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PUBLIC HEALTH | RESEARCH ARTICLE

The East African HIV prevention model: Perspectives from HIV-positive male immigrants living in the USA

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Abstract: African-born immigrants have been identified as a high risk population for contracting HIV/AIDS. We used Community Identification processes to interview three types of respondents: 11 HIV-seropositive East African-born men; 11 professionals working with HIV-seropositive East African-born men; and 11 individuals interacting with HIV-seropositive East African-born men. Using grounded theory methodology, we developed the East African HIV Prevention Model which displays four components (demographic factors, stigma, disclosure, education) contributing to high risk behaviors and HIV testing. Our model suggests interventions for targeting community demographic factors, pervasive stigma leading to lack of disclosure, and education in the East African community.

Subjects: African Studies; AIDS & HIV Infection; HIV/AIDS; Men’s Studies; Sexual and Reproductive Health

Keywords: African sexuality; HIV/AIDS; HIV prevention; HIV-positive East African-born men; East African immigrants

1. Introduction

At the end of 2011, an estimated 34 million people were living with HIV/AIDS worldwide (UNAIDS, 2012). While the rate of HIV infection among select African countries has begun to stabilize or

ABOUT THE AUTHORS

This project was initially conceived by Sharon Lund and Bean Robinson, and Connor led the analysis. Ciesinski, Finsaas, and Bichanga assisted in writing and interpretation of findings. Lund has completed extensive public health work in East Africa related to HIV/AIDS prevention. Robinson’s research work has, in part, focused on HIV/AIDS prevention in the African-American community. All authors have been a part of the Somali Women’s Initiative Sexual Health Project – Robinson is the principal investigator, Connor is a co-investigator, Ciesinski and Finsaas are volunteers on the project, and Lund and Bichanga are advisory board members. Bichanga is also a director at a program for people living with HIV/AIDS. Collectively, we represent researchers, community workers, and public health professionals dedicated to prevention of HIV/AIDS in marginalized communities.

PUBLIC INTEREST STATEMENT

HIV diagnosis rates among African-born immigrants are much higher than the general United States population. HIV transmission among African-born immigrants is also very different, including higher rates of heterosexual transmission and lower rates of intravenous transmission. This article identifies key factors that can be targeted in HIV prevention programming for East African immigrant men that are unique to their needs. In order to understand prevention measures more completely, not only were HIV-positive East African men interviewed, but health professionals, family members, friends, and partners of HIV-positive East African men were also interviewed. We found there is a need for programming that targets the wider East African community as a whole. This programming should focus on improving stigma that prevents disclosure, community-wide HIV/AIDS education, and demographic factors. By creating programming that meets the unique needs of the East African immigrant men we could see improvements in overall rates of HIV/AIDS diagnoses.

decrease, sub-Saharan Africa continues to experience the greatest burden of HIV/AIDS. This region represents only 10% of the world's population but accounts for 68% of all HIV infections worldwide (UNAIDS, 2012). In addition to the burden of HIV/AIDS, several areas throughout Africa have endured prolonged political and economic instability. As a result many Africans, including those with HIV/AIDS, have emigrated from their homelands to escape rape, hunger, and war. Countries throughout the world have provided sponsorship to African immigrants, including the United States, where the population of African-born persons increased by more than 750% between 1980 and 2009 (Blanas et al., 2013). Prior to 2010, immigrants were not permitted entry into the United States if they tested positive for HIV during a required medical examination. However, select social service agencies in several states, including Minnesota, were permitted to resettle HIV-positive immigrants before 2010 if these immigrants successfully petitioned for a waiver.

While the number of new HIV infections remained stable in the United States, with approximately 50,000 people newly infected each year, African-Americans experience a disproportionate burden of the disease (Centers for Disease Control & Prevention, 2015a). In 2009, African-Americans represented only 14% of the United States population but accounted for almost half (44%) of people living with HIV/AIDS (Centers for Disease Control & Prevention, 2015b). The contribution of African immigration to the overall HIV/AIDS epidemic in the United States is largely unknown because surveillance methods do not generally separate rates of HIV/AIDS by country of birth. As a result, people born in Africa are often grouped together with African-Americans. Kerani et al. (2008) reclassified cases of HIV/AIDS among African-Americans, separating African-born from African-Americans in eight regions and states, and found that African-born persons accounted for between 3 and 50% of all diagnoses among African-Americans in these areas. Failure by states and regions to separate African-American data from African born data may hide important epidemiologic trends and artificially inflate the rate of HIV/AIDS among African-Americans.

