

Review

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Review

Evaluating the Determinants of Drug Use in LGBTQIA+ Adolescents: A Scoping Review

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Abstract: Background: Research has consistently shown increased drug use among lesbian, gay, bisexual, transgender, intersex, queer/questioning, and asexual (LGBTQIA+) individuals. This is particularly the case among LGBTQIA+ adolescents. Substance use within this vulnerable community can propagate mental health issues leading to psychiatric disorders, self-harm and even suicide. Therefore, the objective of this scoping review was to evaluate the determinants of drug use among LGBTQIA+ adolescents. **Methods:** A comprehensive search of mainly primary research was conducted using several databases. Peer-reviewed articles published between 2018 and 2023 were included. The scoping review was conducted using the framework outlined by Joanna Briggs Institute (JBI) and reported using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses- Extension for Scoping Reviews (PRISMA-ScR) statement. **Results:** A total of 29 articles (including 400194 participants) were included in the analysis. The articles reported that the main determinants of drug use among LGBTQIA+ adolescents include homelessness, peer-peer interactions, mental health, and protective factors. The articles reported that mental health issues, which are mainly triggered by rejection, were the main determinants of drug use among LGBTQIA+ adolescents. **Conclusion:** Findings from this scoping review provide relatively reliable evidence that homelessness, mental health, peer-peer interactions, and protective factors are the main determinants of illicit drug use among LGBTQ+ adolescents. Rigorous studies that include large sample sizes, and systematic reviews are needed to further confirm these findings and assist in developing interventions to combat the unusually high level of drug use among this group.

Keywords: adolescent; drug abuse; illicit drug use; LGBTQ+; risk factors

1. Introduction

Illicit drug use continues to be a worldwide public health issue that is slowly expanding its negative effects to every corner of the globe. If the expansion of drug use and abuse is a nightmare, then the development of new synthetic drugs is akin to Armageddon. Recent data from the United Nations Office on Drugs and Crime (UNODC) World Drug Report of 2022 reported record rises in illicit drug manufacturing that has been coupled with an increase in illicit drug use worldwide (UNODC, 2022). It is currently estimated that approximately 284 million people between the age of 15-64 years have used at least one illicit drug within the past 12 months. This is a dramatic 26% increase when compared to the number of reported users in 2010 (UNODC, 2022). This dramatic increase in illicit drug use is likely due to global population growth, or an expanding drug market. The number of global illicit drug-related deaths has also increased in recent years. This may be due to the increase and expansion of synthetic opioid manufacturing, namely fentanyl. In the United States alone, there were over 100,000 illicit drug overdose deaths in 2021. This is a dramatic increase in drug overdose related deaths when compared to the 50,000 deaths reported in 2015 (D'Orsogna et

al., 2023). As the number of illicit drug users increase worldwide, so do the social, human, health and economic costs; ultimately manifesting as drug-related violence, increased crime rates, legal orders, rehabilitative services and reduced work capacity/productivity (Cartwright, 2008).

There is an increased susceptibility to illicit drug use within certain populations in our society. Research has consistently shown increased illicit drug use in the following populations: young people, those with mental health conditions, and lesbian, gay, bisexual, transgender, intersex, queer/questioning, asexual (LGBTQIA+) people (Australian Institute of Health and Welfare, 2023).

Individuals within the LGBTQIA+ community constantly face negative stigma and micro-aggression in their day-to-day lives. This ongoing homophobia, bullying, discrimination and peer/familial rejection results in the development of mental scars that ultimately manifest as mental illnesses. The ongoing stressors encountered by sexual minority individuals form the basis of the Minority Stress theory that states that LGBTQIA+ individuals encounter various stressors that accumulate, producing poor mental health (Meyer, 1995). This is one possible explanation as to the mental health disparities seen in sexual and gender minorities when compared to their heterosexual counterparts (Meyer, 1995). To cope with mental health issues, stigma, or prejudice, many LGBTQIA+ people often turn to unhealthy coping mechanisms, so to lessen the daily pressure exerted on their mental health and wellbeing. One common mechanism explored by the LGBTQIA+ community is the use of illicit drugs. A recent study showed a significant association between identity (sexual orientation or gender) related distress and drug use, especially among queer adolescents (Goldbach et al. 2014). When compared to heterosexual adolescents, queer adolescents were approximately 190% more likely to consume illicit drugs (Marshall et al., 2008). During adolescence, the neuro-developmental process of cognitive functions is not fully developed, making this group extremely susceptible to experimentation and addiction (Degenhardt, 2016; Luikinga et al., 2018).

Given the increasing trend in drug trade/trafficking as well as the number of people belonging to sexual/gender minorities, particularly those of adolescent age, and, given the significant negative consequences associated with illicit drug use, particularly among adolescents, this scoping review aimed to evaluate the determinants of drug use in LGBTQIA+ adolescents.

2. Research Design & Methods

Basic Framework

A comprehensive scoping review utilising the "Joanna Briggs Institute (JBI) methodology for scoping review" was performed. This search framework was first suggested by Arksey and O'Malley in 2005 (Aromataris & Munn, 2020; Peters et al., 2017). The guidelines established by the Joanna Briggs Institute (JBI) for conducting a scoping review consists of the following steps: developing the research question (s)/topic, identifying relevant literature, selecting literature that meets the inclusion criteria, extracting results from the selected literature, and presenting results (Peters et al., 2020).

