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Social Media Marketing to Encourage HIV Testing among Young Black College Men

Jamal Jones

SOCIAL MEDIA MARKETING TO ENCOURAGE HIV TESTING AMONG YOUNG BLACK COLLEGE MEN

By

Jamal Tare Jones

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Abstract

Background: HIV continues to disproportionately affect young Black men (YBM) and efforts are needed to increase HIV testing in this population. The primary purpose of this dissertation was to develop and evaluate a theory driven social media marketing (SMM) campaign (based upon social learning theory) to increase HIV testing among young Black men attending a public university in Atlanta, GA.

Methods: Three focus groups with YBM were conducted to develop a social media marketing campaign. The three month social media marketing campaign included targeted Facebook and Instagram advertisements as well as print advertising, campaign related events, a campaign website, and blog. Two hundred four students (n=106 for the baseline survey and n=98 for the post campaign survey) completed an online survey assessing sexual behaviors, attitudes toward HIV testing, stigma, testing barriers, exposure to HIV testing campaigns, social learning processes, and Integrated Behavior Model (IBM) constructs. Baseline data analyses involved a confirmatory factor analysis treating social learning as a latent variable and regressing IBM constructs on social learning. Evaluation of the campaign involved comparing pre and post differences in HIV testing frequency and mean scores for covariates as well as the association of the pre/post-grouping variable with HIV testing in a multivariable logistic regression model. A mediation analysis was conducted to assess a potential causal pathway through which the

intervention affected HIV testing in bivariate models and in path analyses.

Results: The latent variable of social learning was indirectly associated with HIV testing intentions through experiential attitudes (β=0.135, p=0.014) and directly associated with experiential attitudes (β=-0.248, p=0.010). There was a significant difference in HIV testing frequency pre and post campaign (62.2% vs. 39.6%; p=0.001) in unadjusted analyses. Differential association (the people who share normative patterns of behavior with YBM) was the only mediator to have a direct association with HIV testing (AOR= 1.418, p= 0.035) in the adjusted model.

Conclusions: HIV testing was higher post campaign launch. Differential association for HIV testing may be the key to increase testing uptake among young Black men. Social learning may be extended to HIV testing behavior and may influence experiential attitudes toward HIV testing.

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Author's Statement Page

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Jamal T. Jones

Signature of Author, Jamal T. Jones

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Chapter 1: Introduction and Statement of Purpose

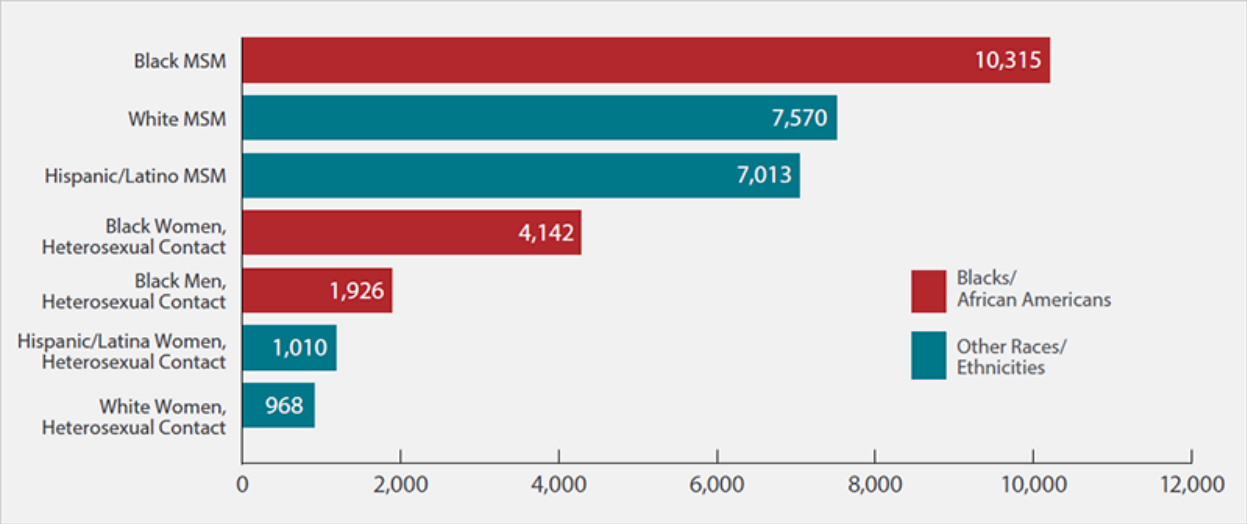
Disparities in HIV Infection Rates among Young Black Men

HIV/AIDS continues to have an impact on people across the United States (U.S.) well into the fourth decade of the epidemic. Presently, over one million people are currently living with HIV. Many of those living with HIV in the US do not know they are infected. Although the rate of new HIV/AIDS infections is down to 39,513 cases as of 2015, HIV disproportionately affects various subpopulations especially subpopulations in the Deep South.[1] Young Black men (YBM) face a disproportionate burden of HIV among youth (persons between the ages of 13 and 24 years) and accounted for the highest number of HIV/AIDS diagnoses (4,204) among all youth in 2015.[2] HIV among young Black men reflects a broader disparity of HIV among Black Americans in the US.

According to the Centers for Disease Control and Prevention (CDC), Blacks accounted for 45% of HIV diagnoses in 2015[1] however, there remains a disparity in the number of HIV diagnoses within the Black population. Almost 60% of HIV diagnoses among Black Americans occurred in gay and bisexual men.[3] Furthermore, there was a decline in the number of HIV infections among Black women yet an increase in the number of HIV infections among gay and bisexual Black men.[3] About 38% of HIV infections among Black gay and bisexual men were among young men aged 13-24 years.[3] Even more alarming, the number of HIV diagnoses among *young* Black gay and bisexual men increased 87% from 2005 to 2014.[3] Though not discussed as much in the scientific literature, exclusively heterosexual Black men also face a disproportionate burden of HIV/AIDS acquisition. Relative to heterosexual men in other racial/ethnic groups, Black men accounted for the highest number of new HIV cases.[4] The number of HIV diagnosis is so high among heterosexual Black men, the Centers for Disease Control and Prevention lists

this subpopulation as one of the most affected behind Black men who have sex with men (MSM), white MSM, Hispanic/Latino MSM, and Black American women as indicated in Figure 1 below. HIV acquisition is very problematic among young Black men who reside in regions of the US experiencing high rates of HIV/AIDS. African Americans have the highest percentage of HIV diagnoses in the South as well as the Northeast and Midwest compared to other racial and ethnic groups.[5]

Figure 1. HIV diagnoses among most affected subpopulations



Source: Centers for Disease Control and Prevention. Diagnoses of HIV infection in the United States and dependent areas, 2015. HIV Surveillance Report 2016;27.

HIV in the Deep South and State of Georgia

HIV prevalence is concentrated in areas of the Deep South as states in the southern US account for 44% of all people living with HIV and 52% of AIDS diagnoses as of 2015.[5] Further, lifetime risk for HIV acquisition is highest in many states that compose the Deep South such as Florida, Louisiana, Texas, Mississippi, South Carolina, North Carolina, Alabama and Georgia.[5] For example, Georgia ranks fifth in the nation for the number of adults and adolescents living with HIV.[6] Nearly two-thirds of individuals living with HIV in the State of Georgia resided in the Atlanta Metropolitan Statistical Area.[6] Roughly 53% (28,998) of people living with HIV in

Georgia had stage 3 disease, or AIDS.[6] Furthermore, 22% of persons diagnosed with HIV were diagnosed with AIDS within 3 months of their HIV test in Georgia.[6] Black Americans made up 72% of HIV diagnoses in the State of Georgia as of 2015.[6] The high number of AIDS diagnosis can be attributed to infrequent or late HIV testing. Late and infrequent HIV testing in Georgia may reflect a broader trend within the Black community, especially among Black men. Black Americans report infrequent or late HIV testing and this lack of HIV testing has led to disparities in late HIV diagnosis among Black men who have sex with men.[7] The high concentration of HIV in the Deep South and in cities such as Atlanta, GA coupled with infrequent and late HIV testing make it pertinent for sexually active young Black men to get tested for HIV.

Importance of HIV testing/screening among Youth

The National HIV/AIDS strategy recommends that everyone between the ages of 15 and 65 years get tested for HIV at least once as part of routine health care.[8] Furthermore, the CDC recommends that individuals with certain risk factors including men who have sex with men, individuals who have vaginal or anal sex with someone living with HIV, individuals with multiple sex partners since their last HIV test and individuals who exchange sex for money or drugs get tested annually.[8] The CDC also recommends that gay and bisexual men test more frequently, approximately every three to six months.[8] Prior studies report higher HIV testing rates among Blacks compared to other racial/ethnic groups and higher future testing intentions.[9, 10] These higher rates of HIV testing may not translate to testing among Black youth. Just 35% of youth aged 18-24 years have ever been tested for HIV, the lowest of any age group.[11] Although HIV affects 1 in 4 youth, just over 50% of youth living with HIV do not know that they are infected.[2] These infected but unaware youth will fail to obtain appropriate medical care, and can unknowingly pass the virus to others.[2] Although ever testing for HIV among Blacks is higher

compared to other racial ethnic groups, [9,10] Blacks are more likely to undergo late HIV testing and be diagnosed late in the course of HIV infection.[4] In one Morbidity and Mortality Weekly Report, Black men accounted for the highest proportion of unrecognized HIV infection among MSM.[12] Correlates associated with never testing for HIV among Black men aged 15-24 years include not visiting a doctor or healthcare provider and not reporting any sexual risk behaviors in the past 12 months.[13] One important question then, is how to encourage HIV testing. Prior interventions have not fully addressed these barriers.[14]

Prior Research Targeting HIV Risk Behavior and Campaigns to Promote HIV Testing

Most HIV prevention, behavioral interventions have focused on specific STI/HIV risk factors including: drug use, condom negotiation skills, and correct and consistent condom use.[14] Prior interventions have achieved some success at reducing HIV risk among YBM at the individual level. Unfortunately, disparities in HIV incidence rates persist as rates among YBM have not achieved the same level of declines as other groups.[2, 3] The CDC launched several national social marketing campaigns to bolster HIV testing including the "Doing It" campaign, "Reasons/Razones", "Take Charge. Take the Test.", and the "Testing Makes us Stronger" campaign.[15] These campaigns were designed to both target and reach the general public or specific subpopulations including Latino gay and bisexual men, Black women, or Black gay and bisexual men. Indeed it is important to develop campaigns with targeted messages for the aforementioned subpopulations given their risk for infection, however Black men who only have sex with women appear to be excluded from such campaigns although they are a designated subpopulation most at risk for HIV infection. It is unclear whether the HIV testing messages from the campaigns targeting the general public or gay and bisexual Black men specifically are reaching and resonating with young Black men who may be at risk for infection. Prior qualitative

research conducted with samples of young Black men explored barriers to testing and prevention.[16-19] None of the studies explored whether HIV testing campaigns and prevention efforts have reached young Black men nor do the studies explore the use of social networking sites (SNS) as a mode to efficiently deliver HIV testing messages to young Black men. It is becoming increasingly important to better understand how SNS can be used to deliver HIV testing messages to young Black men as Web 2.0 and mobile device technologies are gaining traction as effective tools to address the HIV continuum of care[20] and SNS are effective at delivering HIV testing messages to broad populations.[21]

Purpose of the Proposed Dissertation

The primary purpose of this dissertation was to develop and evaluate a theory driven social media marketing (SMM) campaign designed to increase HIV testing among young Black men attending a public university in Atlanta, GA. The proposed dissertation was implemented in two phases. The first phase consisted of qualitative research to assess any changes in attitudes toward HIV and HIV testing as well as ascertain awareness of HIV testing campaigns among young Black college men via focus groups. Young Black men's willingness to model HIV testing behavior and post images of themselves receiving the HIV test was also assessed. In addition to ascertaining awareness of HIV testing campaigns, a secondary purpose of the qualitative research was to develop HIV testing messages that would resonate with young Black men and explore the use of social networking sites to deliver HIV testing messages for a social media marketing intervention.

The second phase of the dissertation was to conduct a pilot study to test a theory driven social media marketing campaign and evaluate the campaign for reach, changes in mediators associated with HIV testing, and HIV testing behaviors. The central hypothesis for the

dissertation is a SMM intervention, grounded in behavioral modeling and social learning theory is associated with increased HIV testing among Black male college students receiving the web-based intervention. The objectives of the second phase of the dissertation were to 1) develop and conduct a feasibility study on a HIV testing intervention website that encouraged young Black men to post pictures and video of themselves associated with campaign images and materials; 2) rely upon online, social media channels (Facebook, Twitter, Instagram) to increase campaign awareness; 3) conduct a pre-post study to assess limited efficacy of the SMM campaign and compare HIV testing patterns of participants at a public research university in Atlanta, GA 4) recruit the target population in two cross-sectional samples to participate in the research survey. The second phase of the dissertation attempts to answer the following research questions:

(1) *Research Question 1*: Is the percentage of self-reported HIV testing among YBM college students higher at post intervention as compared to pre-intervention when adjusting for covariates of HIV testing, exposure to other HIV testing campaigns, and demographic variables?

(2) *Research Question 2*: Is exposure to the campaign associated with changes in theoretically derived mediators, which in turn are associated with HIV testing behavior, from pre-intervention to post-intervention in a causal model?

(3) *Research Question 3*: Is social learning theory a valid latent construct in the context of HIV testing and associated with theoretically derived mediators for HIV testing at baseline?

Chapter 2: Review of the Literature

Sexual Risk Taking Behaviors of Black Men

Endemic transmission of HIV can be attributed to sexual risk taking behavior of young Black men. Black men continue to report unprotected vaginal and anal intercourse irrespective of whether they have sex with men, women, or both men and women[22-26] and those living with HIV engage in unprotected intercourse with steady and non-main partners.[27, 28] Of concern is a lack of disclosure of positive status to female sexual partners although Black men living with HIV disclose their positive status to male sexual partners.[29] These figures raise more concern when considering that Black MSM report low awareness and stalled uptake of pre-exposure prophylaxis (PrEP).[30] Unprotected vaginal and anal intercourse among Black men is largely due to inconsistent and incorrect condom use.

Although the male latex condom is an effective method for reducing the risk of HIV transmission, correct and consistent condom use is problematic among Black men.[31-36] Black men report several condom use errors including critical errors such as late application, early removal and slippage during sex, and re-using condoms.[34] One study reports that over 25% of teens who used condoms inconsistently and/or incorrectly acquired an STI.[35] Inconsistent condom use remains prevalent for a variety of reasons. For example, among Black MSW, reasons for not using a condom included: calculated risk taking regarding condom use because they did not want to miss an opportunity to engage in intercourse; trust in a main partner; or a decline in condom use over time in a committed relationship.[22] Furthermore, implicit masculine ideologies reinforce Black men's proclivity to use condoms inconsistently and incorrectly. Ideologies such as the perception that Black heterosexual men cannot decline sex, even if the sex is risky, and that women should be responsible for condom use may further drive sexual risk

taking behavior among heterosexual Black men.[37] These masculine ideologies held by young Black men may be reinforced by their peers and sexual risk taking behavior may be normalized within their social networks.

Peer Influences and Perceived Norms on Sexual Risk Taking Behavior

During the adolescence period, peers become an important source of behavioral modeling, reinforcement, and support.[38] Perceptions of peer norms are associated with a variety of risk taking behavior among adolescents.[39-42] Specifically, perceived peer norms and attitudes toward sexual behavior is associated with higher intentions to engage in sexual intercourse in the coming year, sexual initiation and debut, a higher relative risk for engaging in sexual intercourse, and a lower likelihood to use condoms.[42-44] In addition to the aforementioned research, a cross-sectional analysis of young Black men aged 15-23 years, perception of peer norms toward condom use was significantly associated with the number of sexual partners young Black men had during their lifetime, the number of sexual partners young Black men had during the two months prior to participating in the study, and unprotected vaginal intercourse.[45] Although peers influence sexual risk taking behavior they can also promote healthy behaviors related to sex. For example, adolescents who have friends that practice and support condom use are less likely to be sexually experienced and are more likely to use condoms.[46, 47] Targeting perceived peer norms towards HIV testing and promoting HIV testing among YBM peer networks may reduce stigma and barriers. Understanding the role of social networks, specifically online social networks, on individual health behaviors is crucial to finding targets for intervention and could offer a more efficient mode of delivering health promotion messages.

Social and Media Marketing and Online Social Networks to increase HIV/STI Testing

Social marketing campaigns have been shown to be very successful in affecting behavior change among children and adolescents.[48] Social networking sites extend social marketing principles and show promise in affecting positive behavior change as social media becomes increasingly ubiquitous.[49] Campaigns are starting to increasingly incorporate social networking sites to send HIV/STI testing messages to broad audiences as the percentage of people who use multiple social media platforms continues to rise.[50] For example, the percentage of men, Black non-Hispanics, and persons aged 18-29 who use Twitter and Instagram have increased since 2013.[50] There have been significant increases among men, persons 18-29 years of age, and people who have at least some college education who use Instagram.[50] Social networking sites have been used extensively for HIV/STI prevention campaigns for populations at risk for acquisition.[51-55] Reliance on social networking sites to disseminate HIV prevention information is based in part on social and sexual network research. Social Media Marketing is designed specifically to capitalize on social network analysis[56-65] and sexual network research.[66-69] Research is emerging on the effectiveness of social media channels to reach individuals at risk for HIV acquisition and changing HIV risk behaviors.

A well- known STI testing campaign, the Get Yourself Tested (GYT) Campaign, used multiple forms of media (i.e. social networking sites, television, web, print, short message service (SMS) and on-the-ground efforts to reach youth with information and link them to STI testing.[54] Evaluation of the campaign reported that from 2009 to 2010, GYT's Facebook page gained 4,477 fans, Twitter feed gained 1,994 followers, and more than 140,000 referrals were made to the STD testing locator.[54] There were increases in STI testing and specifically increases in chlamydia testing at reporting Planned Parenthood affiliates.[54] The GYT campaign

demonstrated that SMM can be an effective tool to increase STI testing uptake at the population level. However, increases in HIV testing were minimal suggesting a need to focus on HIV testing exclusively. This campaign was broad and did not target YBM or their perceived barriers to HIV testing.

