers in the Minneapolis community recruited to promote the brand while normalizing tobacco dialogue. Brand ambassadors attended monthly messaging trainings and endorse the campaign’s overarching message of living free from tobacco both at live events as well as through their personal social media channels. By September of 2019, there were over 55 brand ambassadors.
Relevant Messages	Messages included facts about tobacco’s impact on the LGBTQ+ community, elaborations on how tobacco’s addiction conflicts with personal freedom, and the message that the health consequences from tobacco make life more difficult.
Website and Social Media	Digital campaigns used social media and the <i>TFL</i> website to disseminate tobacco messaging, encourage online conversations and promote local events. From 2017 through September 2019, for Facebook and Instagram, there were a total of 14,149 877 impressions; 4 197 459 video views; 2141 post shares; 1595 post comments; and 103 403 post likes/reactions stemming from the Minneapolis DMA. The website received 148 390 visits; 8558 video views; and was shared 354 times. Digital campaigns began using Twitter in May 2018. From May 2018 through September 2019 this resulted in a total of 4 419 203 impressions; 1 904 548 video views; 108 post retweets; 116 post comments; and 2192 post likes/reactions.
Social Rewards	After completing a 4 question quiz about tobacco’s impact on the LGBTQ+ community, event attendees had the chance to win branded fashionable gear (eg t-shirts, sunglasses). Brand ambassadors gave individuals verbal and nonverbal approval for supporting a tobacco-free lifestyle. These rewards can accelerate the behavior change process.

LGBTQ+, residing in the Minneapolis designated market area, and providing informed consent. The analytic sample was restricted to nondaily smokers. The study protocol was classified as exempt by Chesapeake Institutional Review Board.

Measures

Sociodemographic variables. LGBTQ+ identity was determined based on the response to 3 separate survey items. Participants were asked “What is your current gender identity?” (female, male, transmale/transman, transfemale/transwoman, genderqueer/gender nonconforming, a different identity (please specify), prefer not to answer), “What sex were you assigned at birth, on your original birth certificate?” (female, male, prefer not to answer), and “Which of the following best represents how you think of yourself?” (lesbian, gay, straight, bisexual, queer, pansexual, trisexual, or omnisexual, asexual, something else (please specify), prefer not to answer). Answers were recoded into 5 discreet categories, “lesbian,” “gay,” “bisexual,” “transgender” or “gender nonconforming”. Date of birth was used to calculate a continuous measure of age. Racial/

ethnic categories included non-Hispanic White, Asian, Black/African American, Hispanic/Latino, or other/multiracial. Due to small sample sizes, participants who identified as American Indian or Alaska Native, Native Hawaiian or other Pacific Islander, multiracial or other were combined into a single other/multiracial category.

Campaign engagement. As a specific goal of the Blue Cross and Blue Shield local extension effort in Minneapolis was to increase local engagement, participants were asked to report any type of engagement with *TFL*, including website, social media, and local events. These questions were, “How many times have you visited *This Free Life’s* website?”, “How many times have you visited *This Free Life’s* Facebook page?”, and “How many times have you been to a *This Free Life* event?”. Response options included: (0) “Never,” (1) “Once,” (2) “2 times,” (3) “3 times,” or (4) “4 or more times.” Responses from the 3 items were summed and all summations greater than 4 were classified as “4 or more times” resulting in a final 5-point item capturing the number of engagements across all 3 mediums, with categories of “None,” “1,” “2,” “3,” or “4 or more.”

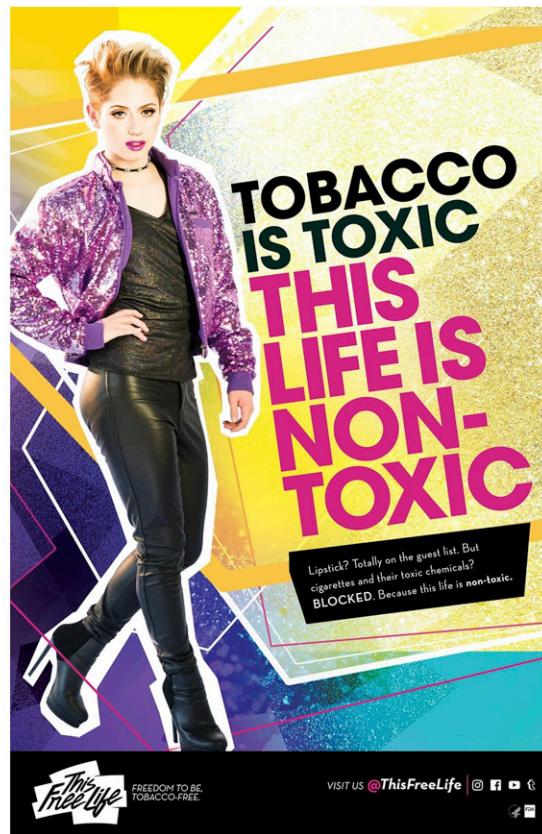


Figure 1. Sample *This Free Life* advertisement and event image.

