# CROWDSOURCED PREP PROMOTION MESSAGES FOR AN HIV HIGH-BURDEN AREA: A FRAMEWORK-BASED CONTENT ANALYSIS

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Pre-exposure prophylaxis (PrEP) is an important and highly effective HIV prevention strategy, but its uptake remains low, particularly among marginalized populations at high risk of HIV. Innovative and community-driven promotion strategies, such as open contests, are needed to address disparities. This directed content analysis uses a PrEP-specific adaptation of the Information-Motivation-Behavioral Skills (IMB) model to identify themes related to PrEP use reflected in community-generated submissions (n = 73) from an open contest conducted to elicit crowdsourced health promotion messages on PrEP in Baltimore, Maryland. In addition to identifying eight of the themes from the adapted IMB model, this analysis also identified two novel salient themes in the motivation category: self-worth/self-love and self-care practice. Findings from this analysis can inform PrEP promotion efforts by pointing to salient themes identified from a community-driven approach that are less well represented in existing research.

*Keywords:* pre-exposure prophylaxis, prevention, health promotion, content analysis, community-driven, crowdsourcing

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## INTRODUCTION

Pre-exposure prophylaxis (PrEP) is a biomedical HIV prevention strategy that has been shown to be highly effective in reducing the risk of HIV infection among people who take it as recommended. The U.S. federal initiative for Ending the HIV Epidemic (EHE) recommends enhancing PrEP uptake among those most at risk for HIV transmission in the United States (Fauci et al., 2019). Guidelines for prescription and use of PrEP have been issued, but uptake of PrEP has been low, with only 23.4% of the estimated 1.2 million people at high risk for HIV infection having a PrEP prescription in 2019 (Centers for Disease Control and Prevention [CDC], 2021). Further, emerging studies of populations at risk of HIV in the United States have identified warning signs of racial disparities in PrEP awareness, uptake, and adherence. The rates of PrEP uptake are disproportionately low among marginalized racial and ethnic groups. The CDC reported that in 2019, Black and Latinx people accounted for 38.5% and 25.7% of those with indications for PrEP use, but only 8.2% and 14% of PrEP prescriptions, respectively (CDC, 2021). In contrast, White people accounted for 24.7% of those indicated for PrEP use, and the PrEP coverage among this group was 63.3% (CDC, 2021). Additionally, although overall PrEP use has been increasing in recent years, uptake among a variety of other key populations in addition to Black adults (e.g., transgender women, people living in the Southern U.S., youth, and people who inject drugs) remains low (Kamitani et al., 2020).

These disparities in PrEP uptake highlight the need for more effort in promoting awareness, acceptance, and accessibility of PrEP in HIV high-burden populations. One of the many multilevel drivers of these inequities in awareness and acceptance could be a lack of community-driven approaches in designing PrEP promotion messaging (Sophus & Mitchell, 2019). PrEP program planning needs to draw on a diverse range of community strengths to promote informed decision-making about PrEP and ensure that messages are culturally sensitive, relevant, and responsive to the community's needs and priorities.

To help address this inequity in awareness and acceptance, our team has collaborated with multiple local community partners that serve Black sexual minority men, transgender women, and homeless youth in Baltimore to implement an open contest called "My Voice My Choice" in order to develop community-engaged PrEP promotion messages (White et al., 2020). Open contests, a form of crowdsourcing, involve a large number of community members in developing, vetting, and implementing solutions to public health problems in the form of a contest (Surowiecki, 2005; Tucker et al., 2019). The "My Voice My Choice" PrEP promotion open contest is premised upon evidence showing that tapping into the wisdom and personal experience of communities should facilitate the design of more creative and relevant messaging (Surowiecki, 2005; Tucker et al., 2019) that can increase PrEP awareness, acceptability, and uptake in Baltimore. "My Voice My Choice" solicited submissions of a hashtag (i.e., a succinct string of words that can help sort online text-based content beginning with the # symbol) for a PrEP promotion campaign coupled with one or two sentences that serve as a "call to action" to motivate others to learn more about PrEP.

The total body of submissions to this open contest provides a wealth of information of community knowledge and beliefs about PrEP. Thus, a content analysis of these submissions could lead to an improved understanding of the meanings or portrayals of PrEP and its use among this population (Esterberg, 2002; Patton, 2015).

