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Review Article

Sexual Networks' role in high STI Rates among minority populations

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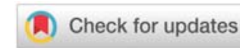

Abstract

The stubbornly high and unequally distributed rates of sexually transmitted infections have confounded sociologists for decades. Why would STIs afflict minority populations at higher rates than majority populations? There was no biological rationale. Only knowledge of causation could hope to mitigate the discrepancy and provide pathways to prevention and cure. Late in the twentieth century, spurred by the AIDS crisis, the scrutiny of sexual behavior met up with the social determinants of health, resulting in the concepts of sexual networks and concurrency. This paper explores how these ideas have helped us understand, explain, and intervene in the unacceptably high and disproportionately distributed STI epidemic.

Introduction

There is some danger that writing about disparities can bolster stereotyping rather than fighting against it. I was fearful of adding to the stigma by pointing out that rates of Sexually Transmitted Infections (STIs) are significantly higher among minorities than among whites in the U.S. – but it is difficult to ignore. Nevertheless, I am sharing my understanding of *why* STI rates are unequally distributed in the U.S. population because to strategize solutions to the ongoing STI epidemic, we need to understand the reasons behind it. The U.S. findings can be extrapolated to any country that finds its STI rates skew to the same graph as their poverty rates, which are usually due to structural racism.

To begin with, research in the U.S. has found that there is little difference in sexual behavior between white WSM (women who have sex with men) and Black WSM [1]. For example, the median number of lifetime sex partners for white WSM was 3.6 compared with 4.1 for Black WSM; 10% of white WSM have had 15 or more male sex partners in their lifetime, compared with 9% for Black WSM [2]. Yet Black women have far higher rates of STIs than white women do. In 2017, the rates for Black women were five times higher for chlamydia, eight times higher for gonorrhea, and five times higher for syphilis [3]. Similar disparities in STI rates exist between Black and white men who have sex with women (MSW) and between Black and white men who have sex with men (MSM) [4]. (Research studies about women who exclusively have sex with women are rare and such research stratified by race is even more scarce.) How do we account for the racial differences in STI rates?

This important question has puzzled researchers for decades, often resulting in inaccurate guesses and speculation that may have contributed to perpetuating racism and sexism.

Not only do Black Americans have higher rates of STIs than do white Americans, but this finding is also true for other minority groups in America – Hispanic Americans, Native Americans and Alaskan Natives, Native Hawaiians, and other

Pacific Islanders – all have higher rates of STIs than do white Americans. What might they have in common that results in more STI cases per capita?

First of all, please note that I am speaking in generalities. This exploration of the issue of disparities in STI rates between Black and white populations in the U.S. requires us to look at population-level data -- information about groups of people. The findings do not, ever, apply to everyone within the groups. I've chosen to focus on the Black-White disparities in STI rates because therein lie the biggest differences, but as noted, we can apply our findings to other minority groups as well.

Secondly, if we want to bring down the high rates of STIs, we need to understand why they are so high so that we can design interventions that address the underlying issues. Research has shown that the effectiveness of telling people to practice abstinence or use a condom is very low. Better approaches are needed.

And lastly, one of the most effective ways to decrease stigma is to understand the fear behind it. People tend to stigmatize the things of which they are afraid. When I was a child, for example, people would only whisper about someone with cancer because they didn't know much about the disease except that it was deadly. Once we learned to understand it, the stigma against cancer has lessened and we are now better able to combat it.

In the field of public health, we talk about the social determinants of health and how they impact countries, neighborhoods, and individual people. According to the U.S. Centers for Disease Control and Prevention (CDC), social determinants of health are "conditions in the environments in which people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks" [5]. These include factors like education, economic stability, neighborhood and "built" environments, health and health care, and social and community context. Where you are born determines a lot about you. One of the differences between Black Americans and white Americans is the environments into which we were born.

History

We can start by taking a look at the U.S. history of the Black environment and how it got to be the way it is. (I have relied heavily on an eloquently written pape [6] by Thomas Farley MD, MPH, who is a professor at the School of Public Health at Tulane University in New Orleans, and whom I will paraphrase and quote directly below).

Hundreds of years of slavery were followed by over one hundred years of racism (which continues today) that impacted education, employment opportunities, housing, voting rights, etc. By the second half of the 1900s, rural farming and American manufacturing had both been disrupted by a shift to a conglomerated farming and business structure and the off-shoring of jobs to cheaper labor markets. The lower-skilled job market dried up, creating high rates of unemployment and lower rates of healthcare insurance in Black and white communities because, unlike other countries, in the U.S., healthcare insurance coverage is tied to employment.

