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Feasibility of using social networking technologies for health research among men who have sex with men: A mixed methods study

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Abstract

This study aims to assess the feasibility and acceptability of using social networking as a health research platform among men who have sex with men (MSM). Fifty-five MSM (primarily African American and Latino) were invited to join a “secret” group on the social networking website, Facebook. Peer leaders, trained in health education, posted health-related content to groups. The study and analysis used mixed (qualitative and quantitative) methods. Facebook conversations were thematically analyzed. Latino and African-American participants voluntarily used social networking to discuss health-related knowledge and personal topics (exercise, nutrition, mental health, disease prevention, and substance abuse) with other group participants (N=564 excerpts). Although Latinos comprised 60% of the sample and African Americans 25.5%, Latinos contributed 82% of conversations and African Americans contributed only 15% of all conversations. Twenty-four percent (24%) of posts from Latinos and 7% of posts from African Americans were related to health topics. Results suggest that Facebook is an acceptable and engaging platform for facilitating and documenting health discussions for mixed methods research among MSM. An understanding of population differences is needed for crafting effective online social health interventions.

Keywords

MSM; social networking technologies; peer leader models; mixed-methods research

INTRODUCTION

Rapid growth in social networking usage provides an opportunity for these technologies to be used to scale health education and promotion. Social networking technologies are online platforms designed for sharing of multi-media communication, such as pictures, messages, and Website links (Eysenbach, 2008). Over 750 million people used social networking technologies worldwide in 2010, and this number is expected to reach 1.5 billion by 2015 (Radicati, 2010). Because social networking users are from almost all populations and locations, public health researchers have discussed the potential utility of using these technologies for health education and promotion (Bennett & Glasgow, 2009; Gold, et al., 2011; Greene, Choudhry, Kilabuk, & Shrank, 2011; Kamel Boulos & Wheeler, 2007; Pujazon-Zazik & Park, 2010; Rhodes, et al., 2010; Sullivan, et al., 2011; Vance, Howe, & Dellavalle, 2009; Young & Rice, 2011).

Social networking technologies might be especially effective platforms for health education and promotion using community-based methods, such as the peer leader “diffusion of

innovations” model. Peer leader health interventions send peer leaders, trained in health promotion, to community venues to increase health-related knowledge and conversations among at-risk individuals (Rogers, 1995). These interventions have been successfully applied to areas such as smoking cessation (Valente, Hoffman, Ritt-Olson, Lichtman, & Johnson, 2003), HIV prevention (Kelly, Murphy, & Sikkema, 1997; McKirnan, Tolou-Shams, & Courtenay-Quirk, 2010; NIMH Collaborative HIV/STD Prevention Trial Group, 2010; Safren, et al., 2011), and suicide prevention (Greene, et al., 2011). Because community-based studies often require considerable economic resources, Internet researchers have attempted to use chat rooms and informational websites to reach at-risk participants (Harvey-Berino, et al., 2010; Lipman, Kenny, & Marziali, 2011; Ramadas, Quek, Chan, & Oldenburg, 2011; Rhodes, et al., 2010). Social networking technologies, as a result of their exponential growth and utility in providing social interaction, might be particularly effective platforms for scaling peer-led health education to at-risk populations. However, little research has tested the feasibility of using social networking to scale health education among minority at-risk populations.

This study is designed to assess the feasibility and acceptability of using social networking for public health education and promotion. Specifically, we seek to determine whether participants would be willing to discuss health-related topics on peer-led social networking groups. To assess this, we integrate both qualitative and quantitative research methods by utilizing chronological participant conversations on Facebook and survey data.

RESEARCH DESIGN AND METHOD

This analysis is part of multi-group study on the use of social networking for public health and HIV-related behaviors. Data are taken from the Harnessing Online Prevention and Education (UCLA HOPE) study. Mixed (qualitative and quantitative) methods are used in this analysis.

From September 2010 to February 2011, 118 participants were recruited to join either a general public health or HIV-related group for 12 weeks on the social networking site, Facebook. Six participants completed only the first 15 survey responses and were removed from the analysis. Four participants were found to have completed multiple surveys. The second of their responses in time were included in the analysis, leaving 112 valid responses. This analysis is based on the public health-related group’s conversations and therefore includes only participants from this group (n= 55), as the HIV group (n=57) was not evaluated for general health-related discussions. Recruitment methods for the overall sample are included for better understanding of the public health-related group conversations sample analyzed in this article. This study was approved by the University of California, Los Angeles, internal review board.