For the current study, the goal was to conduct a directed content analysis guided by Duboy, Altice, and Fraenkel's (2018) PrEP-specific adaptation of the Information-Motivation-Behavioral Skills (IMB) model framework (Fisher & Fisher, 2002) in order to characterize the themes reflected in the open contest submissions. Turning first to the general IMB model framework, the original model broadly asserts that an individual's ability to overcome barriers to perform a health behavior is associated with a combination of the extent to which the individual has information about the health behavior, the extent to which the individual is motivated to act on this knowledge, and the extent to which the individual possesses the requisite behavioral skills to perform the behavior (Fisher & Fisher, 2002). The IMB model for PrEP uptake is useful for this analysis because it provides a comprehensive organization of many empirically demonstrated correlates (26 in total) of PrEP uptake. This includes 9 subcategories that fit within three IMB categories of information, motivation, and behavioral skills to show the complex system of factors that are related to PrEP uptake (Dubov et al., 2018). A full list of all correlates in the IMB model for PrEP uptake organized by category and subcategory is provided in Table 1.

The information category is divided into two subcategories of "objective" and "subjective" factors (e.g., facts about HIV transmission and perceived burden of PrEP, respectively). The motivation category has four subcategories of factors: risk perception (e.g., perceived risk of HIV infection), personal attitudes (e.g., attitude toward health care in general), personal intentions (e.g., safer sex intentions), and social norms (e.g., peer values about PrEP/sex). The behavioral skills category has three subcategories of factors, which are self-efficacy (e.g., for scheduling/remembering regular testing appointments), action planning (e.g., identifying a provider and planning an initial visit), and coping planning (e.g., dealing with partner barriers or PrEP stigma). In addition to these three categories from the general IMB model framework, the IMB model for PrEP uptake also includes the potential influence of "moderating factors" (e.g., lack of insurance coverage, lack of stable housing, PrEP skepticism from media and providers). These moderating factors are critical to consider, as PrEP uptake is necessarily promoted in the context of many multilevel barriers and facilitators. These barriers could mean that simply having the requisite information, motivation, and behavioral skills may not be sufficient to allow an individual to initiate PrEP use.

The themes identified by this directed content analysis of open contest submissions using the IMB model for PrEP uptake can inform PrEP promotion campaigns and facilitate more effective patient-provider communication. Keeping with the directed content analysis approach (Hsieh & Shannon, 2005), we hypothesized that any number of themes from the IMB model for PrEP uptake could be reflected in the submissions alongside potential other salient themes that may not be included in the predefined model.

#### **METHODS**

# STUDY SETTING AND PARTICIPANTS

The open contest that elicited these submissions occurred in Baltimore, Maryland. Maryland ranked fifth among U.S. states and territories in adult/adolescent HIV diagnosis rates (per 100,000) in 2017 (CDC, 2018). In Maryland, Baltimore City

TABLE 1. Correlates Listed in the Information-Motivation-Behavioral Skills Model of PrEP Uptake

Category	Subcategory	Correlate
Information	Objective	Efficacy, dosage, safety of PrEP
		Facts about HIV transmission
	Subjective	Perceived burden of PrEP regimen and impact of PrEP on one's sex life
		HIV prevention heuristics
Motivation	Risk perception	Perceived risk of HIV
		Prevention status quo
		Anticipated regret from risk behavior
		Anticipated HIV/PrEP stigma
	Personal attitudes	Attitude toward PrEP
		Attitude toward health care
		Condom attitudes
	Personal intentions	Safer sex intentions
		Sex expectancies
	Social norms	Peer values about PrEP/sex
		Prevention altruism
		Dyadic decision-making
	Self-efficacy for:	Potential side effect management
		Scheduling/remembering regular testing appointments
		Disclosure of risk behaviors to provider in order to obtain PrEP
Behavioral skills		Obtain, refill, and remember to take PrEP as prescribed
	Action planning	Identifying provider and planning initial visit
		Figuring out benefits, coverage, copayments
		Arranging for resources needed to start PrEP
	Coping planning	Prioritize PrEP in the context of competing demands
		Dealing with partner barriers or PrEP stigma
		Planning to change sex behavior
Moderating factors	N/A	Lack of insurance coverage
		Substance use
		Lack of stable housing
		PrEP skepticism (media/providers)
		Psychological ill-health

Note. Bolded phrases are included as a theme code in the final codebook.

continues to have a high HIV incidence and has been designated as one of the high-burden communities in the United States EHE initiative (Fauci et al., 2019). In Baltimore, non-Hispanic Black people made up the majority (82.7%) of people living with HIV (Center for HIV Surveillance, Epidemiology, and Evaluation, Maryland Department of Health, 2018). Although this open contest was promoted primarily through local community partners that serve Black sexual minority men, transgender women, and homeless youth in Baltimore, there were no exclusion criteria that limited the contestants to belonging to any demographic group(s).