A scoping review of the literature was considered an appropriate method given the aim of this scoping review. The scoping review was conducted using the framework outlined by the Joanna Briggs Institute (<https://jbi.global/scoping-review-network/resources#>) and reported using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses- Extension for Scoping Reviews (PRISMA-ScR) statement (Moher et al., 2009). The search strategy employed an iterative process, and was guided by the primary questions: 'What are the determinant of drug use among LGBTQIA+ adolescents?'

A literature search was conducted in PubMed, ProQuest, and CINAHL to identify articles published between 2018-2023, using a combination of keywords and MESH terms for Adolescent, drug use, LGBTQ+, youth, and risk factors. Keywords including "Adolescent*", youth, drug abuse, drug use, LGBTQIA+, LGBT* and risk factors" were used, and Boolean operators "OR", "AND" were used as required. Multiple databases were chosen for this study to improve results and reduce the risk of overlooking any eligible studies that could be used during our final appraisal (Ewald, et al., 2022).

Article titles and abstracts were initially screened against the inclusion criteria to determine which articles would undergo full-text review. Then, the full text of the resulting articles was

reviewed for inclusion. Also, the reference list of all included articles was searched for additional articles. Articles that were considered for inclusion were: those that included participants who were both sexual minorities and adolescent populations, peer-reviewed articles, published in the English language, and published between 2018-2023. Given that there are multiple definitions for the adolescent age group, we utilised the World Health Organization (WHO)'s definition of adolescents. According to WHO, adolescents are defined as individuals within the second decade of life. That is, those that are 10-19 years of age (WHO, 2019). We have also limited the inclusion criteria to only include articles that were published within the previous five years. This ensured that the analysis reflects the present status of drug use among the target cohort. Also, this time frame revealed drug use trends following the COVID pandemic which has resulted in changes in drug consumption, with its consequential mental effects that occur due to drug use, withdrawal, and overdose (Loi et al., 2022). Exclusion criteria included articles that focused on the target cohort's adult counterparts. We included articles that provided original data (e.g. randomized controlled trials and observational studies) as well as systematic reviews.

Once data extraction was completed, Braun and Clarke's approach to thematic analysis was utilised to evaluate the data (Braun and Clark, 2006). This approach consists of six phases: 1. getting familiar with the data; 2. producing initial codes for the data; 3. searching for potential themes; 4. reviewing themes; 5. defining and naming themes; and 6. reporting and analysing themes (Braun and Clark, 2006). Phase 6, which involved reporting and analysing findings was completed using the Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) guidelines.

The PRISMA flow diagram was followed for study identification and to select the articles to be included in the final analysis. Articles retrieved from PubMed, ProQuest, and CINAHL databases were compiled within the Mendeley citation manager and duplicates were removed. The remaining articles were analysed using their titles and abstracts for screening against the eligibility criteria. Following this, the articles underwent a full-text review, and those that were not relevant to the research question were eliminated from the final pool. Findings were further summarised using an iterative coding process. These were used to develop a series of categories that broadly captured the determinants of drug use among LGBTQIA+ adolescents.

3. Results

3.1. Search Results

A total of 10,081 articles were initially identified within the three databases (PubMed, EBSCO, and ProQuest). After removing duplicates (n=114), 9967 articles underwent our screening process following the PRISMA chart used in systematic and scoping reviews yielding a total of twenty-nine articles to be evaluated for this review (Figure 1).

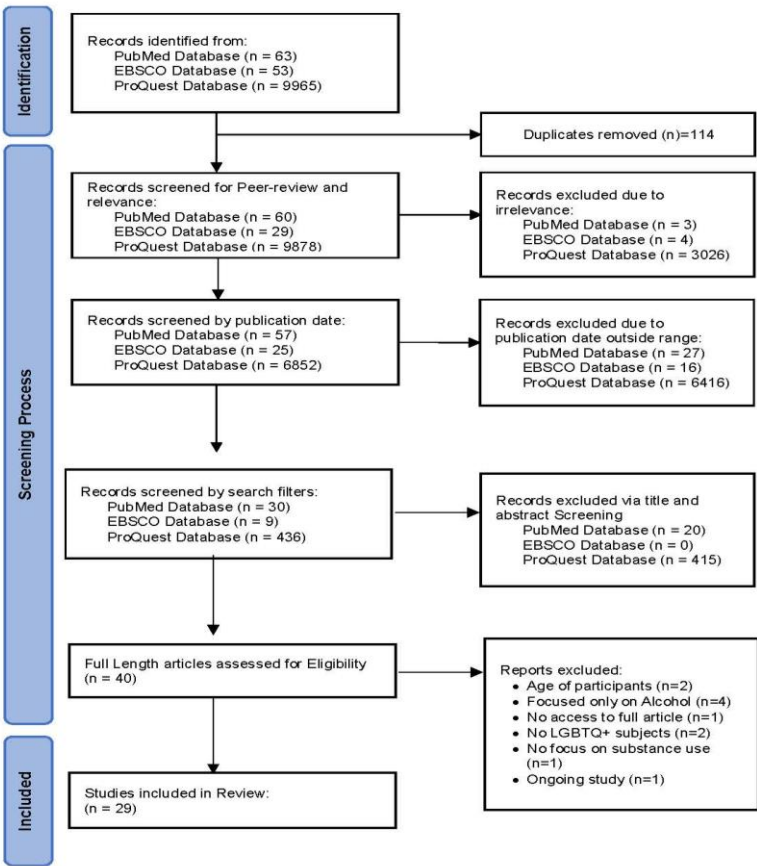


Figure 1. Review PRISMA Flowchart.

3.2. Studies Characteristics

All included articles were published between 2018 and 2023 and predominantly utilised quantitative methodologies. Eighteen articles were published in the United States of America (USA). The remaining studies were spread across a few countries: New Zealand, Australia, Thailand, South Africa, Canada, Singapore, and Brazil. See Table 1 for detailed characteristics of the included studies.

