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## Increasing men’s engagement in HIV testing and treatment programs through crowdsourcing: A mixed methods analysis in Eswatini

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### Abstract

**Background:** Sub-Saharan African HIV programs have had limited success in engaging men. Crowdsourcing contests may be a useful method to spur men’s engagement in HIV services. We evaluated contributions and social media response to a crowdsourcing contest focused on increasing men’s engagement in HIV services in Eswatini.

**Methods:** We conducted a crowdsourcing contest to gain insight from the public on how HIV campaigns can more effectively engage young (20–40 years old) men in HIV services. Eligible submissions included images, songs, videos, and internet memes. We used standard qualitative methods to examine textual themes from submissions. We examined social media response using Facebook analytics, comparing the number of people reached through crowdsourced HIV messages and the number of people reached through standard HIV messages.

**Results:** We received 144 submissions from 83 participants. They represented 55 towns and all four regions of Eswatini. The contest page gained 461 followers on Facebook. Emergent themes included appealing to men’s culturally-rooted roles as providers and protectors by suggesting that

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they need to take care of their own health to continue providing for and protecting their families. Crowdsourced messages reached a mean of 88 individuals across four posts; conventional messages reached a mean of 75 individuals across four posts.

**Conclusions:** Crowdsourcing contest submissions provided insight on how to encourage men to engage in HIV services in Eswatini. Crowdsourcing contests can be effective in collecting community wisdom from men to create more locally relevant communication materials for HIV programs.

### Short summary:

A study of crowdsourcing in Eswatini found that it was an effective method for eliciting community wisdom on how men can be encouraged to make use of HIV services.

### Keywords

Men; HIV testing; Crowdsourcing; Eswatini

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### Introduction

Despite the significant increase in HIV testing and treatment programs in sub-Saharan Africa, there are persistent gender differences in many HIV outcomes.<sup>1,2</sup> In Eswatini and across sub-Saharan Africa, men are less likely to seek HIV services.<sup>1,2</sup> Men also have higher rates of loss to follow-up and HIV-related morbidity and mortality.<sup>3,4</sup> Men in sub-Saharan Africa continue to test for HIV less often compared to women, delaying treatment and initiation of anti-retroviral therapy.<sup>3,5,6</sup>

Gender norms and cultural barriers may challenge engagement of men in HIV services in sub-Saharan Africa.<sup>7,8</sup> Traditional notions of manhood may discourage men from seeking HIV services.<sup>5</sup> There are also gendered differences in general health-seeking behaviors. Men tend to go to doctors less often, and are less likely to seek preventive care.<sup>9</sup> In addition, the focus of HIV services in sub-Saharan Africa has historically been on women and children.<sup>10</sup> In response, the World Health Organization and many national HIV programs have advocated for increased engagement among men for HIV services.<sup>2,11,12</sup>

To increase the engagement of men in HIV services, there is a need to further understand community perspectives on ways to facilitate this process. One promising strategy for obtaining community input on engaging men in HIV services is crowdsourcing. Crowdsourcing brings together a group of people to find solutions to a problem facing their community, followed by sharing of solutions with the public.<sup>13</sup> Crowdsourcing taps into the wisdom and creativity of the public, uncovering community perspectives on HIV. Furthermore, the prompts used to solicit participation in crowdsourcing can be beneficial in challenging the public to confront their stereotypes concerning HIV and knowing one's status.<sup>14–16</sup> Crowdsourcing has been used successfully to enhance HIV programs in the United States of America, China, and other places.<sup>17–19</sup>

To address the gender gap in engagement with HIV testing and treatment programs in Eswatini, we designed a crowdsourcing contest to collect suggestions from the public on

how to engage young men (20–40 years old) in HIV programs. The crowdsourcing contest was designed to solicit submissions on how men in Eswatini can be motivated to seek HIV services and engage in testing and treatment programs. The purpose of this study was to analyze the content of textual crowdsourced submissions and evaluate the reach of crowdsourced images based on social media analytics.