Perceived normative trends. Perceived normative trends for LGBTQ+ young adult smoking was measured using a mean score of 2 questions, each on a 3-point scale: “Thinking about LGBTQ+ people your age, do you think tobacco use is...” (0) increasing, (1) staying the same, or (2) decreasing, and the question, “Compared to 1 year ago, people your age at LGBT bars, clubs, and events are smoking...” (0) more often, (1) about the same, (2) less often. Unlike traditional descriptive norms,

which describe only the current prevalence of a behavior, trending norms have been shown to be an important category of norms that guide beliefs and behaviors, in some cases even more strongly than descriptive norms.³⁴

Attitudes against smoking. Attitudes against smoking were measured using a mean score of 3 items: “Tobacco’s addiction conflicts with the freedom to be yourself”, “Reducing tobacco

use in the LGBTQ+ community is a priority”, and “No matter how difficult life is, tobacco’s health consequences make life more difficult”.^{35,36} Responses were on a 5-point Likert scale from (1) strongly disagree to (5) strongly agree.

Perceived behavioral control. Perceived behavioral control was measured with a single item shown to reliably assess self-efficacy in the context of tobacco use,³⁷⁻³⁹ “If you decided to give up smoking altogether in the next 12 months, how likely do you think you would be to succeed?” Response options were (1) very unlikely, (2) somewhat unlikely, (3) somewhat likely, (4) very likely.

Intention to quit. Intention to quit smoking was measured by the question, “I plan to stop smoking cigarettes for good within the next...”, and participants that selected the response options “7 days,” “30 days,” “6 months,” or “12 months” were classified as “intends to quit cigarette use in the next 12 months.”^{40,41} Participants could also select “I do not plan to stop smoking cigarettes within the next year”.

Data analysis

All analyses were performed using SPSS Statistics for Mac.⁴² Campaign awareness and engagement rates were explored. Logistic regression explored the association between TFL campaign engagement and intention to quit smoking, controlling for demographics and survey year. A parallel multiple mediation model then examined the role of theoretical mediators as mechanisms to explain the potential impact of TFL campaign engagement on intention to quit.^{43,44} Analyses were conducted using the PROCESS macro version 3.3 with a percentile bootstrap estimation approach generating 10 000 samples.⁴⁵ Diagnostic procedures were conducted to ensure that no covariates were highly correlated, and that the collinearity statistics were within acceptable limits ($r < .28$, Tolerance $> .63$, VIF < 1.6).^{46,47}

Results

Participant profile

Participants were on average 22.0 years old (SD = 2.4). Similar to demographics of Minneapolis, participants reported their race/ethnicity as non-Hispanic white (58.9%), Hispanic/Latino (10.7%), Black/African American (8.2%), Asian (6.6%), or other/multiracial (15.6%). Participants self-reported their sexual orientation and gender identity as lesbian (19.3%), gay (23.5%), bisexual (20.2%), transgender (13.0%), or gender nonconforming (24.0%). Additionally, the majority of participants reported alcohol use (86.7%) and marijuana use (69.6%) in the past 30 days. See Table 2.

Campaign awareness and engagement

Among LGBTQ+ nondaily smokers, 43.0% reported awareness of the campaign, with no significant change in

awareness across waves of study enrollment. There were no significant differences in awareness by LGBTQ+ identity. Of those who were aware, 63.3% of the sample had engaged with the campaign: 40.5% had attended a TFL event, 39.5% had visited the TFL website, and 53.1% had visited the TFL Facebook page. Of those aware of the campaign, 71.8% of lesbian, 74.7% of gay, 56.9% of bisexual, 60.0% of transgender, and 52.6% of gender nonconforming participants engaged with the campaign ($P < .01$). Similarly, of those aware of the campaign, 53.0% of non-Hispanic white, 64.7% of Hispanic/Latinx, 82.9% of Black/African American, 80.6% of Asian and 82.4% of other/multiracial participants engaged with the campaign ($P < .001$).

