

Full Length Research Paper

A qualitative assessment of HIV/AIDS-related knowledge in inner-city minority students

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Educational programs and in-school discussion forums are essential components for addressing the ongoing HIV/AIDS epidemic. Sexually active adolescents can greatly benefit from a better understanding of the disease and how its spread can be prevented. Yet, how successful such initiatives are at actually reducing risky sexual behaviors, particularly within underserved, impoverished communities, remains an open question. The present study aims to add to the relatively sparse data regarding HIV/AIDS knowledge and attitudes among inner-city African-American students, a population typically at higher risk for transmission of the disease. Through weekly group discussions held at a Chicago-area alternative high school, we sought to describe, understand, and investigate the strengths and weaknesses of the students' knowledge about HIV/AIDS, including crucial aspects such as the disease's etiology, routes of transmission, and prognosis following infection. By opting to employ a more qualitative methodology, we hoped to provide descriptive information that could be useful to future researchers looking for information on how to best tailor effective educational interventions with this population.

Key words: HIV, educational intervention, urban adolescents, qualitative.

INTRODUCTION

With the AIDS epidemic entering into its fourth decade, media overexposure accompanied by laudable advances in management of the disease has created a considerable public health challenge. There is a growing risk of complacency about the ongoing dangers posed by the human immunodeficiency virus (HIV), especially as public attention in the U.S. shifts to other topics (Swain, 2005). An additional challenge is presented by high-profile celebrities, like Earvin "Magic" Johnson who has successfully controlled his HIV through a rigorous drug cocktail, perhaps leading some to believe that living with HIV has become almost routine (Bruce, 2007). This climate has created an ongoing imperative for school programs to provide both information and a forum for students to discuss HIV/AIDS.

Over the years, a number of investigations have examined the extent to which high school students are

knowledgeable about HIV/AIDS, and educational interventions have been designed to find engaging ways to provide information to adolescents about the risks and encourage them to engage in behaviors to reduce their own risk. A review of the literature, though, reveals declining interest in this topic in recent years (Swain, 2005). Additionally, there is relatively limited information about the knowledge and attitudes of urban youth.

Gauging knowledge of HIV/AIDS and frequency of sexual behaviors in adolescents

How much do adolescents know about HIV and AIDS? As of the late 1980s, Anderson et al. (1990) found that 54% of high school students in the U.S. had some form of HIV/AIDS education in school, and that nearly all students understood that intravenous drug use and sexual intercourse were the two primary ways by which the virus was transmitted. Strunin (1991) reported on data from two studies of Massachusetts' youth and

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found that, while many students were well informed about the risks for transmission of HIV/AIDS, there were notable differences among ethnic groups, with white students showing the highest level of knowledge, followed by African-American, Latino-American, and Asian-American students.

In another investigation using a national probability sample, Kann et al. (1991) found that students were quite knowledgeable about the modes of HIV transmission, but that many students nonetheless engaged in risky behaviors, with 59% of students indicating they had sexual intercourse, and 40% of those students reporting multiple sexual partners. Ellen et al. (1996) utilized a diverse sample of high schoolers and found that students generally did not believe themselves to be at lower risk than their peers for HIV/AIDS, although students who were more anxious about such risks did perceive lower risks for themselves.

Educational interventions

Over the past few decades, a series of interventions have been examined to see how effectively educational approaches can increase adolescent knowledge about HIV/AIDS. Much of this research was grounded in the notion that solid educational approaches had the potential in some cases to reduce risk behavior. For example, Anderson et al. (1990) found that those students who received some form of HIV/AIDS education in school knew more about how the virus was transmitted than those who had not, were less likely to have multiple sexual partners, and were more likely to consistently use condoms. Ashworth et al. (1992) found that a 1-hour school based AIDS/HIV education program was effective in increasing students' knowledge about the virus, and was also associated with increases in students' concerns about acquisition of HIV/AIDS during adulthood. Siegel et al. (1995) found that a multi-session, intensive AIDS prevention program for junior high school students was similarly effective in increasing AIDS knowledge of the participants as well as reducing stigma towards those with AIDS. Kim et al. (1997), in a broad review of 40 HIV/AIDS educational programs, determined that longer duration interventions were more likely to succeed in reducing the number of sexual partners and increasing condom use in participants.