A narrative account was prepared from the included studies, to evaluate the determinants of drug use in LGBTQIA+ adolescents. Notably, most articles examined multiple determinants simultaneously. Based on the research question, the extracted data was segregated thematically into four main themes (Figure 2). These are as follows:

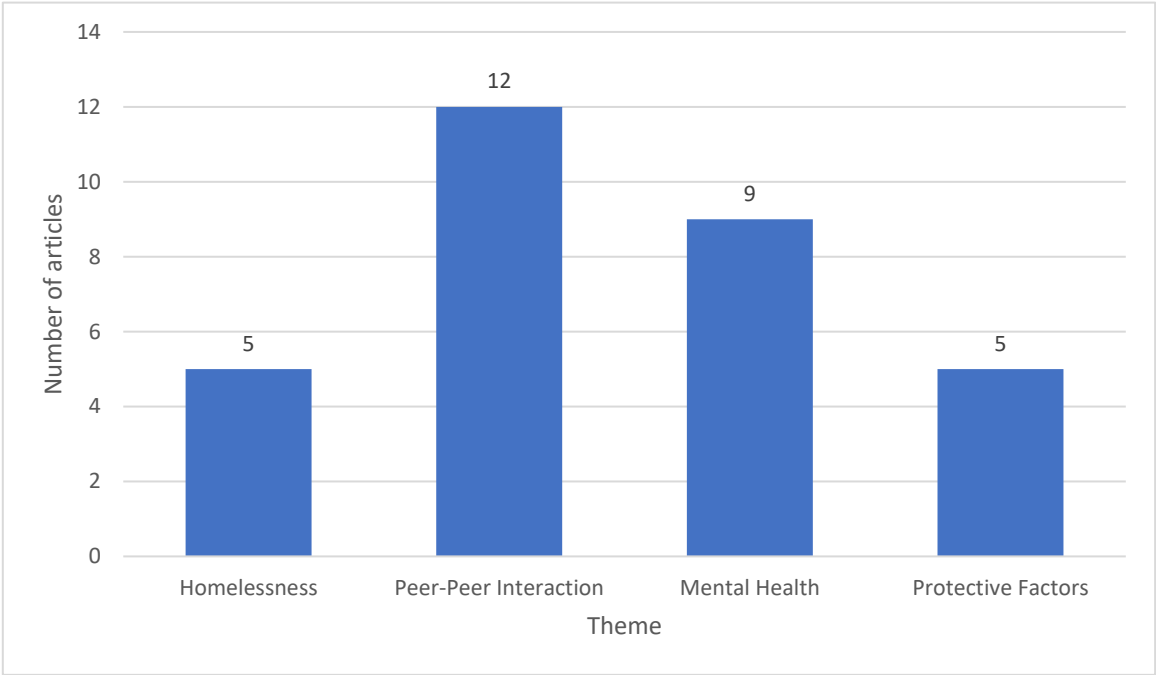


Figure 2. General themes resulting from reviewed studies.

Table 1. Characteristics of included studies.

| # | Author Year & Country | Article Title | Population (n) Age range | Aims/Parameters Examined | Study Design/Key Findings |
|---|-------------------------------------|---|--|--|--|
| 1 | Arrington-Sanders et al, 2020. USA. | Providing unique support for health study among Young Black and Latinx Men who have sex with Men and Young Black and Latinx Transgender Women living in 3 urban Cities in the USA: Protocol for a Coach-Based Mobile-Enhanced Randomized Control Trial. | Young Black and Latinx men who have sex with men, and transgender women. Ages 15-24 years. N=402 participants. | To assess mobile enhanced interventions compared to standard care, to increase engagement and retention into HIV, PrEP and Substance use treatment care. | <ul style="list-style-type: none">- Most participants (median age 21.6) reported a history of substance use: alcohol (77.6%) and other drugs (opioids, amphetamine, cocaine) (21.9%).- 24.1% reported having housing issues.- A quarter reported engaging in transactional sex for housing, money, food. |
| 2 | Bochicchio et al, 2022. USA. | Psychotherapeutic interventions for LGBTQ+ youth: a systematic review. | LGBTQ+ adolescents. Age range: 14-22 years old (yo). (n) = 10 articles (n=822) that ranged from 10-268 participants. | Psychotherapeutic interventions for LGBT+ adolescents with mental illness and substance abuse. | <ul style="list-style-type: none">- Results showed a significant reduction in mental health symptoms and drug use for all youth in the study. |
| 3 | Cutuli et al, 2020. USA. | Adolescent Homelessness and Associated Features: Prevalence and Risk Across Eight States. | LGBTQ+ youth from 14-18 yo in specific states in the USA. N=77,559. | To test for positive associations between homelessness and key indicators. | <ul style="list-style-type: none">- Results revealed that students who experienced homelessness were 196% more likely to use alcohol, and 275% more likely to use hard drugs.- LGB youths 143% were more likely to experience homelessness. |
| 4 | Damian et al, 2022. USA. | Understanding the Health and Health-Related Social Needs of Youth Experiencing | LGBTQ+ youths (14-24 yo) experiencing homelessness during | Record homeless youth everyday reality. | Participant described vicious cycle of alcohol and substance use which made housing insecurity worse. |

