



Using the Social-Ecological Model of HIV Prevention to Explore HIV Testing Behaviors of Young Black College Women

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The purpose of our study was to explore HIV testing behaviors and attitudes among young Black women ages 18-24 years in southern North Carolina (N = 17) using a semi-structured interview based on the Socio-Ecological Model. The findings showed that individual, interpersonal, social, and organizational factors contributed to participants' testing behaviors and attitudes. Understanding the factors that influence attitudes and intention for HIV testing among young Black women will inform the development of culturally congruent prevention interventions and programs.

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Despite representing approximately 14% of the U.S. population, Blacks account for the largest percentage (44%) of new cases of HIV infection (Centers for Disease Control and Prevention [CDC], 2015a). In particular, HIV disproportionately affects Black women at all stages of the disease, from initial infection to death, compared to women of other races and ethnicities (CDC, 2015b). Black women ages 13 to 24 years comprise 23% of new infections, compared to 16% of new infections for White women (CDC, 2015b).

One way to improve these disparities and prevent the spread of the disease is to increase rates of HIV

testing. The CDC has recommended HIV testing at least once for all persons between the ages of 13 and 64 years, and more frequently for persons whose behaviors place them at high risk; however, only 34.5% of young adults ages 18 to 24 years have ever been tested for HIV, while 60% of infected youth and young adults are unaware of their infection (CDC, 2015a). In general, Blacks are tested less frequently than Whites and Hispanics/Latinos (CDC, 2015b). Given the disproportionately high rates of HIV infection in young Black women, investigating factors that influence their HIV testing behaviors is critical to reduce this disparity.

HIV Risk and Black College Women

Researchers have asserted the primacy of culturally congruent approaches when developing HIV

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prevention and education efforts (Bazargan, Kelly, Stein, Husaini, & Bazargan, 2000; Nobles, Goddard, & Gilbert, 2009). This is especially true for Black women who also may be at increased risk for infection because of sociocultural attitudes and experiences that are deeply rooted in discrimination (Mittal, Senn, & Carey, 2012), which is a result of structural factors, such as medical mistrust coupled with covert forms of bias (unconscious and implicit), as well as residential segregation that increases the likelihood of Black women living in environments (including the criminal justice system) where HIV and sexually transmitted infection (STI) rates are elevated (Earnshaw, Bogart, Dovidio, & Williams, 2013).

College students in the United States often engage in unprotected sex with multiple partners, placing them at increased risk for STIs and HIV. Black men in college reported having up to 10 partners in the previous 3 to 6 months, and, in many cases, reported concurrent partners (having multiple sex partners during the same period of time; Randolph, Golin, Kim, Matthew, & Howard, 2013). These sexual behaviors place Black college women at high risk for acquiring an STI or HIV if they mistakenly believe that they are in a monogamous sexual relationship. Additionally, mistaken beliefs about their partner's sexual behaviors may lead them to underestimate the HIV risk and not seek testing. Thus, it is critical to gain insight regarding the culturally specific needs and perspectives of Black college women and their testing behaviors to inform culturally congruent interventions that focus on increasing testing behaviors in this population.

A review of the literature regarding STI and/or HIV testing of young women ages 18 to 24 years revealed five studies that assessed STI/HIV testing behaviors and included Black women in their samples (Alleyne & Gaston, 2010; Bazargan, Kelly, Stein, Husaini, & Bazargan, 2000; Hall, Peterson, & Johnson, 2014; Moore, Javier, Abrams, McGann, & Belgrave, 2017; Sutton et al., 2011). Few studies have specifically examined the social influences that affect routine HIV testing behaviors and frequency for young Black women. Therefore, the purpose of our study was to explore the individual, interpersonal, social, and organizational influences of young adult Black women's HIV testing behaviors and attitudes by investigating their lived experiences.

Theoretical Framework

The Socio-Ecological Model

The study's theoretical framework was the Socio-Ecological Model (SEM). The SEM holds that individual decisions and behaviors result from reciprocal interactions within and between the individual's social and physical surroundings (Bronfenbrenner, 1979). The Model describes one's environment in terms of levels of influence: individual, interpersonal relationships (meaningful one-on-one interactions), organizational structures (distal influences such as group and institutional), and social/community (norms and values of cultures and subcultures or societal influences; Bronfenbrenner, 2005). For example, a young Black college woman's HIV testing behavior can be influenced by peers and family (interpersonal) as well as attitudes toward HIV testing on her campus (social/community). We used the SEM as a lens to explore the HIV testing behaviors and attitudes of young Black college women.