## DATA COLLECTION AND PROCEDURES

The open contest procedures are described in detail elsewhere (White et al., 2020). Contestants were asked to submit a short, Tweet-style message and an accompanying hashtag to respond to the following prompts: (1) What should be the Hashtag/# of your PrEP promotion campaign? and (2) Give 1–2 sentences for a "call to action" to your friends that can motivate them to learn more about PrEP. Contestants also had the option to complete a short sociodemographic and behavior survey with their submission that asked contestants' age, education level, race, relationship status, sex at birth, current sex, sexual orientation, employment, awareness of PrEP, ever PrEP use, and current PrEP use. Individuals were allowed to submit multiple entries. This contest was launched on the National Black HIV/AIDS Awareness Day, February, 7, 2019, and all submissions were received by May 1, 2019.

## **DATA ANALYSIS**

This analysis sought to understand salient themes related to PrEP use reflected in 79 unique open contest submissions. To accomplish this, a deductive qualitative analysis of all submissions was performed using a two-step directed content analysis. Directed content analysis allowed for predefinition of categories of known themes related to PrEP use (i.e., the factors from the IMB model for PrEP uptake) while also permitting the emergence of additional salient themes un- or under-represented in the literature (Hsieh & Shannon, 2005). As described above, the three IMB categories (i.e., information, motivation, and behavioral skills), the additional category of "moderating factors," and these categories' associated factors included in the IMB model for PrEP uptake were thought to offer a sufficiently comprehensive organizational framework of factors related to PrEP use that were then used as themes in this analysis of the submitted promotional messages.

Following the definition of these categories and themes using the IMB model for PrEP uptake, a doctoral-level researcher familiar with the model (ELE) coded each submission as pertaining to any or none of these categories. During this process, 6 submissions were dropped for being either incomplete or unintelligible for an analytic sample of n = 73 submissions. All 73 submissions were able to fall into at least one of the three IMB categories, but none were coded as reflecting any theme in the moderating factors category. The three IMB categories (i.e., information, motivation, and behavioral skills) were thus deemed sufficient; the moderating factors category was removed from the codebook, and no additional categories were added.

Next, the same researcher (ELE) coded each submission with the predefined theme(s) within each category that the content of the submission (i.e., both the message and the hashtag) addressed. There was no set limit to how many themes could be coded for one submission. If more than two submissions clearly included a theme not defined a priori (i.e., not included in the IMB model for PrEP uptake), the factor was added to the codebook. The final codebook of 10 themes across the three categories—including 2 themes not included in the IMB model for PrEP uptake—was then reviewed by the supervising author (CY).

Next, the finalized and reviewed codebook was then independently applied by another doctoral-level researcher (MU) to a training set of a random selection of about 10% of the submissions (n = 8). The two researchers met to review and reconcile discrepancies that arose in their separate coding of the training set before both researchers coded the entire set of submissions again. Once both researchers

had coded all submissions, prevalence-adjusted bias-adjusted kappa (PABAK) was calculated for each of the 10 themes to assess reliability. Apart from the "prevention status quo" theme (PABAK = 0.70), all themes had reliability scores ranging from 0.84 to 1.0. This supports that the codebook was interpreted with high similarity between the two coding researchers and the codes were distinguishable. The supervising author (CY) reconciled all 40 remaining differences, and the numbers used in the remainder of this article are those following the supervising author's reconciliation. The codes and a draft of the results section were then discussed with a community member (MH) as an additional validity check.

# **RESULTS**

# CONTESTANT CHARACTERISTICS

The open contest procedures described above elicited 79 submissions and 48 contestant responses to the optional sociodemographic and behavioral survey. Fifty submissions were made during in-person events, and the remainder were submitted at other times. Given that contestants could submit multiple submissions and the sociodemographic and behavioral survey was optional, it is not known how many total unique contestants participated in the contest. The characteristics of the contestants who responded to the optional survey (n = 48) are shown in Table 2.