Association of campaign engagement with intention to quit smoking

Overall, 70.3% of participants intended to quit smoking in the next 12 months. The final logistic model fit the data well, as indicated by the Hosmer-Lemeshow test ($\chi^2(8) = 8.00, P = .43$). Each instance of engagement with the campaign increased participants’ odds of intending to quit smoking by 20% (AOR = 1.20; 95% CI = 1.05, 1.36; $P < .01$; Table 3).

Associations between campaign engagement and theoretical mediators

Mediation analysis found that increased engagement with the TFL campaign associated with intention to quit smoking through attitudes against tobacco and perceived normative trends. In Figure 2, the *a*-paths indicate the association between the independent variable (campaign engagement) and the mediators. Individuals who reported increased engagement with the TFL campaign endorsed stronger attitudes against tobacco ($a1 = .14$; 95% CI [.10, .18]; $P < .001$) (Figure 2, Table 3). The model including demographics, year, and campaign engagement significantly predicted attitudes against tobacco ($R = .29, R^2 = .08, F(11,1019) = 8.57, P < .001$).

Greater campaign engagement was also associated with perceptions that tobacco use was decreasing within the LGBTQ+ community ($a2 = .06$; 95% CI [.02, .08]; $P < .001$, Table 3). The model including demographics, year, and campaign engagement significantly predicted perceived LGBTQ+ normative trends ($R = .23, R^2 = .05, F(11,1019) = 5.07, P < .001$).

However, increased campaign engagement was not associated with increased perceived behavioral control ($a3 = -.01$; 95% CI [-.05, .04]; $p = ns$). While campaign engagement was not associated with participants’ beliefs that they would be successful if they decided to give up smoking, the model including demographics and year, significantly predicted perceived behavioral control ($R = .27, R^2 = .07, F(11,1019) = 7.43, P < .001$).

Table 2. Sample characteristics of survey participants (n = 1215).

CHARACTERISTICS	TOTAL SAMPLE
Age, M (SD)	22.0 (2.4)
Average cigarettes smoked in past 30 days, M (SD)	10.0 (8.4)
LGBT Identity, %	
Lesbian	19.3%
Gay	23.5%
Bisexual	20.2%
Transgender	13.0%
Gender nonconforming	24.0%
Sex Assigned at Birth, %	
Female	61.1%
Male	34.7%
Prefer not to answer	4.2%
Race/Ethnicity, %	
Non-Hispanic White	58.9%
Hispanic/Latinx	10.7%
Black/African American	8.2%
Asian	6.6%
Other/multiracial	15.6%
Survey Wave, %	
Wave 1	22.3%
Wave 2	26.5%
Wave 3	29.0%
Wave 4	22.2%
Campaign Aware %	43.0%
Campaign Engagements among Aware, %	
None	36.6%
One	12.5%
Two	12.2%
Three	8.1%
Four or more	30.6%

Associations between theoretical mediators and intention to quit smoking

In [Figure 2](#), the *b*-paths indicate the association between the mediators and intention to quit smoking. As hypothesized, stronger attitudes against tobacco predicted intention to quit smoking ($b_1 = .45$; 95% CI [.27, .64]; $P < .001$), as did the perception that tobacco use was on the decline in the LGBTQ+ community ($b_2 = .39$; 95% CI [.15, .63]; $P < .01$). We did not find evidence that increased perceived behavioral control was associated with intention to quit; rather, there was a non-significant trend in the opposite direction ($b_3 = -.15$; 95% CI [-.31, .02]; $P = .08$). Unstandardized coefficients (log-odds) are reported in [Table 4](#).

Indirect and direct paths in mediation analysis

The *ab* paths, or the specific indirect effects represent the portion of the effect of *TFL* campaign engagement on intention to quit smoking that is attributable to changes in attitudes, norms, and perceived behavioral control ([Figure 2](#)). The indirect effect of *TFL* engagement on intention to quit was attributable to changes in attitudes ($ab_1 = .07$ [.04, .10]) and norms ($ab_2 = .02$ [.01, .04]), but not to changes in perceived behavioral control ($ab_3 = .00$ [-.01, .01]). Independent of its effect on attitudes and norms, awareness of the *TFL* campaign alone did not significantly impact intention to quit ($c' = .09$, $P = .19$), supporting the full mediation hypothesis through attitudes and norms.