Methods

Setting and Sample

The Institutional Review Board at North Carolina Agricultural and Technical State University gave approval for this study and a convenience sample of young Black college women ages 18 to 24 years was recruited for participation. The interviews took place in a private room/space at the university that was reserved by the principal investigator (PI). Inclusion criteria were: (a) self-report of HIV-uninfected status and sexually active; (b) enrolled at the university as a part-time or full-time student; (c) self-identification as a Black female; (d) between 18 and 24 years of age; (e) conversant in English; and (f) able to provide consent and participate in an interview. Participants with known HIV infection diagnosis were excluded from the study.

Study participants were invited to participate through flyers that were distributed throughout the college campus on bulletin boards in residence halls, health-related classes, and other student high-traffic areas. Other recruitment strategies included word-

of-mouth communication to existing student organizations and networks to encourage participation in the study.

Data Collection

The PI or research assistant (RA) conducted digitally recorded, one-on-one interviews to elicit participant perspectives regarding current and past testing behaviors. Interviews averaged 1 hour in length and were held in a reserved, closed space to ensure privacy. Interviews were guided by a semi-structured interview guide that was designed by the first author to obtain information regarding the social influences of HIV testing for Black college women. Sample questions included: *Tell us how often you get tested for HIV; What caused you to make the decision to go and receive the actual test?; How do your peers, partners, close friends, and/or family members influence your current or past testing behaviors?; Are you aware of your partners' HIV status and testing behavior?; Tell us about the conversation you had with your partner about HIV testing; What types of places do you frequent for testing and what are some facilitators and barriers to testing in those places?* The interview items were based on the SEM and were designed to assess influences on the HIV testing behaviors and attitudes of young Black college women.

To preserve truthfulness, participants were assured that their identities would not be revealed, conversations would be confidential, and they could speak freely without risk of judgment. Throughout the data collection process, the interviewer probed for examples and experiences, summarized initial interpretations, and confirmed responses with participants to allow for clarification of the findings. The interviewer also took notes during the interview and explained to participants that note taking was part of the data collection process and would occur periodically to assist the research team with journaling key points that were shared by participants. Additionally, the research team was comprised of tenure-track assistant professors and graduate students who all had training and experience collecting qualitative data. Immediately following the interviews, the PI and RA met to debrief. This process allowed the research team to discuss what did or did not go well and potential improvements for future interviews. In addition,

the PI transcribed the recordings verbatim and, together with the RA, reviewed them for accuracy. The accuracy of the original transcripts was also verified by matching the recordings to each file.

Data Analysis

Data analysis included transcribing individual one-on-one interviews with a coding process based on emerging information collected from study participants and was facilitated with the use of QSR NVivo software (QSR International, Doncaster, Victoria, Australia). The constant comparative method of qualitative analysis was used (Strauss & Corbin, 1998). This method includes: (a) identifying concepts from the data that are related to the research questions, (b) checking the frequency and distribution of these concepts with regard to the constructs of the SEM, (c) assembling a variety of evidence to support the observations, and (d) incorporating these concepts into a refined conceptual framework (Glaser & Corbin, 1967) of the current and past testing behaviors and attitudes of young Black women. Reaching theoretical saturation (the phase of analysis in which no new concepts appear and all concepts are well developed) maximized the thoroughness and, hence, validity of the data interpretation (Charmaz, 1990). In our study, saturation occurred by the 13th individual interview of the 17 total. To check for the accuracy of the qualitative research findings and enhance the overall validity, researchers incorporated member checks. Further, member checks were done at the conclusion of each interview and the PI summarized the participant's responses seeking clarity and accuracy of the interpretation. This allowed participants to confirm that their statements were accurate and avoided any assumptions regarding thoughts or feelings during the process.

Results

Seventeen women participated in the study. Their average age was 20.7 years, and 94.0% were currently sexually active. The women reported having a range of one to three sexual partners in the past year, and 41.1% used a condom with each sexual encounter. Within the previous year, 11.8% of women had been diagnosed with an STI. Further, 70.5% had

used drugs and/or alcohol in the previous year; however, only 29.4% reported having sex while under the influence of drugs or alcohol. The results of our study were framed according to individual, interpersonal, organizational, and social/community factors of the SEM (Figure 1).

