

Integrating Alcohol Use Disorder Interventions into HIV and Harm Reduction Programs: A Narrative Review

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Abstract

Background: Alcohol use disorder (AUD) is highly prevalent among people who inject drugs (PWID) and it significantly hinders the effectiveness of HIV treatment. Hazardous drinking is mostly associated with viral non-suppression, poor antiretroviral therapy (ART) adherence, and poor retention to care, especially in Eastern Europe and Central Asia (EECA), where structural barriers, fragmented health systems, and stigma limit access to integrated services. Despite the combined burden of HIV and AUD, the utilization of alcohol treatment services among PWID is critically low in Georgia.

Aim: To synthesize regional and global evidence on the relationship between alcohol use disorder and HIV-related outcomes, identify determinants and barriers of AUD service utilization among PWID, and evaluate opportunities for integrating AUD interventions into HIV and harm-reduction programs in Georgia and the EECA region.

Methods: We conducted a narrative review of regional and global literature published between 2000 and 2025, using Scopus, PubMed and Google Scholar. Study eligibility was based on whether selected studies examined the relationship between alcohol use and HIV-related outcomes and/or determinants of alcohol treatment utilization, with focus on PWID. Andersen's Behavioral Model of Health Services Use, complemented by the Screening, Brief Intervention, and Referral to Treatment (SBIRT) framework, was used to thematically synthesize the evidence. Findings were triangulated with unpublished Georgian quantitative data (IBBS 2017–2022).

Results: Perceived need for treatment emerged as the strongest predictor of AUD service utilization across studies, exceeding clinical and demographic factors. Dominant barriers were criminalization, stigma, denial, limited behavioral health capacity and poor service integration. Consistent evidence indicates that alcohol use was associated with a double risk of ART non-adherence and viral non-suppression. Evidence supports the feasibility and effectiveness of integrating SBIRT and task-shifted, peer-led interventions into HIV and harm-reduction services.

Conclusions: AUD substantially compromises HIV care outcomes among PWID; however, it remains underdiagnosed and undertreated. Integrating alcohol screening and intervention into HIV and harm-reduction programs, reducing stigma, and strengthening the behavioral health workforce are essential system-level priorities. In Georgia and across EECA, embedding SBIRT within routine HIV services could significantly improve ART adherence, viral suppression, and progress toward UNAIDS 95-95-95 targets. **TCM-GMJ June 2026; 12 (2): P29-P37**

Keywords: Alcohol use disorder; HIV; People who inject drugs; Harm reduction; SBIRT; Service utilization; Georgia .

Introduction

Alcohol use disorder (AUD), which remains one of the most prevalent yet insufficiently managed behavioral health issues globally, significantly impacts prevention and management of human immunodeficiency virus (HIV). Among people living with HIV (PLHIV), alcohol consumption, whether hazardous or dependent use, has consistently been associated with poor adherence to antiretroviral therapy (ART), accelerated disease progression and unsuppressed viral

load [1,2].

1.1 Global Burden of Alcohol Use Disorder

Alcohol consumption significantly contributes to global mortality and morbidity. Approximately three million deaths are connected to alcohol consumption according to the World Health Organization (WHO), which is about 5.3% of all global mortality. Worldwide, alcohol ranks among the top ten risk factors for disability-adjusted life years (DALYs) lost. Despite this, only about 20% of people with AUD receive treatment [3,4]. The biggest gap is seen in low- and middle-income countries, where service availability, trained personnel and resource allocation for substance use treatment and mental health remain scarce.

In Eastern Europe and Central Asia (EECA), including Georgia, structural barriers such as stigma, criminalization of drug use and weak health infrastructure further restrict access to treatment for AUD and other conditions among

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marginalized populations [3–8]. The data on AUD service utilization remain notably absent in Georgia, despite robust surveillance data on HIV prevalence (~2.2% across seven cities), viral hepatitis, injection risks and information on AUD service utilization [9–11].