Participant populations and recruitment

Participants were recruited from online sites, Los Angeles venues (e.g., bars, gyms, schools, and community organizations), and participant referrals. Participants were recruited online using: (a) a Facebook fan page with study information, (b) paid targeted banner ads on social networking sites such as Facebook and MySpace, and (c) website banner advertisements or posts on Craigslist. For offline recruitment, staff members from the Los Angeles venues distributed study fliers to African American and Latino men who have sex with men (MSM). Fliers directed interested participants to a study Website. Participants could also refer other interested participants.

Interested participants were screened for eligibility on the Website (male, living in Los Angeles, 18 years of age or older, has had sex with a man within 12 months [but not

necessarily gay-identified], and has a Facebook account). Facebook Connect was used to verify that participants were uniquely registered Facebook users and reduce duplicate survey respondents. Participants completed the eligibility screening and input their Facebook username to verify unique participant status.

All participants were enrolled as a cohort before beginning the study in order to measure the effect of social network participation. While Facebook Connect was considered an important technology to validate participant identity and authenticity, it also reduced anticipated enrollment speed. To ensure the study proceeded without delays, we first recruited 70% of the sample from African American and Latino populations (to include an over-represented sample of minorities who are susceptible to health risks) and then allowed other MSM to enroll in the study. After enrollment, participants were assigned to a Facebook public health-focused group and completed an online health survey. Participants were paid \$30 to complete the survey. Results from the survey are available (Young, Szekeres, & Coates, In press).

Peer leaders

Nine African American and Latino MSM were recruited to be public health peer leaders from community organizations. Organization staff provided study fliers to potential peer leaders (i.e., sociable and well-respected African American and/or Latino MSM who were 18 years of age or older, had had sex with a man in the past 12 months, had a Facebook account or willing to set one up, and interested in educating others about health).

Peer leaders who satisfied enrollment criteria attended 3 training sessions (3 hours each), where they learned about public health education and ways of using Facebook for delivering health behavior change. The first training session dealt with general information on public health and health epidemiology, the second session addressed how to communicate sensitive and stigmatizing information to participants, and the third session specifically focused on ways of using social media to communicate health information and health-related behavior change. Peer leaders were given a baseline and follow-up survey to ensure that they possessed the knowledge needed to be a peer health educator. Additional information about the peer training sessions is available (Young, Harrell, Jaganath, Cohen, & Shoptaw, 2012). One peer leader did not complete training, leaving 8 trained and qualified peer leaders.

The HOPE Intervention

Facebook was used to create “secret” (need special permission to join and inaccessible or searchable by non-group members) public health discussion groups. Participants were randomly assigned to one of 2 general public health secret groups (2 groups were created to keep the overall number of participants in each group manageable), and then assigned to 2 peer leaders from within that group. During each week of the 12-week intervention, peer leaders used Facebook chat, messages, and group wall posts to communicate with assigned group participants about health education and promotion (such as the importance of exercise, nutrition, and stress management), as well as “friendly conversations” for building trust. Peer leaders were not required to post about specific health topics. Peer leaders were paid \$30 in Amazon gift cards for the first 4 weeks, \$40 in gift cards for the second 4 weeks, and \$50 in cards for the final 4 weeks.

Participants were able to connect with other group participants and peer leaders by posting thoughts, experiences, or friendly conversations for others to view and respond. Group participation was voluntary, with no obligation to respond to or engage with peer leaders or other participants, and no obligation to remain part of the Facebook groups. Throughout the 12-weeks, participant posts and conversations on the Facebook groups were collected.

Analysis

Data included are taken from the UCLA HOPE intervention. This analysis includes qualitative as well as quantitative demographic survey data. For qualitative data, Facebook has a feature known as the “Wall” that allows participants to communicate in an open forum with all group members. Participants can post text, reply to posts, and “Like” comments. In addition, links to photos, videos and websites can be added. Posts are placed in reverse chronological order on the group page, with a time stamp. This provides an opportunity to evaluate the content of the conversations discussed by the group as the study progresses.

At the end of 12 weeks, screen captures of the group Facebook Wall were coded and analyzed using Dedoose Software (SocioCultural Research Consultants, Los Angeles, CA, USA). Prior to analysis, names on the Wall were replaced by anonymous IDs, and profile photos removed, to maintain participant privacy while blinding the researchers.

