

Sexual Health Vulnerabilities Among LGBTQ+ Populations

A Correlational Analysis of Substance Use Knowledge and Perceptions

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Abstract

Sexual health among lesbian, gay, bisexual, transgender, queer, and other sexually or gender-diverse (LGBTQ+) populations is shaped by individual behaviour, relationships, prevention knowledge, perceived risk, and structural access to care. This article presents an evidence-informed framework for examining correlations among substance use, sexual-health knowledge, perceptions, and vulnerability. Substance use may coincide with changes in inhibition, memory, consent, partner communication, and adherence to human immunodeficiency virus (HIV) prevention, but identity itself does not cause risk. Minority stress, discrimination, violence, economic insecurity, and exclusion from affirming services can influence both substance use and opportunities for protection. A rigorous correlational study should measure event-level substance use, prevention knowledge, perceived susceptibility and benefits, self-efficacy, stigma, service access, and specific sexual-health outcomes. Multivariable analysis can identify associations, potential mediators, and subgroup differences, although cross-sectional data cannot establish causality. Findings should guide layered interventions that combine accurate education with condoms and lubricant, pre-exposure prophylaxis (PrEP), post-exposure prophylaxis (PEP), undetectable equals untransmittable (U=U), sexually transmitted infection (STI) testing, vaccination, sterile equipment, overdose prevention, and affirming care. Ethical research requires community partnership, confidentiality, inclusive sampling, and interpretation that avoids stigmatizing LGBTQ+ people.

Keywords: LGBTQ+ populations, sexual health, substance use, knowledge, perceptions, correlational research, harm reduction

Introduction

Sexual-health vulnerability is often reduced to a list of individual behaviours, such as substance use, multiple partners, or sex without a condom. That approach misses the conditions in which choices are made. A person's exposure depends on the sexual practice, substances and route of use, partner context, consent, access to prevention, and the safety of the surrounding environment. It also depends on whether health services are confidential, affordable, affirming, and available when needed. A correlational study can examine how these factors cluster and identify which modifiable variables deserve attention.

LGBTQ+ identity is not a biological cause of substance use or poor sexual health. Minority stress theory proposes that prejudice, anticipated rejection, concealment, and internalized stigma create chronic stress beyond ordinary life demands (Meyer, 2003). Reviews connect these social pressures with substance-use disparities across sexual and gender minority (SGM) populations (Parent et al., 2019), including transgender and gender-diverse populations (Connolly & Gilchrist, 2020; Pellicane et al., 2025). Structural conditions may therefore act as common

causes: discrimination may increase coping-related substance use while also discouraging testing or disclosure to clinicians. Any analysis must separate identity from the inequitable circumstances surrounding it.

Conceptual Framework

The proposed framework treats sexual-health vulnerability as a multidimensional outcome rather than a moral label. Relevant indicators may include exposure to HIV or other STIs, delayed testing, unmet contraceptive needs, difficulty negotiating boundaries, nonconsensual experiences, overdose, sharing injecting equipment, and inability to obtain prevention services. Condomless sex should not automatically be classified as unprotected. HIV exposure is modified by PrEP, PEP, and viral suppression, while condoms remain important for reducing many STIs and pregnancy. Effective antiretroviral therapy that maintains an undetectable viral load prevents sexual transmission of HIV, which is the evidence base for U=U (Rodger et al., 2019).

Three predictor domains are central. Substance-use measures describe what is used, how often, by which route, and whether use occurs before or during sex. Knowledge measures assess accurate understanding of transmission, condoms and lubricant, PrEP, PEP, U=U, testing, vaccination, sterile equipment, and overdose response. Perception measures assess susceptibility, severity, benefits and barriers, peer norms, stigma, trust, and self-efficacy. The domains may interact. Knowledge may protect only when a person believes prevention is relevant, feels able to use it, and can reach a service without discrimination.

Substance Use and Sexual Context

Alcohol and other drugs can influence attention, inhibition, arousal, memory, session duration, and communication. Stimulants may prolong sexual activity, while sedating substances may impair coordination and the ability to give or withdraw consent. Polydrug use makes effects less predictable, and injecting can add blood-borne infection risk when needles or preparation equipment are shared. These pathways are probabilistic rather than automatic. Many people use substances without experiencing sexual harm, and the same substance can have different effects according to dose, tolerance, setting, and expectations.