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| | Homelessness: A photovoice Study. | COVID-19 pandemic in Connecticut. | | |
| | | N=14. | | |
| 5 | Do et al, 2020. Thailand. | Social Violence Among Thai gender role conforming and non-conforming secondary school students: Types, prevalence, and correlates. | Secondary school students who are trans or same sex attracted. Age 13-20 yo. N=2070. | Substance use was found in 98 (4.8%) participants and included: cannabis, amphetamine pills, crystal methamphetamine, ecstasy/MDMA, sleeping pills and injection drug use. |
| 6 | Eastwood et al, 2021. USA. | Young Transgender Women of Colour: Homelessness, Poverty, Childhood Sexual Abuse and Implications for HIV Care. | HIV+ young (18-24 yo) transgender women of colour. N=102. | To engage and retain transgender women of colour with HIV in care to manage viral load suppression and determine factors contributing to sustained health care. 15.6% of participants reported drug dependence. |
| 7 | Eisenberg et al, 2020. USA. | Supportive Community Resources Are Associated with Lower Risk of Substance Use among Lesbian, Gay, Bisexual, and Questioning Adolescents in Minnesota. | LGBQ high school students. N=2454. | To examine stigma and support and their association with substance use in LGBQ youth. - Marijuana use: 8.5%-14.6%. - Prescription drug misuse: 6.1%-14%. - Other Drug Use total 13.5%. |
| 8 | Filia et al, 2022. AUS/NZ. | Social inclusion, intersectionality, and profiles of vulnerable groups of young people seeking mental health support. | Young people 12-25 yo presenting to a Headspace Centre for mental health +/- substance use related issues. Age range 12-25 yo. N=1107. | To examine social inclusion across specific domains of housing, employment, study, alcohol and other drugs. - 17% reported substance use. - 70% reported substance use in past 3mos. - Higher usage of different substances seen in 18-25 yo group. - 18% admitted that their substance use had resulted in them failing to complete obligations. |
| 9 | Fraser et al, 2019. NZ. | LGBTIQ+ Homelessness: A Review of Literature. | "LGBT Homelessness" "Queer Homelessness" "LGBT Housing First" essentially LGBTIQ+ homelessness. N=53 articles. | To examine the intersecting factors associated with homelessness and LGBTIQ+ homelessness. - Substance use is a proximal cause of homelessness. - LGBTIQ+ homeless people have higher rates of substance use. - Transgender homeless people have even higher rates. - Homeless LGBTIQ+ people were more likely to report usage of 20 out of 21 illicit substances when compared to homeless non-LGBTIQ people. |
| 10 | Griffin et al, 2022. USA. | Sexual Violence and Substance Use among First-Year University Women: Differences by Sexual Minority Status. | 1 st year university women from 14 USA Universities. N =974. Mean age 19.1. | To examine the rates of sexual violence, perpetration and substance use seen in first year university women. - Sexual minority women reported more frequent cigarette smoking, marijuana use, intoxication, use of club drugs and overall illicit drug use. - Sexual minority women reported illicit drug use at a greater proportion vs. heterosexual woman. - Bisexual women and those who consumed illicit |

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| | | | | drugs were more likely to report new cases of sexual violence. |
| 11 | Hammoud et al, 2020. AUS. | Biomedical HIV Protection Among Gay and Bisexual Men Who Use Crystal Methamphetamine. | Gay/Bisexual men >16 yo who've had sex with another man in the last 12 months and lived in Australia. Median age 35 (16-81 yo). N=1367. | To investigate the relationship between crystal use and HIV risk behaviours in relation to biomedical prevention. - 13% reported crystal use previously but NOT in the last 6 months. - 40.2% reported using crystal monthly or more often. - Of those that admitting to using drugs in the previous 6 months, 85.2% reported using to enhance sexual pleasure, engage in chemsex (63.1%) and to have "better sex" (67.5%). |
| 12 | Hatchel et al, 2019. USA. | Predictors of Suicidal Ideation and Attempts among LGBTQ Adolescents: The Roles of Help-seeking Beliefs, Peer Victimization, Depressive Symptoms, and Drug Use. | LGBTQ+ high school students participating in randomised clinical trial testing the effects of sources of strengths. Mean age=15 yo. N=713 (LGBTQ). | To examine whether peer victimization, drug use, depressive symptoms, and help-seeking beliefs predict suicidal ideation/attempts among LGBTQ adolescents. - Adolescents are 1.7 times more likely to endorse suicidal behaviour if they report drug use. |
| 13 | Ksatz-Wise et al, 2021. USA. | Longitudinal effects of gender minority stressors on substance use and related risk and protective factors among gender minority adolescents. | Gender minority adolescents in the US from the Trans Teen and Family Narratives (TTFN) project. Ages 13-17 yo. N=30. | To determine the effects of minority stressors (gender) on substance use among gender minority adolescents and the related risk/protective factors. - Gender minority adolescents appear to use substances to help cope with gender minority stressors. - Wave1: 17% of participants reported the use of one substance, and 4% reported using multiple substances. - The average age of first use was 13.7 for tobacco, 13.4 for alcohol, and 14.4 for marijuana. - Wave 5 (2yrs after Wave1): 56% reported the use of one substance and 32% reported multiple substance use. - Internalised transphobia had a significant effect on substance use risk, except tobacco. - Depressive/anxious symptoms didn't show significant effect on substance use. - Resilience and gender-related pride had a negative association on gender minority stressors, which in turn lowered odds of future substance use. - Family functioning and peer social support had protective effects against alcohol, at lower levels of gender minority stress. |