## Materials and Methods

### Local Setting

The Kingdom of Eswatini has the highest prevalence of HIV in the world.<sup>20</sup> Several Eswatini stakeholders have turned their focus to men aged 20 to 40 years old. This group has been identified as critical to addressing the epidemic in Eswatini for several reasons. Young men often have more negative attitudes towards HIV testing and treatment programs.<sup>21</sup> Moreover, they are less likely to initiate treatment after testing positive for HIV. Public health campaigns in Eswatini have had little success in engaging men age 20–40 years old in safe sex practices and testing regularly for HIV. Furthermore, the gender dynamics in Eswatini discourage many men from seeking HIV services. Based on these observations, the crowdsourcing contest was designed to spark engagement in this age group of men.

Although this was the first crowdsourcing contest in Eswatini, we anticipated crowdsourcing could be an effective strategy for Eswatini for several reasons. First, there is a common language and many shared cultural traditions across the country, facilitating ease of contest promotion. Second the country is relatively small, making nation-wide engagement more likely. Third, recently expanded smartphone availability and social network platforms, including WhatsApp, suggested that outreach to encourage contest participation through social media would be feasible.

### Focus Group Discussions

We conducted six focus group discussions (FGDs) in three locations with a diverse set of 48 men to assess the acceptability of the proposed crowdsourcing contest and inform its design. The participants identified fear as one of the main barriers to testing, including fear of HIV testing, fear of the results, and fear of results affecting romantic relationships. Participants also suggested more positive messaging to encourage men to engage in healthcare generally and HIV testing in particular. Based on these findings, we designed a crowdsourcing contest focused on addressing fear and negativity surrounding HIV testing and treatment.

### Crowdsourcing Contest

Participants were asked to design and submit messages to motivate young men to get tested for HIV and get treatment if indicated. Residents of Eswatini 18 years and older were eligible. The contest was approved by the Eswatini Gaming Board and an ethical review committee at the University of North Carolina at Chapel Hill. The contest was designed and implemented according to the standard open challenge methods described in the World Health Organization (WHO) TDR practical guide on challenge contests for health and health research<sup>22</sup> and included the following steps: organizing the steering committee; engaging

the community to contribute; receiving and evaluating submissions; recognizing finalists and sharing solutions.

### **Organizing the steering committee**

A steering committee provided feedback on the contest prompt, shared the contest announcement, and helped with submissions judging and awarding of prizes. Steering committee members were essential participants in the process to ensure that the contest met local needs and the results would be utilized to inform future communication activities. The committee was comprised of Eswatini-based representatives from the Johns Hopkins Center for Communication Programmes, Eswatini's National Emergency Response Council on HIV, the Eswatini National AIDS Programme, the United States Centers for Disease Control and Prevention, the Joint United Nations Program on HIV, Population Services International, the Coordinating Assembly of Non-profit Organizations, and the United States Agency for International Development.

### **Engaging the community to contribute**

To maximize reach, a variety of advertisement methods were used to disseminate the call for contest submissions. The primary method was social media (Facebook and Instagram), as FGD participants suggested this would be an effective way to reach young men. Facebook analytics were collected to determine engagement with the contest advertising efforts, including the number of people who followed the contest's Facebook page, the number of views each post received, and the total number of people reached by each post. In addition to social media, advertisements were placed in the national newspaper and on the radio. We organized several workshops in the city of Mbabane (urban) and the town of Nhlngano (rural) to better reach men with limited internet access. The process of engaging the community to participate was assisted by local organizations, including the USAID community in Eswatini.

### **Receiving and evaluating contributions**

The crowdsourcing contest accepted videos, songs, images, and memes (images with text captions). These formats were selected based on local preferences and high penetration of cell phone coverage across Eswatini. Submissions were collected through email and WhatsApp. The following information was collected from all entrants: name, surname, age, sex, place of residence, region (out of the four regions in Eswatini), two phone numbers, and format of entry. The judging process for this contest had three phases. Phase I involved the screening of entries for eligibility by members of the organizing committee. Phase II involved evaluating eligible entries on a 1–10 scale (where 1 represents the poorest quality and 10 represents the highest quality, quality being defined in terms of adherence to the prompt and judging criteria) in each of the four submission categories. Judging criteria included: capacity for increasing men's engagement in HIV testing and treatment programs, appropriateness in local context, and innovation. Submissions with a mean score of 7/10 or greater advanced to phase III, which involved vetting for strengths and weaknesses to determine finalists in each category.