The responses indicated a median age of 26 years and were generally Black or African American (n = 40, 83%), single (n = 28, 59%), male (n = 33, 69%), and not heterosexual (n = 31, 65%). A large majority (n = 42, 88%) reported awareness of PrEP, but 73% (n = 35) had never taken PrEP.

## THEMES FROM CONTENT ANALYSIS

Each of the three categories of the IMB model (i.e., information, motivation, and behavioral skills) was represented in the total body of submissions, though the number of distinct themes within each category reflected by the submissions varied. Table 3 shows the final themes and number of entries coded with each theme.

The three categories are also used to present the results of the content analysis below. On average, each submission was coded as reflecting about two themes (mean = 2.01). The most themes coded in one submission was five (n = 1), and all submissions were coded with at least one theme. Minor typographical changes were made to the submissions quoted below for clarity.

Information. The information category was confirmed to be an important one targeted by contestants' proposed PrEP promotion messaging. About a quarter (n = 20, 27.4%) of submissions were coded as reflecting the category of information. The submissions that were coded as reflecting information were not specific enough to code them at the correlate/factor level. Instead of giving specific facts about PrEP or HIV or attempting to change specific perceptions of PrEP or HIV, the submissions that included concerns around information suggested encouragement to be informed (e.g., "get inform[ed] so you can be in the know! #PREPMEUP"), and to have curiosity and an open mind (e.g., "take advantage and learn something new #PREPISFORME"). Implicit in many of the information-related submissions is the idea that there are misconceptions and misinformation around PrEP that exist in the

TABLE 2. Sociodemographic and Behavioral Characteristics Reported by Contestants in Optional Survey

-24 years old 20 42 -34 years old 17 35 -44 years old 7 15 -52 years old 4 8 action adde 12 or GED 20 42 me college, associate degree 12 25 chelor's degree 5 10 me postgraduate studies 5 10 aduate degree 6 13 ock or African American 40 83 nite 3 6 her 5 11 tionship status gle 28 59 a committed relationship 13 27 arried 5 10 parated or divorced 2 4 ent gender identity			
Characteristic	n	%	
Agea			
18-24 years old	20	42	
25–34 years old	17	35	
35-44 years old	7	15	
45-52 years old	4	8	
Education			
Grade 12 or GED	20	42	
Some college, associate degree	12	25	
Bachelor's degree	5	10	
Some postgraduate studies	5	10	
Graduate degree	6	13	
Race			
Black or African American	40	83	
White	3	6	
Other	5	11	
Relationship status			
Single	28	59	
In a committed relationship	13	27	
Married	5	10	
Separated or divorced	2	4	
Current gender identity			
Female	13	27	
Male	33	69	
Other, specify (Both contestants specified nonbinary)	2	4	
Sexual orientation			
Homosexual, gay, queer, or same gender loving	18	38	
Bisexual	9	19	
Heterosexual or straight	17	35	
Not sure or questioning	1	2	
Other, specify (All three contestants specified pansexual)	3	6	
Employment			
Employed full time	21	44	
Employed part time	5	10	
Student	7	15	
Unemployed or unable to work due to health reasons	15	31	
PrEP awareness			
Not aware	6	12	
Aware	42	88	
Ever taken PrEP			
No	35	73	
Yes	13	27	
Currently taking PrEPb			
No	1	8	
Yes	12	92	
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*Note.* This survey was optional, so the total number of contestants who completed the survey (n = 48) is lower than the number of submissions in the analysis (n = 73). Contestants' ages ranged from 18 to 52 years old, with an average age of 29 years old and a median age of 26 years old. <sup>b</sup>Asked only to contestants who have taken PrEP (n = 13).

TABLE 3. Included Codes, Sources, Number of Entries That Used the Code, and Percentage of Total Entries

Code	Source	n	%
Information	Category of correlate in the IMB model for PrEP uptake	20	27.4
Prevention status quo	Correlate in the "Motivation" category in the IMB model for PrEP uptake	35	47.9
Attitude toward PrEP		15	20.5
Safer sex intentions		9	12.3
Peer values about PrEP/sex		5	6.8
Prevention altruism		8	11.0
Dyadic decision making		4	5.5
Self-love/self-worth	Emerged as a salient theme during	15	20.5
Self-care practice	analysis		19.2
Behavioral skills	Category of correlate in the IMB model for PrEP uptake	22	30.1

Note. IMB = Information-Motivation-Behavioral Skills.

community, such as in this submission that encourages communication: "'Let's talk, Let's get PrEP' #notsuregetPrEP." A large majority of submissions that were coded as reflecting information (n = 15, 75.0%) were coded solely as reflecting information. The submissions that did link being informed about PrEP with other benefits emphasized the control over one's health and sexual behavior that knowledge around PrEP enables (e.g., "information is power, PrEP to be informed #PrEP4life").