A number of more recent investigations have continued to demonstrate that a range of educational approaches can succeed in increasing AIDS knowledge (Blake et al., 2005; Cunningham et al., 1997; Fisher and Fisher, 1992) and, in some cases, demonstrably decrease risk behaviors, often through the use of peer education techniques (Kirby et al., 2007; Merakou and Kourea-Kremastinou, 2006; Caron et al., 2004; Kirby et al., 2004; Basen-Engquist et al., 2001). The question of whether a peer-based approach is best, though, continues to be

controversial, with some evidence continuing to show that classroom-based interventions may be more effective (Fisher et al., 2002). In addition, researchers are increasingly shifting their focus to secondary prevention approaches for HIV (for example, Fisher et al., 2010).

Urban and African-American youth

In addition to the general literature on adolescent HIV/AIDS knowledge and education, a few investigations have looked more specifically at urban and minority youth and their knowledge and behaviors.

In an early exploration of this issue, Strunin (1991) found that African-American high school students were less knowledgeable than their white counterparts about HIV/AIDS risks, and were also more likely to be sexually active, putting them at greater risk for transmission of the disease. Sikand et al. (1996), in a sample of 771 students described as being from inner city New York schools, found that, consistent with other data, students generally had good knowledge of HIV/AIDS but tended to engage in high-risk behavior in spite of what they knew. In a similar set of findings, DiClemente et al. (1992) summarized compelling data from 1,899 inner city junior high school students and argued that behavior that leads to reduced risk, specifically condom use, was not related to simple "didactic transfer" of factual information about HIV/AIDS; they suggested that more interactive teaching strategies that specifically targeted adolescent self-efficacy would be more effective. Along these lines, St. Lawrence (1993) found in her sample of 195 African-American adolescents that lower belief in an external locus of control was a key predictor of less risky sexual behavior; Boyer et al. (1999) also concluded from their sample of 985 urban ninth graders that STD and AIDS knowledge was unrelated to risk behaviors, while peer affiliation and perceptions of self-efficacy were much better predictors.

Other studies, however (for example, Walter and Vaughan, 1993; Fisher et al., 2002; Jemmott et al., 1992), have found at least modest success with inner city adolescents and a more traditional classroom/didactic approach, and there is mixed evidence about safer-sex versus abstinence-based approaches, with some findings that safer-sex interventions may be more effective (Jemmott et al., 1998), and others finding good efficacy for abstinence-based approaches (Jemmott et al., 2010). Notably, community-based organizations may be a particularly potent vehicle for all such interventions (Jemmott et al., 2010). Brotman et al. (2010) recently found through a qualitative work involving 20 urban high school students that there was a complex way in which students simultaneously discounted and valued school learning about topics like HIV/AIDS. The mixed findings here certainly argue for the need to continue to examine the ways to best address HIV/AIDS with urban and African-

American adolescents.

Study goals

Perhaps because much of the data from the 1980s and 1990s indicated that the level of knowledge for adolescents was reasonably high—though there is often a notable disconnect between this knowledge and actual behavior—there does not seem to be much recent data regarding the knowledge of HIV/AIDS for teenagers in the U.S (Swain, 2005). In light of this trend, the present study aims to contribute to today's relatively low interest in the literature regarding HIV/AIDS knowledge among urban and African-American high school students. We describe what a small group of predominantly African-American, urban high school students know about HIV and AIDS, as well as their attitudes towards the virus. Calls for more detailed ethnographic data date back to the early 1990s (for example, Strunin, 1991); this study is a beginning effort to provide richer descriptive information. While our four-session discussion did not constitute a formal intervention, it did provide the opportunity to gather both a snapshot of the knowledge of HIV/AIDS of a small sample of inner-city African-American students, and some rich descriptive information about their attitudes towards the virus and associated risks.

The essential purpose of this study, then, was to describe, understand, and investigate the perceptions held by a small group of inner city adolescent males about the risks presented by HIV/AIDS. It is imperative to note that our sample was not designed to generalize to a larger population or to set forth sweeping conclusions about how African American youths regard HIV/AIDS. Instead, we aimed to provide descriptive information that could be used for follow up in more extensive research projects, such as those that seek information on how to best tailor effective health education interventions with this population.

