Spatial Relationships Between Gay Stigma, Poverty, and HIV Infection Among Black and White Men Who Have Sex with Men in Atlanta

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FIG. 1. Perceived gay stigma, HIV status, and census-tract-level poverty by race among an Atlanta area cohort of men who have sex with men (MSM).

COMMUNITY-LEVEL FACTORS, including homophobia, racism, and stigma, have been suggested as drivers of racial disparities in the HIV epidemic among men who have sex with men (MSM).¹ As few analyses have focused on these associations across space, we mapped perceived gay stigma, poverty, and HIV status for black and white MSM in the metro Atlanta area (Fig. 1).

The InvolveMENT study is a longitudinal cohort of black and white sexually active MSM aged 18–39 years in Atlanta, Georgia, recruited from community-based venues and social media from June 2010 through October 2012.² At baseline, MSM were tested for HIV and completed a questionnaire that included an assessment of perceived gay stigma.³ Participant home addresses were geocoded and anonymized by randomly assigning points within a radius of the true point. We obtained the percent of the total population living in poverty in each census tract from the 2010 U.S. Census.

Using kriging, perceived stigma was estimated across the Atlanta area for the entire population and stratified by race. Using stigma estimates for the entire population, stigma was approximately categorized into tertiles at $\frac{1}{2}$ standard deviation above and below the mean for the entire population. Data were analyzed and mapped using ArcMap v10.1 (ESRI, Mountain View, CA).

Of 454 and 349 enrolled black and white MSM, 448 black and 338 white participants had complete data. The spatial distribution of MSM in Atlanta differs by race, with white MSM being highly concentrated in the urban center and black MSM being more dispersed. The extreme racial disparity in HIV prevalence is also apparent. While, overall, black MSM perceived greater gay stigma than white MSM, observed relationships between poverty, stigma, and HIV prevalence differ both by race and spatially. Among MSM living in high poverty areas, black MSM reported greater gay stigma than white MSM. Additionally, black MSM living with HIV were highly concentrated in areas of both high stigma and high poverty, while white MSM living with HIV were concentrated primarily in areas of low stigma and low poverty. Interestingly, in Midtown (an area of Atlanta with a large gay presence), white MSM reported higher stigma than black MSM.

Given the cross-sectional nature of these data, we cannot dismiss the possibility that an HIV diagnosis amplifies perceived gay stigma, rather than gay stigma increasing the risk of HIV acquisition. Alternatively, the observed association

between stigma and HIV prevalence may be confounded by an unknown factor. Additionally, as a subjective value, for any given location stigma could differ among individuals, possibly by race.

However, regardless of these limitations, our maps show that stigma remains a meaningful community-level factor in exploring health outcomes among MSM. Our observed relationships suggest the existence of an interaction between race, poverty, and stigma on HIV risk. These maps show the importance of considering spatial contexts in studies of HIV risk. To clarify these observations, future analyses may establish temporality by using incident cases of HIV and other sexually transmitted infections (STIs) and explore additional community and personal factors (such as perceived racism, depression, and risk behaviors).

Acknowledgments

This work was supported by the National Institute of Mental Health (R01MH085600) and the Center for AIDS Research at Emory University (P30 AI050409).

Author Disclosure Statement

No competing financial interests exist.

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