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| 14 | Költö et al, 2019. Europe. | Romantic Attraction and Substance Use in 15-Year-Old Adolescents from Eight European Countries. | Same- and both-gender attracted 15 yo adolescents from different European countries. Ave Age = 15.55. N=14,545. | To explore the association between being of sexual minority and different substance use behaviours. | <ul style="list-style-type: none">- Respondents that reported being in both-gender love had the highest prevalence of substance use (Cig 33.6%, Alcohol 51.2%, cannabis 20.6%). |
| | | | | | <ul style="list-style-type: none">- Never having been in love was associated with lower odds of substance use for boys and girls. |
| | | | | | <ul style="list-style-type: none">- Gay/bisexual adolescents had higher odds of using two or all three substances when compared to heterosexual young people. |
| 15 | Maria et al, 2020. USA. | Sexual risk classes among youth experiencing homelessness: Relation to childhood adversities, current mental symptoms, substance use, and HIV testing. | Youth between the ages of 13-24yo that were homeless or had unstable housing. Age 13-24 yo. N=416 (final analysis). | To determine if different subgroups of youth with different types of sexual risk behaviours experience homelessness and to examine the associations between potential classes and other variables. | <ul style="list-style-type: none">- The high-risk class (defined by researchers) reported significantly higher levels of synthetic marijuana use, alcohol use, mental health diagnoses and frequent HIV testing. |
| | | | | | <ul style="list-style-type: none">- Youth that were not sexually active had lowest rates of marijuana use, alcohol use and HIV testing. |
| | | | | | <ul style="list-style-type: none">- Youth with any history of foster care were more likely to be diagnosed with HIV/STI, use alcohol or drugs during sex. |
| 16 | Metheny et al, 2022. South Africa. | Correlates of Substance Misuse, Transactional Sex, and Depressive Symptomatology Among Partnered Gay, Bisexual and Other Men Who Have Sex with Men in South Africa and Namibia. | Gay, bisexual and other men who have sex with men in South Africa and Namibia. Age 18-24. N=152. | To assess the association between 3 major HIV risk factors in Gay/Bisexual men in Southern Africa. | <ul style="list-style-type: none">- Substance use among youth experiencing homelessness is both a cause and a consequence of living on the streets. |
| | | | | | <ul style="list-style-type: none">- High rates of substance misuse seen in this population with 77.5% (n=341) reporting problematic alcohol use and 52.7% (n=232) reporting non-prescription drug use. |
| | | | | | <ul style="list-style-type: none">- Higher education was associated with lower odds of engaging in risky alcohol or drug use. |
| 16 | Metheny et al, 2022. South Africa. | Correlates of Substance Misuse, Transactional Sex, and Depressive Symptomatology Among Partnered Gay, Bisexual and Other Men Who Have Sex with Men in South Africa and Namibia. | Gay, bisexual and other men who have sex with men in South Africa and Namibia. Age 18-24. N=152. | To assess the association between 3 major HIV risk factors in Gay/Bisexual men in Southern Africa. | <ul style="list-style-type: none">- Being arrested was significantly associated with higher odds of recent substance misuse. |
| | | | | | <ul style="list-style-type: none">- Higher levels of internalized homonegativity was associated with higher odds of substance misuse and more depressive symptoms. |
| | | | | | <ul style="list-style-type: none">- Enacted discrimination was significantly associated with substance misuse, |

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| | | | | transactional sex and depressive symptoms. |
| 17 | Noble Aet al, 2022. Canada. | <p>"I feel like I'm in a revolving door, and COVID has made it spin a lot faster": The impact of the COVID-19 pandemic on youth experiencing homelessness in Toronto, Canada.</p> <p>Youth Experiencing Homelessness in Toronto, Ontario Canada. With some focus on particular sub-groups; mainly 2SLGBTQ, black youth and newcomer youth.</p> <p>Age= 16-24</p> <p>N=45 youth</p> <p>N=31 staff members</p> <p>N=9 2SLGBTQ (20%)</p> | To appraise the impact of COVID-19 pandemic on youth experiencing homelessness. | <ul style="list-style-type: none"> - Staff: the structural changes caused by the pandemic (changes to shelter sector, and increased barriers to obtaining housing or employment) resulted in youth feeling increased feelings of isolation/loneliness, and challenges with mental health and substance use. |
| 18 | Ong et al, 2021. Singapore. | <p>Association between sexual orientation acceptance and suicidal ideation, substance use, and internalised homophobia amongst the pink carpet Y cohort study of young gay, bisexual, and queer men in Singapore.</p> <p>Gay/Bi/Questioning men that live within Singapore that are either HIV-negative or unsure about their HIV status.</p> <p>Age 18-25 yo (mean 21.9).</p> <p>N=564.</p> | To explore the associations between delayed acceptance of sexual orientation and the health specific outcomes relating to gay/bi/questioning men in Singapore. | <ul style="list-style-type: none"> - Delayed acceptance of orientation was positively associated with smoking cigarettes and marijuana usage. |
| 19 | Pike et al, 2023. USA. | <p>A scoping review of survey research with gender minority adolescents and youth in low and middle-income countries.</p> <p>Peer-reviewed articles published in English that utilize surveying data to explore gender minority youth experiences.</p> <p>N=33 articles analysis.</p> | To explore the different ways studied in the experience of gender minority youth. | <ul style="list-style-type: none"> - Discrimination and instability at home were the main drivers of substance use. - Social victimisation due to sexual orientation or gender identity was associated with higher likelihood of drug use. |
| 20 | Scheer Jet al, 2021. USA. | <p>Intimate Partner Violence and Illicit Substance Use Among Sexual and Gender Minority Youth: The Protective Role of Cognitive Reappraisal.</p> <p>Self-identified sexual and gender minority youths between ages 18-25.</p> <p>N=149.</p> <p>Ages 18-25 yo.</p> | To examine cognitive reappraisal as a moderator to the various forms of intimate partner violence and illicit substance use among sexual and gender minority youths. | <ul style="list-style-type: none"> - In the past 6 months participants reported the use of: cocaine 24.8%, stimulants 22.8%, heroin 20.8% and hallucinogens 24.8%. - Physical abuse was associated with illicit substance use. - Cognitive reappraisal was negatively associated with illicit substance use. - Young racial/ethnic minority participants were more likely to report illicit substance use in the past 6 months. - Interaction between identity abuse and cognitive reappraisal was significantly associated with less illicit substance use and the same was true for those experiencing physical abuse. - Psychological abuse and cognitive reappraisal were not significantly associated with illicit substance use. |