Other health promotion campaigns relying upon social media sites include a study by Rice and colleagues who were able to successfully recruit homeless youth for a peer-led hybrid face-to-face and online HIV intervention disseminated via Facebook and MySpace.[55] The researchers recruited peer leaders identified through community-based organizations and trained the leaders on peer engagement and HIV prevention message dissemination.[55] These peer leaders helped to recruit other participants who received the face-to-face intervention. Peer leaders worked with participants who received the face-to-face intervention and who helped to develop the intervention's online platform on Facebook and MySpace. Youth who completed the face-to-face intervention attended workshops based upon HIV risk reduction behavior to aid in the creation of the online platform. Youth participating in the face-to-face workshops were then asked to help recruit other homeless youth to engage in the online intervention by inviting other youth to "friend" the intervention social media pages and view the YouTube channels.

The peer leaders and those youth who participated in the face-to-face intervention were able to recruit 103 youth for the intervention's online platform.[55] The recruitment efforts resulted in two large networks and the online networks experienced rapid growth after the first 50 (of 53) face-to-face youth participated in the study.[55] Although seven peer leaders were initially identified for the intervention, youth participating in the study via the online platform were the most central to the social networks.[55] Participants who were younger in age and female were more likely to be connected to similar youth. This study demonstrated that a hybrid social

networking approach was acceptable for engaging and disseminating HIV risk reduction information to homeless youth.

Ko et al. conducted a quasi-experimental study design adapting the CDC Popular Opinion Leader model for an online HIV prevention intervention disseminated using Facebook.[70] Participants in the study received the intervention from internet Popular Opinion Leaders (iPOL) who actively disseminated HIV-related information on the intervention page or viewed a nonequivalent control webpage.[70] Using an online social networking approach, iPOLs were able to reach over 950,000 individuals for the intervention site.[70] Participants who viewed the intervention page reported HIV-risk reduction behaviors including being more likely to test for HIV within 6 months and consistently using condoms during anal sex with online sex partners compared to individuals who viewed the control page.[70] Individuals who viewed the intervention page were also more likely to receive HIV-related information, discuss HIV issues with others, review articles about HIV, and be asked about or discuss HIV-related questions.

Dowshen et al. conducted a pre-post quasi-experimental study to test the effects of a youth-driven social media campaign designed to increase STI/HIV testing among youth 13-17 years of age.[71] The researchers assessed STI knowledge and attitudes toward STI testing, compared rates of STI testing at affiliated family planning clinics and tracked social media use.[71] Dowshen and colleagues were able to reach over 1,500 youth through the social media intervention and there were significant increases in the proportion of youth testing for Syphilis and HIV post campaign launch.[71] However, the campaign did not have significant effects on the total number of gonorrhea and chlamydia tests conducted as well as on the number of positive test pre- and post-campaign launch.[71]

Pedrana and colleagues used Facebook and YouTube to deliver sexual health promotion messages as part of a pilot project, Queer as F**k (QAF), targeting gay men in Victoria, Australia.[52] The health promotion messages were delivered in the form of short ‘‘webisodes’’ posted to an intervention Facebook page and YouTube channel.[52] The webisodes made up several series, each series 10-12 episodes long, addressing sexual health issues (such as HIV) discordant relationships concerning MSM.[52] The QAF Facebook page was also used to facilitate discussion about sexual health issues embedded within the narrative of the webisodes. The researchers used a variety of media to promote the intervention including press advertisements, editorial coverage in local gay media, Facebook advertisements, updates to fans through the project Facebook page, and community engagement at gay public events. The researchers were able to attract over 30,000 total views (views for each webisode ranged from 124 to 3,092).[52] The QAF Facebook page was also able to build a base of almost 3,000 fans most of which were male.[52] Pedrana and colleagues conclude that Facebook advertisements were the most successful promotion tool for reaching potential fans.[52] Modeling real life situations that were relatable to the target population helped to make Pedrana’s intervention successful. Social learning and modeling of health behaviors may be important when considering individual HIV risk-taking and preventive behaviors.

Social Learning Theory and Behavior Self-Modeling

The intervention for this dissertation project relied upon the tenets of social learning theory and behavioral self-modeling as a mechanism to bolster HIV testing among YBM. Developed by Alfred Bandura, social learning theory suggests that people learn from one another through observation, imitation, and modeling.[72] However, Another researcher, Ronald Akers, further defined social learning theory through specific processes (differential association,

differential reinforcement, definitions, and model) that can potentially be extended to the uptake of HIV screening/testing.

Akers defines social learning theory slightly differently than Bandura and used his variation of social learning theory to explain deviant behaviors. Like Bandura, Akers posits that individuals learn certain behaviors by direct conditioning and by imitating or modeling behaviors of others.[73] However, Akers further posits that behavior is rewarded through positive reinforcement or punished through negative reinforcement of peer groups or any group that controls individuals' primary sources of reinforcement for a particular behavior. These groups may also help shape an individual's definition of normative behavior irrespective of whether the behavior itself is positive or negative in the form of differential association.[73] Essentially social learning of behaviors occurs through various social processes shaped by an individual's conditioning of a certain behavior, the award or punishment for engaging in the certain behavior by certain peer groups, the definitions a person applies to the behavior (i.e. attitudes, beliefs, and orientations), and imitation or modeling of the behavior that explain the likelihood that a person will engage in a given behavior.[73] These processes include differential (peer) association (the normative behavior exhibited by peers), differential reinforcement, definitions, and modeling of behavior.[73] Thus an individual is likely to engage in a certain risk behavior if he socializes with peers who view the behavior favorably (differential association), adopts attitudes and beliefs favorable to the behavior (definitions), balances the risks and rewards of engaging in the behavior (differential reinforcement), and imitates the behavior of peers within his social network engage in the behavior as well. Prior research indicates that social learning processes as defined by Akers are significantly associated with and/or predict adolescent alcohol and drug use, adolescent tobacco use, and stalking perpetration and victimization.[73-75] However, a meta-

analysis on social learning processes reports that differential reinforcement has the least predictive power compared to the other processes.[76] Whether a young Black man will screen for HIV may be influenced by his social network or peer groups who harbor favorable or unfavorable attitudes for HIV testing, the normative definitions he applies to HIV testing (his personal attitudes and beliefs about HIV testing), the reinforcement he will receive for getting testing for HIV which is likely dictated by his peer group/social network, and if he imitates HIV testing behavior of a respected peer leader or someone who is trusted within his network. The most important of all of the social learning processes could be behavioral modeling.

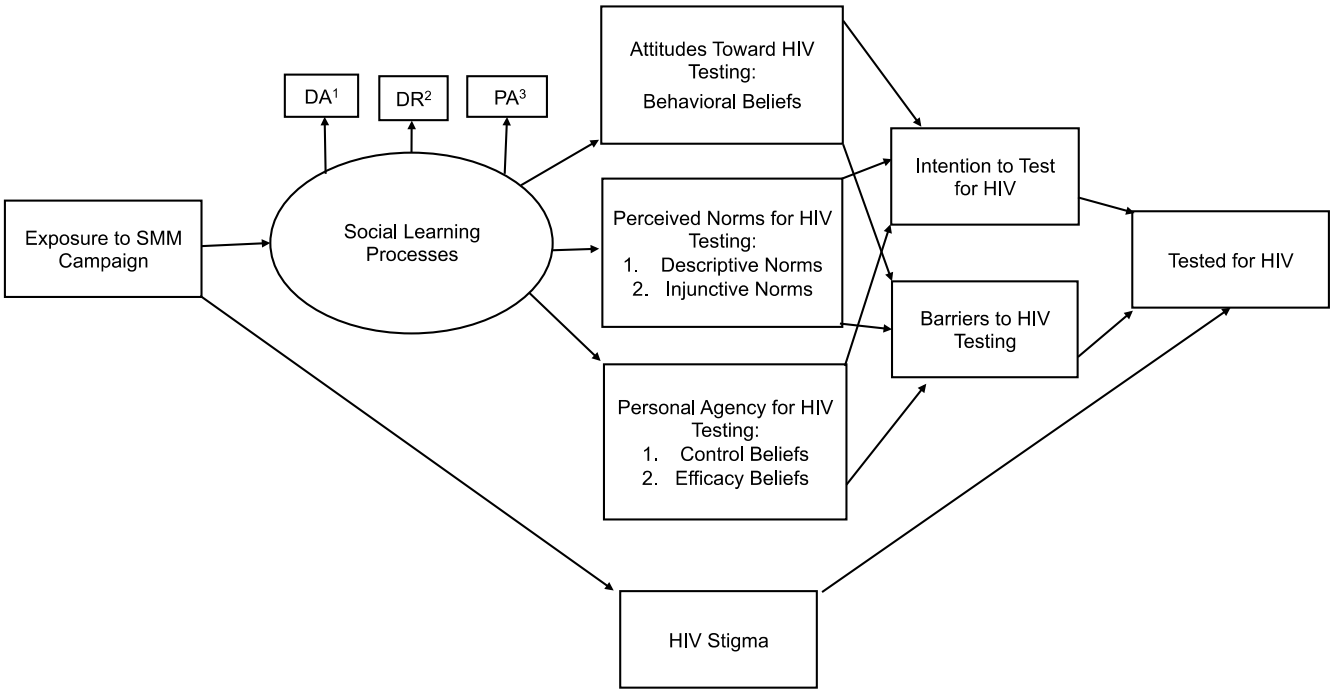
Social learning theory has been extended to behavior self-modeling. In the context of behavioral modeling, behavioral instruction indicates observation of a person who serves as the "model" from which behavior is subsequently imitated.[77, 78] Behavioral modeling of a trusted peer could have an influence on whether an individual engages in HIV preventive behaviors. For instance, in Popular Opinion Leader research trusted peer leaders encourage safer sexual norms and behaviors within their social networks of friends and acquaintances through risk-reduction conversations.[79-81] The Popular Opinion Leader approach shows evidence at increasing HIV/AIDS related knowledge, condom use, and HIV testing whether popular opinion leaders speak to individuals at local venues or via the internet through social media websites.[70, 82] Because popular opinion leaders often come from the population and communities that are targeted for intervention and are trusted leaders within the population, they may easily persuade people to engage in HIV preventive behaviors. If a trusted peer leader were to model HIV testing behavior or actively engage in a campaign promoting HIV testing, then his peers may be more inclined to engage in the HIV testing campaign as well as get tested for HIV.

HIV sexual risk-taking and preventive behaviors have often been viewed and explained as being under one's volitional control. This is evidenced by the myriad of studies that rely upon the Theory of Reasoned Action (TRA), Theory of Planned Behavior (TPB), and Integrated Behavioral model, IBM (which combines constructs of the TRA and TPB) to explain HIV-risk taking and prevention behavior or used these theories for prevention interventions in various populations.[83, 84] Briefly, the TRA posits that one's subjective norms (how an individual perceives significant people in his/her life would feel about a certain action/behavior) and attitudes for engaging in a behavior (the positive and negative values one places on performing a behavior) directly affects their intention (perceived likelihood) to engage in a health behavior.[85, 86] TPB adds to this theory by incorporating perceived behavioral control (the perception of one's ability to perform a behavior) that an individual has for engaging in a behavior.[85, 86] The IBM model extends the concepts of TRA/TPB by incorporating personal agency which consists of perceived control and self-efficacy (the confidence in one's ability to engage in a behavior in the face of obstacles and environmental constraints).[86] However, meta-analyses reveal that the constructs of the TRA/TPB may not be directly associated with HIV related behaviors.[83] Given the overwhelming evidence of the role that peers, social networks, and popular opinion leaders have on HIV risk taking and preventive behaviors, social learning processes may affect the constructs of TRA/TPB which in turn may influence individual HIV testing behavior.

Young Black men may be influenced by trusted peer leaders within their social networks who can model HIV testing behavior and then utilize social learning processes to normalize HIV testing and screen for HIV antibodies. The social learning occurs because young Black men will imitate the behavior of a trusted member, who gets tested for HIV or promotes HIV testing on their social network pages. This dissertation incorporates the above principles by developing a

web-based social media marketing HIV testing campaign that encourages young men to post pictures and video of themselves with campaign paraphernalia or posting an image of themselves getting tested for HIV at various campaign related HIV testing events. Peer leaders identified through focus group discussions of young Black men (described in chapters 3 and 4) encourage Georgia State University students to get tested for HIV by directly engaging in campaign related events and allowing pictures of themselves to be posted on campaign social media sites. A social media site such as Instagram can be used to model HIV testing behavior among YBM and their peer networks. Figure 2 is a graphical depiction of the proposed model incorporating social learning theory processes, IBM constructs, and HIV stigma as they relate to the SMM campaign to be tested in the final analyses.

Figure 2. Theoretical Model to Affect HIV Testing Behavior among YBM at GSU



Note:
1. DA=Differential Association
2. DR=Differential Reinforcement
3. PA=Peer Attitudes

Chapter 3: Methods

Overview of Study Design and Strategy

This project was implemented in three phases: **phase 1**, the formative research phase to solicit information that guided the development of intervention materials and the SMM campaign. Three focus groups were conducted to obtain information on opinions surrounding the social media marketing campaign and garner feedback on intervention materials. Focus groups were used to identify key University stakeholders as well as garner information on branding, university outreach, and utilization of online social media channels to market the campaign. The focus groups also helped to determine appropriate messaging for the campaign. Results from focus groups were used to develop the SMM campaign and intervention website; **phase 2**, finalize intervention materials and campaign website that was implemented; **phase 3**, employment of a quasi-experiment study design with one study arm and pre and post-test follow-up period. Utilizing on-line convenience sampling, a total of 204 participants in two cross-sectional samples (first cross-sectional sample n=106 and second cross-sectional sample n=98) were recruited from an urban university located in Atlanta, GA. Although I planned to recruit 300 total participants, limitations in funding only allowed for just over 200 participants to be recruited. The baseline survey was given to a cross-sectional sample of YBM at Georgia State University on HIV testing behavior, IBM model constructs, social learning processes and exposure to previous HIV testing campaigns during the semester prior to the implementation of the SMM campaign, fall 2016. During phase 3, individuals from the University received messages about the HIV testing campaign and were encouraged to attend campaign related events and post video or pictures of themselves at campaign related events on campaign social media pages and on their own online social networking pages. The follow-up cross-sectional

surveys were collected during the fall semester of 2017 (post-test). Graduate level student volunteers assisted with the completion of formative research and campaign-related activities.

Formative Research

Participants

This study recruited nineteen (n=19) young, Black male college students at a public university in Atlanta, GA for three focus groups from September 2016 to October 2016. The eligibility criteria were as follows: ages 18-24 years, enrolled at GSU at the time of participation, born male, Black/non-Hispanic, and initiated sexual debut (had ever engaged in sexual intercourse, vaginal or anal).

Procedures

Recruitment involved sending students an email containing a link to the description of the study and eligibility screener, posting flyers with focus group and study contact information throughout approved areas on the campus (i.e. Student Center), and speaking to several classes consisting of undergraduate students. Students who contacted the doctoral candidate were sent the link to the study description. All interested and eligible students completed a web-based consent form. Students who agreed to participate then registered for a focus group and completed a brief questionnaire ascertaining basic demographic information. The doctoral candidate notified eligible students who registered for the focus groups with their appointment time. Georgia State University's Institutional Review Board approved study procedures.

Focus Groups

Three focus groups were conducted with 6-7 participants in each focus group. At least six participants per focus group were recruited to ensure that a diverse group of opinions were shared and to allow each participant to express himself as focus groups typically consist of 6-8

individuals who are a homogenous group.[87] The focus groups lasted between 79 minutes and 93 minutes. The doctoral candidate served as the focus group moderator and three graduate-level student volunteers took notes and recorded participant responses to focus group questions. For training purposes, one of the graduate-level student volunteers helped to moderate the final focus group with input from the doctoral candidate. Participants received $25 for their participation concluding each focus group.

The focus groups consisted of a group interview that queried students' general thoughts and experiences with HIV and/or STI testing, students' awareness of HIV testing campaigns and related activities, their critique of potential messages for an HIV testing campaign, and communication of HIV testing messages through social networking sites. To ascertain thoughts and experiences related to HIV and HIV testing students answered questions such as, "What comes to mind when you hear about HIV?" and "How important is it for you to test for sexually transmitted infections such as HIV?" To assess their awareness of existing HIV testing campaigns participants were asked, "What are some of the HIV awareness or testing campaigns that you're familiar with?" and "How did you hear about those campaigns?" Students were also asked, "What are your thoughts about those campaigns?" to determine whether previous campaigns appealed to young Black men.

The doctoral candidate presented participants with a series of potential campaign messages structured as a meme because messaging would be distributed via SNS. Each message featured a young Black man in various settings with a caption related to HIV testing. One set of messages featured a young Black couple (man and woman) to potentially reach Black MSW who would perceive their risk for infection to be low. Campaign messages targeted the following: fear and anxiety which are often cited as barriers to HIV testing[17-19] and masculinity as suggested by

a previous qualitative study[16]; knowing one's HIV status due to low HIV testing rates among young Black men[13]; and testing for HIV as part of a loving relationship because concern for a partner's risk was cited as motivation for HIV testing.[16] For instance, the message featuring the theme of masculinity and fear had the following caption, "Don't be Afraid…Be a Man. Get Tested for HIV." Another message depicting the couple had the following caption "Love is Testing for HIV." Each message was shown with and without HIV-related statistics and participants were asked to take 2-3 minutes to view each message and write down their thoughts for discussion. Finally, participants discussed strategies to communicate HIV testing messages to young Black men via SNS.

Focus Group Data Analysis

Each focus group was audio recorded with a digital recording device and transcribed verbatim by the graduate-level student volunteers. The doctoral candidate then reviewed each transcript and made minor corrections to the transcript as needed. The transcripts were entered into QRS Nvivo v. 11.0 (Melbourne, Australia) for qualitative data analysis. The grounded theory approach was employed to code the data and identify emergent themes.[88] Graduate-level student volunteers used open coding to first identify nodes (the initial coding of the qualitative data) for participant responses to focus group questions. The graduate student volunteers and doctoral candidate reviewed the transcripts and coding to identify differences, reconcile nodes, and identify emergent themes in the data. The nodes were then grouped into sub-themes using axial coding by fitting nodes into groups of codes that followed a similar pattern of response. Finally, overarching themes were identified based upon axial coding and clusters of nodes.