Minnesota is one of only a few states that separate HIV/AIDS statistics of African-Americans from African born. Between 2008 and 2012, African immigrants represented the largest group of immigrants living in the state of Minnesota with over half coming from eastern Africa (Gambino, Trevelyan, & Fitzwater, 2014).¹ Eastern Africa is unique in that it is the second most affected region by HIV/AIDS in the world (United Nations Office on Drugs & Crime, 2013). In Minnesota, African-born immigrants experience the highest rate of HIV infection among any racial/ethnic group reported (56.2 per 100,000; Minnesota Department of Health, 2012). The epidemic of HIV/AIDS in Minnesota reflects national trends in transmission and progression. Although men who have sex with men continue to comprise the majority of people in Minnesota and the nation living with HIV/AIDS, other subpopulations including African-born residents, are observing a rise in their infection rates (Minnesota Department of Health, 2012).

Given the high rate of HIV/AIDS among East Africans living in Minnesota, it is important that the prevention needs of this population be identified and addressed (Minnesota Department of Health, 2011). African-born immigrants are diagnosed at later stages of infection than US-born residents and those who report recent testing did so during the immigration process, not because they perceived their risk of HIV infection (Ojikutu et al., 2013). East African immigrants share a different risk profile than the general population of the United States. There are lower rates of HIV transmission from intravenous drug use and higher rates of HIV transmission among heterosexuals and women compared to the general United States population (Blanas et al., 2013). African-born immigrants also report greater stigma and less knowledge about HIV (Ojikutu et al., 2013).

Any HIV prevention intervention for East Africans should take into account the East African context and culture surrounding HIV/AIDS. *Community Identification* is a formative evaluation stage of Community PROMISE (Peers Reaching Out and Modeling Intervention Strategies), a community-level intervention model targeting the influencing risk factors that put members of a specific population at risk for HIV (Robinson, Galbraith, Lund, Hamilton, & Shankle, 2012; Tashima, Crain, O'Reilly, & Sterk-Elifson, 1996). One of 84 behavioral evidence-based interventions (EBIs) listed in the CDC

Compendium of EBIs and Best Practices, Community PROMISE has been rigorously evaluated by the CDC HIV/AIDS Prevention Research Synthesis project and shown to reduce HIV-related sex and drug risk behaviors in a variety of at-risk populations (Centers for Disease Control & Prevention, 2014; Fishbein, Higgins, Rietmeijer, & Wolitski, 1999; Robinson et al., 2012).

Used to gather useful information about the community context and culture, the *Community Identification* evaluation stage of Community PROMISE contributes to community mobilization by accessing and engaging social networks and building trust and partnership with the community. This process involves interviewing members of the target population (key participants); individuals who work with the target population (systems); and friends, sexual partners, and family members of the target population (interactors). The aim of this research was to develop an initial model to help explain factors associated with HIV transmission in the East African immigrant population that could be useful in developing preventative measures utilizing the *Community Identification* process.

2. Methods

2.1. Sample

We used the *Community Identification* process to conduct 33 semi-structured, 30–60 min face-to-face interviews between September 2007 and June 2009. In keeping with qualitative traditions, we recruited small sample sizes (Kvale, 1996). Three types of respondents were interviewed: 11 HIV-seropositive East African-born men (*key participant level interviews*); 11 professionals working with HIV-seropositive East African-born men (*systems level interviews*); and 11 individuals interacting with HIV-seropositive East African-born men (*interactor level interviews* such as friends, sexual partners, and family members). All respondents were 18 years of age or older and lived in the Minneapolis-St. Paul metropolitan area.

2.2. Recruitment

Multiple recruitment strategies were used for this study. To find systems level respondents, staff contacted various professional organizations in the Minneapolis-St. Paul metropolitan area serving HIV-seropositive East African-born men (i.e. African focused HIV/AIDS community-based organizations, infectious disease hospital clinics, Minnesota Department of Health, etc.). Key participant level and interactor-level respondents were identified and recruited through study staff, East African-born recruiters and snowball sampling. The prospective participants were provided the interviewer's contact information by participants—thus they could choose to share information about the study only with others who knew their sexual orientation and HIV status. For example, some men who were in the same East African HIV-positive support group shared information about the study with one another. The East African-born recruiters included a female medical doctor from the Sudan and a HIV-seropositive male from Barundi, both working as HIV/AIDS health educators in Minneapolis-St. Paul.