This study addresses the above-mentioned gap by focusing on AUD service utilization patterns among people who inject drugs (PWID) in Georgia. It aims to offer a comprehensive understanding of barriers and facilitators to AUD care in this population.

Growing research indicates that hazardous drinking and AUD are markedly higher among PWID than in the general population. Around 30–50% of PWID in EECA engage in harmful drinking, contributing to poorer HIV outcomes [7,11]. Approximately 34–40% of PWID report hazardous drinking and a smaller but significant proportion meet criteria for AUD in Georgia according to available bio-behavioral surveillance data [12]. These increased rates highlight the urgent need to integrate evidence-based AUD interventions into HIV and harm-reduction services, given the dual burden of injecting drug use and harmful alcohol consumption on the HIV care continuum.

1.2 Conceptual Framework

This review views healthcare utilization as influenced by perceived need for care, predisposing characteristics such as beliefs and demographics, and enabling conditions, including resources and access, and is guided by Andersen's Behavioral Model of Health Services Use [13]. Within the context of AUD among PWID, the model identifies that help-seeking behavior is determined by the combined effects of structural barriers (e.g., fragmented services, criminalization), psychosocial determinants (e.g., stigma, denial), and perceived need for treatment. The model is well suited to understand why treatment engagement is low in PWID with AUD, since perceived need consistently emerges as the strongest predictor of AUD service utilization. In addition, the review adopts the Screening, Brief Intervention, and Referral to Treatment (SBIRT) framework, which promotes early identification of hazardous drinking and linkage to care. Together, these frameworks provide a structure for examining determinants of service utilization and evaluating opportunities for integrating AUD care into HIV and harm-reduction programs.

Methods

To synthesize and interpret regional and global evidence on AUD service utilization among PWID and HIV treatment outcomes, we conducted a narrative review, which allowed us to include heterogeneous sources—mixed-methods, quantitative and qualitative studies, as well as policy reports—thus facilitating conceptual integration across diverse evidence sources.

2.1 Search Strategy

A structured search was conducted across PubMed, Scopus, and Google Scholar for literature published between January 2000 and December 2025. Searches combined controlled vocabulary and free-text terms tailored to each database. Core keyword strings included:

- “alcohol use disorder” or “hazardous drinking” or “harmful drinking”

- “HIV” OR “HIV care cascade” OR “ART adherence”
- “people who inject drugs” OR “PWID”
- “service utilization” or “treatment engagement” or “help-seeking”

Boolean combinations (e.g., AUD AND HIV AND adherence; PWID AND alcohol AND services) were applied to maximize retrieval. Reference lists of all included publications and key systematic reviews were hand-searched to identify additional articles not captured in database searches.

2.2 Eligibility Criteria

Studies were eligible if they:

1. Reported empirical findings on the association between alcohol use (hazardous, harmful, or AUD) and at least one HIV-related outcome (ART adherence, viral suppression, retention, or engagement in care);
2. Examined determinants, barriers, or facilitators of treatment utilization for alcohol or substance-use services;
3. Included general adult populations or key populations, particularly PWID;
4. Were published in English between 2000–2025.

Studies that focused on laboratory or pharmacologic aspects of alcohol without behavioral or service implications were excluded. Dissertations, conference abstracts and non-peer-reviewed sources were only included if they contributed relevant context or regional insights.

2.3 Data Extraction and Quality Considerations

For each eligible study, data were extracted on:

- study design, setting and population characteristics;
- measurement of alcohol use (AUDIT, CAGE, ICD/DSM criteria, quantity/frequency metrics);
- HIV outcomes (ART adherence metrics, viral load thresholds, linkage/retention indicators);
- determinants of service utilization, categorized as predisposing, enabling or need factors;
- intervention and implementation components, when applicable.

Given the narrative review design and heterogeneity of the included evidence, we did not conduct a formal risk-of-bias assessment. Instead, study quality was evaluated descriptively by considering sample size, measurement validity, clarity of analytic approach and alignment with contemporary AUD/HIV care models.