The following codes were applied to the Facebook Wall in the public health groups:

Exercise, nutrition, mental health, specific diseases, and substance abuse were applied based on the appropriate topic discussion. After coding, these excerpts were then combined into two concepts: General Health Knowledge and General Health Discussion. General Health Knowledge was defined if the conversation was related to health facts, such as disease statistics. General Health Discussion was defined if the conversation was focused on personal stories or health discussions, such as promotion of exercise or concern about weight. Because participants were MSM, LGBT/MSM culture was defined if the discussion was about LGBT/MSM-related community topics, including events, advocacy, and challenges. Friendly Conversation was defined as all other conversation not related to the above topics. There was a 0.91 Kappa statistic between two independent coders, demonstrating a strong agreement regarding conversation themes.

A given code was applied if a person initiated, responded or “Liked” a post related to that topic. A given post could represent more than one topic, whereby several excerpts could be created and each tagged with the appropriate code. Excerpts were also classified by Study Period, which noted if the post was made in the first, second or third 4-week period of the intervention, as determined by the time stamp.

Qualitative excerpts from the Facebook Wall were stratified by participants’ (quantitative) demographic survey responses about their age group (older or younger than 31.8 years, the mean age) and race to determine types or participation by subgroup. Excerpts were also divided by study period to evaluate the change in type of excerpts over each 4-week study period. Values are expressed in frequency and percentage of excerpts by subgroup.

RESULTS

Table 2 presents demographic participant information. Participants were on average almost 32 years old, with 60% of the sample Latino and over 25% African American. The majority of participants described themselves as “single,” and over 90% had a computer in their home.

Almost 75% of participants rated their health as good or excellent (Table 3). Almost 75% of participants exercised at least a few times per week, over 65% brushed their teeth at least twice a day, and over 40% flossed every day. Over 15% of participants smoked cigarettes every day, over 5% used methamphetamines in the past 3 months, and over 10% used powder cocaine in the past 3 months.

Excerpts ($N = 564$) evaluated over the Facebook group Wall indicate that participants were comfortable having conversations about health and sharing personal health information with other group members. Twenty-one percent (21%) of total discussion by participants was related to health topics, with the remaining excerpts related to MSM culture (10 %), and friendly conversation (68%). Health topics included facts and statistics (general health knowledge) as well as promotion and conversation about health-related activities (general health discussion). Types of health-related dialogue included exercise, nutrition, specific diseases and their prevention, and substance abuse. General health conversations were more frequently discussed than general health knowledge. As the study progressed, participants, compared to peer leaders, contributed 46%, 46% and 38% of health-related comments during 4-week periods 1 to 3, respectively.

In the General Health Knowledge category, posts were related to tips and facts about health topics. Peer leaders may have posted a question about health and asked participants to respond. For example, after asking about whether a virus can cause cancers, a participant replied:

The closest thing I can think of off the top of my head related to humans is HPV. The virus is spread from sexual contact and causes various types of cancer in the reproductive organs.

However, participants also initiated discussions about General Health Knowledge. For example, a participant posted about building endurance in running:

If you build the weekly long run adding a mile every week or so for 10 weeks and then adding a mile with 2 shorter weeks between each addition with a 2 week taper (it takes 6 months), then you are there and ready for the race.

In General Health Discussion, posts included personal stories about health and comments that motivated others to engage in healthy practices. This can include getting support in their healthy activities, such as the post, “Day 1: GYM! I made it through :-).” In addition, participants used the group as a forum to discuss the challenges in maintaining a healthy lifestyle:

i’m neurotic related to nutritional intake. i tend to be extreme. i have a set diet that i stick to...sometimes i track my intake and keep journal but it gets annoying and time consuming. what usually happens is i end up going on a massive food binge for half a day and eat everything i’ve deprived myself of in the previous weeks!

Participants were comfortable engaging in personal conversations about their identity and sexual orientation:

My coming out process was pretty simple, but I made it complicated. My mom already knew but I felt the need to run away at 14 to Hollywood to find myself. Spent one night away from home and came running back.

Although participants were aware of their enrollment in the study and participation in a secret Facebook group, they continued to have a majority of discussions related to friendly conversation as they likely would have had on the social networking site:

how was everyones day? i worked, rode a a horse, went to lunch, had mexican and a margarita! all in all good 4 me..and you guys?

While both peer leaders and participants could start a group conversation, participants initiated 37% of the 277 initiated posts that were started from either participants or peer leaders. In relation to health, participants demonstrated comfort in initiating personal discussions:

Today was the first day I woke up and didn't feel fat. I'm not majorly overweight. But I'm not in great shape. So I have body image issues. My mom jokes I'm getting fat all the time. But how do I make her see it gets to me??