Individual Factors

Personal factors and beliefs were associated with our participants being tested for HIV. Most women in our study reported receiving an HIV test at least once in the previous year. The women stated that they made a decision to be tested because the option was offered as a part of clinic visits for Pap smears or immunizations. Additionally, the majority of the women in the study considered the risk of unprotected sexual activity only after engaging in intercourse with a new partner and then sought testing. When asked how often one should be tested, the majority of the women endorsed the practice of obtaining an HIV test after each new sex partner and at least every 6 months if there were multiple sex partners.

Interpersonal Factors

Interpersonal factors, such as the relationship a woman maintains with her partner, had an impact on participant testing behaviors and attitudes. When asked if they were aware of their sexual partners' HIV status or current and past testing behaviors, the majority of the women were unaware of their partners' status and did not know how often they received testing. Moreover, only 3 of the 17 women reported either accompanying their partner to be tested or actually asking their partners about HIV status or history of STIs; however, one of the women reported having two partners and asking only one partner about his HIV status. In general, women did not know how to have a conversation with their partners about testing and some even reported not asking because they did not want to offend him or imply that he had HIV infection. Specifically, one participant stated, "I don't talk to my sex partner about testing; I don't know how to have that conversation and I don't want to offend them." Further, women also reported an assumption that if they were tested for HIV and the results were negative, then their partners were also negative. This

Categories/Constructs	Properties	Findings/Themes
Individual <i>Personal factors and beliefs</i>	Timing of HIV Testing was inappropriate for exposure	"I was tested after I had sex with him- it was my first time so I wanted to get tested." "You should get tested each time you have a new sex partner." "You should be tested after each sex partner."
Interpersonal <i>The relationship a woman maintains with her partner</i>	Women do not have an awareness of their partners' HIV status or behaviors	"If I don't have it, then they don't have it is my philosophy- I know that's wrong." "We don't really talk about STIs and HIV- we are confident that we are each other's only partner." "I am not aware of my partner's HIV status- I'm not for sure if he has been tested." "I assume he doesn't have it because I don't and he is the only person I have sex with." "I don't talk to my sex partner about testing; I don't know how to have that conversation; I don't want to offend him."
Organizational <i>Group level influence and discussions regarding HIV</i>	Women do not talk openly with peers about HIV	"We don't talk about HIV until they post free testing on campus or have events on campus about HIV." "We don't really talk about it [HIV], maybe we should, but we talk about other things like guys, but not safe sex." "We think the worst thing possible is getting pregnant, we don't consider HIV."
Social/Community <i>Peer influence on the decision to be TESTED for HIV/Setting</i>	Where women received HIV testing varied	"I feel more comfortable on campus with people my own age."

Figure 1. Lived experience and testing behaviors of young, Black college women (Bronfenbrenner, 1979).

assumption was based on the perception that they were their partner's only sexual partner during this time. One participant stated, "If I don't have it, then they don't—this is my philosophy; I know that's wrong." Other interpersonal factors that were identified included someone close to them having a person living with HIV in their family or circle of friends. While this connection and personalization made HIV a tangible reality for study participants, because it was not at the forefront of what they heard and saw, it was less likely to influence their testing behaviors. One participant stated, "I don't think about being exposed to HIV; there is more talk about STDs [sexually transmitted disease] and getting pregnant."

Organizational Factors

The participants reported obtaining testing services in a variety of settings, such as the health department, primary care physician's office, and other community-based clinics and organizations. Although some women reported receiving testing on campus, many were unaware that this option was available. In addition, the women reported receiving testing at outreach programs that were held on campus during events such as National HIV Testing Day. Most of the women gave blood samples for their HIV test and many were unaware that oral and urine testing options were available.

Social/Community Factors

Social and community factors, such as peer influences, also contributed to the women's decisions to be tested for HIV. When asked about the influence of peers or others, the participants reported that they did not generally engage in this discussion. Moreover, the women stated that they did not see HIV testing as a priority in sexual health conversations with their peers. Interestingly, although the women talked about the men they were dating or had a potential interest in, they did not discuss prevention, risk, or other sexual health safety precautions openly with their peers despite reports that the topic of HIV testing arose frequently when HIV screening and education events were held on campus. During these times, many conversations occurred about what they learned because of the social/community event or inquiries with one another about obtaining an HIV test.

Discussion

The use of the SEM was fundamental to assessing the HIV testing behaviors of young, Black college women. The major findings of our study revealed that sociocultural factors were highlighted as major contributors to testing behaviors (barriers) for this population. Specific to the SEM, peer influence and perceptions of risk (individual), a lack of awareness of partner testing and behavior (interpersonal), location/setting and type of testing (organizational), and the timing of HIV testing in which the target population often sought testing after engagement in risky sexual behavior (social/community) were identified as influencing testing behavior.