Social capital

Social capital (community networks of banks, businesses, and people that facilitate upward mobility) is built into communities over time. Blacks and other minority groups were systematically denied mortgages and housing in white and affluent communities and few banks and national business chains were located in Black neighborhoods for many generations. With little social capital, individuals have limited opportunities to improve their circumstances through legitimate means. Alternatives like gang membership and drug peddling provide an illegal local economy in which individuals (mostly men) can acquire money and social status. Drug and alcohol use and violence alleviate feelings of boredom, failure, and hopelessness. These factors destabilize communities even further by inviting new drug users in and by driving away those individuals who have acquired legitimate means of social success who could buttress the local community. External forces like alcohol advertising and policing join the community.

"Socially acceptable" norms of behavior are subsumed by drug culture, generational poverty, violence, depression, and other untreated mental health conditions. Minimal income opportunities, daily stressors, substance abuse, and a constricted supply of men (due to high levels of incarceration, or in some cultures, working in far-away locations) undermine marriage, long-term relationships, and strong parent-child bonds. According to Dr. Farley, drug and alcohol use and exchanging sex for drugs increase casual sexual encounters. A community-wide pattern of unstable relationships and casual sex causes dense sexual networks in which reservoirs of STIs are maintained, especially when lack of access to health care (structurally tied to joblessness) limits early medical treatment of STIs. This entire process takes place in both urban and rural communities" [6].

I want to stress that this history of community collapse is not related to race. These descriptions are applicable to both Black and white communities that have struggled with the loss of economic and educational opportunities in post-WWII America. Blacks, in addition to the loss of economic opportunity, have had to contend with structural racism, segregation, and incarceration. In 2022, 8.6% of white Americans lived below the poverty line, while 17% of Black Americans, 17% of Hispanic, and 25% of American Indians and Alaska Natives lived below the poverty line [7]. In the U.S., income is a strong predictor of health. One recent study found that, for women, STI rates were lower in states with higher minimum wages [8,9]. Within any group, the richer you are, the lower your risk of having an STI.

Sexual networks

People tend to associate most closely with the people with whom they interact in their community, at their place of residence, or where they work. Census data indicate that about 60% of communities are racially homogenous, whether due

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to internal factors like personal choice or external factors like segregation. For Black Americans, who make up approximately 14% of the population, this means that their communities consist of a smaller proportion of the total population than for whites, who constitute about 60% [10]. This is, of course, true for all minority groups.

Consequently, minority sexual networks, the groups of people from which one usually finds one's sex partners, are proportionately smaller as well. Partner choices are even more limited by long-standing environmental inequalities that have resulted in low sex ratios (more women than men). Factors that have removed men from minority communities include higher rates of male infant mortality, male adolescent and young adult deaths due to violence, and high male incarceration rates resulting from racial profiling and a focus on Black communities in the "war on drugs" [11]. These factors exist regardless of the economic levels of the community, though they are exacerbated in low-functioning, high-risk communities like the ones I described above.

Concurrency and sexual networks

An individual-related factor that contributes to increased rates of STIs among Black Americans is called concurrency. Concurrency is the practice of having more than one sexual partner at the same time, or overlapping sexual partners during a change between partners. This behavior is more common among Blacks than other racial/ethnic groups in the U.S [11]. While concurrency may be an individual "choice", it is deeply influenced by sociocultural factors. And it has been found to greatly accelerate STI infections within a sexual network. In communities with low sex ratios (more women than men), men are less inhibited about having multiple-sex partnerships [11] and women, especially those with low socioeconomic status, have less power to negotiate condom use, monogamy, and marriage.

Other conditions within the context of Black heterosexual relationships that may contribute to behaviors that imperil Black women's sexual health include the support of disadvantaged Black men by Black women, the silencing of Black girls and women, cultural norms and contradictory messaging about sexuality, and societal expectations and stereotypes rooted in racism, sexism, and classism [12].

Concurrent partners in sexual networks also explain why people in low-risk groups can become infected. Literally one, but usually more than one, sexual encounter with an infected person from a high-risk group can allow an STI to infiltrate, so to speak, a low-risk network. It takes only one or two individuals in the network having concurrent partners to make the risk of being infected with the STI increase exponentially. Because many STIs can be asymptomatic, by the time one person learns of their infection, the STI may have already spread among members of the network.

A woman in a small sexual network is more likely to encounter a sex partner who has an STI than a woman in a larger sexual network, especially if she or her partner(s) are not monogamous. The smaller the network, the larger the impact of the introduction of an STI.