"Courage 2 Test" Social Media Marketing Campaign

The intervention relied upon the tenets of social learning theory and behavioral self-modeling as a mechanism to bolster HIV testing among YBM. Based upon feedback from the focus groups the campaign was named "Courage 2 Test" to recognize the fear that goes into HIV testing but counter the narrative of fear that precludes young Black men from getting tested for HIV. A campaign logo (see Figure 3) was designed to increase visibility of the campaign based upon the results of the focus groups. The campaign ran throughout the spring 2017 semester (February 2017 through April 2017) on Georgia State University's downtown campus. The campaign helped to facilitate discussions between young Black men, their peers, and other important individuals in their lives on HIV risks and testing. Encouraging peer discussions on HIV testing was used to normalize HIV testing behavior and reduce stigma.

Figure 3. Courage 2 Test Campaign Logo

A website was created to provide information about the campaign, HIV resources available in the Atlanta Metropolitan area, and general information about HIV. The campaign website contained culturally relevant HIV statistics, HIV testing information, and other information to appeal to young Black men at GSU. Specifically the campaign website was developed on the Wordpress platform and featured tabs including: the Courage 2 Test tab, "HIV Testing Resources" tab, a tab listing the biographies of the core team members (the doctoral candidate and graduate level student volunteers), a tab sharing HIV related statistics relevant to young Black men both nationally and

in the State of Georgia, and a tab to provide a general overview of the campaign. A blog was also added to the website in which the graduate level student volunteers shared real life experiences on how HIV or HIV prevention affected their lives and the importance to prevent the spread of HIV in the Black community. The graduate level student volunteers were close in age to the target population and the undergraduate students could relate to members of the Courage 2 Test team. Several social media campaign pages were also created so that students could follow campaign events and activities on Facebook, Twitter, Instagram, and Snapchat. These platforms were chosen based upon feedback from focus groups and increased utilization among young people and men.[50] Each social media page contained information about the HIV testing campaign to increase visibility to the campus community, information on where one can get tested, pictures and videos of people from the campus community (particularly YBM) at campaign-related events, and memes created to counter narratives of fear and stigma.

Three campaign-related events were held to educate students about HIV, encourage them to get tested, and challenge negative perceptions and stigma held toward people living with HIV. To host the events, the study team (the doctoral candidate and graduate level student volunteers) worked with the Office of Student Health Promotion and several student organizations servicing young Black men and their peers including: the Public Health Student Association, fraternities and sororities on campus, and the National Association for the Advancement of Colored People (NAACP) Chapter at GSU. The campaign was also promoted using targeted Facebook and Instagram ads, an ad in the GSU student newspaper, The Signal, and through press releases promoted on the Georgia State University School of Public Health website. Figure 4 depicts a targeted Facebook/Instagram advertisement. The study team also

worked with the director of the Bachelor of Science in Public Health program to disseminate information related to the campaign.

Figure 4. Targeted Facebook/Instagram Ad

Campaign Events

National Black HIV/AIDS Awareness Day Campaign Launch. In February 2017, GSU School of Public Health Students launched an HIV testing campaign to encourage other GSU students to get tested to celebrate National Black HIV/AIDS Awareness Day. The study team worked with GSU's Office of Student Health Promotion to provide free HIV testing and counseling at the event. A local LGBT service organization provided the free HIV testing using the rapid test kit. For students who attended the event, they received additional information and resources and had their blood glucose levels tested to promote overall health and wellness.

Greek Block Party. The study team hosted an HIV testing event featuring the Greek-lettered organizations of the National Pan-Hellenic Council and Multicultural Greek Council of GSU. These two councils were featured as they consist of historically Black, Latino, and Asian Greek-lettered organizations. A local AIDS service organization, the Empowerment Resource Center, provided free HIV testing and the Public Health Student Association provided snacks and refreshments for students who attended the event. Members of fraternities and sororities were encouraged to take pictures with the campaign "Courage 2 Test" sign as they were

identified as student leaders based upon focus group discussions. Members of Greek-lettered organizations also had the opportunity to stroll (a form of line dancing), step, do a call, or dance to music provided by a student DJ.

Beyond the Stigma. The final campaign event featured a town hall style in-depth discussion with a GSU graduate student who is living with HIV. The study team partnered with the NCAAP chapter at GSU and the Pi Alpha Chapter of Phi Beta Sigma Fraternity, Inc. to give undergraduate students an opportunity to meet someone living with HIV. The student living with HIV shared his experiences of when he was first diagnosed, taking antiretroviral medications, dating while living with HIV and other issues relevant to young Black men. The town hall event was specifically held to counter the narrative that a person living with HIV looks ill. Students were given the opportunity to ask questions and learned the steps that they could take to reduce the transmission of HIV in their communities.

People from the GSU and adjacent communities were encouraged to post pictures of themselves using the hash tags #Courage2Test and #C2T at campaign events to generate campaign visibility on online social media channels. Participants and community members had the opportunity to share that they received an HIV test on Twitter, Facebook, and Instagram and take pictures with campaign paraphernalia. The study team also encouraged student leaders from various organizations serving young Black men to post pictures of themselves at campaign events. Student leaders were encouraged to model HIV testing by attending events and taking pictures with the study team. Student leaders could normalize HIV testing and bring awareness to the young Black men of GSU through posting pictures of HIV testing as well as posting pictures with the Courage 2 Test team members and with campaign related material. A logic model for the HIV testing campaign is provided in Appendix I.

Pre-Post Cross-Sectional Surveys

Procedures

The pilot study recruited an online convenience sample of two hundred four (n=204; first cross-sectional sample n=106 and second cross-sectional sample n=98) young, black, male college students from Georgia State University Atlanta, GA from September 2016 to September 2017. The eligibility criteria were as follows: ages 18-24 years, enrolled at GSU at the time of participation, born male, Black/non-Hispanic, and initiated sexual debut (had ever engaged in sexual intercourse, vaginal or anal)

For the baseline cross-sectional survey, the doctoral candidate received approval and a secured a list of student emails from the Georgia State University Office of the Registrar. The list of student emails was restricted to Black men between the ages of 18 and 24 years. For the *post cross-sectional survey*, the doctoral candidate received a second list of student emails but the list was further restricted to exclude 1st year students who would not have been exposed to the campaign during the spring 2017 semester. Recruitment involved sending students an email containing a link to the description of the study. Students then clicked on another tab to be taken to the eligibility screener. Students who passed the eligibility screener completed a web-based consent form. Students who agreed to participate then clicked on a tab containing the survey. The doctoral candidate notified students who completed the surveys to receive their incentive. Students received $10 for completing the survey. Georgia State University's Institutional Review Board approved study procedures.

Measures

The baseline and follow-up surveys were collected via the Qualtrics survey collection platform. The surveys contained a combination of several scales and questions measuring

demographics, sexual behavior, HIV testing behavior, attitudes toward HIV testing, exposure to the campaign messages and webpage, barriers to HIV testing, HIV stigma, IBM model constructs and social learning processes. Scale and index items for survey measures can be found in Appendices A-H.

Demographics: Students answered basic demographic questions including age, year in college, if they received financial aid and the type of financial aid they received. Age was assessed by participants reporting their age (in years). Year in college was assessed by asking participants, "What year are you in school?" Response options ranged from "1st year, undergraduate" to "5th year or more, undergraduate." A proxy measure to assess parental income by asking participants, "Do you receive any financial assistance?" followed by allowing participants to choose from different types of financial aid for those receiving financial aid including the Hope Scholarship, Pell Grant, and subsidized and unsubsidized federal Stafford loans.

Sexual Behavior Questions: Participants answered a series of dichotomous questions (coded as 1= "yes" and 0= "no") ascertaining whether they ever had sex with a woman or a man, if they had sex with a man or a woman within the previous 12 months prior to completing the survey, and if they used a condom the last time they had sex with a man or a woman. Questions included in the final analysis of the dissertation were as follows: "Have you had sex with a woman in the past 12 months?"; "The last time you had vaginal or anal sex with a woman, did you use a condom?"; "Have you had anal sex with a man in the past 12 months?"; and "The last time you had anal sex with a man, did you use a condom?"

Covariates of HIV Testing

HIV Testing Attitudes: To assess individual attitudes for HIV testing the Boshamer and Bruce HIV-Antibody Testing Attitude Scale, HTAS was used.[89] The HTAS is a 32-item Likert-type

scale that addresses four factors related to HIV testing including: concerns about friends' responses if one were to test for HIV, concerns about family responses if one were to test for HIV, beliefs about public opinion of HIV testing, and concerns regarding confidentiality of HIV testing.[88] Participants answered questions such as, "My friends would look down on me if I were tested for HIV," "My parents would be upset if they knew I was planning to test for HIV," "People would assume I have HIV if I decided to get tested," and "HIV antibody testing is not really confidential." Responses were anchored by "Strongly disagree" to "Strongly agree". Items were summed to create one continuous score. Higher scores represented more favorable attitudes toward HIV testing. The Cronbach's alpha for the scale was 0.88 in this study.

Barriers to HIV Testing: To assess barriers to HIV testing, the13-item scale developed by Awad, Sagrestano, Kittleson, and Sarvela was adapted.[90] The scale poses various questions based on three factors: structural barriers (e.g. lack of transportation), fatalism/confidentiality concerns, and fear.[89] Participants responded to a series of items such as, "You don't have transportation to get to the testing site", "There is no cure, so why get tested", and "You are afraid of losing your partner." Items were coded using 0= "no" and 1= "yes". Items were summed to create one continuous score. Higher scores represented a higher degree of barriers to HIV testing. Cronbach's alpha for the scale was 0.86 in this study.

Stigma: Stigma was assessed using the HIV Stigma Scale that includes measures for personalized stigma, disclosure concerns, negative self-image, and concern with public attitudes toward people living with HIV.[91] Participants responded to questions such as, "I would feel I were not as good a person as others if I got HIV," "People with HIV lose jobs when employers learn," and "People with HIV are treated like outcasts." Items were adapted for students who were not living with HIV as the scale was originally developed to measure the stigma perceived

by people living with HIV.[91] Items were rated on a Likert-type scale anchored by "strongly disagree" to "strongly agree." Items were summed to create one continuous score such that higher scores represented a higher degree of stigma. Cronbach's alpha for the scale was 0.93.

Theoretical Mediators of HIV Testing

IBM Model Constructs

It is theorized that changes in HIV testing behavior are influenced by changes in the constructs of the Integrated Behavior Model. Thus, measures of attitudes, beliefs, norms and self-efficacy towards HIV testing, and the intermediate outcome of "intentions" towards HIV testing were assessed. Solorio and colleagues used this theoretical strategy for their HIV testing campaign for Latino immigrant MSM.[92] Measurement of IBM model constructs were adapted from the questions used by Solorio and colleagues as follows:

1. **The positive and negative behavioral beliefs** about getting HIV testing were measured on five-point bipolar index of items anchored by "Strongly disagree" and "Strongly agree". Participants responded to items such as "You expect the result to be negative," "The clinic staff may spread rumors about you," and "You fear getting the HIV test result". The items were summed to create one continuous score such that higher scores represented more favorable behavioral beliefs.

2. **Injunctive norm beliefs** were measured by asking respondents to rate how much various individuals (i.e. friend, family member) would influence their decision to get tested and these responses were collected on five-point bipolar scale anchored by "Strongly disagree" and "Strongly agree". Participants first read a statement saying, "Next are questions about some people in your life that may or may not encourage you to get an HIV test." Participants then read the following question, "How strongly do you agree or disagree that each of the following people

would encourage you to get an HIV test?" Items included: "Most people who are important to you," "Your family," and "Sexual partner(s)." The items were summed to create one continuous score. Higher scores represented more favorable norms toward HIV testing. Cronbach's alpha for the scale was 0.93 in this study.

3. **Efficacy beliefs** were assessed by asking participants to rate how certain they are that they could get tested under various circumstances and collected on five-point scales anchored with "extremely certain I could not" to "extremely certain I could." Participants first read a statement that said, "If you wanted to get an HIV test, there might be different things that would make it difficult. For each of the following questions, please tell me how certain you are that you could get an HIV test in the next month under various circumstances." Scale items included: "How certain are you that you could get tested for HIV at your local clinic?"; "If you feel fear about your HIV test results, how certain are you that you could be tested for HIV?"; and If you are concerned about what other people might say, how certain are you that you could get tested for HIV?" Items were summed to create one continuous score such that higher scores represented a higher degree of self-efficacy to test for HIV. Cronbach's alpha for the scale was 0.81 in this study.

4. **Experiential Attitude**: To assess experiential attitude, participants read a statement "Getting tested for HIV would be" and rated a series of responses on a bipolar 5-point Likert-type scale in which response items were rated 1, "extremely good" to 5, "extremely bad." Items were summed to create one continuous score. Lower scores represented more favorable attitudes toward HIV testing. Cronbach's alpha for the scale was 0.91 in this study.

5. **HIV Testing Intentions**: To assess HIV testing intentions, participants were asked participants "How likely are you to get tested for HIV in the next month?" Participants rated

their response to this question on a scale from "0, definitely won't get tested" to "10, definitely will get tested."

Social Learning Processes

The campaign targeted specific social learning processes and these processes were measured by adapting a similar approach used by Akers and Lee[93] for HIV testing including: differential association, differential reinforcement, and attitudes. The processes measured are as follows:

1. **Differential association** was measured by a subset of variables for differential peer association (the normative behaviors of individuals associated with or have ties to YBM in the study) based upon the following question, "How many of your friends do you think have ever tested for HIV?" with Likert-type response options of "none," "less than half," "more than half," "almost all," and "all". This question was asked for friends the participant had known the longest (duration), friends the participant is most often associated with (frequency), and the friend(s) considered to be the best friend of the participant (intensity). The items for each set of friends were summed to create one continuous score. Higher scores represented more positive association. This measure was treated as an index.
2. **Differential reinforcement** was measured by asking participants a series of 12 items (six positive reinforcement items and six negative reinforcement items) to report the positive and negative reactions their friends may have if they tell them they got HIV tested. Participants responded to positive reinforcement items such as "My friends would get tested because I got tested" and "My friends would continue to associate with me." Negative reinforcement items included "My friends would judge me" and "My friends would not want to hang out with me." Responses were anchored by "Extremely likely" and "Extremely unlikely. The positive reinforcement items and negative reinforcement items were summed separately. The balance of

reinforcement was calculated by subtracting the score for negative items from the score for positive items. This measure was treated as an index.

3. **Attitudes** was assessed by asking participants a single item, "What is the general attitude your friends have regarding HIV testing." This question was completed on five-point scale anchored by "strongly disapproves" and "strongly approves."

HIV Testing Campaign Exposure Variables and Dependent Variable of Interest

Exposure to SMM Campaign: Participants answered a series of dichotomous questions to assess campaign exposure, including: "In the past 6 months (during the Spring 2017 Semester), have you heard about any HIV testing campaigns?"; "Have you heard about any HIV testing campaigns at Georgia State?"; and "In the past 6 months (during the Spring 2017 Semester), have you seen or heard about Courage 2 Test?" Response options were coded as 1= "yes" and 2= "no." To control for confounding, participants were also asked their awareness of other HIV testing campaigns including: "Testing Makes Us Stronger," "Know Where you Stand," and "Together We Are Greater Than AIDS campaign?" all of which were treated as dichotomous variables coded 1="yes" and 2="no."

HIV Testing: To assess HIV testing participants answered, "Have you ever been tested for HIV?" HIV testing was dichotomized and coded as 1="yes" and 0= "no." A follow-up question "When was the last time you tested for HIV" was asked to assess when students tested for HIV relative to the time of taking the surveys. The response to the follow-up question was coded as 1= "less than one month ago," 2= "1-3 months ago," 3= "4-6 months ago," 4= "7-9 months ago" and 5= "More than 9 months ago." The response options were treated as dummy variables in regression models and path analyses to specifically focus on those who tested for HIV within the

6 months of taking the survey (i.e., particular attention was paid to those who answered “less than one month ago”, “1-3 months ago”, and “4-6 months ago”).

Pre/Post Grouping Variable: To assess differences between the pre-test sample and post-test sample on HIV testing, HIV testing covariates, and theoretical mediators a grouping variable was created, coded “0” for students who completed the baseline survey and “1” for students who completed the post campaign survey. This grouping variable served as the primary independent variable for the analyses of this dissertation.

Data Analysis

Campaign Reach

A variety of metrics from the various social media pages and the Wordpress platform were used to assess the campaign’s reach. To assess the website’s performance the number of views, the number of visitors to the webpage, and the most popular day and time of visitation to the website per month throughout the campaign were tracked. The social media pages allowed the doctoral candidate to assess the campaign’s reach in the form of page and post “likes,” number of “followers” on each campaign social media page, and the number of views for campaign-related videos. Targeted advertisements on Facebook and Instagram allowed the doctoral candidate to track the reach of the campaign in the form of Post Reactions, Post Comments, Post Shares, Link Clicks, and Reach. Appendix M defines each metric, how the metric is calculated, and how it is used.

Baseline Survey Analysis

Prior to the collection of post campaign surveys, baseline data were entered and cleaned using IBM SPSS version 24 (Chicago, IL). The doctoral candidate used SPSS to calculate Cronbach alphas to determine reliability of the scale measures for HIV testing attitudes, barriers

to HIV testing, stigma, and IBM model constructs. SPSS was also used to generate descriptive statistics including: mean, standard deviation, and range for continuous variables; and frequencies for dichotomous variables. Mplus Version 7.4 (Muthèn and Muthèn, Los Angeles, CA) was used to test the hypothesis that social learning could be treated as a latent variable and this latent variable is associated with volitional control of behavior in the form of IBM constructs in path regression modeling. These analyses utilized full-information maximum likelihood estimation, which relies on observed responses to supplement the loss of information due to missing data through the use of casewise log-likelihoods of observed data for model estimates of incomplete data.[94] In other words, rather than excluding an individual from the analysis because he was missing a value for a given variable (i.e. listwise deletion), full-information maximum likelihood uses the available data for an individual to generate log-likelihoods for parameter values (based upon his responses to other variables) on which an individual may be missing data.

