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ILLICIT DRUG USE AND ITS ASSOCIATION WITH SEXUAL RISK BEHAVIOUR AMONG MEN WHO HAVE SEX WITH MEN: MORE QUESTIONS THAN ANSWERS?

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Abstract

Purpose of the review. Use of illicit drug use before or during sex—known as sexualised drug use (colloquially ‘chemsex’ or ‘party and play’)—has evolved as novel psychoactive substances have entered the market in many parts of the world. Here we review key conceptual issues in associations between illicit drug use and sexual risk behaviour in men who have sex with men (MSM).

Recent findings. Though many studies have confirmed that MSM use drugs with greater prevalence than the general population, evidence is of variable quality and a sampling frame is difficult to establish. Moreover, psychosocial hypotheses linking drug use and sexual risk, including cognitive escape and sensation seeking, are unsatisfactory and generally ignore strategic use of drugs for sexual aims. Person-level associations between drug use history and both sexual risk behaviour and HIV infection tend to be consistent around the world, but evidence comparing encounters within subjects is generally unclear and out of date.

Summary. There is a need for interventions for harm reduction targeted at MSM that account specifically for the social and cultural contexts of sexualised drug use. Expanded attention to surveillance of emerging drug use trends can help clinicians in sexual health and infectious diseases best anticipate the needs of their service users.

Keywords: men who have sex with men; illicit drug use; HIV infection; sexual risk behaviour

Introduction

Cross-sectional prevalence studies from many countries have indicated that a higher proportion of men who have sex with men (MSM) utilise a range of illicit drugs than is the case among the general population (1-3), although establishing this difference conclusively is hampered by a lack of studies that consider both groups using the same methodology. Drug use is often culturally situated and can play an important function in the communities of gay and bisexual men who partly comprise the MSM behavioural category. Much of the literature on drug use among MSM has focussed on illicit substances used in 'clubbing', social environments. These include stimulants such as ecstasy or cocaine, or dissociatives such as ketamine, and have been collectively referred to as 'club drugs'.

As new psychoactive substances have entered the marketplace within MSM communities across the world, settings for drug use have changed as well. These newer drugs (including crystal methamphetamine, mephedrone and gamma-hydroxybutyrate/gamma butyrolactone [GHB/GBL]), in addition to possessing similar stimulant properties to ecstasy and cocaine, also commonly have the effect of increasing sexual arousal. As a consequence, use of these drugs is more commonly associated with sex in private homes, or in the context of sex-on-premises venues, such as saunas or bath houses (4, 5). In much of western and central Europe, as well as parts of south Asia, this behaviour has become colloquially referred to as 'chemsex', while in North America and Australasia the term 'party and play' is more commonly utilised.

In this review we focus specifically on *illicit* drug use among MSM and, therefore, exclude discussion of alcohol, or drugs which are commonly available on prescription, such as those that address erectile dysfunction (although, for a review of these issues, see Fisher et al(6)). We begin by outlining the extent of drug use, as understood in those countries where data relating to MSM is available, before exploring the explanations and motivations for using drug – particularly in sexual settings. This is followed by a conceptual review of the literature that describes associations between drug

use and sexual risk behaviour, as well with HIV and STI transmission. We close by considering priorities for future research.

Prevalence of drug use among MSM

The extent of drug use among MSM in most countries is difficult to determine. Sex between men remains illegal in 79 countries around the world, while political and cultural stigma also restricts the collection of data specific to this population. In a majority of countries, national drug surveillance systems do not collect or disaggregate data according to sexual orientation, meaning that estimates of drug use prevalence are largely reliant on community and clinical surveys of MSM. These are often subject to methodological limitations, including the lack of established sampling frame, limitations in the range of settings in which data is collected and varied time periods of reporting (e.g. drug use within the previous 24 hours, 7 days, 1 month, year, ever etc.). Those countries with the most robust, recent and national-level data include: Australia, where a cross sectional survey of MSM in three cities in 2011 identified drug use within the *previous 6 months* to include cocaine 16.0%, crystal meth 10.0%, ketamine 7.5%, GHB 9.9% and ecstasy 25.7%(3), noting a significant decline in ecstasy and ketamine use over the previous seven years; Europe, where the European MSM Internet Study (EMIS)(7) of 2010 reports use of 'party drugs' (a combined measure of ecstasy, amphetamine, methamphetamines, GHB, ketamine and cocaine) *within the previous 4 weeks* to be highest (10.6%) among MSM in Western Europe (France, Republic of Ireland, the Netherlands, UK), followed by MSM in South western Europe (6.6%, Greece, Spain, Italy & Portugal); and Asia, where in the Asian MSM Internet Survey of 2010, a cross-sectional study of 10,861 MSM in 12 Asian countries, 16.7% of participants reported recreational drug use *in the past 6 months*, with ecstasy (8.1%) the most prevalent drug used(8). Among a cross-sectional sample of 625 MSM in Shenyang, China, 23.2% had *ever* used recreational drugs, with the most common illicit substances being methylmorphine phosphate (5.1%), methamphetamine (4.0%) and ketamine (0.8%)(9). Evidence of drug use prevalence in the United States is hard to determine at a total population level due to

state, city and sub-population sampling. In nearly all of the cited instances above, reports of illicit substances relate to use in general and are not specifically tied to use within sexual contexts, reflecting a significant shortcoming in the literature.