2.3. Demographics

Demographics for respondents are displayed for key participants (Table 1) and systems and interactors (Table 2). All key participants were male, HIV-positive, and born in East Africa, with a majority from Ethiopia to the Sudan. Most had been in the US for five years or less, with a range of 5 months–12 years. They ranged in age from 23 to 57, with a majority reporting they had less than a high school education. Most reported that they were proficient in English, with one respondent reporting limited proficiency and two reporting no proficiency. Key participants were either Christian (55%) or Muslim (45%) and all but one identified as heterosexual. Regarding their HIV characteristics, almost three quarters had been diagnosed within the past 5 years; one respondent had been knowingly living with HIV for 13 years. Approximately one third of the key participants had been exposed to HIV through heterosexual intercourse with casual partners, two through sex workers, one through homosexual intercourse, and the remaining four through unknown or other reasons.

The vast majority had been tested for HIV/AIDS upon immigration to the US and the remainder because of AIDS symptoms and the need to access medical care.

System level respondents included administrators for HIV/AIDS community-based organizations; HIV/AIDS social workers, counselors, outreach workers, and case managers; and a physician. The vast majority had a college or advanced degree and almost two-thirds were from East Africa. They were almost equally divided between female ($n = 6$) and male ($n = 5$) and ranged in age from 30 to 56.

The interactors included HIV-negative family and friends including sexual partners, community, and religious leaders who provided counsel to HIV-positive East African men and their families; and HIV-positive family and friends. Almost two-thirds were male; almost all had at least some college, and almost three-fourths were born in East Africa themselves.

2.4. Interview process

The preference of men to discuss HIV-related risk-taking behaviors with individuals from outside their community has been demonstrated using focus groups (Mays, Cochran, & Ponce, 1998). Due to the sensitive nature of this study and the stigma surrounding HIV/AIDS within the small, isolated East African community in Minneapolis-St. Paul, the interviews were conducted by the second author of this manuscript and study coordinator, who was not of East African descent and whom participants were unlikely to meet in their social networks. She is an experienced interviewer and researcher who frequently visited and consulted in East Africa. She met with all key participant respondents before their interview to establish rapport and reassure them about the confidentiality of the study. The study participants were told that we were collecting data to identify an appropriate CDC HIV/AIDS EBI to be implemented in the East African-born community in Minnesota, due to high HIV infection rates in the state. Respondents gave verbal consent to participate in the study, after being read the written consent form which was also explained by the interviewer. The research protocol was reviewed and approved by the University of Minnesota, Institutional Review Board, Human Subjects' Protection (#0605S86046).

Interviews were conducted at multiple locations designated by the participant (i.e. University of Minnesota sexuality clinic, Minnesota Department of Health, HIV/AIDS service agencies, hospital out-patient infectious disease clinics, churches, respondent homes, and the interviewer's home). All but two interviews were conducted in English; two key participant interviews were conducted in Ethiopian and simultaneously translated by an Ethiopian-born translator. Interviews ranged from 20 to 42 min. The topic for key participants was difficult to discuss at length; therefore interviews were shorter than often seen in qualitative interviews. Key participants and interactors were compensated \$50 and \$25 for their time, respectively; systems professionals did not receive compensation. Interviews were digitally audio-recorded and transcribed by a professional transcription service and study staff. Transcripts were reviewed and edited by the study interviewer, as transcriptionists struggled with understanding the African language accents of the respondents.

2.5. Interviews instruments

Two semi-structured interviews were adapted (Robinson, Galbraith, Swinburne Romine, Zhang, & Herbst, 2013; Robinson et al., 2012) for use in this study—one for systems and interactor-level respondents, and another for the key participant-level respondents. An East African-born consultant with an expertise in HIV/AIDS research (Othieno, 2007) assisted with the adaptation of the interview for use within the East African context. The interview included questions about HIV prevention-related behaviors and condom use (e.g. perceived risk, attitudes, and beliefs). The interview was piloted with several members from the HIV/AIDS East-African service community and modified in response to their comments and responses.