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| 21 | Schuler et al, 2019. USA. | Differences in substance use disparities across age groups in a national cross-sectional survey of Lesbian, Gay, and Bisexual Adults. | LGB adults of different age groups (18-25, 26-34, 35-49). N=76354, LGBTQ+=4868. | To examine LGB disparities and recent substance use in different age groups and compare these to their heterosexual counterparts. | <ul style="list-style-type: none">- Lifetime marijuana use was significantly higher for gay men 18-25 yo (65%).- Past year marijuana use was significantly elevated in gay men 18-25 yo (46%).- Past year marijuana use rates were significantly higher among bisexual women of all age groups and among L/G women 18-25 yo (52%).- Lifetime use of hallucinogens, cocaine, and inhalants were significantly elevated in gay men.- Past year illicit drug use was significantly elevated in gay men across all age groups.- Factors associated with sustained use of illicit drugs into middle adulthood among gay and bisexual men include attendance at LGBT clubs or circuit parties as well as sexualised drug use. |
| 22 | Schuler et al, 2020. USA. | Substance Use Disparities at the Intersection of Sexual Identity and Race/Ethnicity: Results from the 2015-2018 National Survey on Drug Use and Health. | LGB adults of different ages groups and races/ethnicities from the 2015-2016 NSDUH. (n)=168560; LGB=11389. | To examine the differences in the presence and magnitude of substance use disparities in LGB adults across different races/ethnicities. | <ul style="list-style-type: none">- Disparities were constitutently greater in magnitude for Black and Hispanic LGB women compared with White LGB women.- Few disparities were observed among men; the magnitude of observed disparities did not differ by race/ethnicity. |
| 23 | Seekaew et al, 2019. Thailand. | Sexual patterns and practices among men who have sex with men and transgender women in Thailand: A qualitative assessment. | Thai men who have sex with men and transgender women, living in Bangkok, Thailand that are over 18 yo. N=12MSM N=13TGW Median Age MSM=33.1 (29.9-35.7) TGW=25.8 (23.4-29.1) | To understand the diversity of men who have sex with men and transgender women in Thailand and to identify sexual patterns and themes of men who have sex with men in Bangkok. | <ul style="list-style-type: none">- Many participants turned to alcohol and drugs (cannabis, popper, amphetamine and cocaine) to enhance their sexual drive, performance and experience. |
| 24 | Sharma et al, 2019. USA. | Variations in Testing for HIV and Other Sexually Transmitted Infections Across Gender Identity Among Transgender Youth. | Individuals between 15-24 yo currently living in USA, that identify as non-cisgender and have never been diagnosed with HIV, but willing to conduct a rapid home HIV test. N=186 Age range 15-24 yo | To quantify HIV and other STI testing levels and examine the variations in testing levels across three categories of gender identity: transgender men, transgender women and nonbinary individuals. | 71.5% of participants admitted that they use drugs. |

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| 25 | Soares et al, 2023. Brazil. | Important steps for PrEP uptake among adolescent men who have sex with men and transgender women in Brazil. | Participants were between the ages of 15-19yo and lived within testing city. Age 15-19. N=751. | The aim of this study was to analyse the factors associated with drug use among adolescent men who have sex with men and transgender women in Brazil. | 31.5% of participants reported drinking alcohol, and 32.5% reported using drugs. |
| 26 | Watson R et al, 2020. USA. | Substance Use among a National Sample of Sexual and Gender Minority Adolescents: Intersections of Sex Assigned at Birth and Gender Identity. | Participants aged between 13-17yo, self-identified as sexual or gender minority and reside in the US. N=11,129. Age range 15-17 yo. | The aim of this study was to test whether current gender identity and sex at birth were key factors in substance use among a large sample. | <ul style="list-style-type: none">- Transgender adolescents had higher prevalence rates of marijuana/cigarette use compared to cisgender and nonbinary/genderqueer adolescents.- Gender identity was significantly associated with increased odds of substance use. |
| 27 | Whitton et al, 2018. USA. | Effects of romantic involvement on substance use among young sexual and gender minorities. | Gender minority youth, living in Chicago. N=248. Age range 16-20 yo. | The aim of this study was to identify protective factors that decreased the risk of substance use among sexual and gender minority adolescents. | <ul style="list-style-type: none">- Romantic involvement was associated with less drinking for all participants, but participants also reported more cigarette smoking (26%).- Bisexuals had increased marijuana and other illicit drug use.- Participants reported smoking 26% more cigarettes when romantically involved.- Bisexuals reported increased marijuana (rate ratio 2.31) and other illicit drug use (odds ratio = 2.39). |
| 28 | Wichaidit et al, 2021. Thailand. | Disparities in behavioural health and experiences of violence between cisgender and transgender Thai adolescents. | Data from The National School Survey on Alcohol Consumption, Substance Use and Other Health-Risk Behaviours (cross-sectional survey) The participants were then stratified based on sex at birth and their gender identity. N=31898. | The objective of this study was to assess the extent of behavioural health outcomes and violence among respondents of the National School Survey on Alcohol Consumption, Substance Use and Other Health-Risk Behaviours. | <ul style="list-style-type: none">- Transgender boys had higher prevalence of life-time history of using illicit drugs compared to cisgender girls, particularly in the use of methamphetamine pills. |
| 29 | Yockey R and Barnett T, 2023. USA. | Past-Year Blunt Smoking among Youth: Differences by LGBT and Non-LGBT Identity. | LGBT+ youth. Age range 14-17 yo. N=7518. | The aim of this study was to investigate the past year's marijuana and tobacco use among a national sample of adolescents and compare the difference between LGBT+ youth versus non-LGBT youth. | <ul style="list-style-type: none">- LGBTQ+ youth were 2.17 times (95% CI 1.86, 2.54) more likely to report drug use compared to non-LGBT+ youth. |