A confirmatory factor analysis (CFA) was first conducted to assess whether defining social learning processes in the context of HIV testing fit the data. The doctoral candidate fit a model treating social learning theory as a latent variable with social learning processes as item indicators (indirect measures of social learning) and loading them onto the latent variable. Social learning processes in summary form were initially loaded onto the latent variable. After assessing model fit for the initial CFA, it was determined that the initial model was just identified such that the degrees of freedom for the model equaled "0." There were the same number of free parameters as observations. Observations in this framework are the number of variances and unique covariances in lower diagonal form of the sample covariance matrix *not the sample* size.[95] An alternative model was fit in which individual items for differential association, the item for peer attitudes, and a summary index of positive reinforcement items were loaded

onto the latent construct. Model fit was assessed again that included individual items for differential association, the item for peer attitudes, and a summary index of negative reinforcement items were loaded onto the latent construct. A third alternative model was fit that included separate indices for positive reinforcement and negative reinforcement along with the individual differential association items and peer attitudes item. Given the model fit to the data, the final model retained for the CFA contained the peer attitudes item, individual items for differential association and the summary index of negative reinforcement items. Appendix N contains model fit statistics for alternative social learning measurement models.

After conducting the CFA, bivariate regressions were run with IBM model constructs (behavioral beliefs, injunctive norm, efficacy beliefs, experiential attitude, and HIV testing intentions**)** as outcome variables to determine associations with social learning (treated as the primary independent variable for the baseline analysis). A discussion on structural regression models with latent variables is beyond the scope of this dissertation and the reader is encouraged to read Kline's book on the principles and practices of structural equation modeling.[95] Variables significantly associated with social learning in bivariate regressions were included in the final model. This process resulted in fitting a mediation model in which HIV testing intentions was treated as the primary outcome variable of interest and regressed on social learning (treated as the primary independent variable) and experiential attitudes (treated as a mediator) as well as regressing experiential attitudes on social learning in path regression modeling using an approach described by Preacher and Hayes as Mplus allows for the simultaneous regression of multiple paths in a single step.[96] The bootstrapping approach described by Preacher and Hayes extends Sobel's product-of coefficients approach to hypothesis testing of mediation effects and involves resampling of the data to build an empirical approximation of the sampling distribution for the

"ab" product term.[96] This empirical approximation of the sampling distribution for the "ab" product term is used to construct confidence intervals for the indirect (mediation) effect. A technical description of the aforementioned process is beyond the scope of this dissertation and the reader is encouraged to see the article by Preacher and Hayes[96] for a more detailed discussion on resampling methods for multiple mediator models. Bootstrapped standard error estimates (with 1,000 bootstrapped samples) were used for hypothesis testing of direct and indirect associations as Mplus has a feature for bootstrapping of standard errors.

Model fit indices included model chi-square, with a non-significant chi-square statistic as indicating good model fit; root mean square error of approximation (RMSEA), with values <0.05 as indicative of good model fit; comparative fit index (CFI), with values ≥0.95 as indicative of good model fit and values >0.90 indicative of adequate fit; and the standardized root mean square residual (SRMR), with values <0.05 indicative of good model fit.[95] Significance was set at $p < 0.05$. Standardized regression coefficients for item loadings and path analyses are reported. This baseline assessment provided the foundation for including social learning indicators and IBM model constructs as mediators in the final mediation model.

Evaluation of Campaign

To evaluate the campaign, the pre campaign survey data and post campaign data were combined using SPSS. SPSS was used to calculate Cronbach alphas to determine reliability of the scale measures for HIV testing attitudes, barriers to HIV testing, and stigma as well as used to generate descriptive statistics including: mean, standard deviation, and range for continuous variables; and frequencies for dichotomous variables pre and post campaign launch for variables of interest. Independent samples t-tests were used to determine differences pre and post campaign launch in continuous covariates of HIV testing and chi-square tests were used to

examine differences pre and post for categorical variables. Specific to the post campaign data, a series of chi-square tests were conducted to ascertain the association between campaign exposure and the HIV testing outcome as well as the association between exposure to other campaigns and HIV testing.

The difference in HIV testing pre and post campaign launch as well as associations between covariates of interest (i.e., attitudes toward HIV testing, barriers to HIV testing, HIV testing stigma, demographics, sexual behavior questions, and the last time the students tested for HIV) and the HIV testing outcome variable were ascertained via logistic regression models using Mplus Version 7.4 (Muthèn and Muthèn, Los Angeles, CA). Crude effect estimates of each variable on HIV testing were first examined and the crude odds ratio (OR) with 95% confidence intervals for the OR estimate are reported. Finally, statistically significant covariates of HIV testing via bivariate regressions and chi-square tests were entered into an adjusted model to estimate the difference in HIV testing pre and post while accounting for the effects of other covariates in the model. The variable for year in college was not included in the multivariable model to prevent collinearity issues with the variable for age. Significance was set at $p < 0.05$.

Final Mediation Model

To evaluate the differences in theoretical mediators pre and post campaign launch, SPSS was used to generate descriptive statistics (mean and standard deviation as all mediators were treated as continuous variables). The pre/post grouping variable was the primary independent variable. For this analysis social learning processes (i.e., differential association, reinforcement, and peer attitudes) as well as IBM model constructs were all treated as theoretical mediators that may explain the difference in pre/post HIV testing percentages in the final path (mediation) model. In this instance, the summary scores of social learning processes were examined rather

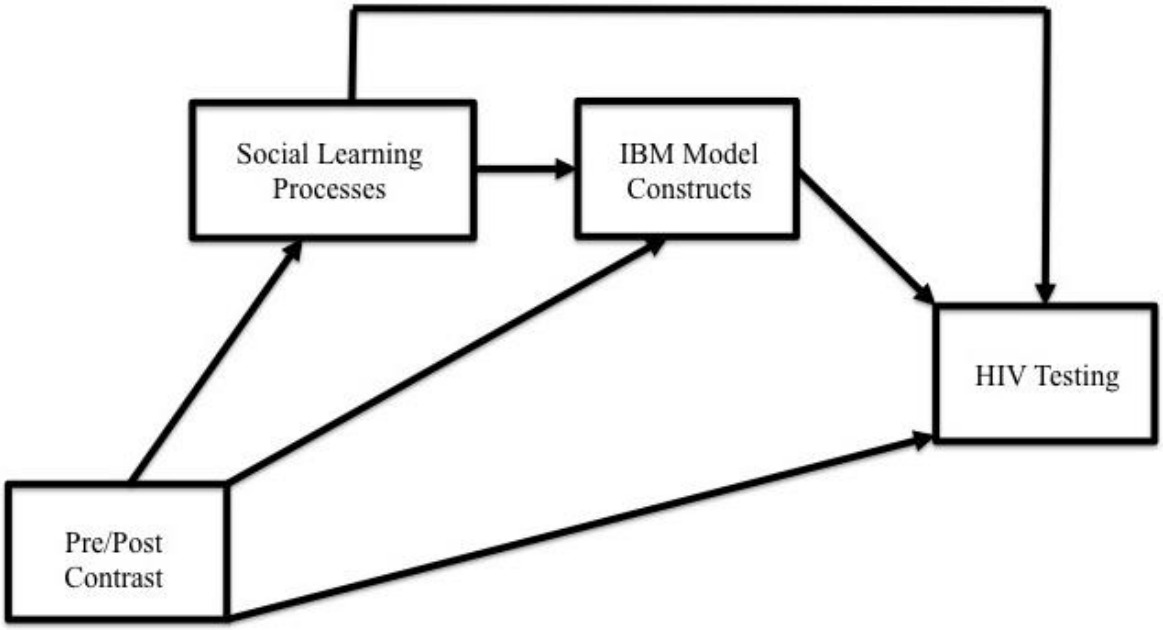
than treating social learning as a latent variable. Examining the social learning processes' summary scores allowed the doctoral candidate to determine individual differences in these scores (pre and post campaign launch) as well as examine their individual associations on HIV testing and IBM model constructs in the final mediation model. Independent samples t-tests were used to determine differences pre and post campaign launch for all mediators (social learning processes and IBM construct scores). Bivariate logistic regressions were run to determine each mediator's individual association with HIV testing (treated as the primary outcome for this analysis). Mediators significantly associated with HIV testing in bivariate regressions were included in the final mediation model. This process resulted in a mediation model in which the pre/post grouping variable was treated as the primary independent variable; HIV testing was the primary outcome variable; and social learning processes as well as IBM constructs were mediators in a path model. The primary outcome, HIV testing, was regressed on intentions to test for HIV, the social learning process of peer attitudes, the social learning process of differential association, self-efficacy, injunctive norms, and the pre/post grouping variable in a logistic regression. The first mediator, HIV testing intentions, was regressed on peer attitudes, differential association, self-efficacy, injunctive norms, and the pre/post grouping variable. The next two mediators were the IBM constructs of self-efficacy and injunctive norms and both were regressed on peer attitudes, differential association, and the pre/post grouping variable. The final mediators were the social learning processes of peer attitudes and differential association, both variables regressed on the pre/post grouping variable. This model tested the hypothesis that there were differences in social learning processes between those who completed the baseline survey and the post campaign survey, differences in social learning processes were associated with IBM model constructs, and the IBM model constructs were associated with HIV testing. In other

words, the relationship between the pre/post grouping variable (the primary independent variable) and HIV testing (primary outcome) could be explained by social learning processes and/or IBM model constructs. Social learning processes and/or IBM model constructs could mediate the relationship between the pre/post grouping variable and HIV testing; IBM model constructs could mediate the relationship between social learning processes and HIV testing. The final model also included condom use with a woman and the last time a person tested for HIV as covariates for HIV testing in a logistic regression as this variable appeared to be an important predictor of HIV testing in the pre/post analysis. The indirect effect of the pre/post grouping variable on HIV testing through each mediator was also examined. Similar to the model of baseline data, path regression modeling for this analysis relied on an approach described by Preacher and Hayes.[96]

Bootstrapped standard error estimates (with 1,000 bootstrapped samples) and bias corrected 95% confidence intervals for hypothesis testing of direct and indirect associations (due to the amount of hypothesis tests for the mediation model and because these standard errors are more conservative) were used. The analysis relied upon Montecarlo integration as Mplus uses this integration for path modeling of binary and continuous dependent variables using maximum likelihood estimation.[97] Model fit statistics were not estimated for the final mediation model because this model was fully saturated (it is assumed that the model perfectly fits the data and there are as many variables to estimate as observations). Finally, variables associated with HIV testing are reported as adjusted odds ratios and all other effect estimates are reported as linear regression coefficients, b. As with other models and statistical tests, significance was set at $p < 0.05$. Since the sample size collected was less than the proposed sample size of 300 and the results of the bivariate analyses showed that some constructs of the IBM as well as exposure to

the “Courage 2 Test” campaign were not associated with HIV testing, the final mediation model tested was slightly different than the proposed model as depicted in Figure 2. Figure 5 depicts the revised generic mediation model tested in the final analysis.

Figure 5. Generic Form of Final Mediation Model Tested



Chapter 4: Results

Formative Research

Nineteen (n=19) young Black men participated in the focus groups. The mean age of the sample was approximately 20 years (*SD*=1.3) and most participants were in their second or third year of college (74%). The majority of participants (95%) receive some form of financial aid to help pay for their education. Approximately 58% of participants are from the City of Atlanta and among those not from the City of Atlanta, most are from the State of Georgia.

Four broad themes emerged from the analysis of the focus group data. The themes centered on general thoughts and attitudes toward HIV and testing campaigns, barriers to test for HIV, motivation to test for HIV with subcategories of intrinsic motivation and extrinsic motivation, and development of future social media marketing campaign (divided into campaign messaging and campaign marketing/dissemination) as indicated by Table 1. Each category reflected young Black male college students' thoughts and perceptions on HIV, what encourages them to get tested, and how social media marketing campaign messages can be tailored to help young Black men overcome barriers to test for HIV.

Table 1. Emergent themes with descriptions

Theme	Description
General Thoughts and Attitudes Toward HIV	Disease and disability
	Death
	Sexual Risk
	Unaffected by HIV
	Denial
	Negative perceptions from peers
	HIV Knowledge
	Awareness of older campaigns for HIV testing
	Lack of awareness of current HIV related campaigns
	Awareness of the impact of HIV in Atlanta
Barriers to test for HIV	Stigma
	Isolationism
	Fear of a positive test result
	Monetary costs associated with receiving the HIV test
Motivation to test for HIV	
Intrinsic	Knowing for one's personal health
	Awareness of one's status
	Self-efficacy to seek HIV testing services
	Social support from friends
	Monetary incentives
Extrinsic	Protection of sexual partners
	Knowing someone with HIV
	New sexual partner
	Prevention measure
Future Social Media Marketing Campaigns	
Campaign messaging	Use short messages
	Frame statistics within the context of HIV risk
	Do not directly challenge masculinity
	Show that people can live well with HIV

	Messages lighter in tone can ease the burden of HIV testing
	Promote universal messages (i.e., include messages that speak to different sexualities, race/ethnicities, and gender)
	Use reverse peer pressure to indicate HIV testing as part of a normal, healthy lifestyle
	Show multiple, young people in testing messages
	Create a message that promotes "unity"
	Make the message a call to action
	Use a self-sustaining message (one that can sustain itself after the completion of the campaign)
Dissemination	Incorporate Sports
	Get fraternities and sororities involved
	Posting a "selfie" of receiving the test is discouraged
	Posting a "selfie" with a sticker to indicate that one received an HIV test is more acceptable
	Generally discouraged the use of Facebook to market the campaign to men 18-24 years
	Twitter may be used for short powerful messages
	Incorporate the filter feature of Snapchat for campaign related events
	Use Instagram for professional looking memes and ads related to HIV testing

General Thoughts and Attitudes Toward HIV

The young Black men in this study generally reported negative attitudes and perceptions of HIV. When asked what came to mind when they heard HIV, many participants responded with "disease" and equated living with HIV as a disability.

Participant from Focus Group 1: "I see like um lesions on the face. I see um just a illness"

Participant from Focus Group 2: "Um, just someone sick in general"

Participant from Focus Group 3: "…also you have to list HIV as a disability too whenever you apply for anything. So I think a lot of times people see people with HIV as weak and that's why it's also stigmatized"

Although people living with HIV were viewed as sick and suffering from an illness that could ultimately lead to death, one participant from the third focus group indicated HIV was treatable.

Participant from Focus Group 2: "Well uh for me like your immune system…your immune system won't like it'll slowly like stop working and like common colds and stuff like it'll be hard to fight those and it's like a slow death basically. That's what I think."

Participant from Focus Group 2: "I said someone being sick in general just because it's a disease that is like—it's a well—it's a common disease meaning it is around and there is like you know—people do often result in death from that."

Participant from Focus Group 3: "When I hear the word HIV, I just like assume just disease. Like it's just bad. Like the whole content of having HIV. Like, other people generally think it's extremely serious. Well it kind of is but like it's…you can live a long time with uh treatment."

The young, men in this sample generally viewed having HIV as severe. Although some men were aware of the HIV epidemic in the City of Atlanta and had a basic understanding of groups at risk for infection, there appeared to be misunderstanding of how HIV is transmitted.

Participant from Focus Group 1: "Uh, I think people actually uh do think about it since Atlanta is the #1 in infected in HIV so."

Participant from Focus Group 3: "Um, at random. More specifically, I think about like where I live and how HIV/AIDS affects Atlanta specifically more than it does other places. And how it affects black people a lot more, specifically, than it does other races of people."

Participant from Focus Group 2: "Uh, disease because it can be contracted uh whether it's sexual or uh from any type of other [inaudible] or like coming from like from a bug or something like that."

Many understood that sexual risk taking behavior (such as inconsistent condom use) could lead to HIV acquisition. Many felt that young Black men perceive their risk to be low and believed that HIV was not something that could affect them. The young men in the study indicated that they do not discuss the topic of HIV with their friends. Although HIV was not discussed with their friends, most agreed that their friends hold similar views toward HIV in that people can become infected with the virus but that their individual risk was low and thought HIV was something that would not affect them.

Participant from Focus Group 2: "Um, like I don't really hear my friends talking about it that much."

Participant from Focus Group 2: "Um, it's not discussed in my social circle that much, but I'll say the views towards it are negative due to like societal standard and stigmas associated with the disease"

Participant from Focus Group2: "Yeah um, I'm gonna agree with him, just denial in general like 'that couldn't be me, I don't do anything like that', 'that's not me', like they don't know how it could happen so just that type of denial"

Participant from Focus Group 1: "They [young Black male peers] feel like um—they still feel like it's from another planet, like it'll never reach them like they still have that type of mentality oh 'it'll never happen to me.'"

Participant from Focus Group 1: "Yeah, it's the same like 'it wouldn't happen to you' mentality so you don't feel it's important enough for you to find out anything about it to."

When asked if they were aware of any HIV testing campaigns, some of the young Black men reported Black Entertainment Television's (BET) "Wrap it Up Campaign."

Participant Focus Group 1: "I remember old school BET 'Wrap it Up' [campaign]."

Some mentioned that they saw ads on television while others received HIV testing as part of the campaign at another University. Others mentioned seeing different advertisements related to HIV

on billboards throughout Atlanta. The Wrap it Up Campaign appeared to appeal to some of the young Black men and some indicated that they received HIV testing as part of campaign related activities. Another participant reported seeing an advertisement for the "Greater than AIDS" campaign. The other advertisements the young men saw throughout Atlanta did not appear to resonate with all of them. One participant suggested that some messages and ads appear to portray HIV/AIDS as a health issue that only impacts the Black LGBT community.

Participant from Focus Group 3: "I remember seeing like a Greater Than AIDS…like literally a greater than sign."

Participant from Focus Group 3: "I feel bad but I really…not have been involved. I don't think I remember [seeing campaigns] …at all.

Participant from Focus Group 3: "Yeah 'Cause I …I've even seen an ad on the MARTA train and it's two Black males and it's talking about getting tested. And I mean I kind of feel like that's kind of like what you're saying with having a rainbow background or something. That's kind of insinuating that only Black males or gay Black males can…like are the main ones getting HIV."

Barriers to test for HIV

The participants discussed numerous barriers to HIV testing that they perceived precluded young Black men like them from getting for HIV. Stigma was a major barrier to HIV testing in part because HIV is not typically discussed among young Black men and their peer groups but also because of the negative perceptions that people have of HIV. Participants discussed isolationism as it related to testing positive. Many believed that young Black men do not get tested because they would lose friends or people will not want to associate with someone who is living with HIV.