Table 1. Demographics of key participants (n = 11)

Characteristic	Range
Age (years)	(23–57)
	n (%)
Gender	
Male	11 (100)
Origin of birth	
East Africa ^a	11 (100)
Immigrated to United States	
5 months–2 years	6 (55)
3–5 years	4 (36)
≥12 years	1 (9)
English speaking (self-reported)	
Proficient	8 (73)
Limited proficiency	1 (9)
No proficiency	2 (18)
Religion	
Christian (e.g. Catholic, Protestant, Lutheran)	6 (55)
Muslim	5 (45)
Sexual orientation	
Heterosexual	10 (91)
Homosexual	1 (9)
Highest educational attainment	
No formal education	1 (9)
Some education	5 (45)
High school diploma	2 (18)
Some college	2 (18)
College degree	1 (9)
Time since diagnosis	
<1 year	3 (27)
1–5 years	5 (45)
6–13 years	3 (27)
Perceived HIV exposure	
Heterosexual intercourse	4 (36)
Sex worker in Africa	2 (18)
Unknown	2 (18)
Homosexual intercourse	1 (9)
Head shaved repeatedly with contaminated blade in African prison	1 (9)
Heterosexual intercourse or exposure to blood as first responder in Africa	1 (9)
Reason for HIV testing	
Immigration	9 (82)
Symptoms	2 (18)

^aEast African country of origin included Ethiopia (n = 5), Sudan (n = 2), Burundi (n = 1), Somalia (n = 1), Eritrea (n = 1), and Kenya (n = 1).

Table 2. Demographics of system participants and interactors

Characteristic	Systems (n = 11)	Interactors (n = 11)
	n (%)	n (%)
Relationship to HIV-positive East African men		
Director/coordinator/manager HIV/AIDS program	4 (46)	
Social worker/counselor/outreach worker	3 (27)	
Case manager	3 (27)	
Infectious disease physician	1 (9)	
HIV-negative family/friends (including sexual partners)		6 (55)
East African community & religious leaders		3 (27)
HIV-positive family/friends		2 (18)
Highest educational attainment		
High school diploma	1 (9)	
Some college		4 (36)
College degree	8 (73)	4 (36)
Advanced degree	2 (18)	2 (18)
Unknown		1 (9)
Gender		
Male	5 (45)	7 (64)
Female	6 (55)	4 (36)
Sexual orientation		
Heterosexual	10 (91)	9 (82)
Homosexual	1 (9)	2 (18)
Origin of birth		
East Africa ^a	7 (64)	8 (73)
Other ^b	4 (36)	3 (27)
	Range	Range
Age (years)	(30–56)	(20–55)

^aEast African country of origin among system participants included Kenya (n = 4), Ethiopia (n = 2), and Sudan (n = 1). East African country of origin among interactor participants included Ethiopia (n = 6) and Kenya (n = 2).

^bCountries of origin among non-East African system participants included the United States (n = 3) and Nigeria (n = 1). Countries of origin among non-East African interactor participants included the United States (n = 1), Nigeria (n = 1), and Liberia (n = 1).

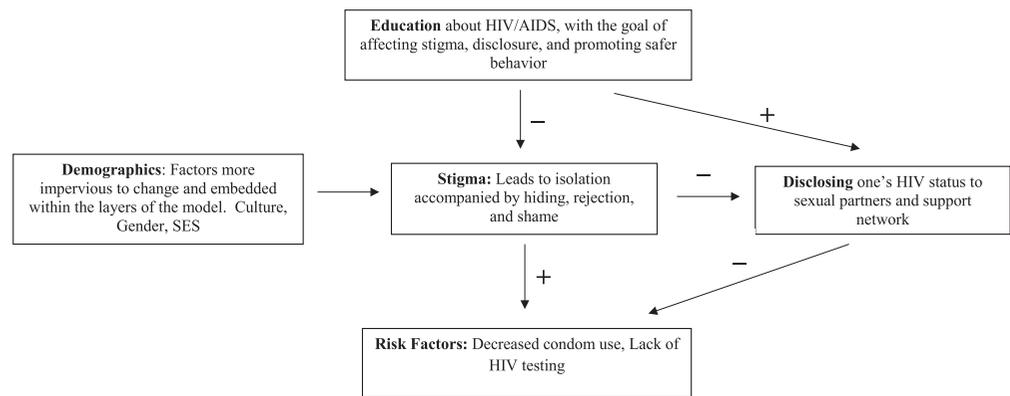
2.6. Data analysis

Data were analyzed using grounded theory methods, as described in Glaser and Strauss (1967) and Strauss and Corbin (1998), with the purpose of creating a conceptual model. Data was organized in NVivo 10 (QSR International Pty Ltd, 2012). Transcripts were reviewed multiple times and coded line by line for emerging categories using open coding by the first author. After categories were identified and codes were defined, transcripts were coded once more using the open codes by the first author. Axial coding was employed to develop connections between overarching themes by reviewing when participants spoke about these themes together. This led to the development of a conceptual model, the East African HIV Prevention Model, to demonstrate the relationships between the themes that emerged.