Motivation. Fifty-seven (78.1%) submissions were coded as reflecting the motivation category of themes related to PrEP use, making it the category most frequently reflected in the submissions. This is also the category with the most factors in the IMB model for PrEP uptake. We identified all of these four subcategories (i.e., risk perception, personal attitudes, personal intentions, and social norms) representing six distinct factors from the model's motivation category as well as two novel themes that were not included in the model.

The most reflected motivation theme from the IMB model for PrEP uptake was prevention status quo (n = 35, 48.0%), which is defined in Dubov et al. (2018) as an individual's motivation to take PrEP due to a lack of satisfaction in the current state of affairs of their preventive behaviors. Submissions coded with this theme implied that taking PrEP is a proactive choice to prevent HIV infection and improve one's life (e.g., "Don't wait until it's too late! If you want to avoid catching the HIV virus, get informed about the PrEP pill today! #PrEPareyourfuture"; "If you take the right decision, it can change your life. Be prepared, you deserve it! #beprepared"). Similar but still conceptually distinct from the theme of prevention status quo is the next most frequently reflected motivation-related theme of attitudes toward PrEP use (n = 15, 20.5%). Submissions were coded as reflecting attitudes toward PrEP use if they brought up affectively valenced opinions about the medication. The attitudes brought up by these submissions were overwhelmingly positive since they were aimed at encouraging PrEP use (e.g., "say yay to PrEP and mean it! #YAYorPrEP").

The other four a priori themes from the IMB model for PrEP uptake's 'motivation' category were each reflected in fewer than 10 submissions. The theme of "safer sex intentions" was reflected in nine submissions (12.3%) and was coded

only when the submission could indicate that PrEP use is in line with general intentions to use HIV prevention methods such as condoms (e.g., "'Be safe, use PrEP' #belitlikePrEP"). Eight submissions (11.0%) reflected the theme of prevention altruism: when PrEP use was linked to the something that could benefit others in one's social network(s) or community(ies) (e.g., "Love Yourself and Others. PrEP #PrEP4Tomorrow"). Peer values about PrEP/sex was coded as reflected in five submissions (6.8%) when the submission evoked the thoughts or behaviors of others aside from the reader of the message regarding PrEP use or sex (e.g., "Informed, and not alone! #WaitWhatsPrEP"). The last motivation theme from the IMB model for PrEP uptake reflected in the submissions—and the least commonly coded (n = 4, 5.5%)—is dyadic decision making, which represents the idea that PrEP has implications for both the person taking it and their partner(s) (e.g., "My choice is her choice, as his choice is also mine. #ThaPillis4Everyone").

Two novel themes that emerged as salient in these submissions but were not reflected in the factors in Dubov et al.'s (2018) model are self-worth/self-love and self-care practice. In these data, self-worth/self-love was coded as reflected in 15 submissions (20.5%) when submissions framed PrEP as something that has the potential to increase one's self-worth or as something that, when taken, is an act of self-love. This concept was often paired with the prevention status quo theme (e.g., "'If you love yourself PrEP yourself' #PrEPyourself") and the attitudes toward PrEP use theme (e.g., "Be on PrEP be fabulous and free #dressforPrEP"), positioning self-worth/self-love as something that both motivates the use of PrEP and can be achieved—at least in part—by the use of PrEP. Similarly, both a means and an end for motivation around PrEP use, the theme of self-care practice was reflected in 14 (19.2%) submissions. Self-care practice as a theme is conceptualized as PrEP use being seen as related to general health, health-related appearance, and/or ability to engage in physical activity not specific to HIV-related health outcomes or sexual health (e.g., "put in work, for your health #WorkonPrEP"; "Shine brighter to stay fitter #LetsgetPrEPared").

Behavioral Skills. Similar to the information category, the behavioral skills category was used as both a category and a single theme. This is because when behavioral skills were represented in the submissions, the exact skills being referred to were almost never explicitly described—likely due to the submissions' brief nature. Instead, the submissions tended to gesture toward behavior-related aspects of PrEP such as medication adherence (e.g., "With every step, take a PrEP! One a day keeps the doctors away #PrEPOnDeck"). Moreover, and in opposition to the trend observed in the information category, the behavioral skills category was never the sole category reflected in submissions. The category was reflected in 22 submissions (30.1%), but always in combination with at least one information or motivation theme.