In examining available data from across the globe, it is possible to say that most evidence supports the notion that drug use among MSM is generally episodic rather than continuous(7, 10) is a minority behaviour among the population of MSM, and is more common among MSM with diagnosed HIV (7, 8, 11). Trends in drug use among MSM are largely influenced by cultural forces, as well as legal or political restrictions and broader drug market economics (e.g. availability and quality of product). Historically, rates of injection drug use among MSM have been very low in nearly all reporting countries (with the exceptions of Tanzania(12) and Australia(13)), although there is emerging evidence to suggest this may be changing within a Western European context as newly popular drugs lend themselves to injection delivery (5, 14).

Psychosocial hypotheses linking substance use and sexual risk behaviours

Several psychosocial hypotheses associate substance use and risky sex, both specific to MSM and generally. One basic and intuitive explanation is myopia theory, which posits that the effect of substance use on cognitive functioning and the ability to foresee longer-term consequences is what increases the odds of risky behaviours(15). However, past reviews found inconsistent evidence across studies, almost all of which were laboratory experiments on samples of heterosexual college students(16). This disinhibitory process is what could be said to 'cause' sexual risk behaviour as a result of substance use(17). However, this explanation is neither complete nor able to account for the full complexity of linkages between substance use and risky sex, not least because without a randomised trial, a causal effect between substance use and sexual risk behaviour cannot be established(18).

A hypothesis developed specifically as regards substance use and HIV risk behaviour in MSM is 'cognitive escape', which posits that substance use is a mechanism by which MSM can escape the rigorous norms governing gay sexuality in order to engage more freely in risky sexual behaviours(19, 20). This includes expectancies of substance use and sexual disinhibition, which themselves are associated with sexual risk behaviour(21). The theory of 'cognitive escape' has some empirical support. A recent situational association study of a street-recruited sample of MSM in New York City found that the rate of UAI while under the influence of substances in the past three months was predicted by levels of cognitive escape and expectancies(22).

Finally, an alternative explanation for the link between substance use and risky sex is 'sensation seeking', or the desire to pursue the most sensorily powerful sexual experiences(23). Though this theory is intended to have broad applicability, original measurement tools for sensation seeking were developed on samples of MSM(23). A recent review (18) observed that the evidence for the hypothesis in which sensation seeking has a main effect on sexual risk is mixed, possibly because of the importance of contextual and personality factors in determining risky sex behaviours—put otherwise, substance use and risky sex are not determined by each other, but by characteristics inherent in the person combining these two behaviours.

Each of these explanations, however, ignores the role of substance use as a strategic resource in achieving sexual goals. A recently published study of 'chemsex' among MSM in the UK(5, 24) highlights the value MSM ascribe to drug use in sexual settings in terms of facilitating sexual self-confidence or self-esteem, and in overcoming concerns relating to body image or sexual performance. MSM with diagnosed HIV in this study also commonly rationalised their use of drugs as providing an escape from concerns about rejection by sexual partners (following HIV status disclosure) or about accidental onward transmission. The use of mephedrone, GHB/GBL and, in particular, crystal methamphetamine – can facilitate a sense of sexual adventure(25), enabling men both cognitively and physically to engage in sexual practices they may otherwise have considered

taboo or unachievable (such as ano-brachial intercourse [‘fisting’], group sex or extended sexual sessions).

Associations with HIV or other sexually transmitted infections

As the developments in the prevention of HIV continue apace (largely owing to HIV treatments rendering HIV positive MSM uninfectious if used effectively (26, 27)), accurately determining the risk of transmission is complicated, but studies have tended towards conceptualising risk as unprotected anal intercourse with a casual and/or sero-discordant partner (or someone whose status you were unaware of). This is especially true in relation to STIs other than HIV.

To understand links between substance use before sex and sexual risk behaviour, it is most helpful to examine specific sexual encounters(28). A systematic review of encounter-level studies of substance use and sexual risk in MSM found inconsistent evidence for all associations except for those between crystal methamphetamine and UAI and between binge alcohol use and UAI(29).