3. Findings

In conceptualizing the East African HIV Prevention Model (Figure 1), overarching themes identified by respondents' transcripts became the four components of the model: Demographic factors, stigma, disclosure, and education. Linkages between components were identified by analyzing how respondents described or spoke about the relationships between components. Themes described in

Figure 1. The East African HIV prevention model.



the model were identified by the respondents' words but organized and elucidated by the researchers. As depicted in Figure 1, each of the four components is interrelated and embedded within each other. Each component is linked to risk factors.

3.1. Component 1: demographic factors

Demographic factors discussed by respondents consisted of male gender, East African culture, and socio-economic status (SES).

3.1.1. Gender

Respondents discussed how the ideal East African male-born immigrant gender role is that of a proud African male who is expected to be successful in the US. This role contributes to the fact that many East African-born men were unwilling to be tested for HIV/AIDS, were better able to avoid testing than East African-born women (who were tested as part of routine prenatal care), and, once tested, were often unwilling to disclose their positive HIV status to family and friends. Within East African patriarchal societies, women were more likely to be punished for sexual transgressions and blamed for bringing sexually transmitted diseases into the family, even if they were not responsible.

Because if you're an African man in the United States the family look at you as somebody who they're proud of, whom they think one day will come and rescue them. So, you don't want to show that you are in America and chances are you will never deliver the promise. [Key Participant]

3.1.2. East African culture

East Africans have seen many in their home countries die after contracting HIV; this is especially true for our respondents who immigrated before HIV/AIDS treatment was more widely available in Africa (UNAIDS, 2011). Thus, respondents discussed how many East Africans in the US may not know they can live long, relatively healthy lives with medications available in the US—so why bother to get tested and risk disclosure if they are just going to die anyway? Respondents discussed cultural differences between Americans and East Africans in how death is viewed. Because of the substantially higher death rates in Africa, many respondents reported that East Africans were more accepting of death as a part of life than native-born Americans. On the other hand, some respondents thought these frequent experiences with the death of family and friends was likely to create more anxiety around death and dying and HIV/AIDS.

In Africa an HIV diagnosis is death. No treatment. No cure. People don't access meds, so they think you are dying, and it's really a stress. It could kill your parents if you have old parents still living. [Systems]

3.1.3. Socio-economic status

Respondents discussed the limiting impact of the lower SES of East African immigrants and refugees on their likelihood of receiving good preventative care and accessing resources. Respondents discussed the need for free condoms, transportation to access testing, lack of time or low literacy to attend and benefit from treatment or education. Those with fewer resources were more likely to live with roommates and thus lacked privacy to take their medications without having to disclose their positive HIV status. This led them to hide their medications and made it more difficult for them to take their medications as prescribed.

You have to understand the financial burden of the Kenyan community...some individuals work two to three jobs and therefore they really don't maintain that [medication] schedule. And at work, some fear being seen taking the medication. [Systems]

3.2. Component 2: stigma

Respondents stressed that the stigma of being HIV-positive led to isolation and is a critical factor limiting effective HIV prevention efforts among East Africans. Africans living with HIV withdrew from family and community activities and events and kept their HIV diagnosis secret. Secrecy and isolation worked to protect both the HIV positive individual and their family from community stigma—stigma perpetuated by widely held cultural beliefs that HIV is easily transmitted and that persons with HIV are immoral and should be shunned. Respondents noted that many religious leaders helped perpetuate stigma by focusing on the immorality of persons infected with the HIV virus.

In the community when an individual becomes positive, a lot of the time they get isolated ... people abandon them, you know, nobody wants to be seen with them ... it's like this terrible stigma, you know, and it gets so overwhelming and sometimes that isolation kills the person faster than the actual disease. [Interactor]

This – after I am positive, I lose everything. I lose my friends. I lose family. I lose even my future. [Key Participant]

Medical providers have a special role in providing support for HIV positive Africans.