3.2.1. Homelessness

A homeless person is defined as a person who is currently living/sleeping in non-conventional accommodation including staying on the street or in short-term/emergency accommodation, which

can include living with friends/family (Nawi et al., 2021). Five studies explored the influence of homelessness on drug use among LGBTQ+ adolescents (Cutuli J et al., 2020; Damian et al., 2022; Fraser et al., 2019; Maria et al., 2020; Noble et al., 2022). Studies were conducted in USA, Canada, and New Zealand (NZ). Participant number varied from 77,559 participants to 14 participants. These studies showed that homelessness is a strong determinant of drug use among LGBTQ+ adolescents. One study showed that LGBTQ+ students (14-18 years old) who experienced homelessness were 196% more likely to use alcohol and 275% more likely to use hard drugs than their counterparts (Cutuli et al., 2020). Another article showed that adolescents with a history of foster care are more likely to use alcohol or illicit drugs, especially during sexual intercourse (Maria et al., 2020). This study also showed that drug use/abuse was both a consequence and reason for homelessness (Maria et al., 2020). Also, a study by Noble et al. explored the impacts of COVID-19 on adolescents experiencing homelessness (Noble et al., 2022). The study showed that feelings of isolation/loneliness increased mental health disturbances and drug use among LGBTQ+ adolescents (Noble et al., 2022).

3.2.2. Peer-Peer Interactions

For the purpose of this scoping review, we defined peer-to-peer interactions as interactions between individuals. These interactions can be non-verbal, verbal, or physical interactions. Also, these interactions can be positive (i.e. relationships) or negative (i.e. homophobia). Twelve studies explored the influence of peer-peer interactions on drug use among LGBTQ+ adolescents (Bochicchio et al., 2022; Cutuli et al., 2020; Damian et al., 2022; Do et al., 2020; Griffin et al., 2022; Hatchel et al., 2019; Ksatz-Wise et al., 2021; Metheny et al., 2022; Scheer et al., 2021; Seekaew et al., 2019; Soares et al., 2023; Wichaidit et al., 2021). Studies were conducted in USA, NZ, Thailand, South Africa, and Brazil. Participant number varied from 77,559 participants to 10 participants. The studies showed that peer-peer interaction is a determinant of drug use among LGBTQ+ adolescents. Researchers in Thailand explored social violence in Thai gender role conforming versus non-conforming students. The study showed that LGBTQ+ adolescent participants used substances that ranged from cannabis to injection drugs, mainly due to experiencing social violence (Do et al., 2020). Another study examined sexual violence and drug use in first year university women (sexual minority vs. non-minority). The study showed that sexual minority women were more likely to report illicit drug use when compared to heterosexual women of the same age, mainly due to experiencing sexual violence (Griffin et al., 2022). Bisexual women within this study were also more likely to report new cases of sexual violence compared to their heterosexual counterparts (Griffin et al., 2022).

3.2.3. Mental Health

Mental health issues, including depression, internalised homophobia, social phobias, stigmas, and stress, were cited as determinants of illicit drug use in 9 studies that were evaluated in this scoping review (Cutuli et al., 2020; Damian et al., 2022; Filia et al., 2022; Hatchel et al., 2019; Maria et al., 2020; Metheny et al., 2022; Ong et al., 2021; Pike et al., 2023; Sharma et al., 2019). These articles reported that mental health is a strong determinant of drug use among LGBTQ+ adolescents. Studies were conducted in USA, NZ, Australia, South Africa, and Singapore. Participant number varied from 77,559 participants to 14 participants. A USA based study examined the relationship between peer victimization, drug use, and depressive symptoms. The study reported that adolescents who reported drug use were 1.7 times more likely to endorse suicidal behaviour (Hatchel et al., 2019). Similar findings were observed in a South African study that assessed substance misuse and depressive symptoms in gay/bisexual men (Metheny et al., 2022). In this study, participants who displayed high levels of internalized homophobia, had higher odds of substance use and more depressive symptoms (Metheny et al., 2022). Another study showed that delayed acceptance of sexual orientation or internalised homophobia were positively associated with smoking cigarettes and marijuana use (Ong et al., 2021).