Participant from Focus Group 2: "Um kind of elaborating on what he said um but also adding to it, um when you do have HIV in a sense you become an outcast to society so people don't approach you or talk to or socialize with you the same as ways they do with somebody who does not have or non HIV person so I guess nobody wants to be the quote unquote 'outcast' or the different person in society."

Participant from Focus Group 3: "I feel like there's a stigma attached to having HIV or just the term HIV. Like no one wants to be associated with that. And that's what I think of when I hear HIV."

Participant from Focus Group 3: "Um, because no one wants to be like even associated, like if you just like even talking to somebody and you tell them that you have like HIV or AIDS they will look at you completely different. So it's like no one even wants to be associated with it. Like people sometimes even act like if you just talk to somebody with AIDS you'll get AIDS or something like that."

Participant from Focus Group 3: "I think also like even if you go get tested even if you don't. Like even if you know you're not sexually active. Just the way that you think that people will look at you. Because it's like oh you're getting tested, you have it…. People don't… when people… It seems odd to people like if you're checking up on your sexual health. People are like hmmm… It's not something that's talked about. People are more worried about like having kids than like having an STD."

Fear was another major barrier to testing for HIV. Many young Black men expressed some form of fear and anxiety of a positive test result. The young Black men in this study almost unanimously agreed that fear was a key driver of young Black men not wanting to get tested.

Participant from Focus Group 2: "Um, I know my peers they wouldn't want to get tested because they know they're participating in risky behavior, so they feel as if their chances are increased [inaudible] so they rather not find out"

Participant from Focus Group 2: "And same to what you were saying um if they know that they're doing stuff that is risky and could potentially get them like HIV they might not—ignorance is bliss I guess in that case like"

Participant from Focus Group3: "Just the fear of like knowing that like you have it. And then having to go there and then the doctor tell you… That you really have it. Like it's scary."

Participant from Focus Group 3: "It's all fear. All fear."

Costs associated with HIV testing were discussed as a barrier. Participants indicated that if they had to pay for an HIV test, they would opt not to test. Although some participants were aware of HIV testing services, there seemed to be a lack of awareness of free HIV testing services available to students or unwilling to use free services that the University offered students. For

those who received an HIV test, they reported fear of staff unintentionally disclosing a positive test result to other individuals.

Motivation to Test for HIV

The young Black men in this study reported two forms of motivation related to HIV testing behavior: intrinsic motivation (performing the behavior based upon internal factors) and extrinsic motivation (performing the behavior based upon external factors). *Intrinsic motivation* included having a high degree of self-efficacy to find HIV testing locations and getting tested, knowing their status for the sake of their own health and well-being, knowing they can help prevent HIV if they get tested. The men generally agreed that testing for HIV was important to them even if it was not discussed explicitly with their peers. Some saw it as part of a healthy lifestyle to test regularly and often as to not inadvertently spread the virus on to others. Some saw HIV testing as a way to better understand their status such that they can be prepared to deal with a positive test result.

Participant from Focus Group 1: "For me um, I was scared the first time I went, but I went by myself um just knowing that I needed to know for my sake, you know my status. You know I didn't know like what everybody else was doing"

Participant from Focus Group 1: "You know that really didn't matter to me, because its my life so I have to know for myself you know, then once I got the results, I was like 'okay cool'"

Participant from Focus Group 2: "Um just to add on to that like it's not only for to—to prevent to see if you have it, it's like to not to spread it around yourself."

Extrinsic motivation included social support and getting tested with their friends or having friends accompany them to get tested for HIV. Knowing someone who died from an AIDS related illness and how HIV affected a family member encouraged one participant to get tested as part of a healthy lifestyle. Others saw HIV testing as a way to help prevent the spread of HIV

to other people and saw HIV testing as a protection measure especially after having sex with a new partner of unknown status.

Participant from Focus Group 1: "I remember my first time I was scared, like I was like I didn't want to go by myself like I was like you know, thinking about the what-ifs, you know psyching myself out so I had to have my friends go with me and then like every time I go now my friends, we all go together. So um like having that support group like 'Oh imma go too. I'll go with you' and we can go together, so at first it was scary but that motivated me."

Participant from Focus Group 2: "Um, basi—I guess personal experience you know cause I lost someone in my family to HIV just seeing that happen to them really wanted me to get informed on it and know how to prevent it."

Participant from Focus Group 3: "I know for me, what motivated me when I got tested was a new sexual partner. So that was like well I should go get tested now."

Development of future social media marketing campaigns

Campaign messaging

The young Black men generally agreed that campaign messages targeting this population should be terse. The messages that targeted male masculinity were perceived as bold and caught the men's attention, however the participants believed that directly targeting male masculinity would dissuade young Black men to get tested. The message was viewed as forcing young Black men to get tested and many thought an authoritative tone was improper because it undermines the fear that many young men have regarding HIV testing.

Participant from Focus Group 1: "And on Instagram or Snapchat or something I might—I'm just uh imma catch that, it's gonna catch my eye and everything and for a second reason uh the "man up" part it really just—I don't know for some reason it just offends me. I don't know like"

Participant from Focus Group 2: "I can't relate to either image [inaudible] taking an HIV test is very relatable. I see them physically getting this test, whereas you have a guy with a professional headshot just saying "man up, get this HIV test" it's almost like—first off sound like you're demanding me to do it and then second there's no relate-ability. Like I can't relate to this at all. So I just see another random guy, saying get HIV tested, I don't relate to that [inaudible]. So if possible like a friend of mine or like somebody else physically okay, 'Look at me, I'm getting my results right now' that's something I can relate to cause you know imma be in that same position later on if I'm getting tested."

Participant from Focus Group 3: "And also…it also like disregards the real fear surrounding getting an HIV test. It's like telling you just to ignore the fact that you're afraid…[inaudible] …just go get tested."

The young Black men suggested that a message lighter in tone may persuade more individuals like themselves to think about HIV and consider getting the test. They cautioned that the tone not be too light because it would take away from the severity of living with HIV.

Participant from focus Group 2: "Umm, definitely it took kind of the whole getting tested pressure away 'cause you know you're laughing. I don't think people would think too seriously about it which could possibly be a problem but, it kinda made it light-hearted so that pressure is kind of gone but on the flip side, like you were saying about the people who do have it and the ones that did get tested and aren't going to be smiling after because you know they have it now. Nothing is, nothing can ever be perfect but you have to consider that side too."

The men in this study suggested that campaign materials should feature people living well with HIV and engaged in social settings with their peers to counter narratives of isolationism and disease.

The men in this study disliked materials and images that featured just one young Black man with HIV related messages. However, some participants indicated that messages and materials featuring just two young men would be perceived as something exclusively for MSM and those who only have sex with women would otherwise ignore the message. It was suggested that campaign materials feature a diverse group of individuals of different races and cultures to show that HIV is not something that impacts Black individuals exclusively, rather it is a virus that can spread to multiple people of various communities.

The young Black men generally agreed that posting a message with HIV related statistics would capture their attention. However, statistics should be short and framed within the context of the image. Many of the participants men liked the image of the young Black couple and the

messaging to accompany the image as it reinforced ideas of preventing the virus from spreading to sexual partners and many young Black men in relationships could relate to the image.

Participant from Focus Group 3: "Yeah so far it's the best one I feel like. 'Cause I mean I feel like that's probably the most reasonable approach. If you love somebody and yourself, you should just be tested and understand what both of y'all have going on. If y'all love each other and yourself."

Participant from Focus Group 3: "Like you should know your partner's HIV status. They should know yours. It's like basically saying uh just be aware of like if you're in a relationship or whatever if you're sexually active with them, you guys should get tested and stuff like that."

However, many suggested that images featuring couples of different groups at risk (i.e., Hispanic couples, gay or bisexual couples, transgender individuals) for infection would be more effective because such images would resonate with broader audiences and not be viewed as hetero-normative. This approach would lessen the burden that young Black men feel for receiving an HIV test while simultaneously encouraging them to get tested to protect themselves and/or their partners.

Participant from Focus Group 1: "Again, like going back to the whole like, diplomatic thing, where you have to.., I.. My straight friends would take it into consideration but for my other friends that are in different categories, it could kind of leave them out. It's like a separatist like, you know. So to avoid that diplomatic situation, so like again have that collage…Different couples of students so that way everyone is involved and it's inclusive. Everybody gets the same message."

Campaign marketing and dissemination

Social networking sites were seen as effective tools to disseminate campaign messages. The young men in the sample suggested that Instagram, Twitter, and Snapchat would be effective at getting messages to young Black men and their peers. The men suggested that Facebook would not be as effective for disseminating campaign messages because young people use Facebook less frequently compared to some of the other social networking sites and Facebook was viewed as a more family oriented social networking site. Some of the men felt that

they would be stigmatized by family members if they posted something related to HIV testing or participation in an HIV testing campaign on their Facebook page.

Participant from Focus Group 3: "Don't use Facebook."

Participant from Focus Group 3: "Facebook is like family oriented."

Participant Focus Group 3: "Yeah that's like the professional page. Like when your family like see you're in school and like you take nice pictures. And you know, that's what Facebook is for. Like Link'd In (social networking website) or something like that. I would say use…I feel like Snapchat and like Twitter…"

Instagram was preferred because campaign related images could capture young Black men's attention while allowing them to interact with the campaign without the stigma. Twitter was seen as something could be used to deliver short powerful messages. The Twitter platform would also be useful for disseminating facts to broad audiences that could capture their attention and get people to test for HIV.

Participant from Focus Group 3: "I think too, you got to remember we tweet a lot. Like that's what we do. Twitter and Instagram is like what we use. Those tweets are like maybe 30, 40 words. It's 140 characters. So the message has to be like, it can't be long. It has to be really short and have the message packed into it. Or maybe if you use a hashtag which is not as effective, use a hashtag that's really witty, really urban and hip then maybe people would be more open to doing something like that."

The men in this study also believed Snapchat would be particularly useful for HIV testing campaign related events. The men spoke of the filter feature within Snapchat that allows individuals and organizations to develop filters for specific events based upon their location. By incorporating the filter feature, the young men suggested that people could post pictures of themselves at HIV testing campaign related events for all their followers.

Participant from Focus Group 1: "I mean Snapchat is definitely…popular."

Participant from Focus Group 3: "And another good idea with that is, I don't know if you guys are familiar with Snapchat but the filters. You know you can be in a certain location and use the filters. So if you were at the Student Health Center you can post with the filter, obviously you was in that area, using that facility to get the filter."

Participant from Focus Group 3: "And that would get people more involved too. Because everyone loves Snapchat. Some people are like seeing you on Snapchat and that filter comes up. It's gonna be like okay where was it? I know where to go to get it or whatever. And then they could post it on Snapchat and everyone would be there. Like yeah. So that's a better way".

The young Black men suggested to couple social media marketing approaches with traditional community-based HIV outreach by partnering with groups popular within the campus community. The participants identified the historically Black fraternities and sororities as potential partners to host HIV testing related activities and people who could help to disseminate HIV testing related messages. The men in this study indicated that Greek lettered organizations generally attract mass crowds and could get individuals to test for HIV if members from the fraternities and sororities received the HIV test themselves.

Participant from Focus Group 2: "Easy, Greeklife."

Participant from Focus Group 2: "Like he was saying…I guess it could be something at GSU (Georgia State University) that uses music or like when they have the different uh like the Hispanic Frat I'm not sure I don't remember their exact name, but they had like a dance, it was last semester, they were dancing in the plaza, you know a lot of people were around watching that happened so like if you could get like a performer or performance type thing going on while you're having the testing done or like if you're in that central area where everything is being passed out you know a lot of people are there, their more open , mmmm, it's more of like and umm a come see what's going on, and exciting environment , let me actually find out what's being handed out.

The participants also suggested that incorporating sports via advertising at different events or getting athletes involved in HIV testing campaigns would encourage more people to get tested for HIV. Athletes were seen as individuals who could help normalize HIV testing behavior by getting tested themselves.

Participant from Focus Group 3: "Uhh. Yea. I did like how he mentioned sports that's very influential NBA, NFL, MLB if they all did HIV uhh campaigns or have some kind of, wore some kind of jerseys or what not or yea uniforms to uhh that would represent that, that would be uh actually great."

When asked if they would post a "selfie" of themselves receiving an HIV test, similar to different challenges and fads seen on social media, many participants indicated that they would not although a few said they would post such an image. Some expressed concern that posting images of themselves or other individuals receiving an HIV test would inadvertently disclose those who test positive. Those who test positive or those unwilling to post the results of their test would be presumed positive and could face marginalization.

Participant from Focus Group 3: "I'm just thinking if you do post something like that, it's still like trying to map out who has it and who doesn't. And it still kind of enforces that whole okay so if this person does have it. Let's just…oh you got AIDS…isolate the whole thing…the whole fear thing that comes with the entire process. I feel like it's…it's not stopping that."

One participant suggested that instead of posting a selfie receiving the HIV test, one post an image with a sticker indicating that they received an HIV test. The sticker would be benign signal that one tested for HIV without actually showing an image of one physically getting tested.

Participant from Focus Group 3: "But no, I feel like a cute sticker that's not…that's not like a needle or …I feel like it should be something simple that gets the point across. That can't be associated with anything but itself. Like, does that make sense? 'Cause I've seen stickers where it's like 'I got tested' but then it's the rainbow flag. And then it seems like only LGBTQ people need to be tested. Or I've seen like things where it's like…things that resonate with like African American people or blackness people. I feel like it should just be something simple. Circle, "I got tested," background something cute, not problematic."

Baseline Analysis and Path Model

A confirmatory factor analysis treating social learning as a latent construct with peer attitudes, loading the items of differential association separately (instead of as a summary score), and negative reinforcement as indicators of social learning fit the data adequately well; χ^2 (5, N=106) =6.886, p=0.2292; RMSEA=0.06, 90% CI (0.00, 0.157); CFI=0.993; SRMR=0.027. All items were significant indicators for the social learning construct ($p<0.001$ for differential association items; p=0.038 for the negative reinforcement index; unstandardized loading of peer

association set to 1). Figure 6 provides a depiction of the measurement model for social learning. The social learning construct was associated with experiential attitudes (β=-0.243, p=0.014) and intention to test for HIV (β=0.233, p=0.017) in bivariate regressions as shown in Table 2.

Figure 6. Measurement Model of Social Learning

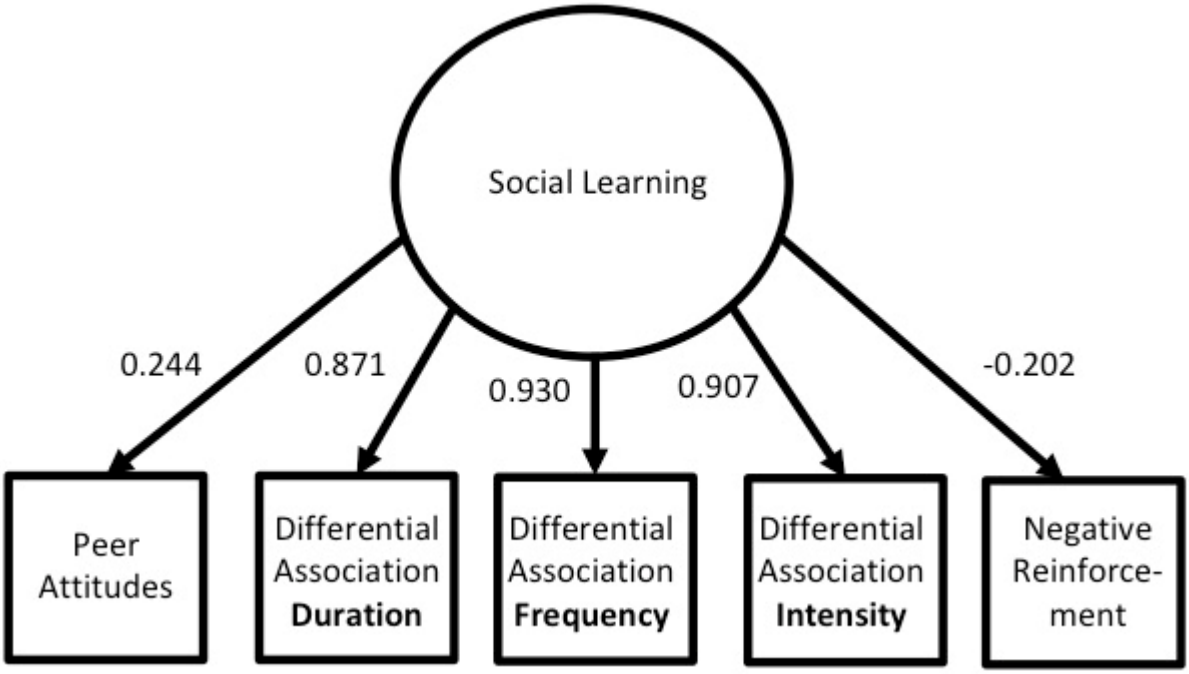


Table 2. Effects of Social Learning on IBM Constructs

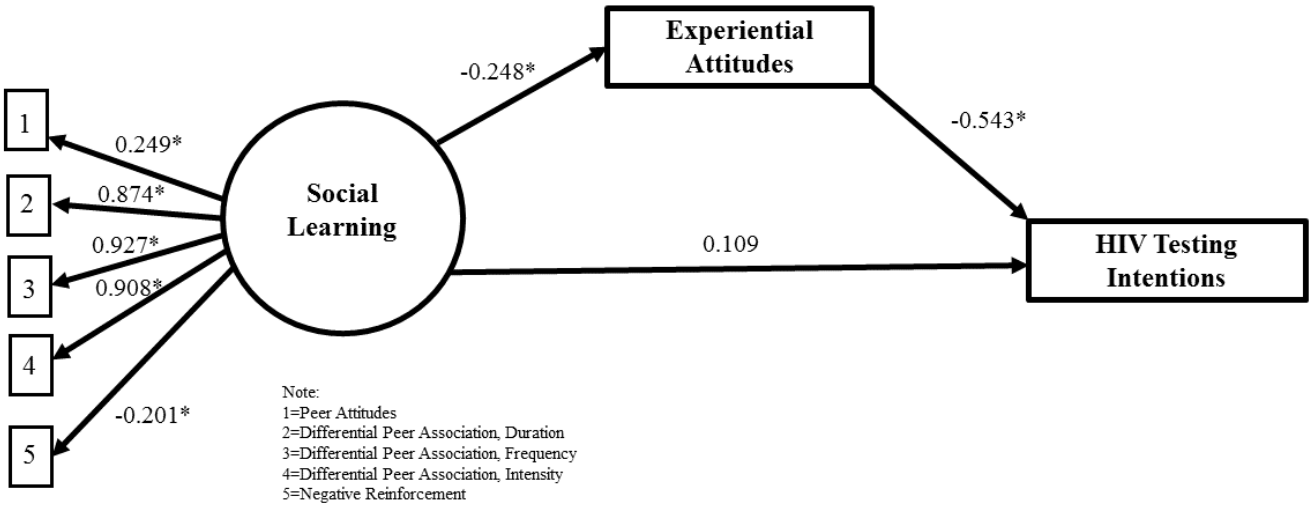
	β	Standard Error	p
Intentions	0.233	0.097	0.017*
Experiential Attitudes	-0.243	0.099	0.014*
Behavioral Beliefs	0.019	0.101	0.848
Self-Efficacy	-0.012	0.101	0.909
Injunctive Norms	0.1	0.102	0.325

*Significant at p<0.05

The final baseline mediation model fit the data very well; χ^2 (13, N=106) =15.514, p=0.2763; RMSEA=0.043, 90% CI (0.00, 0.11); CFI=0.992; SRMR=0.051. Standardized item loadings were statistically significant in the mediation model as shown in Figure 7. The social learning construct was not statistically significantly associated with HIV testing intentions (β=0.109,

p=0.216) however; social learning did have a statistically significant indirect association with HIV testing intentions through experiential attitudes (β=0.135, p=0.014). Social learning had a statistically significant direct effect on experiential attitudes (β=-0.248, p=0.010) such that as social learning of HIV testing was more favorable, negative experiential attitudes toward HIV testing decreased as shown in Figure 7.