I most talk to my, the other member, the people of my support group and my, mostly my doctors. I have very good doctors and communicate openly about ... everything about my health. [Key Participant]

Respondents identified gender and East African patriarchal culture as two important demographic variables influencing stigma. While women were more likely to be blamed for bringing HIV/AIDS into the family (whether or not they did), being HIV positive was seen as devastating to the perceived power of the East African male. Respondents identified several widespread East African cultural variables as increasing the stigma around HIV: misconceptions about treatment effectiveness and how HIV is spread; a collectivist society that views the sickness of one family member as bringing shame to all family members; a tightly knit culture leading to an interest in and awareness of each other's lives (and illnesses); and strong religious influences that moralize the virus.

3.3. Component 3: disclosure

Respondents acknowledged that disclosure of one's HIV-positive status did not occur frequently in the East African community. HIV-positive key participants reported that they only disclosed their status with their intimate partners—many did not share their status with family and friends, and none were open about it publicly. Interactor and system respondents were much more likely to assert that HIV-positive East African men did not share their status with their wives or partners in order to protect themselves from rejection and to protect loved ones from worrying than key participants.

My relationship with friends and family, I think it's like a fake one cause most of my family and friends don't really know the real me, the real person who is infected and who is kind of a carrying this load. And so, many times I feel like I'm double agent, you know ... which really bothers me a lot, I wish people would know who I am exactly and what I've been living with for the past ten years. [Key Participant]

Respondents identified East African culture as the major demographic variable influencing disclosure of one's HIV positive status to sexual partners, family, friends, and medical providers. Respondents identified disclosure as an important HIV prevention variable that can encourage condom use and testing and disclosure is effected by stigma.

It was a moral issue. You must have been promiscuous; you must have been having multiple sex partners for you to have picked that infection ... Secondly, you were a disgrace to your family. No family wanted to be tainted with that disease. So you'd rather keep it to yourself. And when there's a family expectation, a society expectation, they expect you to get married and raise children. So you quietly do that even when you know that half the time the children are not going to live. Even when you know that you are infecting your wife. [Systems]

3.4. Component 4: education

Education was a pervasive theme—identified by most respondents as most important in minimizing the transmission of HIV in the East African population. Education was seen as vital to increase HIV testing and condom use, understanding of the risks of different viral strains, and disclosure to the partners of those diagnosed with the HIV virus. Respondents saw education as necessary for those who were still HIV-negative, as well for those who were HIV-positive—to teach and motivate HIV-positive individuals to take steps to avoid spreading the virus. Education was described as the best way to eradicate the stigma of HIV in East African culture. Respondents suggested that this education could be best provided by American professionals, East African community members, or a mixture of the two. Several suggested the importance of including religious leaders as an integral part of the educational process.

Education is the only thing. Education and also people coming out and saying that they are positive. [Systems]

Respondents repeatedly linked education to most components and outcome variables in our model. They discussed how education can reduce stigma and high risk behaviors, increase HIV disclosure and increase condom use and testing. On the other hand, high cultural levels of stigma and low disclosure rates limited their motivation to seek and utilize HIV/AIDS education.

3.5. Risk behaviors

Respondents identified important HIV/AIDS risk factors in the East African community: Not using condoms, having sex with sex workers, and using alcohol. While there wasn't consensus on the most frequent risk behaviors, all key participants agreed that condom use was the most important message the East African community needed to hear and follow. System and interactors respondents were most likely to report that East African HIV-positive men did not use condoms regularly and believed that "not liking" condoms and not wanting to disclose their status were the most frequent reasons for not using condoms (i.e. if they used a condom their partner might suspect they were HIV-positive). Other reasons for not using condoms included: Desire for procreation, female partner's refusal, high cost, denial that they could contract HIV/AIDS, religious prohibitions, and the perceived ineffectiveness of condoms. Reasons for using condoms included protection of self and others.

I have to use condom. First, I have to think for the other people. And second, first for myself in order to—I don't have to get another strain of HIV or any more infection. And second, I have to think for the other person and for my partners. [Key Participant]

Generally, the cultural taboo to overcome, especially East Africans. They feel they'll be exiled from the community if they divulge the sickness, and also the general misunderstanding in the general society that a person with HIV is not necessarily infecting everybody else. Better education would be required for both parties, both the patients and also the larger community. Have not seen many targeted educational efforts, although they're starting now with little bit funding here and there. The other thing is engaging the infected person and hammering in and making sure they understand that it is better—disclosure is better for society in general. [Interactor]

Some interactors and system respondents reported that East Africans often waited until they were sick, rather than seeking ongoing preventative health care. Responses of key participants confirmed these observations; no key participant sought testing to find out if they were HIV-positive (preventative), but, rather, got tested as a result of being sick ($n = 1$), in an accident ($n = 1$), as a requirement for life insurance ($n = 1$) or, most commonly, to meet immigration requirements ($n = 8$). There was a common belief that there is no effective treatment for HIV, so why bother to get tested.