Table 3. Regression analyses examining attitudes against tobacco, normative trends, and perceived behavioral control among LGBTQ+ nondaily smokers (n = 1031).

	EXP(B) PREDICTING INTENTION TO QUIT [95% CI]	B PREDICTING ATTITUDES AGAINST TOBACCO [95% CI]	B PREDICTING NORMATIVE TOBACCO TRENDS [95% CI]	B PREDICTING PERCEIVED BEHAVIORAL CONTROL [95% CI]
Campaign Engagement	1.20 [1.05, 1.36]**	.14 [.10, .18]**	.06 [.03, .08]**	-.01 [-.05, .04]

Note. Reference group; * $P < .05$, ** $P < .01$, *** $P < .001$.

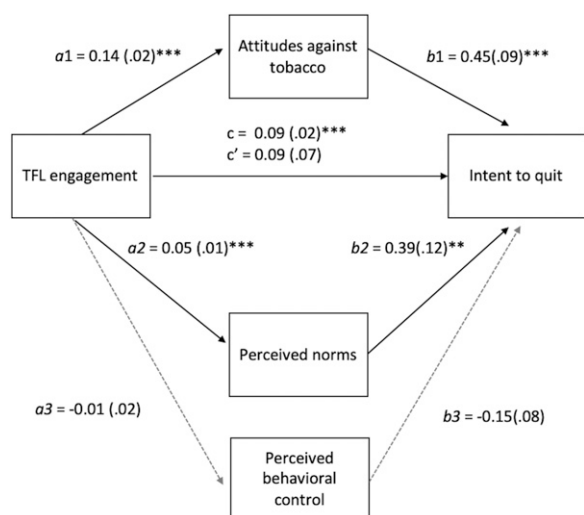


Figure 2. Mediation model depicting path coefficients between TFL campaign engagement, theoretical mediators and intention to quit, with age, LGBT identity, year, and race/ethnicity entered as covariates (n = 1031). The indirect effect of TFL engagement on intention to quit through attitudes ($a_1 b_1 = .09$) and norms ($a_2 b_2 = .02$), but not through perceived behavioral control ($a_3 b_3 = .00$) was significant. The total effect (c) from TFL engagement to intention to quit and the direct effect (c') are described. * $P < .05$; ** $P < .01$; *** $P < .001$

Discussion

The current study was designed to evaluate engagement with the intervention *This Free Life* among LGBTQ+ young adult nondaily smokers in Minneapolis. A substantial proportion of participants reported awareness of the campaign (43.0%) and the majority of those exposed also engaged with the campaign (63.4%). Additionally, increased campaign engagement was associated with increased intention to quit smoking, through attitudes and norms. This suggests that in Minneapolis, *TFL* is effectively reaching and engaging LGBTQ+ young adult nondaily smokers, a group that has been largely overlooked in smoking prevention and cessation efforts.^{11,16,17}

Campaign awareness was similar to other LGBTQ+ campaigns with no broadcast presence, however, this still leaves a majority of the target audience who was *not* reached by the campaign.⁴⁸ This is because *TFL* used highly targeted tactics, such as local events and digital messages, in order to drive engagement for LGBTQ+ individuals, rather than traditional television advertising, which is more efficient at driving awareness.^{49,50} If it were a priority to increase awareness, that

could be accomplished through traditional media, however this approach would reach a much broader group of people, including those outside of the narrow *TFL* campaign audience.⁵⁰ While the national *TFL* campaign focused on building awareness through an array of paid media, which it successfully did over time, the Minneapolis campaign extension focused on building community engagement without the financial spill of traditional media.

There is evidence that the local extension of *TFL* was also able to engage sexual, gender and racial minorities. Gay, lesbian and transgender participants were equally likely to engage with the campaign, all with high rates of engagement (74.7%, 71.8%, 60.6%). Given that LGBTQ+ tobacco campaigns have largely reached only gay males,¹² this suggests that in Minneapolis *TFL* successfully deployed a more inclusive campaign strategy. Bisexual and gender nonconforming individuals engaged with the campaign less frequently than gay males, suggesting these groups may further benefit from separate, targeted campaign components. Given limitations with availability of targeted media opportunities, this could include identifying additional local influencers that openly identify as bisexual and gender nonconforming. *TFL* also had increased engagement among Black/African American and Asian individuals in Minneapolis. This is encouraging given that compared to non-Hispanic whites, these racial/ethnic minorities are at increased risk for nondaily smoking.⁵¹