## Recognizing finalists and sharing the solutions

The contest resulted in 16 finalists (four in each category) and one participatory prize decided by a raffle. All finalists received their prizes at a public award ceremony. They also received certificates of recognition for their contributions. Furthermore, finalist submissions were shared on Facebook to assess how effective they were in engaging our audience when compared to standard images used by organizations such as the CDC in their own HIV campaigns. Four finalist submissions were shared on Facebook in alternation with four standard images. Standard images were identified from images developed by the Centers for Disease Control to promote HIV testing and treatment. The case study ran for eight days, beginning February 28<sup>th</sup> 2020, with one post being made per day. Table 2 shows the images that were posted.

## Data analysis

Contest submissions were analyzed for emergent themes on how young men could be engaged in HIV services. Our analysis was concerned with identifying messages that were commonly used to encourage men to engage in testing and treatment programs. First, contest submissions were analyzed in their respective categories (image, video, song, meme) to identify recurrent ideas on the kind of language that participants believed would be most engaging for men in Eswatini. Once categorized by submission group, we identified overarching themes across all the submission categories. Online engagement was measured and extracted from the Facebook Analytics framework to identify the number of unique users each finalist submission post reached (users who passively viewed the content), and the number of unique clicks each finalist submission post received (users who actively engaged with each post).

## Results

### Participant characteristics and social media engagement metrics

The contest was launched on May 2<sup>nd</sup> 2019, and ran until June 28<sup>th</sup> 2019. There were a total of 144 submissions from 83 participants. Table 1 shows the number of participants by background characteristics: region, sex, and age. Most participants were men (n= 50). The participants came from a total of 55 towns in all 4 regions in Eswatini. There were a total of 461 followers of the contest page on Facebook by the end of the contest. Facebook analytics showed that an average of 412 people were reached per post during the advertising stage, and our first post announcing the contest reached 2,300 unique Facebook users. Posts that received the most engagement (i.e. most reacted to, in the form of comments, 'likes', or shares) were posts that had been shared by followers of the page, making it possible for people who did not follow the page to know about the contest.

### Social media engagement case study

In the case study to test the engagement levels of our finalists' submissions against engagement with standard images, we selected four finalist submissions to compare with images frequently used by CDC on social media. Table 3 shows the results of the study collected from Facebook. In general, our finalists' submissions received more engagement

than standard images from CDC in terms of clicks made on the post (including likes, comments, and shares). Crowdsourced messages reached a mean of 88 individuals across four posts; conventional messages reached a mean of 75 individuals across four posts.

### Thematic Analysis

In comparing emergent themes within and across all submission categories, four themes were identified pertaining to messages to promote engagement with HIV services among men age 20–40 years old. Table 4 summarizes the main themes from the submissions, along with an example for each theme.

A commonly-shared feature of all the submissions was the embracing of both traditional and modern knowledge systems with regards to HIV testing and treatment in Eswatini. Many submissions from men showed an appreciation of traditional norms, while stressing the point that men need to take up the fight against HIV. For instance, one of the videos showed a man performing hard labor around the home, suggesting that he would not be able to fulfill his duties without taking care of his health and knowing his HIV status. This call-to-action showed how the necessity of a modern approach to fighting HIV can fit into an appreciation for traditional values from a cultural perspective, making the need for HIV testing more easily understood. Other participants highlighted the need to evolve from traditionally practiced tendencies, such as men relying on their female partners to determine their own HIV status.

### Overcoming misconceptions

Although HIV has been present in Eswatini for a long time, misconceptions about the virus and life after a positive diagnosis still persist. In an attempt to encourage more men to know their HIV status, many contestants dedicated their submissions to overcoming traditional misconceptions about HIV, the most popular misconception being that an HIV-positive diagnosis is a death sentence. For example, one participant's entry in the meme category put together the same image of a happy child side by side, with the caption "Before and After you get tested for HIV: your life is still yours." The image linked the idea of 'happiness' with testing, to encourage more people to know their HIV status, while dismantling the idea that testing for HIV is the end of one's life. Additionally, as seen in the example provided in Table 4 ("[whether] HIV positive or HIV negative, full life is possible!"), the messaging used in these submissions showed a combination of encouraging language with fact-based knowledge. In this instance, crowdsourcing allowed us to gain an understanding of the worries and myths prevalent in the society with regards to HIV, as well as how best to debunk them.

