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Engaging Minority Youth in Diabetes Prevention Efforts Through a Participatory, Spoken-Word Social Marketing Campaign

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Purpose

The prevalence of type 2 diabetes (T2DM) in youth has increased alarmingly and with widening ethnic disparities.¹ Among youth aged 12–19 years, 23% had prediabetes or diabetes in 2008, compared to only 9% eight years prior.² For 15–19 year-olds with diabetes in 2009, T2DM accounted for only 5.5% of cases for whites, but ranged from 38–80% in minority groups.³

Many T2DM prevention interventions focus on individual behaviors.^{4–6} However, to improve population health, strategies targeting socio-environmental risks are needed,⁷ such as those contributing to success in tobacco control.⁸ One construct stemming from this idea is *public health literacy*, defined as “the degree to which individuals and groups can obtain, process, understand, evaluate, and act upon information needed to make public health decisions that benefit the community.”⁹

Here we evaluate a campaign to increase public health literacy about T2DM risk. Developed through an academic-community partnership, *The Bigger Picture* combines social

marketing's focus on targeted health-promoting ideas¹⁰ with entertainment education's process of designing messages to entertain and educate¹¹ for the purposes of increasing knowledge and shifting attitudes among low-income and minority youth – the populations at highest risk of developing T2DM.

Campaign Creation

The campaign's development is described elsewhere.¹² Briefly, health professionals from UCSF's Center for Vulnerable Populations (CVP) and staff from Youth Speaks, a youth arts organization, conducted 7 writing workshops over 3 years for 40 youth poets. The CVP team provided information about T2DM, focusing on community-level factors. Poets "re-storied" this information into reflective spoken-word narratives and selected 21 to be professionally produced as video public service announcements (PSAs). Two PSAs were created in English and Spanish. Themes included the association of T2DM with the built environment, advertisements targeting minority youth, sugar addiction, food insecurity, and racial and socioeconomic disparities.

The Bigger Picture team built a campaign website (www.thebiggerpicture.org) in English and Spanish to deliver T2DM information, PSAs, and a downloadable toolkit and workshop book for educators. The team also developed a Facebook page (www.facebook.com/thebiggerpicturecampaign) and Twitter account (<https://twitter.com/BigPicCampaign>).

Methods

Design

We conducted a non-experimental dissemination evaluation of the web-based platform and high school assemblies. The UCSF Committee on Human Research deemed this study exempt.

Sample

Assemblies were conducted in San Francisco Bay Area schools over 6 months in 2013. At each, a sample of up to 90 high school students used audience response systems ("clickers") to give demographics and respond to 3 questions embedded in the presentation's beginning and end.

Measures

Evaluation of the campaign's impact focused on the first three dimensions of the RE-AIM framework: reach, effectiveness, and adoption.¹³ *Reach* was assessed using Web analytic data for the online campaign components, state-reported data for participating schools, and student self-reported demographics collected during school visits. *Effectiveness* was measured through assembly pre-post questions assessing short-term change in knowledge and attitudes (see Appendix¹⁴). *Adoption* was assessed by identifying public health or community groups using or endorsing the campaign.

Intervention

The team collaborated with school districts and other youth and health stakeholders to (1) promote *The Bigger Picture* through online venues, at regional public health and medical conferences, and during community activities; and to (2) deliver a one-hour school assembly incorporating T2DM statistics, live poet performances, and video PSAs using a standard script, finalized after 2 pilot school visits.

Analysis

Descriptive data are presented as counts and proportions. Short-term changes in knowledge and attitudes were assessed by collapsing and dichotomizing pre-post responses¹⁴ and using McNemar's chi-square test and a mixed model (adjusted for individual student demographics, Table), accounting for clustering at the school level.

Results

Reach

As of June 2015, the website's educator toolkit and workshop book were downloaded 890 and 1,812 times, respectively; the web-based video PSAs were viewed 1,049,187 times; the Facebook page had 1,388 "likes"; and the Twitter account had 874 followers. For comparison, a systematic review of social networking sites for sexual health promotion demonstrated a median of 327 and 565 users for Facebook and Twitter, respectively.¹⁵ The assemblies reached the target audience – 2460 students, the majority from minority groups (Table).

Effectiveness

Student knowledge and attitudes about T2DM risk shifted favorably during assemblies (Figure). Students who recognized environmental causes of T2DM increased from 34% to 83%. Those who "cared a lot" about preventing T2DM increased from 29% to 59%.

Adoption

San Francisco and Alameda Counties' Departments of Public Health supported the creation of four PSAs to augment their "Rethink Your Drink" health education campaigns. Both health departments as well as Sonoma County's partnered with UCSF and the American Heart Association (among others) to create the "Open Truth Campaign" which uses *The Bigger Picture* messaging to educate about the health consequences of sugary drinks and highlights industry's marketing to youth of color. The PSAs have been recognized by San Francisco's "Food Farms and Film Festival" and by Upworthy.com. Team members gave an invited presentation at the 2013 Institute of Medicine Round Table on Health Literacy, presented at the 2014 Center for Science in the Public Interest's National Soda Summit, and were awarded an APHA Spirit of 1848 award linking health to social justice.

Discussion

Summary

The Bigger Picture campaign employs a youth participatory strategy within a public health literacy framework to disseminate information about the socio-environmental contributors to T2DM risk. Built around PSAs created by youth poets from the target population, the campaign has successfully reached high-risk adolescents through school assemblies and positively affected short-term knowledge and attitudes about T2DM prevention. Web-based materials and social media venues offer potential to extend this reach. The campaign has been adopted by public health entities and recognized nationally by the health community.