MATERIALS AND METHODS

Participants

Twelve students, ages 16 to 20 years, were invited to participate in a weekly men's group program at their alternative high school in Chicago. In a typical week, between 8 to 12 students were in attendance. All students who displayed an interest in men's group were recommended to join unless school facilitators believed that the student's behavior would be distracting to the group. Each participant consented to having his oral and written responses anonymously noted and used for this study. Students under the age of 18 were asked to bring the consent form home for their parent(s) or guardian(s) to sign.

Materials

Each session's discussion was guided by a list of prewritten, semi-structured questions (see Appendix A for a full list of the discussion

questions used). Additional data for the HIV/AIDS-related sessions was provided by assessing students' responses to a 10-question knowledge survey given at the beginning of week one of the HIV/AIDS discussions. The knowledge survey was adapted from the UK-based international AIDS charity AVERT and the brief, true/false 18-item HIV Knowledge Questionnaire (HIV-KQ-18), a well-validated self-report measure of HIV-related knowledge (AVERT.org, n.d.; Carey and Schroder, 2002). Seven of the ten questions were taken from the AVERT's "Easy" and "Medium" online multiple-choice HIV/AIDS quizzes, which address basic but critically important information about HIV's etiology, routes of transmission, and general life prognosis following infection. The remaining three, taken from the HIV-KQ-18, were added to the knowledge survey to gauge participants' knowledge about certain risk factors and self-protective behaviors (see Appendix B). Overall, the results were designed to identify strengths and weaknesses in the students' knowledge about basic aspects of the disease's modes of transmission, pathophysiology, prognosis following infection, and social implications. Any identified gaps in knowledge could then be addressed during the weekly discussions.

Procedure

The men's group sessions were held weekly at the participants' high school during lunch period. Each 1 h session focused on a central theme and was co-facilitated by the authors and one of the school's social studies teachers. The first two sessions of the group were used to build rapport and establish a connection with the participants. Sessions three through six focused on the participants' knowledge and attitudes about HIV and sexual intercourse, and provided education about the public health challenges. This study covers only one portion of the larger men's group curriculum; other sessions were used to explore the participants' experiences during their childhood, their ideas about parenting, and their beliefs about masculinity.

Data in this study was largely qualitative and was collected by taking typewritten notes that described and summarized the participants' responses for each session's discussion. Each session lasted one hour. Approximately 40 minutes were set aside for discussion between the participants and the facilitators. At times, the facilitators would interject to address some students' remarks that may have been inaccurate or simply false (for example, stating that HIV can be spread by mosquitoes). An "exit slip" was provided for each participant to write down any new information he learned as well as pose any questions for the following meeting (see Appendix C for the exit slip document).

RESULTS

Responses to knowledge survey

The eight participants were unanimously aware that condom use reliably reduces the risk of disease transmission (Question 1; 100% correct), and also performed relatively well (87.5%) on questions that addressed three fundamental concepts: the difference between HIV and AIDS (Question 2); whether HIV can be transmitted through casual contact behaviors such as hugging and kissing (Question 3; Madhok et al., 1986); and the long-held misconception that HIV/AIDS affects gay individuals exclusively (Question 4; Cranston, 1992). We also identified four topics about which participants were less confident: 25% did not know HIV can be transmitted

Table 1. Performance on HIV knowledge questions.

No	Question topic	Percent correct (%)
1	Condoms and HIV risk	100
2	HIV vs. AIDS	87.5
3	Casual contact	87.5
4	HIV/AIDS and gays	87.5
5	Presence of HIV cure?	25
6	Oral sex transmission	75
7	HIV pathophysiology	62.5
8	Many sexual partners	37.5
9	Worldwide prevalence	37.5
10	Mosquitoes as vectors	12.5

Eight students were present when the survey was given.

through oral sex (Question 6); only five of eight (62.5%) knew that HIV causes illness by compromising the host's immune system (Question 7); five of eight (62.5%) incorrectly answered that person *must* have sex with many different people to be at risk for HIV (Question 8); and five of the eight participants (62.5%) underestimated the worldwide prevalence of HIV (Question 9). However the two most glaring gaps in knowledge revolved around HIV's treatments and disease vectors—Six of the eight (75%) participants falsely believed that a cure for HIV or AIDS was available for the general public (Question 5); and seven of the eight participants (82.5%) incorrectly answered that mosquito bites were potential paths for HIV transmission (Question 10), reasoning that a widely circulating mosquito helps to establish blood contact among all the hosts it bites, Table 1.