4. Discussion

Our East African HIV Conceptual Model was constructed through analysis of 33 interview transcripts of East African-born men diagnosed with HIV (key participants), interactor, and systems respondents. The model was designed to help identify factors that can be targeted in HIV prevention efforts for East African immigrants, who have been identified as a high risk population for contracting HIV/AIDS (Kerani et al., 2008). The model displays four components that should be addressed in effective HIV/AIDS prevention interventions targeting East African-born American men.

4.1. Limitations

Several limitations affect the validity and generalizability of this qualitative pilot study. First, the English of a few key participants was limited but they refused to use an interpreter due to confidentiality concerns; this impacted the length, depth, and quality of their responses. Second, the respondents were a convenience sample living in the Minneapolis-St. Paul metropolitan area and may not represent East African-born key participants, systems, and interactors living in other parts of the country. For example, many key participants were refugees who moved to this metro area due to war or unrest in their home countries. This differs from an African-born sample in Houston where most respondents immigrated for educational opportunities (Rosenthal et al., 2003). Several of the key participants were recruited from an African-born HIV-positive support group and may represent a more HIV/AIDS open and educated sample than other East African-born men living with HIV. Third, we interviewed HIV-positive African-born men from six different East African countries. It is likely that there are important cultural differences between East Africans from different countries which future research can elucidate. Finally, empirical research is needed to test the generalizability, reliability, and overall usefulness of this model. For example, by using a larger quantitative data-set from an East African population living in the US, the pathways described in this model generated by exploratory qualitative data could be tested statistically.

5. Components of the East African HIV prevention model—implications

Our research has indicated the need for HIV prevention interventions to target the specific HIV health needs of East African men who tend to be less likely than women to get tested, treated, or communicate with medical professionals, in general. Foley (2005) and Othieno (2007) also found that women were often tested for HIV while receiving prenatal care, thus making it natural for women to test first and more often. Effective interventions for the East African-born community should target men's needs and develop powerful and creative incentives to encourage East African men to get tested and treated early. Incentives should be designed to help boost men's status in their family and community and encourage men to bring in family and friends for testing and treatment as well.

Cultural context influences the potential efficacy of any intervention (Kleinman, 1980). Thus, effective interventions will need to address the unique barriers to adequate medical care and testing for East African-born men, such as poor English skills, financial concerns, lack of knowledge about the American health care system, and lack of health insurance (Foley, 2005; Othieno, 2007). In addition, several of our respondents were afraid that they might be deported because of their HIV/AIDS diagnosis—an understandable fear given the fact that, with some exceptions for humanitarian reasons, immigrants were not uniformly permitted entry into the United States if they tested positive for HIV until 2010. Respondents also discussed patients' fear that medical interpreters will disclose their private information in the East African-born community and thus may not use a needed interpreter. This cultural experience can result in fear and avoidance of testing following immigration. Respondents identified the cultural belief (arising out of their experiences in Africa) that death will inevitably occur shortly after becoming infected with the HIV virus—making testing and treatment irrelevant. These cultural beliefs and experiences lead many African immigrants to wait to be tested (Akinsete et al., 2007) and even after receiving a HIV/AIDS diagnosis, to wait to treat the disease until they are symptomatic and sick (Othieno, 2007). Effective HIV interventions will need to address all these cultural factors through education via multiple sources and information venues, TV, radio, outreach, mosques and churches, schools, cultural events, etc.

We found that stigma was a major barrier to disclosure about one's HIV status and like Foley (2005), found that stigma may affect willingness to sit in medical waiting rooms, use needed translators, and thus get tested and treated. On the other hand, our respondents reported great affection for their medical providers who helped destigmatize HIV/AIDS by talking openly and demonstrating care for them.

Goffman (1963) discussed how stigma contributes to social isolation as one's friends, family, and acquaintances turn away due to the stigmatized person's characteristic or attributes. Many respondents discussed their fear that loved ones and community members will reject, abandon, and gossip about them and how their stigma will be transmitted to their family members making it difficult for family members to be supportive. Those who are stigmatized find comfort in the company of others with a common stigma (Goffman, 1963). Several of our respondents were in an African support group for those with HIV/AIDS. Although support group participants did not often share their status with friends or community, they reported feeling less isolated as a result of their participation in group. While support groups for those already diagnosed are an important prevention intervention, our professional experience suggests that many Africans would avoid a support group out of fears that they will meet someone they know in the support group.