## **DISCUSSION**

This directed content analysis of the total body of submissions from an open contest for PrEP promotion identified eight themes from the IMB model for PrEP uptake and two novel salient themes of self-love/self-worth and self-care practice. Of the three categories of themes (i.e., information, motivation, and behavioral skills), the motivation category was the most reflected in the submissions. The themes reflected in these PrEP promotion messages elicited by an open contest have several implications

for research and practice around both HIV prevention and PrEP promotion in Baltimore and perhaps beyond.

First, it is notable that all three main categories of factors in the IMB model for PrEP uptake (i.e., information, motivation, and behavioral skills) are reflected as themes in the submissions, but were not all reflected at similar rates or similar levels of granularity. The motivation category was the most represented, which could be expected given that the call for submissions asked for contestants to "Give 1–2 sentences for a 'call to action' to your friends that can *motivate* them to learn more about PrEP" (emphasis added). Submissions that reflected themes in the information or behavioral skills categories, contrastingly, very rarely went into enough detail to code the submissions at more detail than at the category level. This could be due to the relative lower importance of including these categories of themes in peer-to-peer promotional messaging (e.g., seeing it as more appropriate for clinicians or health departments to give information), or the lack of textual space to provide peers with information on behavioral skills.

The two factors that emerged as salient in these submissions that were not predefined by the IMB model for PrEP uptake (i.e., self-worth/self-love and selfcare practice) offer important insight into future community-driven PrEP promotion efforts. One insight is that the IMB model for PrEP uptake does not include all of the factors that are viewed by the contestants as relevant to motivate PrEP uptake. This suggests that not all themes that are relevant for PrEP promotion have similar empirical evidence bases of an association with PrEP uptake. There have been repeated calls to examine PrEP uptake using a multilevel ecological and social approach that looks to other salient factors beyond the relatively biomedical, individual-level factors most measured in the literature (e.g., Auerbach & Hoppe, 2015; Philbin et al., 2016). Notably, the IMB model for PrEP uptake does attempt to account for some hypothetical relationships between relatively structural-level moderating factors (e.g., lack of insurance coverage, lack of stable housing, PrEP skepticism from media and providers) (Dubov et al., 2018); these were likely known and experienced by contestants, but were not reflected in the submissions that overwhelmingly focused on individual- or interpersonal-level themes. Still, PrEP promotion efforts should be cognizant of these extra-individual factors while also staying open to incorporating themes that arise in crowdsourcing open contests and other community-driven approaches even when they may not have a relatively similar evidence base.

Another insight is that the themes of self-love/self-worth and self-care practice may suggest that HIV prevention and PrEP promotion messaging needs to more holistically engage with target populations' overall health and well-being. One way toward a more holistic consideration of health and well-being is to include themes around love. The theme of self-love/self-worth is especially notable in that it highlights the literature's relative lack of inclusion and consideration of love (e.g., romantic, self, platonic) in research with Black sexual minority men, despite its clear importance when it is studied (Calabrese et al., 2015; Malebranche et al., 2009; Matthews et al., 2016). The submissions that reflect self-love and self-worth as motivation for PrEP uptake help urge the importance and promise of research and health promotion efforts that include similar themes (e.g., Dehlin et al., 2019; Keene et al., 2021). Taking these two themes (i.e., self-love/self-worth and self-care practice) together could also suggest that contestants want PrEP use to be contextualized as something that advances their overall health and well-being, and not just decreases their risk of HIV infection. This resonates with research that has documented a sense of HIV prevention messaging and research as burdensome to individuals and

overly focused on infection risk, reflected in concepts such as HIV prevention fatigue (Stockman et al., 2004) and the complex resentment toward HIV-related research that repeatedly targets recruitment of "high-risk" populations such as Black and Latino young men who have sex with men (Philbin et al., 2021).