Student comments

Curing HIV/AIDS

Most of the participants in the group were under the illusion that medical science had indeed produced a cure for HIV/AIDS, that is, a medication that entirely eliminates the virus in the infected patients who take them. Several participants described a sensationalist conspiracy theory where the government was forcing the general public to pay hefty premiums to obtain these miracle drugs. This, they said, necessarily left those in the lower socioeconomic rungs—like themselves—empty-handed and out of luck.

Routes of transmission

The participants seemed to have a generally accurate idea of how HIV spreads throughout populations. All of them were well aware that the two main means of unprotected sex—vaginal and anal—are both very

common ways of passing on the infection. However, about half of the students were not certain whether unprotected oral sex could transmit the virus. It was later discussed that oral sex can still lead to disease transmission, although the risk is not as high as vaginal and anal routes. Several participants also correctly mentioned blood transfusions and needle sharing as potential ways of spreading HIV. We finished up our talk on HIV transmission by describing four main bodily fluids that spread the virus—blood, semen, vaginal fluids, and breast milk. We stressed that contact between two individuals that leads to the exchange of these fluids is a viable way of transmitting HIV, and that caution should be exercised before engaging in such behaviors.

Sex, condom use and HIV

The students were overwhelmingly open to being sexually active at their age. They voiced that it is acceptable for young men to begin engaging in sexual behaviors provided that they had at least begun puberty. One participant stated, "If you're ready physically, you're ready for sex," providing a rough age range of 16 to 20 years old. Two other participants believed that turning 18 and going off to college could be another possible milestone to start having intercourse. However, no one in the group believed it was worthwhile to abstain from sex until they entered into long-term relationships or marriages later in life. Additionally, the participants were generally supportive of the thought of their own kids having sex before reaching adulthood, so long as they took appropriate precautions such as using condoms. Interestingly, they also admitted their level of supportiveness would be influenced by their child's gender. That is, they believed they would be less encouraging if their underage daughter became sexually active compared to their son.

Group discussions also revealed the participants had a neutral attitude towards condom use. They claimed condoms dulled the sexual experience both for the man and his partner but generally viewed them as a means to an end. One participant explained how he decided on using a condom despite protests from his female partner that the sex "would not be the same." He argued that the protection from unwanted pregnancies and sexually transmitted diseases took precedence in this scenario.

Prognosis following infection

In recent years, medical science has provided tremendous advances in drug regimens that help to suppress the progression of HIV. Today's antiretroviral therapies have the potential to significantly reduce mortality rates and disability following acquisition of HIV, although they are by no means curative (Justman and El-Sadr, 2010). However, during our discussions it

became evident that the participants underestimated the efficacy of today's very powerful HIV treatments. Indeed, they had difficulty reconciling the fact that those with HIV can still live and productive lives while remaining uncured of the underlying infection. This was made evident when several students used Magic Johnson's story as an example, reasoning that only a cure could explain how the renowned athlete is able to remain alive nearly twenty years after contracting HIV. Unfortunately, this illustrated that the participants were markedly pessimistic regarding the life prospects of those living with HIV/AIDS.

DISCUSSION

In line with many earlier studies (for example, Sikand et al., 1996; Kann et al., 1991; Anderson et al., 1990) we found evidence that our small sample of students possessed a relatively solid understanding of HIV/AIDS. Indeed, it was encouraging to find that the students generally did not endorse many historical misconceptions of the virus, such as believing HIV/AIDS is a "gay" sickness or that the disease can be spread through casual hugging or kissing (Cranston, 1992; Madhok et al., 1986). However, the qualitative themes that emerged from the conversations with the students suggest interesting directions for further exploration.