In many populations, disclosure of one's HIV status is important in the fight against the spread of the virus. Disclosure is associated with increased adherence to medications (Spire et al., 2008) and to increased social support (Smith, Rossetto, & Peterson, 2008). Disclosure of one's HIV status to one's sexual partners combined with the use of condoms is a crucial HIV prevention strategy, especially in the context of poor medication adherence or lack of treatment. Studies among Africans on their disclosure about their HIV status to partners show generally low disclosure rates (Foley, 2005; Othieno, 2007). In our research, key participants reported different behaviors about disclosure than system and interactor. Key participants stated or implied that they disclosed their HIV positive status to their sexual partners, but not necessarily to friends and family. Systems and interactor participants were more likely to say that East African men living with HIV did not disclose their status to their sexual partners. Any HIV prevention intervention with East Africans will need to promote disclosure to partners as well as informing the community about the dangers of assuming that one's sexual partners will disclose their HIV status.

While key participants were knowledgeable about HIV transmission, for many, this education came after receiving their HIV/AIDS diagnosis. Studies of African immigrants to the US and Europe indicate a low level of knowledge of HIV transmission pathways (Lazarus, Himedan, Østergaard, & Liljestrand, 2006; Rosenthal et al., 2003). Education should focus on teaching Africans that one can

live a long time with proper treatment and that treatment will reduce their infectivity to others. By removing common misconceptions about how HIV is spread, such as spending time and sharing space with individuals who are HIV positive, stigma will be reduced.

Interventions need to enlist the help of religious leaders in any community education efforts—not an easy task by any means. Respondents described feeling alienated from their churches and mosques after their HIV/AIDS diagnosis. One respondent suggested that holding programs immediately after church or other religious services would be an effective strategy. If the churches or mosques can host the intervention, that would be even better. Thus, there is a need to develop interventions directed toward religious leaders to help overcome religious prejudices and stigma against HIV prevention and those individuals who are infected with HIV/AIDS.

Condom use rates have been shown to increase among diverse groups in the US when easy access to free condoms at a variety of locations is provided (e.g. convenience stores, liquor stores, bars, beauty/barber shops, motels; Cohen, Scribner, Bedimo, & Farley, 1999). In the East African-born population, condom distribution is complex because giving out condoms is all too likely to be seen as promoting sex, among adults and, especially among adolescents. To our knowledge, there are no studies that have shown that providing condoms increases condom use among African immigrants. Regardless, HIV prevention interventions should increase condom use and accessibility. Services should be in areas easily accessed by public transportation and near where African immigrants live. Recent research has shown that poor condom fit and lacking enough time to put on a condom may contribute to sexual problems and increase condom dissatisfaction (Crosby, Graham, Yarber, & Sanders, 2010; Crosby, Yarber, Graham, & Sanders, 2010). Condom education focusing on these problems could be useful.

6. Community-based interventions

We began this manuscript discussing our use of a formative evaluation method that was part of a community-level HIV prevention model called Community PROMISE (Peers Reaching Out and Modeling Intervention Strategies). We will end by recommending the appropriateness of the adaptation and use of community-level interventions such as Community PROMISE for HIV prevention with East Africans populations.

Our results and model suggest the need for interventions that target cultural structural factors, pervasive stigma leading to widespread lack of disclosure, and community-wide education in the East African-born community. Community-level interventions seek to improve the risk conditions and behaviors in a community through a focus on the community as a whole, rather than focusing on individuals or small groups (Academy for Educational Development, Center on AIDS & community health; Centers for disease control & prevention, 2005) and would seem to be particularly appropriate for the problems faced in the East African community we studied. This focus on altering the social norms held by members of the wider East African-born community by changing their attitudes, norms, and practices through community mobilization and organization, is needed in order to enable change at an individual or group level.

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Competing Interests

The authors declare no competing interests.

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Note

1. The United Nations Statistics Division (2013) defines the eastern region of Africa as including the countries Burundi, Comoros, Djibouti, Eritrea, Ethiopia, Kenya, Madagascar, Malawi, Mauritius, Mayotte, Mozambique, Réunion, Rwanda, Seychelles, Somalia, South Sudan, Uganda, United Republic of Tanzania, Zambia, and Zimbabwe.

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