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Mobility and power in HIV transmission

Cathy Zimmerman, Charlotte Watts, Anna Foss and Mazeda Hossain

Social scientists are working with epidemiologists to produce evidence that questions traditional epidemiological HIV 'core group' models.

Epidemiological analysis and mathematical modelling have demonstrated the significance of commercial sex and high-risk behaviours as factors in the widespread transmission of HIV. This has frequently singled out commercial sex-workers as a focal point of the spread of the epidemic. Research in the social sciences has spotlighted the multifaceted complexities of participants in sex work settings, describing their mobility, particular vulnerabilities and heterogeneities. This variation includes the diversity of the sex industry in high- and low-conflict and post-conflict settings where, for example, women may move to locations where military troops are based to sell sex, or where women in refugee settings may sell or trade sex to survive.

Classic 'core group theory' proposes that core groups (those who, when infected, are most likely to spread HIV multiple times) spread infection among a wider 'bridge' population of male clients who may in turn pass the virus to their partners. The identified core group is generally the primary population targeted for HIV prevention and, as such, most likely to be stigmatised. Results from our modelling exercise on HIV core groups suggest the potential significance of police and other men in positions of power for HIV transmission and question the long-held assumption that sex workers form a core group of HIV transmitters.

Shortcomings of classic core group theory

When considering HIV prevention, epidemiological theories can help identify priorities within HIV responses. Core group theory has offered considerable guidance in priority-setting, but, in its simplicity, it may miss important elements of

sex. Large and profitable networks of arms, drug and sex traffickers make it possible to traffic women very quickly to avoid detection. Under these circumstances, sex workers are less likely to form a stable reservoir of the virus. Rather, this model points to the role of men – especially regular sex clients and men who control the sex trade, including pimps and those who provide 'protection' for brothels and sex workers on the street (a group that often includes police) – in transmitting the virus to newly recruited sex workers. We identify scenarios in which this group may constitute a 'sustaining population', because they provide a potentially more stable, long-term reservoir for the virus than do the more transient sex workers whom they infect.

Within classic core group theory, there is an assumption that sex workers are a homogeneous group with equal potential to transmit infection. However, social science research, in particular, highlights the many variables indicating the heterogeneity of this group, including sex worker mobility, age, stage of progression of the disease, access to services and protection, experiences of violence and work environment (e.g. those in regulated brothels compared to individuals in informal settings or transactional and survival sex).

Traditional core group theories predict that the total number of people that an HIV-positive person will infect in a susceptible population is determined, in part, by the rate of partner change. However, there is limited attention given to men who are often central to sex work settings, including non-commercial or non-paying users and those who control or profit from the local sex industry. These are frequently men in positions of power, including pimps, police or soldiers. Importantly, current theories also fail to consider how mobility – the movement of groups in and out of a setting and the length of time in different locations—might influence the risk of transmission and transmission patterns.

We have introduced a new equation to reflect both the number of sexual partners and the average duration that an individual is infectious in a particular setting. This reconfiguration is especially important in commercial sex situations, which often have high levels of both sexual activity and mobility.

In particular, conflict-related sex trafficking may increase the mobility of sex workers while decreasing their ability to control the circumstances of

sex. Large and profitable networks of arms, drug and sex traffickers make it possible to traffic women very quickly to avoid detection. Under these circumstances, sex workers are less likely to form a stable reservoir of the virus. Rather, this model points to the role of men – especially regular sex clients and men who control the sex trade, including pimps and those who provide 'protection' for brothels and sex workers on the street (a group that often includes police) – in transmitting the virus to newly recruited sex workers. We identify scenarios in which this group may constitute a 'sustaining population', because they provide a potentially more stable, long-term reservoir for the virus than do the more transient sex workers whom they infect.

Although there is little quantitative data on key characteristics of sex workers and those who control them to construct verifiable epidemiological models, this theoretical model offers thought-provoking considerations from which to revise current assumptions about the core group. This revised perspective suggests the potentially important, if not central, contribution of the controlling group of men in sustaining HIV transmission in certain settings where there is high sex worker mobility. Indeed, this group's longer duration in a setting may make their influence more significant than that of sex workers, versus in settings where the sex worker population is more stable and the classic theory may be more robust. This suggests that HIV prevention policies and programmes should aim to reach those who control the sex trade by addressing, for example, their risk-taking behaviours and their economic and coercive power over women and girls.

More broadly, there is still limited debate about the underlying power structures and power differentials behind sex work. Current prevention efforts frequently avoid questioning the status quo and the power

that men may have by virtue of their employment, social or economic status, physical power or ruthlessness. In situations of low- or high-level conflict, international resources may inadvertently even place men in these powerful situations and humanitarian agencies and donors may look the other way when this power is used to the detriment of women. If those men empowered by virtue of their

position – such as peacekeepers, camp staff, border control officials and soldiers – are not sufficiently professional, they may create and maintain situations of vulnerability and exploitation and help sustain HIV infection.

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