One of the most disconcerting misconceptions we encountered during the discussions was the rather adamant belief that the U.S. had successfully produced a cure for HIV/AIDS, but as one participant stated, most "simply don't know about it." The students who promoted this theory were entirely convinced that HIV/AIDS is curable and that this cure was simply being withheld from the population, particularly from impoverished individuals; they insisted that the government had the cure but was not willing to bear the expense for the general population. While this theory is distressing insofar as it seems to persist in the absence of evidence and was predominantly argued through the lens of perceived racism, a particularly troubling possibility is that such a misconception may make its proponents less vigilant in their own behavior; in other words, one might reason that there is less of a need to be careful if the disease can be entirely cured.

More positively, our discussions indicated students were relatively well informed of the sexual routes of transmission (e.g., vaginal, anal, oral), as well as other pathways like blood transfusions and needle sharing. However, a majority of students erroneously reasoned that mosquitoes were also potential vectors of the disease, which indicates that while strides have been made in educating students about the facts around HIV/AIDS (Blake et al., 2005; Cunningham et al., 1997), there is more work to be done at the level of basic information. Additionally, the discussions with the students about use of condoms were generally positive. While the majority of the students felt condom use was

not ideal in that doing so dulled their intimate experiences to the extent that sex "was no longer the same," there was also a general consensus that condoms were necessary for preventing unwanted pregnancies and/or sexually transmitted diseases. Some participants even remarked that using condoms was a prime way of showing partners their willingness to take responsibility for engaging in potentially risky sexual behaviors. Our discussions also revealed the participants had few reservations about becoming sexually active before reaching adulthood. Indeed, this was made evident when the participants generally endorsed the thought of their (hypothetical) children engaging in such behaviors at an early age. Interestingly, they qualified this by stating they would be less supportive of their daughter having sex, mainly because they believed women should be more selective with their choice of mates and that society as a whole is far more critical of promiscuous, or "loose" women than of their male counterparts.

Finally, in rather striking contrast to the oft-stated belief in a cure for HIV/AIDS, the students' general perceptions of living with HIV/AIDS were very pessimistic. Using Earvin Johnson's case as an example, several students reasoned only a cure could fully explain how he continues to remain alive for so long after acquiring HIV. Unfortunately, this example seems to illustrate that the participants still regard HIV/AIDS as an undefeatable death sentence and are unaware of today's sophisticated antiretroviral therapies that can provide a patient with ample years of healthy life without curing the underlying viral infection (Antiretroviral Therapy Cohort Collaboration, 2008).

Limitations and avenues for future research

While our study can only be considered a modest snapshot on this complex and important topic and our sample is admittedly small and non-representative, our experience working with these students does suggest some interesting themes and issues for future study. In line with much of the literature on this topic, a simple quiz of HIV/AIDS knowledge indicates that students now often possess accurate information about many aspects of the virus. However, more detailed discussions revealed some specific troubling misinformation, particularly around the issue of a cure for the virus, and the role of the government in withholding such a cure from the public. Researchers and educators would be well-served to understand more about the pervasiveness and origins of this belief, particularly in the African-American community, since it may very well have implications for sexually risky behaviors. Additionally, it would be of great benefit to conduct a more comprehensive, representative survey of adolescent knowledge than what was possible in this study. Doing so could very well help to pinpoint more areas of uncertainty, as well as provide more impactful data that researchers seeking to tailor health

education interventions to this population may find useful.

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Appendix A

Study Interview guide

Sessions 1 and 2

1. What does it mean to be a father? What is your personal definition?
2. How do you think society defines a father? How does society define a mother? Is it easier to understand what a mother is supposed to be?
3. What does being a father have to do with being a man?
4. What are the most important things for a father to do?
5. What are the things a father should never do?
6. In what ways do fathers influence their children? What things do they do that make a difference?
7. What do fathers do that's different from mothers? What do they do that's the same?
8. If you are currently a father, what sorts of things get in the way of being the best father you can be? If you are not currently a father, what sorts of things do you imagine would get in the way?
9. If you are currently a father, what sorts of things help you to be the best father you can be? If you are not currently a father, what sorts of things do you imagine would help?
10. What was your experience with your own father? What things do you want to do like your father? What things do you want to do different from your father?
11. What sorts of things do you hope to learn from this group?