## LIMITATIONS AND FUTURE DIRECTIONS

The results of this analysis should be interpreted in light of its limitations. One limitation is the use of an online submission process that requires internet access. Some in-person events were held to facilitate participation for interested contestants who may not otherwise have internet access. Another limitation could be that the short length of the submissions may prevent a more in-depth elicitation of themes that contestants believe to be important for PrEP promotion; however, this may in fact capture the most salient aspects of PrEP promotion to contestants, if it is assumed the submitted message reflects what is most important to them. Future work could consider the use of other forms of submissions (e.g., audio, visual content, essays), which may allow more in-depth understanding of a specific community or population's priorities and concerns (LeMasters et al., 2021), including structural factors, or limit participation to only people who use or are seeking to use PrEP to better understand experienced, not just hypothetical, barriers to uptake (Nydegger et al., 2021). Further research is also warranted around the social and behavioral impacts of crowdsourcing open contests, such as if participation in crowdsourcing open contests increases engagement in or comfort with conversations about PrEP with social network members.

#### CONCLUSION

This directed content analysis of crowdsourced open contest submissions for PrEP promotion identified a variety of themes well represented in the HIV prevention and PrEP promotion literature and two themes that are less well represented (i.e., self-love/self-worth and self-care practice). Community-driven messaging thus has some advantage in that it can engage with themes that are not reflected in empirical research. HIV prevention and PrEP promotion campaign development needs to be informed but not limited by existing frameworks and seek to understand the lived experiences of people disproportionately impacted by HIV. Moreover, strategies like crowdsourcing open contests are only a part of effective HIV prevention and PrEP promotion. Efforts to end the HIV epidemic should support community members' meaningful engagement with each other and institutions while concurrently seeking to address structural and resource barriers. Doing this across every stage of HIV-related health promotion campaign development and dissemination, intervention implementation, and health system design can help these crucial efforts center on communities' needs and priorities.

## **REFERENCES**

Auerbach, J. D., & Hoppe, T. A. (2015). Beyond "getting drugs into bodies": Social science perspectives on pre-exposure prophylaxis for HIV. Journal of the International AIDS Society, 18(4S3), 19983. https://doi.org/10.7448/IAS.18.4.19983

- Calabrese, S. K., Rosenberger, J. G., Schick, V. R., & Novak, D. S. (2015). Pleasure, affection, and love among Black men who have sex with men (MSM) versus MSM of other races: Countering dehumanizing stereotypes via cross-race comparisons of reported sexual experience at last sexual event. *Archives of Sexual Behavior*, 44(7), 2001–2014. https://doi.org/10.1007/s10508-014-0405-0
- Center for HIV Surveillance, Epidemiology, and Evaluation, Maryland Department of Health. (2018). *Baltimore City HIV fact* sheet, 2017.
- Centers for Disease Control and Prevention. (2018). HIV surveillance report, 2017 (Vol. 29). Retrieved June 13, 2017, from http://www.cdc.gov/hiv/library/reports/hiv -surveillance.html
- Centers for Disease Control and Prevention. (2021). Monitoring selected national HIV prevention and care objectives by using HIV surveillance data—United States and 6 dependent areas, 2019. HIV Surveillance Supplemental Report (Vol. 26, no. 2). http://www.cdc.gov/hiv/library/reports/hiv -surveillance.html
- Dehlin, J. M., Stillwagon, R., Pickett, J., Keene, L., & Schneider, J. A. (2019). #PrEP4Love: An evaluation of a sex-positive HIV prevention campaign. *JMIR Public Health and Surveillance*, 5(2), e12822. https://doi.org/10.2196/12822
- Dubov, A., Altice, F. L., & Fraenkel, L. (2018). An Information–Motivation–Behavioral skills model of PrEP uptake. AIDS and Behavior, 22(11), 3603–3616. https://doi.org/10 .1007/s10461-018-2095-4
- Esterberg, K. G. (2002). Qualitative methods in social research. McGraw-Hill.
- Fauci, A. S., Redfield, R. R., Sigounas, G., Weahkee, M. D., & Giroir, B. P. (2019). Ending the HIV Epidemic: A plan for the United States. *JAMA*, 321(9), 844–845. https://doi .org/10.1001/jama.2019.1343
- Fisher, J. D., & Fisher, W. A. (2002). The information-motivation-behavioral skills model. In R. J. DiClemente, R. A. Crosby, & M. C. Kegler (Eds.), Emerging theories in health promotion practice and research: Strategies for improving public health (pp. 40–70). Jossey-Bass.
- Hsieh, H.-F., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qualitative Health Research*, 15(9), 1277–1288. https://doi.org/10.1177/1049732305 276687
- Kamitani, E., Johnson, W. D., Wichser, M. E., Adegbite, A. H., Mullins, M. M., & Sipe, T. A. (2020). Growth in proportion and

disparities of HIV PrEP use among key populations identified in the United States National Goals: Systematic review & meta-analysis of published surveys. *Journal of Acquired Immune Deficiency Syndromes* (1999), 84(4), 379–386. https://doi.org/10.1097/QAI.0000000000002345

