Understanding the diverse sexual repertoires of men who have sex with men, trans and gender-diverse groups is important for sexually transmitted infection prevention

Daniel Richardson [1,2] Kate Z Nambiar [2,3] Tom Nadarzynski [4]

[1]Sexual Health & HIV, Brighton and Sussex Medical School, Brighton, UK
[2]Sexual Health & HIV, Brighton and Sussex University Hospitals NHS Trust, Brighton, UK
[3]Gender Identity Clinic, Tavistock and Portman NHS Foundation Trust, London, UK
[4]Social Sciences, University of Westminster, London, UK

Correspondence to
Dr Daniel Richardson, Sexual health & HIV, Brighton and Sussex Medical School, Brighton BN1 9PX, UK; daniel.richardson7@nhs.net

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The sexual repertoires of men who have sex with men (MSM), transgender (trans) and gender-diverse groups are poorly understood despite their disproportionate rates of sexually transmitted infections (STIs). The interrelated landscapes and syndemics of the social and sexual behaviour of MSM, trans and gender-diverse groups, and transmission of STIs have changed beyond recognition over the past 20 years.[1–3] We are only beginning to understand the complex and evolving sexual behaviours of MSM in mainly urbanised Western populations such as described in the article by Kilner *et al*.[4] The majority of our understanding of sexual behaviour in the trans population comes from studies of trans women, with much less being understood about trans men and almost nothing about non-binary or other gender-diverse people.[5] Little is also known about the sexual behaviours of sexual orientations such as pansexual or individuals who mainly have sex with trans or non-binary people, for whom we still lack clear terminology. It is time we included all sexual and gender minorities in behavioural and epidemiological research of this kind.

The changes in the complex sexual and social lives of MSM has been driven partly by social networking, information technology and the increasing social acceptability of MSM in some societies. The internet, and in particular geosocial mobile phone apps, have transformed the way and frequency that individuals and groups meet socially and for sex.[6 7] We are now seeing sexual risk behaviour, particularly with the use of pre-exposure prophylaxis (PrEP), in MSM associated with sexual freedom and empowerment.[8] However, for trans women and gender-diverse groups there continues to be disempowerment, with syndemics of drug use, intimate partner violence, mental ill-health and transactional sex driving HIV and other STI acquisition: considerable stigma, discrimination, marginalisation and persecution remain.[9]

In MSM and trans women who do not inject drugs, HIV transmission is predominantly transmitted via penetrative penile–anal sex.[10 11] Design and delivery of effective interventions for the prevention of HIV have focused on penetrative penile–anal sexual behaviours. A combination of effective HIV treatment, HIV treatment as prevention, a significant increase in HIV testing, access to HIV PrEP and vaccines against STIs, as well as interventions improving condom use, have significantly reduced the incidence of HIV in some populations of MSM.[12] Many of these interventions rely on MSM and other at-risk groups accessing clinical or bespoke community services or exposure to interventions mostly in 'gay' venues either real or online, which is why more work is needed among hidden or 'seldom heard' groups.[13]

Simultaneously, we have seen epidemics of infectious syphilis, antimicrobial-resistant gonorrhoea, lymphogranuloma venereum and significant sporadic outbreaks of other less recognised STIs such as *Shigellosis*, hepatitis A and other enteric infections (eg, *Campylobacter*, verotoxin-producing *Escherichia coli*) affecting MSM.[14–16] STI prevalence (other than HIV) in trans people is highly variable but also confounded by many studies not sampling extragenital sites.[17] Their transmission is associated with a broader

repertoire of sexual activities such as oral–genital sexual contact, oro-anal sexual contact (rimming) and fisting, which have not been widely described within sexual behaviour research.[18] Intimate 'sexual' behaviours such as kissing are rarely considered by clinicians and clinical scientists as these are not considered a risk for STIs. Kissing may be important for the transmission of gonorrhoea; however, the intimate act of kissing probably provides significant emotional and physical well-being for MSM and any interventions for STI prevention involving kissing need to be carefully considered.[18–20]

Currently, surveillance and surveys of sexual behaviour of MSM and other diverse groups is limited to addressing sexual activities such as anal, penile and oral sex through convenience samples of MSM where older individuals, gender-diverse people and minority ethnic groups are often underrepresented. Epidemiological modelling, as well as the development and delivery of prevention strategies against STIs, require an in-depth understanding of the ranges and types of behavioural factors affecting susceptible communities and individuals. Thus, we need to understand the demographic, psychosocial and clinical characteristics of at-risk populations, infection transmission dynamics, as well as the individual sexual behaviours and activities that contribute to the transmission of STIs, in order to design the most effective preventative measures. It is crucial to recognise the complex layers of syndemics that interact between sexual, physical and mental health to look beyond sexual behaviours as the main determinant of STIs.

Kilner and colleagues report in this journal issue on a large programme of research conducted at Melbourne Sexual Health Centre.[4] This programme of research has already shown an association between the use of saliva as a lubricant and kissing with the transmission of gonorrhoea in MSM.[19 20] Among 1596 MSM, asked about different sexual activities including 'kissing each other', 'touching penises', oral–anal sexual contact or 'rimming', kissing was the most common activity. Sexual activity with casual partners was strongly associated with age, indicating that younger MSM were more likely to engage in kissing, receptive rimming and receptive anal sex. The sexual repertoire of MSM with regular partners is broader than those with casual partners, particularly among older men.

This work should be of interest to clinicians, clinical scientists and wider public health for designing and implementing clinical services and public health strategies, but should also act as a springboard for future behavioural research of similar scope. The authors have described the sexual repertoire of MSM in an income-rich urban setting but still little is known about MSM from lower socioeconomic settings as well as minority ethnic groups who experience difficulties in disclosing their same/trans-sex practices to a healthcare professional. There is a need to establish a gradient of sexual behaviours in accordance with their risk of STIs from the epidemiological perspective so that the given advice is developed in a sensitive and non-judgemental manner.

Sexual behaviour is highly complex, dynamic and hugely more varied than simply the act of penile–anal penetration.[4 18] We call for research on the sexual repertoire of trans and gender-diverse groups. Understanding sexual behaviours is essential to improving the health of groups and individuals who are disproportionately affected by STIs and poor sexual health. Nevertheless, caution needs to be exercised so that some practices such as kissing, associated with the spread of STIs, are not stigmatised and condemned. Further health education is required to increase awareness of the complexity of sexual behaviours and their direct consequences.

Twitter Kate Z Nambiar @katenambiar

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ORCID iDs
Daniel Richardson http://orcid.org/0000-0003-0955-6307
Kate Z Nambiar http://orcid.org/0000-0001-8591-0203
Tom Nadarzynski http://orcid.org/0000-0001-7010-5308

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