Background Men who have sex with men (MSM) are at high risk for both drug abuse and sexually transmitted infections (STI). We aimed to identify subgroups of MSM in Amsterdam with distinctive patterns of drug use during sex and their association with sexual behavior and STI.

Methods In this cross-sectional study, data from four different studies on MSM and transmenine women conducted at the Public Health Service of Amsterdam in 2014–2016 were used. Information on drug use, sociodemographics and sexual risk behavior, including lab-confirmed STI, was collected. K-median cluster analysis was used to identify subgroups with similar drug use patterns, whose association with sexual behavior and STI was examined.

Results A total of 1147 individuals were included. Median age was 40 years (IQR=32–47). Five clusters of users were identified: ‘polydrug’ (n=329), ‘erectile dysfunction drugs’ (EDD) (n=106), ‘nitrites/alcohol’ (n=310), ‘alcohol’ (n=239) and ‘no substance’ (n=163) users. Compared to MSM in the ‘no drug’ user cluster, MSM in the ‘polydrug’ user cluster reported a higher number of substances used (median 0, IQR=0–0 versus 6, IQR=5–7; p<0.001), a higher number of sex partners (median 2, IQR=1–6 versus 20, IQR=10–40; p<0.001), higher proportion of condomless anal sex (48.0% vs 83.8%; p<0.001) and were most often diagnosed with an STI (1.9% vs 22.5%; p<0.001). High STI prevalence was also observed in MSM belonging to the ‘erectile dysfunction drugs’ (17.3%) and ‘nitrites/alcohol’ (17.5%) clusters and was not significantly different from those in the ‘polydrug’ cluster (p=0.229 and p=0.091, respectively).

Conclusion Drug use among high-risk MSM is prevalent in Amsterdam and could be categorized into five distinctive clusters based on the types of drugs used and was associated with various degrees of STI risk. The identification of drug use clusters might enable tailoring STI screening and prevention programs to drug-use patterns.

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