However, this encounter-level evidence is scant and, in the main, not up to date. A recent encounter-level study(30) that compared sexual encounters within MSM using a sample recruited in the United States found that ‘club drugs’ (by the study definition, MDMA, ketamine and GHB) were associated with an almost 11-fold increase in the odds of unprotected anal intercourse, whereas ‘methamphetamines’ (including both crystal meth and speed) were associated with a three-fold increase. Encounter-level analyses on samples of MSM recruited in England who reported encounters with new partners showed associations between chemsex drugs (crystal methamphetamine, mephedrone, GHB or ketamine) and UAI, and between ‘uppers’ (MDMA, amphetamine or cocaine) and UAI(31). This analysis also showed that while encounters in sex-on-premises venues were associated with decreased risk of UAI as compared to encounters in private venues, in the presence of drug use before sex, sexual risk was elevated and similar across both sex-on-premises venues and private venues. In another encounter-level analysis, MSM living in England

reported that any drug use was associated with increased odds of UAI during group sex, with a three-fold increase in odds of UAI associated with use of crystal methamphetamine(31).

Outside of the UK and the United States, the literature that illustrates the interaction between illicit drug use and sexual risk taking behaviour remains complex and incomplete. Subject to the same methodological limitations identified earlier, a sizeable number of studies have identified broad level associations between the use of illicit substances and increased likelihood of reporting HIV or STI transmission risk sexual behaviour(32-36). Similarly, studies in many countries have identified recent drug use as a factor correlated with HIV or STI infection (37-39).

HIV/AIDS and substance use can be considered syndemic among MSM. Syndemics are two or more co-occurring epidemics in a population for which coexistence creates an interaction effect(40). The conceptual nature of syndemic theory means that it is difficult to test as a causal model. Yet cross-sectional evidence consistently points to the association between several psychosocial health problems, including substance use, and HIV risk behaviours (41, 42). In a community-based sample of young MSM in Chicago, substance use was found to be a key syndemic factor with intimate partner violence, HIV risk behaviours and HIV seropositive status(21). Similarly, in a community-based sample of MSM in New York City, substance use, HIV-positive serostatus and sexual compulsivity were all significantly related to each other and all significantly predicted HIV risk behaviours, including UAI(43). Most recently, Santos and colleagues observed syndemic relationships between substance use, HIV risk behaviours and HIV infection in a global sample of MSM(44). Hirshfield and colleagues(42) found syndemic relationships between drug use and HIV risk behaviour, including group sex encounters, in an online cross-sectional sample of MSM. Clearly, an avenue for further research includes investigating additional conditions and behaviours that play a part, alongside substance use and HIV risk behaviour in syndemic production.

Considering a sexualised drug use agenda

While the last few years have seen widespread media and political concern relating to the role of illicit drug use among MSM in and how it may be contributing to rising STI and HIV incidence in many countries, there is currently limited evidence to support this assumption. That is not to say an association does not exist, but rather that previous research is insufficient to say with certainty. As the profile of drugs used has changed in many part of the world, methodological limitations alongside structural, political and legal barriers negatively impact our ability to fully understand and respond to drug use among this population.

As the preceding discussion has demonstrated, there are many questions about drug use and sexual risk behaviour in MSM for which rigorous and relevant empirical evidence is lacking. While the association between drug use and sexual risk behaviour at the person level is well established, epidemiological analysis of the association between drug use and sexual risk needs to examine encounter-level dynamics. In particular, studies that seek to compare multiple encounters within persons, and that understand how these encounter-level associations are moderated by person-level characteristics, are important to shape an effective public health response. Moreover, there is a demonstrated need for estimates of prevalence of drug use, and of harms related to sexualised drug use, to better understand the scope of this phenomenon. A related issue is improved measurement and consistency of terminology across studies when referring to specific drug exposures.

Another key issue is the development of interventions that address specifically the contexts of drug use within which sexual risk occurs. A systematic review of interventions for HIV risk reduction in drug-using MSM found that interventions were almost all 'therapeutic' in nature and did not seek to address episodic, rather than dependent, drug use(45). However, several recent results have shown that counsellor-guided brief interventions may hold promise for HIV risk reduction in drug-using MSM. Though the overall analysis did not show an effect, a subgroup analysis examining non-

substance dependent MSM found that a personalised cognitive counselling intervention for HIV-seronegative MSM reduced the risk of UAI with non-primary partners as compared to a testing-only control(46). What is clear is that additional research is necessary to develop and refine interventions for reduction of both sexual and drug-related harms in MSM, especially when drug use is not in the context of dependence.

Conclusion

Health and social care professionals are tasked with keeping pace with changing trends in drug use across a demographically diverse, and often socially marginalised, population who have tended to use different drugs and in different contexts than the heterosexual population, using an evidence base that is incomplete. It is crucial that routine drug surveillance in every country take account of MSM, providing an evidence base on the extent of use, and that harm reduction research pay closer attention to the design and evaluation of interventions to support MSM in relation to their sexual health, *and* their broader well-being.

Key points

- Understanding the prevalence and patterns of drug use among MSM across the world is hampered by restrictive legal and cultural environments that discriminate against sexual minorities.
- There are multiple motivations and explanations for using illicit drugs among MSM, which need to be understood when developing related sexual health and harm reduction services.
- While there is a clear association between the use of drugs in general, and engagement in HIV or STI transmission risk behaviour, the current evidence of event-level interactions is insufficient to draw firm conclusions as to their impact.

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Conflicts of interest.

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