Figure 7. Baseline Path Model of Social Learning Effects on Experiential Attitudes



*Statistically significant at p<0.05

Campaign Reach

The campaign marketing on Facebook and Instagram had an extensive reach, with 110,154 people reached through the social media marketing ads. The first advertisement reached over 48,000 individuals and had 23 post reactions. The second social media advertisement reached over 42,000 individuals and had 54 post reactions. This advertisement was shared eight times and generated 56 link clicks to the campaign website. The third and final advertisement reached over 19,000 individuals, received 14 post reactions and generated 47 link clicks to the

website. The Courage 2 Test Campaign had 101 followers across Instagram, Facebook, Snapchat, and Twitter. Instagram was the most popular medium to engage with the campaign as this page had 63 followers and as many as 17 "likes" for a post. The Snapchat page had 25 followers (other data on campaign reach can be found in Appendices J-L).

The Courage 2 Test Campaign website had a total of 812 views and 271 visitors. The most popular day and time to visit the website was around Thursday evenings at 9:00 pm. Most of the website's views (694) and visitors (167) occurred during the month of February around the time of the campaign launch. During the month of February, most visitors came through Facebook (76 views) followed by Instagram (33 views). Visitors to the webpage averaged 3.74 views of the various pages of the campaign website. The number of views and visitors to the campaign webpage began to decrease in the month of March as the website garnered 98 views most of which came through clicking on Facebook links. The number of views to the website was lowest in the final month of the campaign, April. During the month of April, the website received only 83 views. Facebook generated the most link clicks to the website in the month of April.

Evaluation of HIV testing pre and post campaign launch

Summary statistics for HIV testing attitudes, barriers to HIV testing, HIV testing stigma, sexual health variables, and age pre and post campaign launch can be found in Table 3. HIV testing post campaign launch was significantly higher (62.2% vs. 39.6%; $p=0.001$). The mean age of the participants was also significantly higher post campaign launch compared to baseline survey (20.83 vs. 19.35; $p<0.05$). There were no statistically significant differences in the scores for HIV testing attitudes, HIV testing barriers, or HIV testing stigma although the scores for HIV testing stigma and barriers decreased in the hypothesized direction. Although the odds ratio for

testing for HIV given campaign exposure was 1.48, exposure to the Courage 2 Test campaign was not significantly associated with HIV testing as approximately 12% of the sample that received an HIV test had seen or heard of the campaign. Exposure to other campaigns such as Atlanta Greater Than AIDS was not associated with HIV testing as indicated in Table 4.

Table 3. Comparison of HIV testing, covariates of HIV testing, and mediators pre and post campaign launch

	Pre	Post	p-value
n	106	98	
	Mean (±SD)		
Age	19.35 (1.02)	20.83 (1.47)	<0.0001*
Attitudes Score	113.33 (16.29)	111.69 (16.56)	0.495
Stigma Score	143.95 (21.71)	139.78 (21.98)	0.187
Barriers Score	4.14 (3.61)	3.96 (3.65)	0.718
Testing Intentions Score	4.37 (3.17)	4.44 (3.34)	0.869
Experiential Attitudes Score	19.94 (7.40)	19.95 (7.60)	0.996
Behavioral Beliefs Score	27.24 (3.84)	27.89 (4.01)	0.239
Injunctive Norm Score	28.11 (5.83)	28.21 (5.66)	0.9
Self-Efficacy Score	18.91 (5.41)	24.92 (5.99)	<0.0001*
Peer Attitudes Score	4.14 (0.848)	4.26 (0.902)	0.656
Differential Reinforcement Score	2.34 (2.48)	-2.51 (2.58)	<0.0001*
Differential Association Score	6.05 (2.79)	7.40 (2.67)	0.001*
	Frequency (%)		
Tested for HIV	42 (39.6)	61 (62.2)	0.001*

*Significant at p<0.05

In crude logistic regression models, participants who completed the survey post campaign had higher odds of ever testing for HIV (OR=2.512; 95% CI: 1.429, 4.416; p=0.001) as reported in Table 4. Age and attitudes towards HIV testing scores were associated with ever testing for HIV (OR=1.659; 95% CI: 1.330, 2.069; p<0.0001; OR= 1.032; 95% CI: 1.004, 1.061, p=0.026, respectively). As age and attitudes toward HIV testing increased, the odds of testing for HIV increased, 66% and 3% respectively. Having sex with men was also associated with higher odds for HIV testing (OR= 2.406; 95% CI: 1.063, 5.444; p=0.035). Condom use during the last sexual encounter with a woman was associated with lower odds for HIV testing (OR= 0.236; 95% CI:

0.123, 0.451; p<0.0001). In this instance, the log odds ratio for condom use was negatively associated with HIV testing (data not shown). Participants who had indicated that they tested for HIV "1-3 months ago" and "4-6 months ago" was also associated with HIV testing as indicated in Table 4.

Results for the multivariable logistic model of HIV testing can be found in Table 4. Condom use with a woman was significantly associated with HIV testing (AOR=0.289; 95% CI: 0.098, 0.853; p=0.025) in the adjusted model. Receiving an HIV test "4-6 months ago" and "1-3 months ago" during the time of the survey were also associated with HIV testing.

Table 4. Crude and Adjusted Effect Estimates on HIV Testing

	HIV Testing		
Predictor	OR	95% CI	p
Post Survey	2.512	1.429, 4.416	0.001*
School	1.694	1.309, 2.192	<0.001*
Age	1.659	1.330, 2.069	<0.001*
Covariates			
Barriers	0.996	0.922, 1.075	0.917
Stigma	0.999	0.986, 1.012	0.835
Attitudes	1.032	1.004, 1.061	0.026*
Sexual Health Variables			
Sex with women	0.939	0.498, 1.772	0.846
Sex with men	2.406	1.063, 5.444	0.035*
Protected Sex with Women	0.236	0.123, 0.451	<0.001*
Protected Sex with Men	1.461	0.468, 4.560	0.514
Last time Tested for HIV			
4-6 months ago	35.285	4.603, 270.472	0.001*
1-3 months ago	12.214	2.687, 55.529	0.001*
Less than one month ago	1.508	0.563, 4.037	0.414
Exposure to testing campaigns			
Courage 2 Test	1.481	0.358, 6.133	0.737
Know Where You Stand	1.638	0.604, 4.445	0.330
Testing Makes Us Stronger	1.412	0.401, 4.967	0.761
Greater Than AIDS	2.657	0.890, 7.936	0.073
		Multivariable Model	
Post Survey	1.5	0.464, 4.849	0.498

Age	1.32	0.864, 2.015	0.199
Attitudes	1.025	0.991, 1.060	0.149
Sex with Men	0.328	0.048, 2.237	0.255
Protected Sex with a woman	0.289	0.098, 0.853	0.025*
Last Time Tested for HIV			
4-6 months ago	34.948	3.817, 319.951	0.002*
1-3 months ago	21.805	2.241, 212.112	0.008*
Less than one month ago	2.376	0.457 , 12.354	0.304

*****Statistically significant at p<0.05

Final Mediation Model

Summary statistics for social learning processes and IBM model constructs pre and post campaign launch can be found in Table 3. There were statistically significant differences in the mean scores for two of the mediators in the hypothesized direction. There was a statistically significant difference in the mean score for differential association (7.40 vs. 6.05, p=0.001) post campaign launch compared to the baseline score as well as a statistically significant difference in the mean score for self-efficacy (24.92 vs. 18.91, p<0.0001) post campaign launch compared to the baseline survey. In crude logistic regression models, HIV testing intentions score (OR=1.134; 95% CI: 1.035, 1.243; p=0.007); self-efficacy score (OR=1.048; 95% CI: 1.002, 1.095; p=0.041); differential association score (OR=1.629; 95% CI: 1.405, 1.889; p<0.0001); and peer attitudes for HIV testing (OR=1.762; 95% CI: 1.259, 2.465; p=0.001) were all associated with a higher odds of HIV testing as indicated in Table 5.

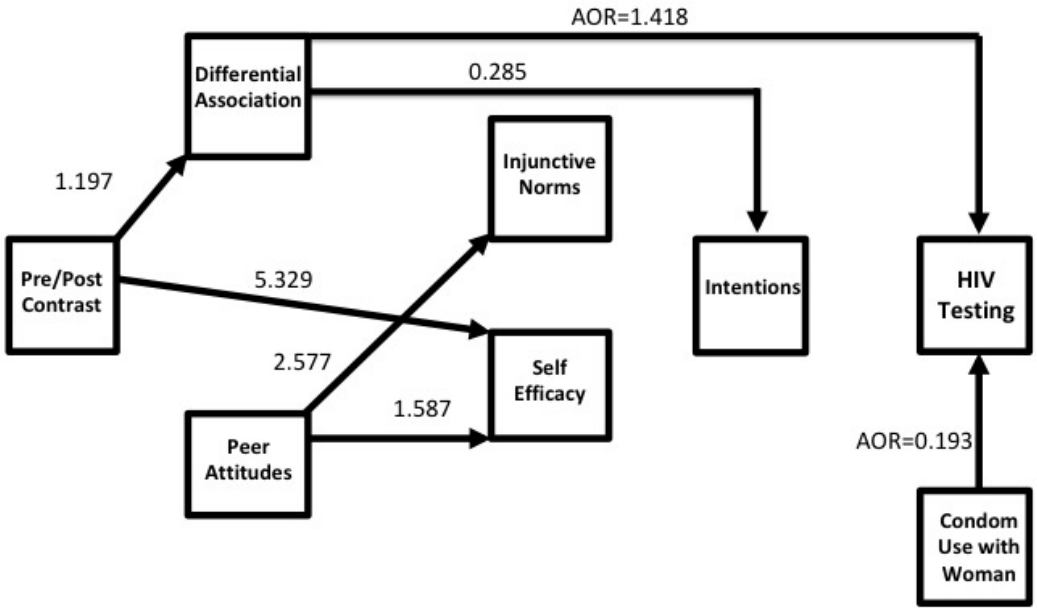
Table 5. Crude Effect Estimates of Mediators on HIV Testing

	OR	95% CI	p
Intentions	1.134	1.035, 1.243	0.007*
Differential Reinforcement	0.924	0.852, 1.003	0.059
Differential Association	1.629	1.405, 1.889	<0.001*
Peer Attitudes	1.762	1.259, 2.465	0.001*
Experiential Attitudes	0.966	0.929, 1.004	0.076
Behavioral Beliefs	1.062	0.989, 1.141	0.1
Self-Efficacy	1.048	1.002, 1.095	0.041*
Injunctive Norms	1.086	1.030, 1.145	0.002*

*****Statistically significant at p<0.05

In the adjusted mediation model, differential association was the only mediator to have a direct effect on HIV testing (AOR= 1.418, p= 0.035) as indicated in Figure 8. Only statistically significant paths are depicted for simplicity. Using a condom with a woman during the last sexual encounter was the only covariate to have a direct association (though a lower odds) with HIV testing (AOR=0.193, p= 0.010). The pre/post grouping variable was not associated with HIV testing in the final mediation model (i.e., there was no statistically significant difference in HIV testing frequency between those who completed the baseline survey and those who did not complete the survey when adding the mediators and other covariates in the model). Differential association was the only variable to have a significant direct effect on intentions to test for HIV (b=0.285, p=0.005). The pre/post grouping variable had a significant direct association with self-efficacy (b= 5.329, p<0.0001). The self-efficacy score was higher for students who completed the post survey compared to students who completed the baseline survey. Peer attitudes toward HIV testing also had a significant direct association with self-efficacy (b= 1.587, p=0.001). Peer attitudes toward HIV testing had a significant direct association on injunctive norms (b= 2.577, p<0.0001). In the final mediation model, there was a statistically significant difference in the differential association score (b= 1.197, p= 0.010). The differential association score was higher for students who completed the post survey compared to people who completed the baseline survey. The pre/post grouping variable did not have indirect effects on HIV testing through any of the theoretical mediators.

Figure 8. Final mediation model with statistically significant paths



Chapter 5: Discussion

This dissertation explores the development and feasibility of a social media marketing campaign designed to increase HIV testing among young Black men attending a public university in an urban setting. The primary focus of this dissertation was to evaluate a social media marketing campaign, via two cross-sectional samples, and assess differences in HIV testing behavior, covariates of HIV testing, and theoretical mediators associated with HIV testing. The secondary focus of this dissertation was to explore whether social learning can be applied in the context of HIV testing as well as its association with constructs of the IBM model. Akers developed his theory on social learning to explain deviant peer adolescent behavior, [73] however this dissertation is the first study to treat HIV testing as a learned phenomenon through social learning processes. Finally, this dissertation provides a discussion on the focus groups results for the development of future social media marketing campaigns.

Primary Research Findings: The Social Media Marketing Campaign

This dissertation demonstrates that there were differences in HIV testing pre-campaign launch and post-campaign assessment. The number of students who reported ever testing for HIV increased by approximately 23 percentage points which was statistically significant in unadjusted analyses although the differences in HIV testing were not statistically significant pre and post campaign launch when adjusting for covariates. The results offer some evidence of preliminary efficacy of the HIV testing campaign and feasibility to conduct this type of study among young Black men enrolled at a University. Although there were no significant differences in the mean scores for the HIV testing covariates (i.e., HIV testing barriers, attitudes, and stigma), the mean barriers and stigma scores decreased in the hypothesized direction post campaign launch. Furthermore, there were also differences in mean scores for several mediators

including social learning processes differential reinforcement and differential association as well as the self-efficacy score of the IBM model. The campaign had extensive reach as indicated by the 110,000 plus individuals who were targeted by the social media ads. However, it should be noted that exposure to the campaign was not statistically associated with HIV testing and few students report exposure (n=10) to the social media marketing campaign. Thus having extensive reach may not have played a role in increasing the reported percentage of ever testing for HIV. The odds to test for HIV was 48% higher for those who saw campaign messages compared to those who were unexposed and implementing the campaign on a larger scale may be warranted. Assessment of exposure to the social media marketing campaign was based on self-report and it is possible that students saw campaign messages on their social media feeds but could not recall that the HIV testing messages they saw were related to the Courage 2 Test campaign and thus underreporting campaign exposure. Engagement with the campaign whether on social media or through campaign related events could have potentially influenced young Black men and/or their peers to get tested for HIV even if the men in this sample could not recall direct exposure to the campaign.

Several variables were associated with higher odds of ever testing for HIV in crude and adjusted models. In crude models attitudes toward HIV, having sex with men, age, year in school, and reporting an HIV test within six months of taking the survey were all associated with testing for HIV. The results are encouraging in that students who had sex with men reported a higher odds of testing for HIV. This finding is consistent with the findings of the CDC reporting high frequencies of HIV testing among Black MSM.[98] However, reporting condom use during the last sexual encounter with a woman was associated with lower odds of testing for HIV. In fact, reporting condom use with a woman during the last sexual encounter was statistically

significant in the adjusted model controlling for demographic variables and other covariates of HIV testing. When adjusting the model for these variables, the pre/post contrast variable was not significantly associated with HIV testing. There are several possible explanations as to why the variable on condom use with a woman was significantly associated with HIV testing.

An overwhelming majority of the sample 73% reported that they had sex with women within the previous 12 months and thus in comparison to men who have sex with men, they would be less likely to test for HIV within this sample especially when considering that heterosexual men report low risk perception of HIV acqusition.[24] Those who have sex with women may see no need to test for HIV if they are using condoms. Indeed correct and consistent condom use is effective at preventing the transmission of HIV through vaginal or anal intercourse.[31] The young Black men in this sample may forgo HIV testing because they are using condoms with their female sexual partners. Although the National HIV/AIDS Strategy suggests that everyone 15 years of age and older get tested for HIV at least once as part of routine healthcare,[8] the emphasis of HIV testing is placed on men who have sex with men given the higher incidence and prevalence of HIV among this subpopulation and the efficiency of transmitting the virus via unprotected anal intercourse. There may be conflicting messages received by some of the men who only have sex with women on whether to test for HIV if they are using condoms with their female sexual partners. Thus the population of Black male college students (especially those who have sex with women) may be at low risk for infection and not test for HIV. However, correct and consistent condom use was not explored in this study and a sexual network analysis to examine HIV risk among these students was beyond the scope of this dissertation. A future study employing a broad social media marketing campaign to assess HIV testing among young Black college men may need to incorporate questions about correct and

consistent condom use and the type of sexual partners they have (male or female). By incorporating correct and consistent condom use questions and sexual behavior questions in an assessment, a more complete picture of HIV risk among young Black men can be determined and provide insights on the best strategy to target at risk individuals through social media marketing. One encouraging sign of this research is that many students indicated that they tested within six months of taking the survey. These questions were posed to students for the baseline and post campaign surveys so many students could have tested for HIV before the campaign launched. However, students who answered the aforementioned question on the post survey could have gotten tested during the campaign or after the conclusion of the campaign. The cross-sectional nature of this study makes it difficult to infer causation and a study that follows a cohort of students over time can provide more evidence that the social media marketing approach used in the pilot study indeed helps students to test for HIV.