Although Theory of Planned Behavior would predict that perceived behavioral control would be associated with intention to quit, the current study did not find this relationship for nondaily smokers. This may be due to insufficient measurement of the construct within the instrument (a single item), or because the instrument measured self-efficacy, vs controllability.⁵² Additionally, increased perceived behavioral control may not increase quit intention among LGBTQ+ young adult nondaily smokers, particularly given the non-significant trend ($P = .08$) in the opposite direction. Nondaily smokers *already* report that they could quit smoking easily if they wanted to,^{20,25} and may experience an “illusion of control” which could weaken the relationship between perceived behavioral control and intention.^{53,54} It is possible that further increasing self-efficacy might make nondaily smokers feel even less vulnerable to the risks of addiction, reducing their need to stop and subsequently their intention to quit. Future research could further investigate the role that self-efficacy plays for nondaily smokers on intention to quit.

Overall, this study demonstrated an association between engagement with the *TFL* campaign, stronger attitudes

Table 4. Logistic regression analysis predicting intention to quit using tobacco with theoretical mediators among LGBT nondaily smokers (n = 1031).

INDEPENDENT VARIABLES & COVARIATES	LOG ODDS FOR INTENTION TO QUIT [95% CI]
Attitudes against smoking	.46 [.27, .64]***
Perceived norms	.39 [.15, .64]**
Perceived behavioral control	-.15 [-.31, .02]
Age	.01 [-.05, .06]
LGBTQ+ identity	
Gay ^a	—
Lesbian	.27 [-.20, .75]
Bisexual	-.37 [-.81, .06]
Transgender	-.16 [-.65, .33]
Gender nonconforming	-.53 [-.95, -.12]*
Race/Ethnicity	
Non-Hispanic white ^a	—
Black/African American	1.13 [.49, 1.77]***
Asian	.68 [.03, 1.32]*
Hispanic/Latino	.24 [-.23, .69]
Other/multiracial	.97 [.51, 1.42]***
Survey Year	.08 [-.05, .22]
Campaign Engagement	.09 [-.05, .22]

^aReference group; * $P < .05$, ** $P < .01$, *** $P < .001$.

against tobacco, and a shift in perceived norms, for an underserved and high-risk population in Minneapolis. These attitudes and perceived norms were then linked to intentions to quit smoking. According to the theoretical framework, we would expect these shifts in attitudes, norms and intention to ultimately result in behavioral shifts.²⁶ Given that smoking interventions are limited for LGBTQ+ nondaily smokers, this is a contribution to the tobacco-control landscape. *TFL* also represents a unique campaign that effectively sparked engagement across racial/ethnic groups within the LGBTQ+ community. The approaches used in this campaign offer important insights about how to reach marginalized communities that are frequently overlooked within the LGBTQ+ community.

Limitations

A limitation of the current study was the cross-sectional nature of the design. The current study also relied on a convenience sample obtained through social media and bar/club recruitment, which limits the generalizability of these findings. It is also worth noting, that while gender identity and sexual orientation were collapsed into a single variable for analysis, these are not exclusive categories. It is possible that transgender and gender nonconforming participants could also identify as a sexual minority. Additionally, the study did not include data from a separate community where the

campaign was not implemented as a control group, which would have strengthened the design. Finally, the current study measures intention to quit, a weaker measure than actual behavior.

Conclusion

This study evaluated a local extension of the campaign *This Free Life*, demonstrating that a targeted campaign approach may be associated with increased attitudes against tobacco and perceptions that tobacco use is less normative in LGBTQ+ young adult, nondaily smokers, an audience that has largely been overlooked in prevention and cessation interventions. The study further suggests certain sexual and gender minority groups within the larger LGBTQ+ community may benefit from separate, targeted campaign components. Additionally, this study contributes to the existing literature on LGBTQ+ young adult nondaily smokers, by using a theoretical foundation to highlight the unique ways that intention to quit smoking manifests in this audience, which could ultimately lead to behavior change.

Acknowledgments

The authors would like to acknowledge the Office of Health Communication and Education at the FDA/CTP and Rescue Agency for their invaluable work on the development of *This*

Free Life. The authors would also like to acknowledge CJ Stermer and Ben Thul for the passion they brought to the local campaign implementation in Minnesota, Dr Sharyn Rundle-Thiele, Mayo Djakaria, Carolyn Stalgaitis, Taylor Goldman, Sophia Villarreal, Dr Tesfa Alexander and Allison Alexander for their review of an early draft. Finally, the authors would like to acknowledge Erika Redke, Hadley Scharer and Jensen Sautilien for their assistance with data collection and reviewing the literature to inform the manuscript.

