

Racial disparities in HIV

In *The Lancet HIV*, Steven Goodreau and colleagues report the results of network modelling studies to investigate the sources of disparities in prevalence of HIV infection between black and white men who have sex with men (MSM).¹ The higher prevalence among black MSM is a well recognised public health problem,² and evidence that the number of cases among young black MSM has increased adds urgency to understanding the discrepancy.³ Literature reviews and meta-analyses have consistently shown little difference in reported sexual risk behaviours between black and white MSM, but have also shown that black MSM have lower access to HIV-related medical care, use such care less often, and are of lower socioeconomic status than their white counterparts.⁴⁻⁷ Simulation modelling studies offer the opportunity to investigate the roles of multiple components of HIV transmission risk simultaneously and to construct artificial scenarios to elucidate the role of these components in more detail.

Goodreau and colleagues used state-of-the-art network-modelling methods to reassess factors associated with the difference in prevalence in HIV infection between black and white MSM. The model was based on data obtained from two surveys of young MSM in Atlanta, GA, USA.^{5,8,9} A feature of their analysis is the grouping together of families of related variables into what they call factor sets. By judiciously mixing and matching these factor sets, they could construct and assess alternative hypotheses accounting for the prevalence difference between races. This strategy allowed for efficient hypothesis testing, but the accuracy of the results depends on how accurately the authors conceptualised the definitions of the factor sets. Although the authors' characterisations make good intuitive sense, an empirical confirmation of their validity would be of interest.

Goodreau and colleagues first assessed the effects of participants preferentially reporting sex partners of their own race, which has been postulated to influence racial disparity in prevalence of HIV infection.^{4,10,11} Although previous reports have shown that, for men, sex with a black man per se is a risk factor for HIV transmission,^{8,12} Goodreau and colleagues provide compelling evidence that this risk is not the prime motivator of the racial disparity in prevalence. Furthermore, they appropriately emphasised that observed associations between a partner's race and risk of HIV acquisition should be

interpreted as a call for public health action in affected groups rather than a source of further stigma.

The authors excluded the effects of sexually transmitted infections (STIs) in their models, because inclusion would complicate estimation of the prevalence of HIV infection. HIV transmission is associated with many of the same sexual behaviours that are associated with transmission of STIs. Controlling for STIs therefore reduces the independent effect of those behaviours on the prevalence of HIV infection. Conversely, STIs independently facilitate HIV transmission and disproportionately affect black populations. Racial disparities in STIs could offer a potential path to address racial disparities in HIV: black men diagnosed with STIs who are at risk of HIV could be identified and offered pre-exposure prophylaxis.

The analyses predict prevalence in white MSM with reasonable accuracy in most models. However, prevalence in black MSM only approaches its true value in a model in which black MSM are assigned the higher levels of sexual risk behaviour reported by white MSM. This finding raises the possibility of differential accuracy of self-reported sexual risk behaviour between black and white MSM. Such a differential could also account for the puzzling finding that, despite reporting similar frequencies of HIV testing, HIV-positive black MSM are less likely to report being aware of their HIV status than white MSM.² This discrepancy could be a product of exceptionally high incidence in black MSM, but it is distinctly possible that inaccurate self-reporting of HIV status or testing frequency have a role. In view of historical factors and social circumstances, black MSM could plausibly be more reluctant than white MSM to report stigmatised behaviour, and in Goodreau and colleagues' study, black MSM reported higher levels of stigma-associated sexual behaviour than white MSM.

Differential inaccuracy in self-reported data is a matter of serious concern, because self-reporting is the basis for most of the data for behaviour risk that are of importance to public health policy. Whereas inaccurate reporting results in a loss of power without unduly biasing results, differential inaccuracy across risk groups poses a threat to the validity of survey results. More investigation is warranted to assess the extent of such differential inaccuracy, establish the means to detect it, and consider how to minimise its effects.

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Goodreau and colleagues are notably forthright in reporting the limitations of the explanatory power of their modelling. Their most complete model still leaves 45% of the racial difference in prevalence of HIV infection unaccounted for. The only model that comes close to accurately representing prevalence in black MSM works poorly in white MSM. Evidently, opportunities still exist to make major contributions to understanding racial disparities in the prevalence of HIV infection. The work by Goodreau and colleagues, in addition to its own valuable investigations, can be thought of as an invitation to develop further novel approaches to understanding these racial disparities.

*Richard Davies Burt, Sara Nelson Glick

4715 Latona Ave NE, Seattle, WA 98105, USA (RDB); and Department of Medicine, University of Washington, Seattle, WA, USA (SNG)

richard.d.burt@gmail.com

We declare no competing interests.

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Social change and HIV in Iran: reaching hidden populations

Recent reports from the Iranian Ministry of Health warn that there has been a nearly three-fold increase in the sexual transmission of HIV in Iran, rising from around 13% to 40% during the past decade.¹ A recent study has also indicated that sexual transmission is the main route of infection among Iranian women.² These new findings suggest that Iran's society is facing an alarming shift from HIV infection through syringes shared among injection drug users to sexual transmission.³ This trend is rising, while there is no substantial notice or action from officials because of conservative societal norms. Moreover, because social stigma, discrimination, and criminalisation might deter many Iranians from admitting they are infected, the actual rate of increase might be much higher.

There are many potential factors responsible for this shift such as the growing number of divorces⁴ and social marginalisation of sex workers⁵ and sexual minorities,

particularly men who have sex with men (MSM) and transgender women,⁶ leading to increased prevalence of high-risk behaviours in a setting where HIV prevention education is limited. Lack of official acknowledgment of the existence of sexual minorities hinders the development of comprehensive protective programmes to prevent HIV transmission.⁶ The use of pre-exposure prophylaxis decreases HIV transmission, but lack of recognition of high risk groups has led to inaction in providing this prevention approach to those who could most benefit.

Although the government has taken progressive steps towards drug harm reduction, no education campaign for sexual minorities exists in Iran.⁷ Moreover, there is a lack of adequate efforts to include formal sex education even in schools, often because of prevalent theories that providing accurate information to adolescents about sexual behaviours might promote prohibited