Because of sexual networks, most ethnic minorities have higher rates of STIs than those who live in more diverse communities. When an STI is introduced into a small, tight network, it can spread more easily among the network members who are interacting only amongst themselves. Sexual networks may at least partially explain the higher rate of STIs among some Black women. *This does not apply to most Black women*, yet it provides a thoughtful analysis of some of the factors that may explain the disproportionately higher STI rate among some Black Americans *when looked at through a population lens*. These are not factors of race, but rather they are factors affecting low-income American communities, particularly low-income African American communities.

As with comparisons of Black women and white women's behaviors, there are no significant differences in the prevalence of risky sexual behavior between Black men who have sex with men (MSM) and non-Black MSM [13]. However, Black MSM are more than twice as likely to encounter a sexual partner living with HIV within their sexual network [14]. Because the prevalence of HIV is higher in the Black community, the risk of a Black MSM acquiring HIV from someone within his sexual network is higher per sex act than it is for a non-Black MSM within his sexual network [15].

In general, Black Americans utilize medical services less than white Americans. Researchers have identified a lack of generational modeling of healthcare-seeking behavior, a distrust in the medical system due to unethical past conduct by white practitioners in clinical research and healthcare provision, and a lack of healthcare insurance coverage as factors. Thus, Black Americans living with HIV are less likely to participate in routine medical care and less likely to be taking antiretroviral therapy or pre-and post-exposure prophylaxis (medications taken before (PrEP) or after (PEP) sexual activity that significantly decreases the risk of transmitting or acquiring HIV) than white Americans [16]. This results in sustained levels of HIV within sexual networks and communities. Adherence to daily doses of combined antiretroviral medication can achieve viral suppression to the point where the virus is no longer detectable in the blood. Once that point is reached, the virus is no longer transmissible to a sex partner. This applies to heterosexual, homosexual, and any other sexual activities. With this pharmaceutical achievement, a world without new HIV cases can be envisioned and pursued. For Black Americans, addressing barriers to medical care and pharmacotherapy may be more urgently needed than targeting individual risk behaviors and drug abuse.

The sexual network concept can be applied to the evaluation of other groups and help explain why they may have higher or lower rates of infection than average:

- Substance abusers typically hang out with other substance abusers, often sharing needles or exchanging sex for drugs and money. STI rates are higher in those communities but not necessarily higher in the cities in which they live.

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- Aboriginal peoples and Native Americans have higher rates of STIs than those who live in more diverse communities. In the U.S., Native Americans had the second highest rates of chlamydia, gonorrhea, and syphilis (in women) after Blacks [17]. Limited sexual mixing between these ethnicities and other ethnic groups tends to confine STIs within their networks and make these dense networks more risky [18].

- Many white communities in rural Appalachia have higher rates of STIs than many Black communities in large cities. Yet, in general, cities have higher rates of STIs than rural areas, likely due to population (and social network) density.

- In one southern community, home to two large colleges and two military bases, chlamydia became so pervasive that a particular strain became endemic to the area and was identified by the name of the town [19].

- A large decline in antenatal syphilis in Kenya and South Africa was preceded by steep declines in network connectivity in the 1990s [20].

Conclusion

Because people naturally tend to choose romantic and sexual partners from within their social groups, people whose social groups are constricted by outside forces, like minority groups in the U.S., have a smaller and denser number of potential partners to choose from. Infectious diseases of all types, not limited to STIs, are easily transferred among tightly-knit groups of people. The high rates of COVID-19 infection among American Blacks are one example as are the high rates of STIs. The practice of concurrency, having more than one sexual partner overlapping at one point in time, is another example of an STI transmission accelerator. But it is not only low-income communities who can benefit from this understanding. While poor and stigmatized communities suffer inequalities and often lack services, sexual networks, and concurrency are not limited to such demographics. Other communities throughout the country and in other countries throughout the world would also benefit from the understanding of the impact of sexual networks and concurrency on the transmission of STIs. Some of these include high schools, universities, LGBTQ+ networks, homeless enclaves, tribal lands, congregations, elder villages, etc.

Especially when working with minority populations, factors like network status and concurrency may be more significant factors in the high STI rates than condom use or partner gender [21]. The U.S. Centers for Disease Control and Prevention, who supplied the figures in this essay, conclude that "Inequities in the burden of disease for chlamydia, gonorrhea, syphilis and other STIs by race and Hispanic ethnicity continue to persist at unacceptable levels in the United States. These disparities are not explained by individual or population-level behavioral differences; rather they result in large measure from stubbornly entrenched systemic, societal, and cultural barriers to STI diagnoses, treatment, and preventive services accessible on a routine basis. Some progress has been achieved in recent years in reducing the magnitude of disparities in some STIs, especially for Blacks, but much more needs to be done to address these issues through individual, group, and structural-level health care interventions" [22]. Understanding the role of sexual networks and the practice of concurrency in the STI epidemic leads us to focus on the latter interventions.

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