REFERENCES

- Jamal A, King BA, Neff LJ, Whitmill J, Babb SD, Graffunder CM. Current cigarette smoking among adults—United States, 2005–2015. *MMWR. Morb and Mortal Wkly Rep*. 2016;65:1205–1211. doi:10.15585/mmwr.mm6544a2.
- Pierce JP, White MM, Messer K. Changing age-specific patterns of cigarette consumption in the United States, 1992–2002: Association with smoke-free homes and state-level tobacco control activity. *Nicotine Tob Res*. 2009;11:171–177. doi:10.1093/ntr/ntp014.
- Wortley PM, Husten CG, Troclair A, Chrismon J, Pederson LL. Nondaily smokers: A descriptive analysis. *Nicotine Tob Res*. 2003;5:755–759. doi:10.1080/1462220031000158753.
- Lee JG, Griffin GK, Melvin CL. Tobacco use among sexual minorities in the USA, 1987 to May 2007: A systematic review. *Tob Control*. 2009;18:275–282. doi:10.1136/tc.2008.028241.
- Li J, Haardörfer R, Vu M, Windle M, Berg CJ. Sex and sexual orientation in relation to tobacco use among young adult college students in the US: A cross-sectional study. *BMC Public Health*. 2018;18:1244. doi:10.1186/s12889-018-6150-x.
- McCabe SE, Hughes TL, Matthews AK, et al. Sexual orientation discrimination and tobacco use disparities in the United States. *Nicotine Tob Res*. 2019;21:523–531. doi:10.1093/ntr/ntx283.
- Ling PM, Glantz SA. Why and how the tobacco industry sells cigarettes to young adults: Evidence from industry documents. *Am J Public Health*. 2002;92:908–916. doi:10.2105/ajph.92.6.908.
- Stevens P, Carlson LM, Hinman JM. An analysis of tobacco industry marketing to lesbian, gay, bisexual, and transgender (LGBT) populations: strategies for mainstream tobacco control and prevention. *Health Promotion Pract*. 2004;5:129S–134S. doi:10.1177/1524839904264617.
- Matthews AK, Cesario J, Ruiz R, Ross N, King A. A qualitative study of the barriers to and facilitators of smoking cessation among lesbian, gay, bisexual, and transgender smokers who are interested in quitting. *LGBT Health*. 2017;4:24–33. doi:10.1089/lgbt.2016.0059.
- Remafedi G. Lesbian, gay, bisexual, and transgender youths: who smokes, and why? *Nicotine Tob Res*. 2007;9:S65–S71. doi:10.1080/14622200601083491.
- Baskerville NB, Dash D, Shuh A, et al. Tobacco use cessation interventions for lesbian, gay, bisexual, transgender and queer youth and young adults: A scoping review. *Prev Med Rep*. 2017;6:53–62. doi:10.1016/j.pmedr.2017.02.004.
- Berger I, Mooney-Somers J. Smoking cessation programs for lesbian, gay, bisexual, transgender, and intersex people: A content-based systematic review. *Nicotine Tob Res*. 2017;19:1408–1417. doi:10.1093/ntr/ntw216.
- Lee JGL, Matthews AK, McCullen CA, Melvin CL. Promotion of tobacco use cessation for lesbian, gay, bisexual, and transgender people: A systematic review. *Prev Med Rep*. 2014;4:7823–831. doi:10.1016/j.amepre.2014.07.051.
- Matthews AK, Steffen AD, Kuhns LM, et al. Evaluation of a randomized clinical trial comparing the effectiveness of a culturally targeted and nontargeted smoking cessation intervention for lesbian, gay, bisexual, and transgender smokers. *Nicotine Tob Res*. 2018;21:1506–1516. doi:10.1093/ntr/nty184.
- Dickson-Spillman M, Sullivan R, Zahno B, Schaub MP. Queer quit: a pilot study of a smoking cessation programme tailored to gay men. *BMC Public Health*. 2014;14:126. doi:10.1186/1471-2458-14-126.
- Schane RE, Glantz SA, Ling PM. Nondaily and social smoking: An increasingly prevalent pattern. *Arch Intern Med*. 2009;169:1742–1744. doi:10.1001/archinternmed.2009.315.
- Berg CJ, Schauer GL. Results of a feasibility and acceptability trial of an online smoking cessation program targeting young adult nondaily smokers. *J Environ Public Health*. 2012;2012:162–169. doi:10.1155/2012/248541.
- Brown AE, Carpenter MJ, Sutfin EL. Occasional smoking in college: Who, what, when and why? *Addictive Behav*. 2011;36:1199–1204. doi:10.1016/j.addbeh.2011.07.024.
- Shiffman S, Dunbar MS, Scholl SM, Tindle HA. Smoking motives of daily and nondaily smokers: A profile analysis. *Drug and Alcohol Depend*. 2012;126:362–368. doi:10.1016/j.drugaldep.2012.05.037.
- Amrock SM, Weitzman M. Adolescents' perceptions of light and intermittent smoking in the United States. *Pediatrics*. 2015;135:246–254. doi:10.1542/peds.2014-2502.
- Schane RE, Prochaska JJ, Glantz SA. Counseling nondaily smokers about secondhand smoke as a cessation message: A pilot randomized trial. *Nicotine Tob Res*. 2012;15:334–342. doi:10.1093/ntr/nts126.