There was a relatively equal distribution of topics contributed by participants who were older (52%) and younger (48%) than the mean age (31.8 years). Although Latinos comprised 60% of the sample and African Americans 25.5%, Latinos contributed 82% of conversations and African Americans contributed only 15% of all conversations. Figure 1 shows the proportion of themes discussed on the Facebook wall by each subgroup. Of the topics discussed within each race, only 7% of conversations from African Americans were related to health topics, whereas 24% of conversations from Latinos and 33% from others were related to health issues. Conversely, African Americans contributed a greater proportion of friendly conversations compared to Latinos. Baseline reported health status did not appear to affect the topics participants discussed; there was an approximately equal distribution of topics contributed by people reporting good/excellent (52%) and fair/poor (48%) health.

DISCUSSION

Results demonstrate the feasibility and potential utility of using social networking technologies for health education and promotion, especially among minority populations. Participants initially received health-related information from peer leaders, and then voluntarily initiated their own health-related conversations with other group members. While peer leaders, trained in general health topics and instructed to post health discussions, contributed the greatest number of health-related posts, participants had similar posting rates in the first two study periods, and continued to post more than a third of all health-related conversations in the final period. Participants more frequently talked about personal health experiences than about sharing specific health knowledge, demonstrating the ability for people to feel comfortable sharing personal health information using social networking technologies. Although one could assume younger individuals would be more familiar with social media and thus more likely to participate in health discussions on Facebook (Selkie, Benson, & Moreno, 2011), age did not appear to influence group participation or use of the technology for health communication. Similarly, those who regarded their health as good/excellent and fair/poor participated similarly in health topics. This suggests that Facebook can serve as a platform for health-related education and discussions regardless of age and baseline perceived health status. Racial differences were found in health-related discussion topics with African Americans preferring more "friendly" discussion. These findings suggest that social networking can be an engaging platform for health-related research, but that researchers and organizations should be aware of unique aspects of online behavior that need to be ascertained and addressed when planning using social technologies for health research.

Although it might appear low that 21% of total conversations were health-related, the percentage of health-related conversations would be much higher if we had coded regular "friendly" conversation as part of the health-related coding. As would be expected, the majority of conversations on a social network are "friendly" and included these conversations in the overall denominator reduces the proportion of health-related conversations. As this is the first research on this topic, friendly conversations were coded independently and included in the overall denominator of conversations to provide initial data on how much friendly conversation might be needed to engage participants enough to use it to discuss health-related topics within a research study. Future research can explore whether a "threshold" level of friendly conversation is necessary to maintain group participation. At the same time, it is important to appreciate that one limitation of health-

related research on Facebook is that participants may behave differently in the group than they normally would on the social networking site. However, by evaluating the post discussions, we find that participants continue to discuss regular topics independent of health issues, suggesting the generalizability of such research outside the “secret” group setting.

This study provides support for research suggesting that the “digital divide” is decreasing, in part due to increased social networking usage among minority populations. In fact, English-speaking Latinos and African Americans are almost 1.5 times more likely to use social networking sites compared to the general adult population (33% of African Americans, 36% of English-speaking Latinos, and 23% of adults in the general population) (Smith, 2010). While Internet and health researchers have used informational websites and chat rooms for health behavior change (Lipman, et al., 2011), social networking sites might be especially effective health communication platforms because they have been designed for social interaction and communication of social norms and are widely accepted by at-risk populations (Chou, Hunt, Beckjord, Moser, & Hesse, 2009; Coyle & Vaughn, 2008). While this study aims to discover whether participants will use social networking groups for conversations about general health issues (such as exercise, nutrition, and stress management), future research can focus on whether at-risk participants discuss other important issues affecting their populations, such as substance use (Shoptaw, 2006; Young & Shoptaw, in press).

There are several strengths and some limitations to our study. One strength is that this study helps to address whether social networking users would engage in health-related discussions in the context of a research trial, and specifically what topics might interest them. This study also helps address vulnerable populations, who may be hard to reach in an offline setting, would participate and whether there would be differences in their online behavior. Collection of quantitative and qualitative data allowed us to explore this by evaluating the actual discussions chronologically as the study progressed. Furthermore, the over-represented sample of African-American and Latino men has allowed us to comment on how these methods could potentially generalize to minority populations.

A limitation of these findings is that this study focuses on topics discussed over the public Facebook group Wall, and it is possible that different topics would be discussed in private settings, such as through private message and chat. While it is unknown how participants communicate in more private online settings, anecdotal reports from peer leaders suggest that participants also discussed health-related topics with them through more private methods such as chat and private messages. Another limitation is that because participants are Los Angeles-based and primarily from African American and Latino populations, it is unknown whether other populations would behave similarly. Future research can explore this question.