### Cultural gender roles

As seen in the example of Table 4, this theme was reflected in the form of adhering to cultural roles of men in society as providers and protectors, and using these gendered norms to encourage men to take care of their health so that they can continue to provide for and take care of their families. A male participant's video entry incorporated the idea of gender roles, using them to appeal to local men: "real manhood is doing what you have to do, at the time when you have to do it; it [real manhood] is to test for HIV now" (*translated from*

*Siswati*). Eswatini is a culturally heteronormative society that still adheres to binary gender roles, hence using this approach in messaging is easily understood by the audience.

### **Dismantling the status quo**

Finally, many submissions showed the theme of dismantling the status quo of testing passivity, and disregard for one's own health. These submissions shed light on a common barrier to increased engagement in testing and treatment programs: the widespread idea that it is better not to know one's own HIV status. A male participant said in his entry, "Don't rely on luck. Get tested and know for sure."

### **Discussion**

We found that crowdsourcing was an acceptable, feasible, and effective tool for engaging men in HIV programs. Overall, the contest engaged many followers and resulted in several high-quality submissions, which is consistent with other crowdsourcing research in sub-Saharan Africa and other regions.<sup>14,18,23,24</sup> This is a rare example of a crowdsourcing contest focused specifically on engaging men. This study extends the literature by using crowdsourcing in a low-income country context, analyzing themes from submissions, and using innovative offline methods for promoting the contest in rural areas.

The crowdsourcing contest had substantial participation from rural areas. This may have been related to word-of-mouth and radio question-and-answer sessions. This finding is consistent with other literature showing that participatory activities and building trust can enhance contest participation.<sup>25</sup> In-person workshops and online posts may have fostered trust between the research team and community members, contributing to their participation. Furthermore, radio shows had the effect of reaching a much wider audience and more diverse group of participants. This suggests that rural people in sub-Saharan Africa can still be reached through participatory events like crowdsourcing.

The crowdsourcing contest submissions identified several strategies for engaging men in HIV services, including the need to overcome traditional misconceptions about HIV services, leveraging men's traditional gender roles as providers and protectors for their families, and dismantling the status quo of testing passivity. These strategies are consistent with the recommendations from other studies examining facilitators and barriers of HIV testing services among men in sub-Saharan Africa.<sup>12,26–29</sup> In particular, the theme related to the misconception about life after a positive diagnosis and fear that an HIV-positive diagnosis is a death sentence is one of the most common barriers of HIV testing for men.<sup>30,31</sup> It is also one of the main topics addressed either directly or indirectly in most public health campaigns and interventions targeting men for HIV services uptake.<sup>12,26</sup> Further, the need to leverage men's role as providers and protectors supports the findings of other studies that have shown that family and societal expectations to be a family provider and respectable role model motivated men to seek HIV testing and treatment services.<sup>5,8,32,33</sup> However, in terms of men's roles as providers, research has also demonstrated that there is a need to integrate employment and entrepreneurship opportunities with HIV services promotion efforts in order to generate income for men who need to work to provide for their families. This issue of providing for the family may



be exacerbated after starting HIV treatment and missing work to seek HIV services.<sup>34–36</sup> Inclusion of income-generating activities can encourage men to make the time sacrifice needed and still allow them to provide for their families, thereby maintaining their status and respect within the community.<sup>37</sup>

We found that the crowdsourcing contest generated strong online interest as suggested by Facebook followers, submissions received, and the comparative reach of the finalist images. This finding is consistent with crowdsourcing contests in high-income countries demonstrating good social media response.<sup>19,38</sup> This suggests the feasibility of using crowdsourcing contests in sub-Saharan Africa to reach large numbers of youth, including men. The robust social media response provide preliminary data on the acceptability and feasibility of the selected submissions. However, while crowdsourced interventions have been evaluated in different countries,<sup>17,39,40</sup> more research is needed to examine the feasibility, acceptability, and effectiveness of crowdsourced interventions in lower middle-income countries like Eswatini.<sup>18</sup> Further research will be needed to determine the extent to which the positive reaction observed towards finalists' submissions in our case study translates into men's engagement with HIV services. Furthermore, one of the limitations of our study was that workshops were conducted in a limited range of rural locations, so it is possible that some more remote locales were not reached as well as others. However, efforts were made to mitigate this limitation as much as possible by using more widely available promotion strategies (e.g. radio). Second, our social media analysis focused on Facebook, but there was also engagement in this contest through other platforms (e.g., WhatsApp).