Limitations

Limitations of this evaluation include the potential for youth responders to be influenced by social desirability, the short-term nature of the assembly evaluation, and the lack of a comparison group. However, the magnitude of pre-post change is compelling. Challenges include measuring behavior to assess transition from change in attitude to concrete action, and how to best promote youth's civic engagement around health justice, since concrete action to change the built environment is the ultimate goal of raising awareness through this campaign.

Significance

The youth poets' talent and commitment to social justice led to fresh and engaging PSA content unique in the diabetes health communication landscape. The collaboration with *ShapeUp SF* provides a promising template for broader public health dissemination, and demonstrates that the campaign's public health literacy framework is relevant to stakeholders. The campaign holds potential for increasing content and expanding reach, and presents hopes for fomenting community-level change through youth engagement.

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So What?

What is already known on this topic?

Many T2DM prevention interventions focus on individual behaviors. To contribute to a holistic health literacy strategy, health communication targeting socio-environmental risks are needed.

What does this article add?

This article outlines the evaluation of *The Bigger Picture* campaign which aims to increase public health literacy about preventing T2DM through educating youth about socio-environmental risks. The evaluation demonstrates reach, efficacy, and adoption of the campaign.

What are the implications for health promotion practice or research?

Because this campaign is web-based, it has potential for dissemination to a broad audience. By providing health information from a socio-ecologic perspective, this campaign holds potential for understanding whether framing T2DM risk as a social justice issue can foment motivation for change among adolescents.

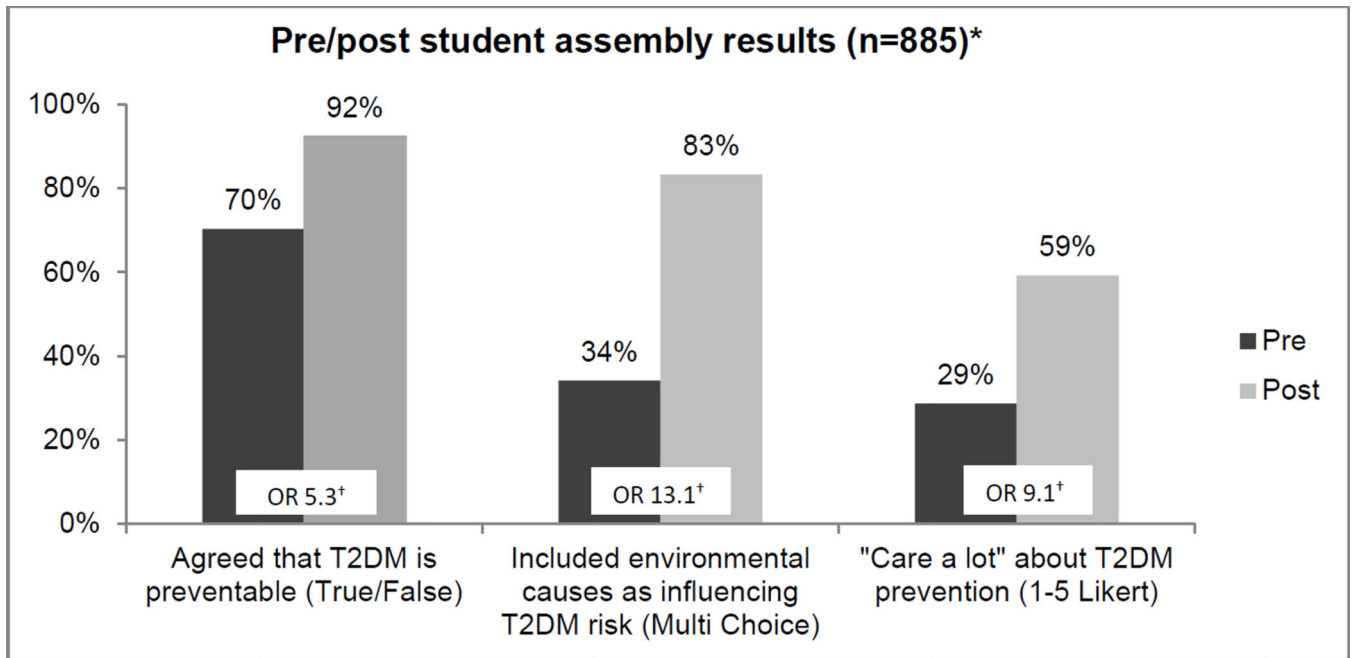


Figure 1.

*McNemar's Chi2 p-values <0.001 for each question's pre-post comparison.

†Results of a mixed model adjusted for individual student demographics (Table) and accounting for clustering at the school level.

Table 1

Campaign Reach: School assembly demographics.

Assembly Participant Demographics and Participating School Characteristics	Assembly Participants (n=781)*	School Characteristics (n=13)†
Female sex, n (%)	436 (56)	-
Student enrollment, mean n (range)	-	982 (52, 2763)
Race/Ethnicity, n (%), and mean % (range), respectively		
Hispanic/Latino	218 (28)	32 (9, 60)
Asian	207 (27)	33 (3, 67)
African American/black	144 (18)	20 (6, 52)
Mixed race/multi-ethnic	110 (14)	1 (0, 3)
White	53 (7)	10 (0, 40)
Pacific Islander	33 (4)	2 (0, 6)
American Indian	16 (2)	0.5 (0, 1)
Age in years, mean (95% CI)	15.7 (15.6, 15.8)	
Free or reduced lunch rate, mean % (range)	66 (22, 88)	

*For reporting, 104 observations were dropped because of missing demographics data, giving an 88% response rate.

†Data from the California School Accountability Report Card reporting from 2011–2012, found at www.sfusd.edu, <http://web.ousd.k12.ca.us> or individual school websites. One participating school did not have complete information for the free or reduced lunch rate.

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