To elaborate, the use of the Model provided a lens to understand the complex interplay among individual, relational, communal, and societal factors that influenced study participants' decisions to have an HIV test. As an illustration, a critical revelation from the interviews revealed that a negative HIV test not only reassured the women of their status, but also provided a false assurance that their partners were negative, even if the test was taken within days of an unprotected sexual encounter.

Our findings extend those of previous studies that have explored HIV testing behaviors among young Black women who were enrolled at historically Black colleges and universities (HBCU). The findings also extend the results of other studies that explored gender and young women's views on testing for STI and HIV that also utilized semi-structured interviews as a method of data collection (Siegel, Lekas, Olson, & VanDevanter, 2010; Teitelman, Calhoun, Duncan, Washio, & McDougal, 2015). Studies have also found that testing decisions of young Black women were often based on assessment of their partners' risks as opposed to their own and they often sought testing after risky sexual behaviors. Further, our findings reiterated the results of previous studies that revealed that young Black women who were involved in intimate relationships were unable to negotiate condom use and safe sex practices with their partners (Crosby et al., 2013; Hall et al., 2014; McLaurin-Jones, Lashley, & Marshall, 2016; Noar et al., 2012; Seth, Wingood, Robinson, Raiford, & DiClemente, 2015).

HIV testing was discussed in the context of gossiping and joking, which ultimately served as a barrier to

women knowing their status. [Hall and colleagues \(2014\)](#) found that Black college students who attended an HBCU reported that the topics of HIV and testing were not seriously discussed in typical day-to-day conversations with their peers. This supported the need for culturally specific prevention interventions to enhance knowledge in this population. Further, campus events that focused on HIV could stimulate serious discussions among women about their risk behaviors and help clarify testing needs. Additional research is needed to explicate outcomes associated with campus educational events.

The participants sought testing after they engaged in unprotected sex or suspected they were at risk for HIV; these findings were concordant with previous research ([Hall et al., 2014](#); [Siegel et al., 2010](#)). In our study, the majority of the women reported having one to three sexual partners in the previous year and most didn't know their partners' serostatus. This was a striking omission given a previous study that found that young Black college men reported, on average, more than 6.5 sexual partners within the past year at the time of query ([Randolph et al., 2013](#)). Future HIV prevention and education strategies should consider programming activities that involve both men and women in an effort to raise awareness of the scope of sexual behaviors in the college population. Accordingly, the sexual history for both sexes reported in our study, as well as past studies, further supports the need to have in-depth discussions about HIV exposure, testing and the disease process ([El Bcheraoui, Sutton, Hardnett, & Jones, 2013](#); [Hall et al., 2014](#); [Sutton et al., 2011](#); [Thomas et al., 2008](#)).

There were strengths and limitations to this study. Hearing the voices and perspectives of Black women was significant in understanding barriers and facilitators to seeking HIV testing and subsequently creating future interventions or programs to increase these behaviors. Conversely, our findings may not be generalizable to all Black women on campus or to Black women who attend other HBCUs. Additionally, our findings may not be generalizable to Black women outside the college environment. Therefore, research with more diverse samples is needed to fully understand how young adult women view and use HIV testing and the impact of social influences. Although the sample was small, it was similar in size to com-

parable studies ([Normansell, Drennan, & Oakeshott, 2016](#)) and thematic saturation was achieved.

Conclusions

In conclusion, the purpose of our study was to use the SEM as a lens to explore the HIV testing behaviors and attitudes of young Black college women enrolled at an HBCU in southern North Carolina. The study fills important gaps in the literature by providing information regarding the HIV testing behaviors, attitudes, and motivation of Black college women. The findings add important knowledge regarding the impact of various levels of influence and can be used to inform culturally relevant approaches to favorably influence the HIV testing behaviors of young Black women.

Disclosures

The authors report no real or perceived vested interests that relate to this article that could be construed as a conflict of interest.

Key Considerations

- Individual, interpersonal, social, and organizational factors contribute to the overall HIV testing behaviors of Black college women ages 18 to 24 years. Factors include timing of HIV testing, lack of awareness of partner testing and behavior, location and type of testing, and peer influence on testing behaviors.
- Understanding structural factors that influence intention for HIV testing among Black young adult women is needed to formulate effective public health policies and design culturally relevant programs and interventions aimed at increasing the number of Black women who know their status.
- Future programming should focus on prevention education that explores timing of HIV tests as well as perceived sexual risk.

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