## Conclusion

Our findings suggest that crowdsourcing contests are useful for collecting messages to encourage engagement in HIV services among young men in Eswatini. In this sub-Saharan African context, crowdsourcing can help to tap community wisdom and drive authentic community engagement. Public creativity was sparked by our challenge contest, leading to useful material that can be used in future HIV campaigns to engage men in HIV testing and treatment programs.

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**Table 1.**

Number of participants by background characteristics (n = 83).

<b>Region</b>	<b>n</b>
Manzini	27
Lubombo	15
Hhohho	29
Shiselweni	8
Unknown	4
Sex	
Male	50
Female	30
Refused to answer	3
Age	
Mean (years)	25.8

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**Table 2:**

Images shared on Facebook

Post	Finalist	Standard
A		<p><b>HIV TESTING</b></p>  <p>Knowing your HIV status helps you choose options to stay healthy.</p> <p>Source: CDC HIV Facebook Page. Accessed February 28, 2020. <a href="https://www.facebook.com/cdhiv/photos/a.791467900992905/1313306252141893">https://www.facebook.com/cdhiv/photos/a.791467900992905/1313306252141893</a></p>
B		<p><b>PLANNING FOR A DATE?</b></p>  <p>Learn your HIV status for smart!</p> <p>#PlanIt</p> <p>Source: CDC HIV Facebook Page. Accessed February 28, 2020. <a href="https://www.facebook.com/cdhiv/photos/a.791467900992905/1275297427609443">https://www.facebook.com/cdhiv/photos/a.791467900992905/1275297427609443</a></p>
C	<p>That moment you test positive for HIV/AIDS and everyone thought you'd collapse but instead do the split because &gt; Efavirenz/ARV is Nutritious lifestyle = A long, healthy, life! Yay!</p> 	<p><b>3 IN 10 NEW HIV INFECTIONS COME FROM PEOPLE WHO DON'T KNOW THEY HAVE IT</b></p>  <p>Get tested.</p> <p>Source: CDC Facebook Page. Accessed March 4, 2020. <a href="https://www.facebook.com/CDC/photos/a.18466802602510153115938316026">https://www.facebook.com/CDC/photos/a.18466802602510153115938316026</a></p>
D	<p>Every jump a man does is a monument of history dies</p>  <p>Get tested. Start treatment early. And live to end your story. No more jumps to come.</p>	<p><b>TEST YOUR WAY DO IT TODAY</b></p>  <p><b>JUNE 27<sup>th</sup> IS NATIONAL HIV TESTING DAY</b> Testing is fast, free, and confidential! <a href="http://www.aids.gov/test/">www.aids.gov/test/</a></p> <p>Source: CDC HIV Facebook Page. Accessed March 6, 2020. <a href="https://www.facebook.com/cdhiv/photos/a.791467900992905/887536168052219">https://www.facebook.com/cdhiv/photos/a.791467900992905/887536168052219</a></p>

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**Table 3:**

## Engagement on Facebook

Post	People Reached		Clicks on Post	
	Finalist	Standard	Finalist	Standard
A	89	88	9	8
B	119	81	7	4
C	86	66	2	3
D	59	65	2	1
Mean	88	75	5	4

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**Table 4:**

Themes and Corresponding Submissions

Theme	Submission
Overcoming misconceptions	 <p>Translation of Speech Bubble: Life must will continue Poster Image</p>
	 <p>BEFORE AND AFTER YOU GET TESTED FOR HIV YOUR LIFE IS STILL YOURS Meme</p>
Cultural gender roles	 <p>Everytime a man dies a monument of history dies Get tested! Start treatment early! And live! It's not your destiny to get HIV. You can live! Poster Image</p>
Dismantling the status quo	 <p>Don't rely on luck. Get Tested and know for sure. Meme Images</p>

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