Finally, the mediation analysis suggests that differences in differential association may be associated with HIV testing uptake among the students in this sample. Although several mediating variables were associated with HIV testing in crude models (i.e., peer attitudes toward HIV testing, injunctive norms, self-efficacy, and HIV testing intentions), differential association was associated with HIV testing in the final mediation model. It is possible that the young Black men simply changed peer groups that were more supportive of HIV testing and thus made them more inclined to test for HIV. However, it can also be argued that the peer groups of the young Black men who completed the survey may have been exposed to the HIV testing campaign and then encouraged their friends to test for HIV. Given the design of this study and the data collected, it is not possible to say that the peers of young Black men received the campaign messages and in turned encouraged the young Black men to test for HIV. A future social

network analysis may provide insights as to whether exposing the peers of young Black men to supportive HIV testing messages will be associated with HIV testing uptake among young Black men at the individual level. There was a large difference in the self-efficacy score pre and post campaign launch. However, there were no direct pathways to HIV testing intentions or HIV testing behavior in the final mediation model through self-efficacy. A future social media marketing campaign may seek to influence HIV testing behavior through the social learning process of differential association by specifically targeting the peer groups of young Black men with HIV promotion messages. If young Black men are associated with individuals who value HIV testing then they will perhaps test for HIV.

Secondary Research Findings: Baseline Assessment of Theoretical Framework

Baseline assessment of a social learning measurement model indicates that treating HIV testing as a social learning phenomenon fit the data among a sample of young Black men. When social learning processes are examined in the context of HIV testing, these indicators significantly load on to the latent social learning variable. Differential association (individuals connected to the YBM in this study who exhibit normative patterns of behavior), reinforcement, and peer attitudes may be examined in the context of HIV testing to treat HIV testing as a learned behavior. However, the initial model examining the summary scores for differential peer association and differential reinforcement similar to the study by Akers and Lee could not be estimated for hypothesis testing of model fit. Differential reinforcement has often been measured as a balance of positive and negative reinforcement to engage in deviant peer behavior.[73, 92] Measuring differential reinforcement in this way may not yield high predictive power as it has the least predictive power of all the social learning processes.[76] Treating the questions for differential association as separate item indicators and using only the negative reinforcement

index with peer attitudes toward HIV testing provided excellent fit to the data and perhaps offer the best mode for measuring social learning in the context of HIV testing. The results from this dissertation suggest that researchers should focus on negative reinforcement as an indicator of social learning in addition to differential association and peer attitudes toward HIV screening in the context of HIV testing. HIV stigma remains a challenge that fuels the HIV epidemic in the Black community[3] among other issues, so if one tests for HIV and tests positive, this person may face sanction or expulsion from their peer group. Studies with a larger representative sample of Black men or a stratified analysis of various subgroups of Black men are warranted to confirm that negative reinforcement is a key indicator of social learning in the context of HIV testing.

Assessment of baseline data provides initial evidence that social learning is associated with constructs of the IBM in the context of HIV testing. Social learning was independently associated with experiential attitudes and intentions to test for HIV in bivariate regressions. In the baseline path model, experiential attitudes mediated the relationship between social learning and HIV testing. Even after including experiential attitudes toward HIV testing as a mediator, social learning had an indirect association with intentions to test for HIV, β=0.135 (although the indirect association is not depicted in Figure 5). The results suggest that social learning of HIV may have a degree of influence on experiential attitudes and HIV testing intentions. As young Black men associate with individuals who have favorable views toward HIV testing irrespective of the frequency with which they interact with their peers, how long they have known their peers, or how close they are to their peers, social learning of HIV testing as a positive behavior increases and this social learning may be associated with higher intention to test for the individual. However, negative reinforcement of HIV testing behavior may be especially important when examining the effects of social learning on HIV testing intentions because of

HIV stigma and the need for young Black men to be accepted by their peer groups. Negative reinforcement on its own may drive negative experiential attitudes toward HIV testing which then lowers one's intention to testing for HIV. Social learning of HIV testing may be maximized when the peers of young Black men hold high favorable attitudes toward HIV testing and reduce the negative reinforcement of HIV testing within their social circles. Based upon the results of the baseline assessment, more positive social learning may be associated with reductions in negative experiential attitudes toward HIV testing and thus greater intentions to test for HIV.

The baseline results also suggest that social learning, in part, may help to explain HIV testing behavior or a lack thereof among young Black men and their peer groups. It is possible that positive social learning of HIV testing behavior (via association with peers who hold overwhelmingly positive attitudes toward HIV and low negative reinforcement of HIV testing behavior) may reduce negative experiential attitudes toward HIV that preclude young Black men from testing for HIV and increase their intentions to test for HIV, specifically after a risk event such as unprotected anal or vaginal intercourse. The cross-sectional nature of this baseline analysis makes it impossible to infer causation. A future study could measure social learning and IBM constructs over time to provide more evidence for the causal effects that social learning has on HIV testing behavior. The results of this dissertation offer an avenue in which to affect behavior change and increase HIV testing among young Black men and this avenue could be through social learning and constructs of the IBM.

It should be noted that other alternative models could also fit the data for the measurement of social learning. When examining the measurement model including only the positive reinforcement items, the results showed poor fit to the data. Furthermore, a measurement model including positive and negative reinforcement items, as separate indices, did not provide

the best model fit to the data. Because of peer acceptance and the threat of being seen as an outsider in one's peer group among young Black men, the negative reinforcement index appears to be the better indicator of social learning. Lack of a significant association between social learning and other IBM constructs could be due to a lack of statistical power. The baseline assessment for social learning theory and its association with IBM constructs was based upon a sample of just over 100 students. Assessing the association of social learning as a latent variable with IBM constructs with a larger sample is warranted to affirm the results of this study as well as to determine other statistically significant paths between social learning and volitional control of behavior.

A Comment on Focus Group Discussions

Although the primary purpose of this dissertation was to evaluate a social media marketing campaign, a discussion on the focus groups guiding the development of the campaign is warranted. The attitudes and perceptions of HIV testing and awareness campaigns were examined among young Black men attending a public university in Atlanta, GA as part of the formative research. The formative research also examined how to tailor messages promoting HIV testing and disseminating such messages via social media to increase HIV testing uptake among young Black men. It appears that little has changed to sway negative attitudes toward HIV. Young Black men view HIV as suffering from an illness even though it was mentioned that HIV is treatable. However it appears that it is still seen as a terminal illness rather than a chronic infection. Fear, stigma, and low risk perception remain barriers to HIV testing among young Black men. The findings of the formative research reaffirm the findings of other qualitative studies with various samples of young Black men in that stigma, fear of a positive test result, and low risk perceptions are key reasons for avoiding the HIV test.[16-19] Though several barriers to

HIV testing were cited, some men in this sample engaged in HIV testing behavior and discussed their motivation to test.

Some of the men indicated that testing for HIV was very important for them and reported a high degree of self-efficacy to test for HIV. Equating HIV testing as part of a healthy lifestyle could encourage more young Black men to get tested. Other extrinsic factors, such as getting tested with their friends, also motivated young men in the sample to get tested. This finding from the formative research underscores research suggesting peers can have a positive influence on sexual risk prevention as indicated by popular opinion leader research.[70, 79, 80] In this case, increased HIV testing could be a product of behavior modeling and social learning such that as young Black men see their peers get tested, this image produces a positive association with HIV testing, and they then engage in the behavior of HIV testing. In addition to peers, sexual partners were seen as a reason to get tested. Preventing the spread of HIV to sexual partners appeared to be an important factor for receiving an HIV test as well as engaging in sexual intercourse with a new partner.

The young Black men in the focus groups indicated some awareness of HIV testing campaigns though there appeared to be some ambivalence towards the campaigns. The messages did not appear to resonate with the young Black men nor encourage them to get tested for HIV. The Wrap it Up campaign appeared to encourage young Black men to get tested in part because there were activities related to HIV testing and the campaign appealed to young Black men and women. Apart from seeing signs and billboard advertisements throughout the Atlanta metropolitan area, there was generally a lack of awareness of HIV testing campaigns implemented by the Centers for Disease Control and Prevention and other groups. This lack of awareness is problematic because the messages may not be reaching their intended audience and

those vulnerable to HIV acquisition may not be persuaded to seek HIV testing. The young men in the focus groups saw social networking sites as a mechanism to sufficiently deliver HIV testing messages. Instagram, Twitter, and Snapchat were preferred platforms for receiving HIV campaign related messages underscoring the increased popularity and usage of these particular sites for young people (18-29 years of age) and non-Hispanic Blacks (Pew Research Center, 2017).[50] The young Black men indicated that they personally would not post a "selfie" receiving an HIV test, but a sticker indicative of an HIV test could encourage them to post that tested for HIV. This approach could allow young Black men to indirectly model HIV testing to their peer networks on SNS.

HIV testing messages speaking to the fear of young Black men captured their attention but tying fear with masculinity may be problematic. Although the message that targeted masculinity was provocative and caught the men's attentions, targeting masculinity may undermine the fear of a positive test result. The messaging should recognize that people are afraid to test but counter negative perceptions such as equating HIV with sickness. Such messages could acknowledge that people are afraid of receiving the HIV test, however messaging could reinforce that one can live a meaningful life with HIV and engage in social activities with their friends. Messaging can counter the stigma of HIV testing via positive peer pressure such that HIV testing is seen as normal behavior and those who do not test for HIV should face scrutiny. The messaging should also incorporate relevant statistics for the intended population as to contextualize the HIV epidemic in a way that changes risk perception for those who engage in risky behaviors. Finally, incorporating fraternities and sororities could be used to engage more young Black men in HIV testing efforts.

Limitations

The formative research and cross-sectional surveys were limited to young Black men attending a public university in Atlanta, GA thus these findings cannot be generalized to Black men more broadly. A major limitation of the campaign was the lack of a true comparison population that would not have received any intervention. A comparison population would add to the validity of study findings especially if no differences in key variables were observed for a comparison population. The research described in this dissertation received limited funding and it would not be feasible to collect data from young Black men attending another university. Another key limitation is the use of self-report for many of the study variables. Social desirability may be an issue and many students could have over reported protected sexual intercourse with their partners. This study also lacked statistical power to detect significant differences in key study variables and associations with HIV testing via regression and path analyses due to the small sample size. The dissertation describes a pilot study and the main concern was preliminary efficacy of the social media marketing campaign pre and post campaign launch. Also there was limited funding to recruit a substantially large random sample to find the smallest differences in key study variables. Another limitation of this dissertation is that not all constructs of the Integrated Behavior Model were assessed. Only a subset of constructs were included in the surveys so constructs such as perceived behavioral control were omitted. Social learning could have been associated with omitted constructs and these omitted constructs could have been associated with intentions to test for HIV or HIV testing in mediation analyses. However in a meta-analysis of TRA and TPB construct associations with condom use behaviors, perceived behavioral control's association with condom use was minimal when including condom use intentions in mediation models.[83] These constructs were intentionally omitted as to

not burden the students with too many scales. Because this dissertation describes a pilot study and the goal of the study was to assess HIV testing behavior, some constructs of the IBM model were omitted to minimize fatigue and maximize the accuracy of responses. Finally, all mediation analyses conducted for this dissertation relied upon the approach outlined by Preacher and Hayes.[96] Other alternative methods for mediation analysis of epidemiologic data (such as inverse odds ratio weighting or the methods outlined by VanderWeele and Vansteelandt) were not considered.[99, 100] It would be useful to analyze the data with other methods for the mediation analysis especially when considering the number of mediators and hypothesis testing in this study. However, MacKinnon and colleagues report that the standard error used in the Sobel test for mediated effects (in models with more than one mediator) are accurate for minimum sample sizes of 100–200.[101, 102]

Conclusions

Although direct campaign exposure was not associated with HIV testing, HIV testing was higher post campaign launch compared to the baseline. Differential association for HIV testing behavior may be the key to influence HIV testing among young Black men and their peer groups. Secondary findings suggest that social learning may be extended to HIV testing behavior and may influence experiential attitudes toward HIV testing. Differential association, peer attitudes, and negative reinforcement are reasonable indicators of social learning in the context of HIV testing. Differences in HIV testing behavior were observed following the conclusion of a social media marketing campaign informed by social learning theory and behavioral modeling.

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Appendix A

Attitudes Toward HIV Testing Scale: Range 79 to 152

HIV-antibody testing is not really confidential.*
HIV test information is kept very confidential by the medical staff who do the testing.
My family would support me if I decided to be tested for HIV.
I would not want anyone to know if I got an HIV test.*
My friends would not look down on me if I were tested for HIV.
Anyone who is tested for HIV is disgusting.*
I would be afraid to get an HIV test because people who test positive cannot get health insurance.*
People assume that everyone who is tested for HIV is infected with HIV.*
My parents would be upset if they knew I was planning to get tested for HIV.*
Admitting that you should be tested for HIV means that you have engaged in immoral behavior.*
My friends would support my decisions to get an HIV test.
I am afraid that if I were tested for HIV, my name would go into public records.*
HIV test give accurate results.
Anyone who is tested for HIV is dirty.*
It would be embarrassing to get tested for HIV.*
I would not consider getting an HIV test because I would be asked things I have done that could get me into trouble.*
I can talk to my friends about making medical decisions.
I would be comfortable talking to an HIV counselor about personal behaviors that place me at risk for HIV infection.
People would assume I have HIV if I decided to get tested.*
I could talk to my friends about making the decision to get an HIV test.
My friends would not look down on me if I were tested for HIV.
My friends would not treat me any differently if I were tested for HIV.
I am afraid someone would find out I was tested for HIV.*
Anyone who is tested for HIV is smart.
I would be embarrassed if my friends found out I had decided to have an HIV test.*
I would not get tested for HIV because I would be asked information that was too personal.*
I trust the HIV test counselors and nurses to keep my information confidential.
I do not have time to get an HIV test.*
It would not bother me if someone I know sees me going to get an HIV test.
My friends would treat me badly if I were tested for HIV.*
I could easily discuss HIV-antibody testing with my family.
My job would be in danger if my boss found out I was tested for HIV.*

*Item Reverse Coded

Appendix B

HIV Stigma Scale: Range 63 to 191

In many areas of my life, no one knows/would know I have HIV
I feel guilty/would feel guilty because I have HIV
People's attitudes make me feel worse/would make feel worse me about myself
Telling someone I have HIV is risky/would be risky
People with HIV lose jobs when employers learn
I work hard/would work hard to keep my HIV a secret
I feel I'm not as good or would not feel as others because I have HIV
I never/would never feel ashamed of having HIV
People with HIV are treated like outcasts
Most people believe a person who has HIV is dirty
It is easier to avoid friendships/would be easier to avoid friendships than worry about telling
Having HIV makes me feel unclean/would make me feel unclean
I feel set apart, isolated from the rest of the world/would feel isolated from the rest of the world
Most people think a person with HIV is disgusting
Having HIV makes me feel I'm a bad person/ would make me feel like I'm a bad person
Most people with HIV are rejected when others learn they are infected
I am very careful/would be careful whom I tell that I have HIV
Some people who know have grown more distant/would grow more distant
I worry/would worry about people discriminating against me
Most are comfortable around someone with HIV*
I never/would never feel I need to hide the fact I have HIV*
I worry/would worry that people may judge me when they learn
Having HIV in my body is disgusting/would be disgusting to me
I'm Hurt/ I would be hurt by how people reacted to learning I have HIV
I worry/would worry people who know I have HIV will tell others
I regret/would regret having told some people that I have HIV
As a rule, telling others has been a mistake/would be a mistake
People avoid touching me/may avoid touching me if they know I have HIV
People I care about stopped/would stop calling me after learning
Someone told/would tell me HIV is what I deserved for how I lived
Some fear/would fear they'll be rejected because of my HIV
Don't want/would not want me around their children once they know
People have physically backed away from me or they would back away from me
Some people act/would act as though it's my fault I have HIV
Stopped/would stop socializing with some due to their reactions
Have lost/would lose friends by telling them I have HIV
I told/would tell people close to me to keep my HIV a secret
People who know tend to ignore/would ignore my good points
People seem afraid/would be afraid of me because I have HIV
Knowing, they look/would look for flaws in your character

*Item Reverse Coded

Appendix C

Barriers to HIV Testing Scale: Range 0 to 13

You don't have transportation to get to the testing site.
You don't have enough time.
The testing site is too far away.
You don't know where to go for testing.
You don't like the people who work at the testing site.
There is no cure, so why get tested.
You can't afford treatment, so why get tested?
You don't want to know the results.
People might recognize you at the testing site.
You are worried about confidentiality.
You are afraid of losing your health insurance.
You are afraid of losing your job.
You are afraid of losing your partner.

Appendix D

Social Learning Process Items

Differential Association: Range 3 to 12

Among your friends that you have known the longest, how many of them do you think have received an HIV test?
Among your friends that you hang out with the most, how many of them do you think have received an HIV test?
Among your friend(s) that you consider your best friend(s), how many of them do you think have received an HIV test?

Differential Reinforcement: Range -6 to 6

Positive Items

My friends would get tested because I got tested
My friends would continue to associate with me
My friends would ask me for more information about HIV testing
My friends would encourage me to get tested in the future
My friends would support me if I had a positive test result
My friends would encourage other people to get tested because I got tested

Negative Items

My friends would tease me
My friends would stop talking to me
My friends would think I have risky sex
My friends would judge me
My friends would tell other people that I got tested
My friends would not want to hang out with me

Peer Attitudes: Range 1 to 5

What is the general attitude your friends have towards testing?