- Hackshaw A, Morris JK, Boniface S, et al. Low cigarette consumption and risk of coronary heart disease and stroke: Meta-analysis of 141 cohort studies in 55 study reports. *BMJ*. 2018;360:j5855. doi:10.1136/bmj.j5855.
- Inoue-Choi M, Liao LM, Reyes-Guzman C, et al. Association of long-term, low-intensity smoking with all-cause and cause-specific mortality in the National Institutes of Health–AARP Diet and Health Study. *JAMA Intern Med*. 2017;177:87–95. doi:10.1001/jamainternmed.2016.7511.
- Schane RE, Ling PM, Glantz SA. Health effects of light and intermittent smoking: A review. *Circulation*. 2010;121:1518–1522. doi:10.1161/CIRCULATIONAHA.109.904235.
- Berg CJ, Schauer GL, Buchanan TS, et al. Perceptions of addiction, attempts to quit, and successful quitting in nondaily and daily smokers. *Psychol Addict Behav*. 2013;27:1059–1067. doi:10.1037/a0033790.
- Ajzen I. The theory of planned behavior. *Organ Behav Hum Decis Process*. 1991;50:179–211. doi:10.1016/0749-5978(91)90020-T.
- Fallin A, Neilands TB, Jordan JW, Ling PM. Secondhand smoke exposure among young adult sexual minority bar and nightclub patrons. *Am J Public Health*. 2014;104:e148–e153. doi:10.2105/AJPH.2013.301657.
- Trotter L, Wakefield M, Borland R. Socially cued smoking in bars, nightclubs, and gaming venues: A case for introducing smoke-free policies. *Tob Control*. 2002;11:300–304. doi:10.1136/tc.11.4.300.
- Croff JM, Hubach RD, Curran JM, Frederick AF. Hidden rainbows: gay bars as safe havens in a socially conservative area since the Pulse nightclub massacre. *Sex Res Social Policy*. 2017;14:233–240. doi:10.1007/s13178-017-0273-1.
- Fileborn B. Accounting for space, place and identity: GLBTIQ young adults' experiences and understandings of unwanted sexual attention in clubs and pubs. *Crit Criminol*. 2014;22:81–97. doi:10.1007/s10612-013-9221-4.
- Ajzen I. Perceived behavioral control, self-efficacy, locus of control, and the theory of planned behavior. *J Appl Soc Psychol*. 2002;32:665–683. doi:10.1111/j.1559-1816.2002.tb00236.x.
- Balmford J, Borland R, Burney S. The influence of having a quit date on prediction of smoking cessation outcome. *Health Educ Res*. 2010;25:698–706. doi:10.1093/her/cyq013.
- Guillory J, Wiant KF, Farrelly M, et al. Recruiting hard-to-reach populations for survey research: using Facebook and Instagram advertisements and in-person intercept in LGBT bars and nightclubs to recruit LGBT young adults. *J Med Internet Res*. 2018;20:e197. doi:10.2196/jmir.9461.
- Mortensen CR, Neel R, Cialdini RB, Jaeger CM, Jacobson RP, Ringel MM. Trending norms: A lever for encouraging behaviors performed by the minority. *Soc Psychol Personal Sci*. 2017;10:201–210. doi:10.1177/1948550617734615.
- Farrelly MC, Heaton CG, Davis KC, et al. Getting to the truth: evaluating national tobacco countermarketing campaigns. *Am J Public Health*. 2002;92:901–907. doi:10.2105/ajph.92.6.901.
- Offen N, Smith EA, Malone RE. Is tobacco a gay issue? Interviews with leaders of the lesbian, gay, bisexual and transgender community. *Cult Health Sex*. 2008;10:143–157. doi:10.1080/13691050701656284.
- Gwaltney CJ, Metrik J, Kahler CW, Shiffman S. Self-efficacy and smoking cessation: A meta-analysis. *Psychol Addict Behav*. 2009;23:56–66. doi:10.1037/a0013529.
- DiClemente CC, Delahanty JC, Fiedler RM. The journey to the end of smoking: A personal and population perspective. *Am J Prev Med*. 2010;38:S418–S428. doi:10.1016/j.amepre.2009.12.010.
- Vallone DM, Duke JC, Mowery PD, et al. The impact of EX: Results from a pilot smoking-cessation media campaign. *Am J Prev Med*. 2010;38:S312–S318. doi:10.1016/j.amepre.2009.11.021.
- Centers for Disease Control and Prevention. National Adult Tobacco Survey Questionnaire, 2013–2014. https://www.cdc.gov/tobacco/data_statistics/surveys/nats/pdfs/2013-2014-questionnaire-tag508.pdf. April 10, 2015. Accessed October 10, 2019.
- Dutra LM, Glantz SA. Electronic cigarettes and conventional cigarette use among US adolescents: A cross-sectional study. *JAMA Pediatr*. 2014;168:610–617. doi:10.1001/jamapediatrics.2013.5488.
- IBM SPSS Statistics for Macintosh. [Computer software]. Version 25.0. Armonk, NY: IBM Corp; 2017.
- Preacher KJ, Hayes AF. Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behav Res Methods*. 2008;40:879–891. doi:10.3758/BRM.40.3.879.
- Hayes AF. PROCESS Documentation Addendum. 2019. <http://afhayes.com/public/v3docadd.pdf>. Accessed September 20, 2019.
- Hayes AF. *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. 1st ed. Guilford Publications; 2017.