CONCLUSION

Social networking technologies can be used to engage at-risk populations to accept peer-led health advice and share health-related personal thoughts and experiences. As social networking usage continues to grow among at-risk populations, these innovative and engaging social technologies will become increasingly useful for population-focused health promotion.

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Figure 1. Discussion Topics by Subpopulations. Fraction of topics discussed by a given subpopulation, comparing younger to older participants (a), different ethnicities (b), and baseline self-report of health (c).

Table 1

Type and Use of Mixed Methods Data

Aims	Data	Type	Analysis
To characterize participants in study	Demographic survey responses	Quantitative	Descriptive statistics related to survey responses
To explore the themes discussed by participants on the Facebook Wall	Facebook Wall posts over the 12 weeks of the study	Qualitative	Codes related to conversation topics were applied to Wall transcripts and combined to determine larger concepts
To assess similarities and differences in participation among subgroups	Survey Responses and Facebook Wall Posts	Qualitative and quantitative	Postcoding stratification of excerpts by demographic characteristics and time period, with proportion of codes attributed to each category

Table 2

Demographic Characteristics of Participants, Los Angeles, 2011 (n=55)

Characteristics: n (%)	
Age (mean, <i>SD</i>)	31.8 (9.8)
Race	
African American	14 (25.5%)
Latino	33 (60.0%)
White	7 (12.7%)
Asian	1 (1.8%)
Highest Education	
Less than high school	1 (1.8%)
High School	20 (36.4%)
GED	3 (5.5%)
Associates	11 (20.0%)
Bachelors	14 (25.5%)
Graduate school	6 (10.9%)
Monthly Income	
\$1000 or less	27 (49.1%)
\$1001 – \$2000	14 (25.5%)
\$2001 – \$3000	5 (9.1%)
> \$3000	9 (16.4%)
Birthplace	
Northern USA	9 (16.4%)
Southern USA	5 (9.1%)
Eastern USA	4 (7.3%)
Western USA	32 (58.2%)
Latin America/Caribbean	4 (7.3%)
Self-described sexual orientation	
Homosexual	43 (78.2%)
Bisexual	11 (20.0%)
Heterosexual/questioning/don't know	1 (1.8%)
Current marital status	
Single	50 (90.9%)
Married	1 (1.8%)
Partnered	2 (3.6%)
Divorced	2 (3.6%)
Have a computer at home	51 (92.7%)

Table 3**Participants Baseline General Health Risk Behavior, Los Angeles, CA, 2011**

Characteristic: n (%)	
Use of Social Networks for General Health in the Last 3 Months, mean (<i>SD</i>)	6.82 (11.74)
How often do you exercise? Mean (%)	
Never	4 (7)
Everyday	14 (25)
A few times a week	27 (49)
Once a week	6 (11)
Once every two weeks	2 (4)
Once a month	2 (4)
How many meals do you eat on an average day?	
One	1 (2)
Two	15 (27)
Three	23 (42)
Four	12 (22)
Five	3 (5)
Six	1 (2)
How many daily servings of fruits and vegetables on average?	3.60 (2.82)
How often do you brush your teeth on average?	
Once everyday	13 (24)
Twice everyday	37 (67)
After every meal	3 (5)
Every other day	1 (2)
Once a week	0
Once a month	0
Never	1 (2)
How often do you floss on average?	
Once everyday	14 (25)
Twice everyday	8 (15)
After every meal	3 (4)
Every other day	12 (22)
Once a week	6 (11)
Once a month	3 (5)
Never	10 (18)
How often do you smoke tobacco/cigarettes?	
Once everyday	3 (5)
Twice everyday	6 (11)
Every other day	2 (4)
Once a week	4 (7)
Less than Once a week	4 (7)
Never	36 (65)

Characteristic: n (%)	
How do you rate your health?	
Poor	2 (4)
Fair	12 (22)
Good	27 (49)
Excellent	14 (25)
Number of visits to a doctor/nurse in the last year, mean (%)	3.33 (3.95)
On average, how many whole alcoholic drinks do you have each week?	5.00 (6.79)
Drug use in the last 3 Months:	
Marijuana	23 (42)
Methamphetamines	4 (7)
Heroin and Cocaine Mixed Together	0
Crack	1 (2)
Powder Cocaine	6 (11)
Heroin	0
Non-prescription Opiates	2 (4)
Non-Prescription Sedatives	3 (5)