Appendix E

Experiential Attitudes: Range 11 to 37

Getting tested for HIV in the next month would be:

	Extremely	Quite	Neither	Quite	Extremely	
	1	2	3	4	5	
A good idea (1)	○	○	○	○	○	Bad Idea
Easy (2)	○	○	○	○	○	Difficult
Safe (3)	○	○	○	○	○	Risky
Comforting (4)	○	○	○	○	○	Stressful
Helpful (5)	○	○	○	○	○	Useless
Reassuring (6)	○	○	○	○	○	Worrying
Worthwhile (7)	○	○	○	○	○	Pointless
Smart (8)	○	○	○	○	○	Dumb
Beneficial (9)	○	○	○	○	○	Harmful
Desirable (10)	○	○	○	○	○	Undesirable
Healthy (11)	○	○	○	○	○	Unhealthy

Appendix F

Behavioral Beliefs: Range 15 to 35

Next are some statements about getting tested for HIV. Please tell me how strongly you agree or disagree with each statement. If you were to get an HIV test in the next month:

	Strongly agree (1)	Agree (2)	Neither agree nor disagree (3)	Disagree (4)	Strongly disagree (5)
You expect the results to be negative	○	○	○	○	○
You expect that you can get the test for free	○	○	○	○	○
You can expect you can get the HIV testing results within 20 minutes.	○	○	○	○	○
Will give you the opportunity to practice safe sex	○	○	○	○	○
The clinic staff may spread rumors about you	○	○	○	○	○
You expect it to bring you peace of mind	○	○	○	○	○
You fear getting the HIV test result	○	○	○	○	○

Appendix G

Self-Efficacy: Range 7 to 35

A variety of things can get in the way of your getting an HIV test. If you want to get an HIV test in the next month, how certain are you that you could?

- ○ Extremely certain (1)
- ○ Quite certain (2)
- ○ Neither (3)
- ○ Not quite certain (4)
- ○ Not extremely certain (5)

If you wanted to get an HIV test, there might be different things that would make it difficult. For each of the following questions, please tell me how certain you are that you could get an HIV test in the next month under various circumstances.

	Extremely certain I could not (1)	Quite certain I could not (2)	Neither/not sure (3)	Quite certain I could (4)	Extremely certain I could (5)
How certain are you that you could get tested for HIV at your local clinic?	○	○	○	○	○
How certain are you that you could get tested at an HIV testing center?	○	○	○	○	○
How certain are you that you could get tested at home, using a kit?	○	○	○	○	○
If you feel fear about your HIV test results, how certain are you that you could be tested for HIV?	○	○	○	○	○
If you have to pay to be tested, how certain are you that you could be tested for HIV?	○	○	○	○	○
If you are concerned about what other people might say, how certain are you that you could get tested for HIV?	○	○	○	○	○

Appendix H

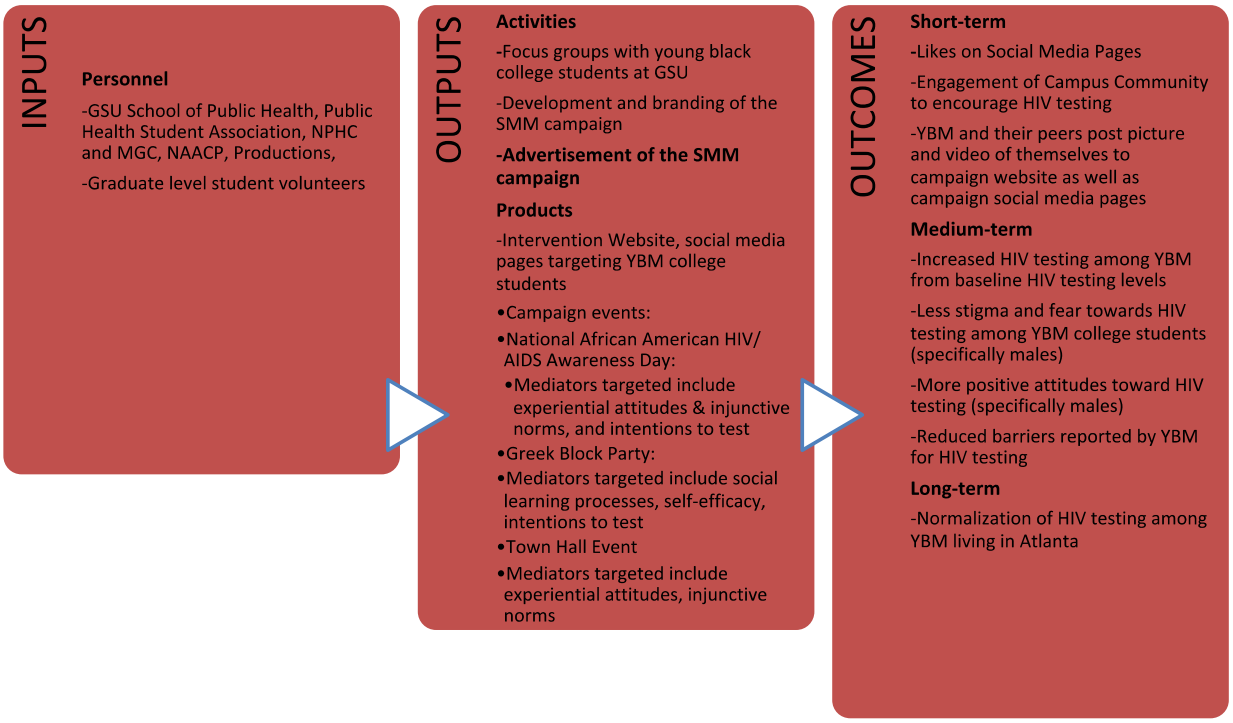
Injunctive Norm: Range 7 to 35

Next are questions about some people in your life that may or may not encourage you to get an HIV test. How strongly do you agree or disagree that each of the following people would encourage you to get an HIV test?

	Strongly agree (1)	Agree (2)	Neither agree nor disagree (3)	Disagree (4)	Strongly disagree (5)
Most people who are important to you)	○	○	○	○	○
People in your community	○	○	○	○	○
Your family	○	○	○	○	○
Your best friend	○	○	○	○	○
Sexual partner(s)	○	○	○	○	○
Educator(s)	○	○	○	○	○
Mentor(s)	○	○	○	○	○

Appendix I

Logic Model for Social Media Marketing Campaign



Appendix J

Courage 2 Test Campaign Website Performance

I. All-Time:

- Posts-4
- Views-812
- Visitors-271
- Most Popular Day-Thursday (21% of views)
- Most Popular Hour-9:00 pm (17% of views)

II. February:

- Views-624
- Visitors-167
- Views per visitor-3.74
- Comments-1
- Referrers-
    - Facebook-76 views
    - Instagram-33 views
    - WordPress.com Reader-25
    - WordPress.com Dashboard-5
    - Linkin.com-2
    - Twitter-1
- Posts and Pages
    - Courage 2 Test-269 views
    - Our Team-101 views
    - Brittani's Story-66 views
    - HIV Testing Resources-50 views
    - Home page/Archives-37
    - The Statistics-35 views
    - About-23
    - Contact-21
    - The Courage 2 Test-17
    - HIV and the Black Community-3
    - Love Sex and testing for HIV-2

III. March:

- Views-98
- Visitors-51
- Views per visitor-1.92
- Comments-1
- Referrers-
    - Facebook-17 views
    - Instagram-15 views
    - Twitter-6 views

    - GSU Events Calendar-1 view
- Posts and Pages
    - Courage 2 Test-61 views
    - Our Team-7 views
    - Brittani's Story-5 views
    - HIV Testing Resources-50 views
    - Home page/Archives-3 views
    - The Statistics-3 views
    - Love Sex and Testing for HIV-3 views
    - About-4 views
    - Contact-2 views
    - The Courage 2 Test-17 views
    - HIV and the Black Community-5

IV. April:

- Views-83
- Visitors-48
- Views per visitor-1.73
- Comments-0
- Referrers-
    - Facebook-23 views
    - Instagram-8 views
    - GSU Events Calendar -1 view
- Posts and Pages
    - Courage 2 Test-54 views
    - Our Team-9 views
    - Brittani's Story-5 views
    - HIV Testing Resources-1 views
    - Home page/Archives-3
    - The Statistics-2 views
    - About-2
    - Contact-5
    - The Courage 2 Test-1
    - Love Sex and testing for HIV-1

Appendix K

Social Media Tracking

I. Facebook Page: 9 page likes, 9 Followers
Video, 6 views
Range of Post Reach: 1-164

II. Instagram Page: 63 Followers, 16 posts

Post 1, 7 likes

Post 2, 14 likes

Post 3, 11 likes

Post 4, 12 likes

Post 5, 8 likes

Post 6, 8 likes

Post 7, 12 likes

Post 8, 5 likes

Post 9, 13 likes

Post 10, 17 likes

Post 11, 11 likes

Post 12, 15 likes

Post 13, 14 likes

Post 14, 26 views

Post 15, 17 likes

Post 16, 15 likes

III. Twitter Page: 4 followers, 21 Tweets

Range of Likes: 1-4 Likes

IV. Snapchat: 25 followers

Appendix L

Social Media Advertisement Results

Delivery				
	Reach	Cost/1,000 people reached or Cost/1,000 Impressions	Budget/day	Total Amount
Ad Set 1	48,310	$1.38	$10	$66.63
Ad Set 2	42,509	$4.70		$200
Ad Set 3	19,335	$7.74	$10	$139.93
Total Reached	110,154		Total Cost	$406.56

Engagement							
	Impressions	People Taking Action	Post Reactions	Post Comments	Post Shares	Link Clicks	Page Likes
Ad Set 1		57	23	5	0	34	
Ad Set 2	102,759	115	54	1	8	56	
Ad Set 3	49,665	63	14	0	0	47	3

Appendix M

Social Media Advertising Glossary:

Source: Ads manager. Facebook. https://www.facebook.com/ads/manager/account/campaigns/?act=10100521800454607&columns=[%22name%22%2C%22delivery%22%2C%22results%22%2C%22reach%22%2C%22impressions%22%2C%22cost_per_result%22%2C%22budget%22%2C%22spend%22%2C%22stop_time%22%2C%22schedule%22%2C%22relevance_score%3Ascore%22%2C%22frequency%22]&pid=p1. Accessed May 2, 2017.

1) **Actions**- The total number of actions people took that are attributed to the ads. Actions may include engagement, clicks or conversions.

   Calculation: The metric includes any action that was recorded and attributed to the ads. It is a sum of engagement actions (such as post reactions or video views), link clicks and conversions (such as website adds to cart or offline purchases).

2) **Post Reactions**- The number of reactions on the ads. The reactions button on an ad allows people to share different reactions to its content: Like, Love, Haha, Wow, Sad or Angry.

   How the metric is used: Post reactions indicate that the ads are relevant to the target audience, which helps the ads perform better. When people react to a post, they automatically start following further reactions and comments, which can engage them in an ongoing conversation on a business Page. It is important to measure how the ads help to influence these reactions.

   Calculation: The post reactions metric counts all reactions that people had to your ads while they were running.

3) **Post Comments**- The number of comments on the ads.

   How the metric is used: The post comments metric counts all comments that people made on the ads while they were running.

4) **Post Shares**- The number of shares of the ads. People can share the ads or posts on their own or friends' Timelines, in groups and on their own Pages.

   Calculation: The metric counts shares of the ads while they were running. It may also include Instagram shares sent to people's inboxes.

   It does not count engagement with the post after it is shared on another person's or Page's Timeline.

5) **Link Clicks**- The number of clicks on ad links to select destinations or experiences, on or off Facebook-owned properties.

   How the metric is used: Link clicks are one way to measure the interest that the ad generates among the audience. Digital advertisers consider click-through rate as a

measure of success for an online advertising campaign. Pairing this with website conversions allows the business to understand more about what actions people take after they click on the link.

Calculation: The metric counts link clicks in the ad container that lead to select destinations or experiences. For example, they can include ad links to:

Websites
App stores or app deep links
Click to call
Click to message
Maps/directions
Facebook Canvas
Facebook lead forms
Facebook Marketplace
Videos hosted by another website (including videos embedded in News Feed ads but hosted on a video platform such as YouTube or Vimeo)

6) **Reach**- The number of people who saw the ads at least once. Reach is different from impressions, which may include multiple views of the ads by the same people.

   How the metric is used: Reach gives a measure of how many people were exposed to the message during an ad campaign. People may not always click on the ads, but they may be more likely to engage with a business when they see the message.

   Reach can be affected by the bid, budget and audience targeting.

   Calculation: This metric is calculated using sampled data.

7) **Frequency**- The average number of times each person saw the ad.

   How the metric is used: Frequency helps to build awareness and recall by showing the message to people in the target audience multiple times. Frequency may average 1 to 2 per ad set or may be much higher, depending on the budget, audience size and schedule.

   However, it is important to monitor frequency along with the results and relevance score to make sure the same people are not seeing the ads too often during a campaign. If performance begins to drop as the frequency numbers rise, the target audience may be experiencing ad fatigue, and it may be wise to change the ad creative or targeting.

   Calculation: Frequency is calculated as impressions divided by reach.

   This metric is calculated using sampled data.

8) Cost per 1,000 people reached- The average cost to reach 1,000 people.

How the metric is used: Online advertisers typically look at CPM as a performance measurement for the cost-efficiency and value of an ad campaign.

On Facebook, reach can be a more insightful metric than impressions, because it gives a measure of how many people were exposed to the message and how efficiently an advertiser reached them. It is affected by how well the bid performed in the ad auction, the budget and the effectiveness of the audience targeting.

Calculation: The metric is calculated as the total amount spent, divided by reach, multiplied by 1,000.

It measures people reached across Facebook platforms, such as Facebook, Instagram, Messenger and Audience Network.

9) **Impressions**- The number of times the ads were viewed.

How the metric is used: Impressions is a common metric used by the online marketing industry. Impressions measure how widely and often the ads were seen among the target audience.

Calculation: An impression is counted as the number of times an instance of an ad entered the viewable area of people's screens for the first time. (Example: If people see an ad 2 different times in a day, which counts as 2 impressions. If someone sees an ad, scrolls down, and then scrolls back up to the same ad, that counts as 1 impression.) Exceptions are made in a few cases when it can not be determined whether ads are viewable, such as on feature mobile phones, where impressions are counted when ads are delivered to devices.

10) **CPM (Cost per 1,000 Impressions)**- The average cost for 1,000 impressions.

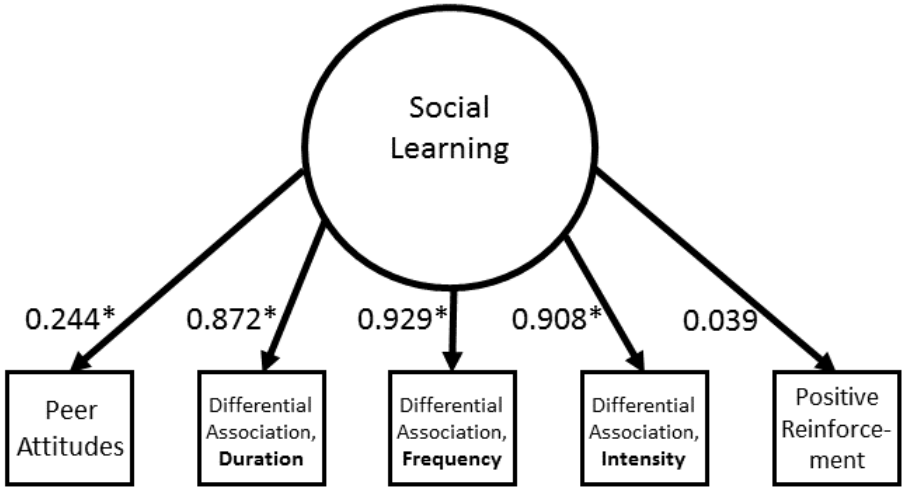
How the metric is used: CPM is a common metric used by the online advertising industry to gauge the cost-effectiveness of an ad campaign. It is often used to compare performance among different ad publishers and campaigns.

How the metric is calculated: CPM measures the total amount spent on an ad campaign, divided by impressions, multiplied by 1,000.

Appendix N

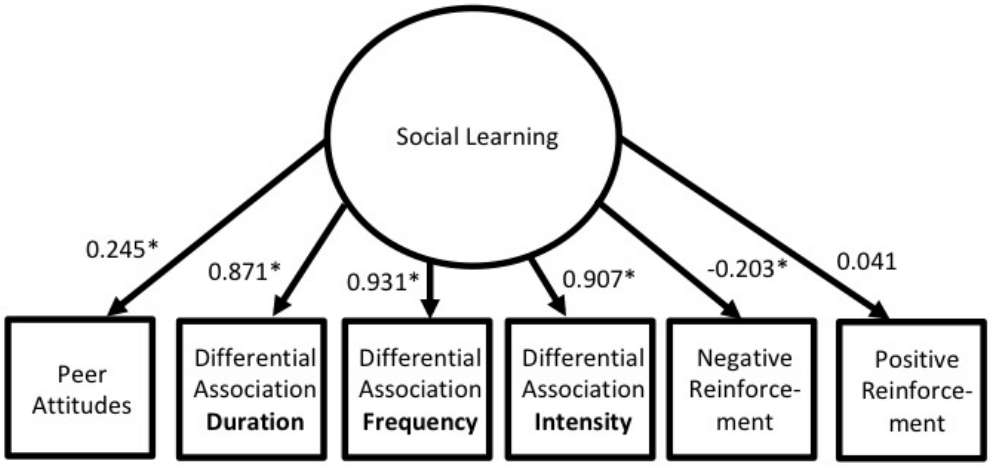
Alternative Confirmatory Factors Models for Social Learning

1) Social Learning with the Positive Reinforcement Indicator



***Item loading significant at p<0.05**
χ^2(5, N=106)=17.492, p=0.0037; RMSEA=0.154, 90% CI (0.079, 0.235); CFI=0.954; SRMR=0.0168

2) Social Learning with Separate Positive and Negative Reinforcement Indicators



***Item loading significant at p<0.05**
χ^2 (9, N=106) =18.536, p=0.0294; RMSEA=0.100, 90% CI (0.030, 0.165); CFI=0.965; SRMR=0.060