Sexualized drug use (SDU) refers broadly to intentional substance use in connection with sex. Chemsex is a narrower, culturally specific term most often studied among some gay, bisexual, and other men who have sex with men (GBMSM). A European systematic review found wide variation in definitions, substances, and prevalence estimates, limiting comparisons across studies (Coronado-Muñoz et al., 2024). Research in East and South Asia likewise shows that definitions and methods affect estimates and interpretation (Nevendorff et al., 2023). Evidence is much thinner for sexual minority women, transgender men, nonbinary people, rural populations, and people outside high-income settings. Researchers should ask behaviourally specific questions instead of assigning chemsex or risk from an identity label.

Motivation is also important. People may use substances to increase pleasure, intimacy, confidence, or belonging, or to manage anxiety, dysphoria, trauma, or internalized stigma. A survey that records only frequency cannot distinguish these pathways. Qualitative evidence suggests that participants may value connection and sexual exploration while also reporting unwanted psychological, relational, or health effects (Bourne et al., 2015). Correlational models should therefore include motives, minority stress, social support, and mental health as possible confounders or mediators.

Knowledge Perceptions and Protective Behaviour

Knowledge is necessary but rarely sufficient for protection. A respondent may know that PrEP prevents HIV yet believe it is not intended for someone of their gender, fear being judged when requesting it, or lack transportation to a clinic. Another may know that PEP exists but not know where to obtain it or that it must be started promptly. The

Centers for Disease Control and Prevention (CDC, 2026) describes PrEP as medication for people without HIV who may be exposed through sex or injection drug use. PEP is an emergency measure that must begin within 72 hours of a possible exposure (CDC, 2024). Questions should assess both factual knowledge and practical access.

Perceived susceptibility can influence testing and prevention uptake, but inaccurate risk appraisal can move in either direction. Underestimation may delay care; exaggerated fear may reinforce stigma, anxiety, and unnecessary avoidance. Perceived benefits and self-efficacy help explain whether knowledge becomes action. Trust also matters. Previous discrimination or breaches of confidentiality can make a technically available service feel unsafe. Measures should distinguish personal attitudes from anticipated reactions by partners, families, clinicians, or community members.

Prevention knowledge should extend beyond HIV. Participants may need information about site-specific STI testing, hepatitis and human papillomavirus vaccination, pregnancy prevention, reproductive coercion, sterile injecting equipment, naloxone, and consent during intoxication. WHO identifies condoms and lubricants, HIV and STI testing, PrEP, PEP, sterile needles and syringes, naloxone, and opioid agonist treatment as essential services for key populations (World Health Organization [WHO], 2025). A composite knowledge score should retain clinically meaningful subdomains so that one strong area does not conceal a critical gap in another.

Correlational Study Design

A cross-sectional correlational design could recruit adults through community organizations, clinics, social media, and peer networks. Stratified recruitment would improve representation across sexual orientation, gender identity, age, race or ethnicity, geography, disability, and socioeconomic position. Eligibility and consent materials should avoid requiring disclosure beyond what is necessary. Private survey completion, data minimization, encrypted storage, and a clear separation between identifiers and responses are especially important where same-sex behaviour, gender diversity, drug use, or sex work may attract legal or social harm.

Measures should use defined recall periods and validated scales where appropriate. Substance variables should include type, frequency, route, binge pattern, sexualized use, polydrug use, and event-level timing. Knowledge items should be scored against current guidance rather than participant agreement. Perceptions can be measured through susceptibility, benefits, barriers, norms, stigma, trust, and self-efficacy scales. Outcomes should record specific sexual practices and protections, recent testing, STI diagnosis, prevention uptake, consent difficulties, overdose, and service avoidance. Anatomy and practices should be asked directly because identity does not reliably predict clinical need.