Sessions 3 and 4

The primary goal of these first two interview sessions will be to gauge students' knowledge of HIV/AIDS, the first of two public health issues discussed in this study. We will focus on addressing crucial topics such the disease's mode of transmission, etiology, and biological effects on human life. We will also discuss the role condoms play within the context of HIV and how students view sex at their age.

Ask students the following questions:

1. What is HIV?
2. Do you know how someone gets HIV?
3. Who has HIV? Is everyone at risk for getting it? How many people do you think have HIV in the U.S.?
4. Are there ways for someone to know whether or not they have HIV?
5. Have you spoken to your parents about HIV?

Have students take an online quiz on [avert.org](http://www.avert.org), a popular UK-based HIV information website. The questions can be found at the following link: <http://www.avert.org/hiv-aids-quiz.php>

1. Do condoms prevent HIV? What about birth control?
2. Explain how you would obtain a condom.
3. Do you think condoms are necessary? Would you use them?
4. Have you discussed condom use and birth control with your parents/guardians? How big of a role have they played in shaping your views on those matters?

Have students watch an online video discussing HIV and measures that can be taken to prevent it. The video can be found at the following link: <http://www.youtube.com/watch?v=3VOAGuLEi1A>

1. In what ways would your life change if you had HIV?
2. Do you believe sex at your age is ok? (Religious, moral reasons given?)
3. On a scale from 1-10, with 10 being entirely supportive, how supportive are your parents/guardians regarding having sex at your age?
4. Have your friends lost their virginity? What do you feel about that?
5. Do you have any problem with having sex before marriage? Or do you believe that it's something that should only be done after you're married?

6. Are there any other ways to contract HIV besides by unprotected sex?
7. What should a person do to ensure he does not get infected with HIV? Do you believe you're doing everything that should be done to protect yourself from HIV?

Have students watch an online video about an adolescent male who contracted HIV during childbirth. The video can be found at the following link: <http://www.youtube.com/watch?v=x075Dh7tYLU>

Session 5 — The goal of this session is to better understand students' views on sex and family. From this information we hope to identify any beliefs that may pose as "risk factors" to future HIV infections.

1. Does holding off on having sex until you're married make a person less manly? What about if he uses condoms whenever he has sex? Does that make him any more or less manly?
2. Is sex absolutely necessary for a happy relationship? What things do you feel a relationship needs in order to be a good one, and where does 'sex' rank?
3. Is it ok for teenagers to have their own kids?
4. When is a good time for a couple to have kids? Before/after marriage, or before/after a certain age?
5. Do you feel teenagers are ill-equipped to raise their own children?

Have students watch an online video about the social determinants of teenage pregnancy in California. The video can be found at the following link: http://www.youtube.com/watch?v=Mx_2xSfA70M

Appendix B

1. (T/F) Having sex without a condom increase a person's risk of getting HIV
2. What is the difference between HIV/AIDS?
 - a. HIV is a virus and AIDS is a bacterial disease
 - b. There is no difference between HIV and AIDS
 - c. HIV is the virus that causes AIDS
3. Can you get AIDS from sharing the cup of someone with HIV?
 - a. Yes
 - b. No
 - c. Only if you don't wash the cup
4. Does HIV only affect gay people?
 - a. Yes
 - b. No
 - c. Only gay men
 - d. Only gay women
5. Is there a cure for AIDS?
 - a. Yes
 - b. No
 - c. Only available on prescription
6. (T/F) You can get HIV from oral sex
7. HIV can make a person ill because...
 - a. It makes a person lose weight very suddenly
 - b. It reduces the body's core temperature
 - c. It attacks the immune system
8. (T/F) A person must have lots of sexual partners to be at risk for HIV
9. Approximately how many people are living with HIV worldwide?
 - a. 33 million
 - b. 22 million
 - c. 11 million
10. Can insects transmit HIV?
 - a. Yes
 - b. No
 - c. Only mosquitoes

Appendix C

Exit slip

1. What were some interesting things you learned today?
2. Did anything that you learned today challenge what you thought you already knew?
3. Were you comfortable expressing your opinions in today's discussion? Why or why not?
4. Was there anything within this topic that you felt you wanted to discuss but wasn't mentioned in today's session?
5. During the next session, we will be continuing the discussion about HIV/AIDS. What do you most hope we will cover about this topic?