- Keene, L. C., Dehlin, J. M., Pickett, J., Berringer, K. R., Little, I., Tsang, A., Bouris, A. M., & Schneider, J. A. (2021). #PrEP4Love: Success and stigma following release of the first sexpositive PrEP public health campaign. *Culture, Health & Sexuality*, 23(3), 397–413. https://doi.org/10.1080/13691058.2020.1715482
- LeMasters, K., Atkins, K., Oloonabadi, S. A., Munn, T., Eng, E., & Lightfoot, A. F. (2021). How can we PrEP? Exploring Black MSM's experiences with pre-exposure prophylaxis through Photovoice. *AIDS Education and Prevention*, 33(1), 16–32. https://doi.org/10.1521/aeap.2021.33.1.16
- Malebranche, D. J., Fields, E. L., Bryant, L. O., & Harper, S. R. (2009). Masculine socialization and sexual risk behaviors among Black men who have sex with men: A qualitative exploration. *Men and Masculinities*, 12(1), 90–112. https://doi.org/10.1177/1097184X07309504
- Matthews, D. D., Smith, J. C., Brown, A. L., & Malebranche, D. J. (2016). Reconciling epidemiology and social justice in the public health discourse around the sexual networks of black men who have sex with men. *American Journal of Public Health*, 106(5), 808–814. https://doi.org/10.2105/AJPH.2015.303031
- Nydegger, L. A., Dickson-Gomez, J., & Ko Ko, T. (2021). A longitudinal, qualitative exploration of perceived HIV risk, healthcare experiences, and social support as facilitators and barriers to PrEP adoption among Black women. *AIDS and Behavior*, 25(2), 582–591. https://doi.org/10.1007/s10461-020-03015-9
- Patton, M. Q. (2015). Qualitative research & evaluation methods: Integrating theory and practice (4th ed.). SAGE.
- Philbin, M. M., Guta, A., Wurtz, H., Kinnard, E. N., Bradley-Perrin, I., & Goldsamt, L. (2021). How Black and Latino young men who have sex with men in the United States experience and engage with eligibility criteria and recruitment practices: Implications for the sustainability of community-based research. Critical Public Health. Advance online publication. https://doi.org/10.1080/09581596.2021.1918329
- Philbin, M. M., Parker, C. M., Parker, R. G., Wilson, P. A., Garcia, J., & Hirsch, J. S. (2016).

- The promise of pre-exposure prophylaxis for Black men who have sex with men: An ecological approach to attitudes, beliefs, and barriers. *AIDS Patient Care and STDs*, 30(6), 282–290. https://doi.org/10.1089/apc.2016.0037
- Sophus, A. I., & Mitchell, J. W. (2019). A review of approaches used to increase awareness of pre-exposure prophylaxis (PrEP) in the United States. AIDS and Behavior, 23(7), 1749–1770.https://doi.org/10.1007/s10461 -018-2305-0
- Stockman, J. K., Schwarcz, S. K., Butler, L. M., de Jong, B., Chen, S. Y., Delgado, V., & McFarland, W. (2004). HIV prevention fatigue among high-risk populations in San Francisco. JAIDS Journal of Acquired Immune Deficiency Syndromes, 35(4), 432–434.

- https://doi.org/10.1097/00126334-200404 010-00016
- Surowiecki, J. (2005). The wisdom of crowds: Why the many are smarter than the few and how collective wisdom shapes business, economies, societies, and nations. Anchor.
- Tucker, J. D., Day, S., Tang, W., & Bayus, B. (2019). Crowdsourcing in medical research: Concepts and applications. *PeerJ*, 7, e6762. https://doi.org/10.7717/peerj.6762
- White, J. J., Mathews, A., Henry, M. P., Moran, M. B., Page, K. R., Latkin, C. A., Tucker, J. D., & Yang, C. (2020). A crowdsourcing open contest to design pre-exposure prophylaxis promotion messages: Protocol for an exploratory mixed methods study. *JMIR* Research Protocols, 9(1), e15590. https:// doi.org/10.2196/15590

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