Analysis can begin with descriptive statistics and reliability testing, followed by bivariate correlations and multivariable regression. Models should adjust for plausible confounders selected before analysis, including age, socioeconomic position, minority stress, mental health, and access to care. Interaction terms can test whether knowledge is more protective at higher self-efficacy or whether stigma weakens the association between knowledge and service use. Mediation analysis may explore whether perceived barriers partly account for the link between minority stress and delayed testing, but temporal language must remain cautious when all variables are measured once.

Interpreting Associations

A positive correlation between substance use and vulnerability would show that the variables occur together in the sample; it would not prove that substance use caused the outcome. Vulnerability could precede coping-related use, or both could reflect trauma, poverty, discrimination, or network exposure. Reverse causation and residual confounding remain possible even after statistical adjustment. Effect sizes and confidence intervals should receive

more attention than statistical significance alone, and missing data, multiple testing, and model assumptions should be reported transparently.

Subgroup analysis requires balance. Combining all LGBTQ+ participants may conceal important differences, but small cells can produce unstable estimates and threaten confidentiality. Researchers should predefine the comparisons that are scientifically justified, consult community advisers, and suppress identifying combinations when needed. Results should never portray one subgroup as inherently risky. The appropriate interpretation focuses on modifiable conditions, such as inaccurate information, inaccessible services, violence, or stigma.

Implications for Prevention and Care

Correlations can help target interventions when they are translated carefully. If low PEP knowledge and service uncertainty are linked with delayed presentation, programmes can pair brief education with a 24-hour referral route. If knowledge is high but perceived stigma predicts nonuse of PrEP, additional facts alone are unlikely to solve the problem; confidential access and staff behaviour require attention. If sexualized polydrug use correlates with overdose and consent difficulties, services can integrate naloxone, safer-use planning, consent support, STI care, and referral for substance-use treatment according to the person's goals.

Harm reduction should be practical, voluntary, and sex-positive. Useful components include condoms and compatible lubricant, PrEP choice and adherence support, rapid PEP access, site-specific STI testing, vaccination, sterile equipment, overdose response, and plans for boundaries or emergency help. A systematic review found a limited evidence base for chemsex interventions but identified promise in accessible, individualized, nonjudgmental, and peer-informed approaches (Del Pozo-Herce et al., 2024). Integrated care reduces the burden of navigating separate sexual-health, mental-health, substance-use, and gender-affirming services.

Nurses and other frontline professionals can ask whether substance use occurs in sexual situations and follow a positive response with questions about consent, overdose, injecting, prevention, mental health, and the person's priorities. Screening is useful only when it leads to support. Programmes should therefore maintain referral directories, same-day pathways where possible, and staff training in LGBTQ+-affirming communication. Community members should help interpret findings, design messages, and decide which outcomes matter. Their involvement improves relevance and helps prevent the analysis from reproducing stigma.

Limitations and Research Priorities

Cross-sectional surveys are vulnerable to recall error, social desirability bias, nonprobability sampling, and common-method variance. Clinic samples may overrepresent people already connected to care, while online recruitment may exclude those with limited access or expose privacy concerns. Future studies should combine longitudinal surveys with event-level diaries and qualitative interviews. Repeated measurement can clarify whether changes in knowledge or perceptions precede changes in behaviour, while interviews can explain why statistically similar participants make different decisions.

Research should also broaden its population coverage and evaluate protective factors. Social support, community connection, resilience, affirming relationships, and trusted services may buffer the effects of minority stress. Studies should report measures precisely, avoid treating condom use as the sole outcome, and include prevention technologies such as PrEP and U=U in risk classification. Ethical protocols should provide referral information for sexual assault, overdose, acute mental distress, HIV or STI testing, and substance-use care.

Conclusion

Sexual-health vulnerability among LGBTQ+ populations emerges from relationships among substance use, knowledge, perceptions, and structural access to protection. Correlational research can identify how these factors

cluster and which modifiable barriers warrant intervention, but it cannot establish causal direction without stronger temporal evidence. The most useful studies measure behaviour and protection specifically, represent diverse communities, protect confidentiality, and interpret associations within minority-stress and health-access contexts. Findings should support layered, community-informed prevention that combines accurate knowledge with practical resources, affirming care, and harm reduction.

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