46. Coakes SJ. *SPSS version 12.0 for Windows: analysis without anguish*. Milton, Qld: John Wiley Sons; 2005.
47. Hair JF, Anderson RE, Tatham RL, Black WC. *Multivariate data analysis*. 5th ed. NJ: Prentice Hall; 1998.
48. Plant A, Montoya JA, Tyree R, et al. The break up: Evaluation of an anti-smoking educational campaign for lesbians, gays, and bisexuals in Los Angeles County. *J Health Commun*. 2016;22:29-36. doi:[10.1080/10810730.2016.1247485](https://doi.org/10.1080/10810730.2016.1247485).
49. Seidenberg A, Jo C, Ribisl K, et al. A national study of social media, television, radio, and internet usage of adults by sexual orientation and smoking status: Implications for campaign design. *Int J Environ Res Public Health*. 2017;14:450. doi:[10.3390/ijerph14040450](https://doi.org/10.3390/ijerph14040450).
50. Davis KC, Shafer PR, Rodes R, et al. Does digital video advertising increase population-level reach of multimedia campaigns? Evidence from the 2013 tips from former smokers campaign. *J Med Internet Res*. 2016;18:e235. doi:[10.2196/jmir.5683](https://doi.org/10.2196/jmir.5683).
51. Trinidad DR, Pérez-Stable EJ, Emery SL, et al. Intermittent and light daily smoking across racial/ethnic groups in the United States. *Nicotine Tob Res*. 2009;11:203-210. doi:[10.1093/ntr/ntn018](https://doi.org/10.1093/ntr/ntn018).
52. Rhodes RE, Courneya KS. Self-efficacy, controllability and intention in the theory of planned behavior: Measurement redundancy or causal independence? *Psychol Health*. 2003;18:79-91. doi:[10.1080/0887044031000080665](https://doi.org/10.1080/0887044031000080665).
53. Langer EJ. The illusion of control. *J Pers Soc Psychol*. 1975;32:311-328. doi:[10.1037/0022-3514.32.2.311](https://doi.org/10.1037/0022-3514.32.2.311).
54. Armitage CJ, Conner M. Efficacy of the theory of planned behaviour: A meta-analytic review. *Br J Soc Psychol*. 2001;40:471-499. doi:[10.1348/014466601164939](https://doi.org/10.1348/014466601164939).