3.2.4. Protective Factors

The final theme observed within this scoping review (cited in five articles) is that protective factors are negatively associated with drug use among LGBTQ+ adolescents (Bochicchio et al., 2022; Eisenberg et al., 2020; Ksatz-Wise et al., 2021; Scheer et al., 2021; Whitton et al., 2018). Studies that cited this theme were conducted in the USA. Participant numbers varied from 77,559 participants to 10 participants. A systematic review that explored the beneficial effects of psychotherapeutic interventions on LGBTQ+ youths (14-22 years old) with a history of mental illness and drug abuse (Bochicchio et al., 2022) showed a significant reduction in drug use among participants that underwent psychotherapeutic interventions (Bochicchio et al., 2022). Cognitive reappraisal in this population had a negative association with illicit drug use (Scheer et al., 2021). Another study showed that resilience and gender-related pride have a negative association with gender minority stressors among LGBTQ+ adolescents. This, in turn, lowers the future odds of drug use (Ksatz-Wise et al., 2021). The study also showed that strong family function and social support groups are protective factors that may be associated with lower levels of gender minority stress among LGBTQ+ adolescents (Ksatz-Wise et al., 2021). However, a study by Whitton et al. which explored protective factors that may decrease the risk of substance use among LGBTQ+ adolescents, reported that romantic involvement was associated with increased marijuana and other illicit drug use (Whitton et al., 2018).

4. Discussion

This scoping review showed that homelessness (Cutuli J et al., 2020; Damian et al., 2022; Fraser et al., 2019; Maria et al., 2020; Noble et al., 2022), peer-peer interactions (Bochicchio et al., 2022; Cutuli et al., 2020; Damian et al., 2022; Do et al., 2020; Griffin et al., 2022; Hatchel et al., 2019; Ksatz-Wise et al., 2021; Metheny et al., 2022; Scheer et al., 2021; Soares et al., 2023; Wichaidit et al., 2021), protective factors (Bochicchio et al., 2022; Eisenberg et al., 2020; Ksatz-Wise et al., 2021; Scheer et al., 2021; Whitton et al., 2018) and mental health (Cutuli et al., 2020; Damian et al., 2022; Filia et al., 2022; Hatchel et al., 2019; Maria et al., 2020; Metheny et al., 2022; Ong et al., 2021; Pike et al., 2023; Sharma et al., 2019) are strong determinants of drug use among LGBTQIA+ adolescents.

Currently, it is estimated that LGBTQIA+ people make up approximately 20-40% of the homeless population (Fraser et al., 2019). Many factors contribute to this cycle of homelessness within this population. A proximal cause of the increased homelessness in this population is drug use, which is both, a cause and a response to homelessness in this population (Maria et al., 2020). Many studies suggested that the main reason for LGBTQIA+ adolescents becoming homeless is running away after being rejected by their families (Robinson, 2020). This parental rejection often results in ongoing mental health issues that linger into adulthood. These in turn, lead to illicit drug use. A study by Ryan, et al. examined lesbian, gay, and bisexual (LGB) adults' mental health following parental rejection during their teenager years. The study reported that these individuals were 3.4 times more likely to use illegal substances than their adult counterparts (Ryan, et al., 2009). Another study within this scoping review reported that strong family functioning and peer social support may have a protective effect against using illicit drugs (Ksatz-Wise et al., 2021). Therefore, it is clear that having adequate housing and parental caregiving are essential for having a healthy mental status, and, well-adjusted coping strategies, rather than using drugs as a coping mechanism, among LGBTQIA+ adolescents.

LGBTQIA+ adolescents experience numerous interactions with their peers that influence their mental health. These peer-peer interactions can either positively or negatively influence illicit drug use within this adolescent population. One study within this scoping review reported that many transexual and lesbian individuals experience sexual violence (Griffin et al., 2022). It was also reported that bisexual women experience a significantly higher lifetime prevalence of physical violence and rape compared to heterosexual women (Walters et al., 2013). These acts of violence result in the development of Rape Trauma Syndrome (RTS) which is characterised by three distinct phases that cumulate in victims feeling shame, guilt, anxiety, or depression (O'Donohue et al., 2014). To cope with these feelings, some victims adopt harmful practices which may include suicide ideas or drug

use (Cuellar & Curry, 2007). Another important peer-to-peer interaction in this group relates to sexual practices. Two studies in this scoping review explored the reasons that crystal methamphetamine tends to be used by LGBTQIA+ individuals during intercourse. Participants admitted to using crystal methamphetamine during sex to enhance sexual pleasure (Hammoud et al., 2020). This conquers with another study by Whitton et al. which reported that romantic involvement may be associated with increased marijuana and other illicit drug use (Whitton et al., 2018).

LGBTQIA+ adolescents tend to have numerous mental health problems including depression, internalised homophobia, stigmas, and suicidal ideas. These issues are likely exacerbated by minority stress. The coping mechanism during adolescent years consists of three main strategies: support-seeking, problem-solving, and distraction/escape (Skinner & Zimmer-Gembeck, 2007). Given that adolescents often feel that they are alone and have no one to talk to, they frequently resort to distraction/escape coping mechanisms, which routinely end in experimentation with illicit drugs. This worsens their mental health. This early onset of drug abuse, during adolescent years results in impaired development of critical thinking skills and cognitive skills essential for successful adults (Crews et al., 2007).

5. Conclusion and Recommendations

This scoping review investigated the determinants of drug use among LGBTQIA+ adolescents. Homelessness, peer-to-peer interactions, mental health and protective factors (resilience, gender-related pride and social support) were strong determinants of drug use among LGBTQIA+ adolescents. The results of this scoping review conquer with those observed within adult LGBTQIA+ individuals. These disparities contribute to drug use in this community and among their adult counterparts, mainly via the minority stress theory. Increasing community resources to help improve coping strategies, and, increasing access to cognitive therapy for those with a history of trauma as well as providing societal support can contribute to the reduction of drug use within this community. The findings from this scoping review are invaluable for healthcare providers and policymakers to identify strategies and community-based programs to reduce and break drug use in this vulnerable population.

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