2.4 Analytic Approach

The synthesis followed an iterative, multi-step analytic process:

1. Thematic Organization Using Andersen's Behavioral Model: Evidence was mapped onto Andersen's predisposing, enabling and need domains to structure interpretation of determinants of service utilization.

2. Complementary Integration with Qualitative Evidence: Themes were cross-checked against qualitative studies and implementation reports to ensure that contextual factors (stigma, criminalization and system fragmentation) were incorporated into analytic categories.

3. Triangulation With Georgian Quantitative Data: Findings were compared with an unpublished quantitative analysis of PWID in Georgia (Shengelaia et al., 2025), allowing for contextual interpretation of global trends within a local

service environment.

4. **Interpretive Synthesis:** Rather than meta-analysis, we used a narrative, interpretive approach to integrate diverse evidence types and highlight convergent patterns relevant to AUD care integration.

2.5 Ethical Considerations

All included studies were publicly available. The Georgian quantitative analysis was previously approved by the Health Research Union Ethics Committee and is cited as an unpublished manuscript in this review [12].

Results and discussion

3.1 Determinants of AUD Service Utilization among PWID

Perceived need for treatment is the strongest predictor of AUD service utilization, rather than clinical or demographic factors, according to the global evidence [14,15]. Lack of integrated care, stigma and denial—these structural and psychological barriers—are key obstacles [5,6]. Odds of service use increase nearly fiftyfold by perceived need, highlighting the pivotal role of attitudinal and motivational readiness in promoting AUD treatment engagement in PWID.

3.2 Impact of Alcohol Use on HIV Treatment Outcomes

The risk of ART non-adherence or viral non-suppression is doubled worldwide due to alcohol use [1,2]. Alcohol consumption disrupts behavior, structurally disconnects individuals from services and triggers psychosocial distress. According to global evidence, hazardous alcohol consumption among PWID in EECA is strongly linked to exacerbation of HIV progression and service disengagement [7,11]. In the Georgian context, this syndrome is manifested through limited AUD service uptake, which consequently hinders HIV care outcomes by diminishing perceived need for care, weakening service coordination and sustaining psychosocial barriers.

3.3 Intervention Models and Implementation Strategies

To successfully address alcohol use problems in PWID, it is important to adopt feasible strategies such as integrating SBIRT and stepped-care models into HIV and harm-reduction services [16,17]. Reach and acceptability could be increased by task-shifting to peer-led counseling and non-specialist providers [18]. Existing harm-reduction infrastructure in Georgia provides a platform for incorporating screening, brief interventions and referrals, aligning with global best practices and national HIV priorities.

4. Discussion and Policy Implications

The findings of this review underscore the significant and widespread influence of AUD on the HIV care cascade, particularly among PWID. Across global and regional studies, hazardous drinking and AUD consistently hinder ART adherence, increase the likelihood of viral non-suppression, and contribute to care disruptions [1,2]. These effects are especially notable in EECA, where intersecting structural vulnerabilities, harsh drug policies and fragmented health systems restrict access to both HIV and behavioral health services [5,11]. Despite the evidence, the

consistently low help-seeking behavior rates for AUD underscore the need for more integrated, person-centered approaches within HIV care and harm-reduction infrastructures.

Using Andersen's Behavioral Model helps to interpret these findings and clarify why treatment engagement remains so limited. Predisposing factors such as social marginalization, stigma and norms surrounding alcohol consumption interlink with enabling factors, such as poor integration of services, insufficient financing and criminalization of drug use [13]. Yet perceived need remains the most critical determinant of treatment engagement among PWID with AUD. According to the literature, individuals rarely seek help unless their alcohol consumption becomes a serious problem that requires intervention [14,15]. This was especially evident in the Georgian analysis, where perceived need increased the possibility of service utilization drastically, while clinical and demographic variables added little explanatory value [12]. Altogether, these findings indicate that AUD among PWID is not merely a matter of individual behavior, but a reflection of systemic and contextual forces that hinder access to care.

Integrating alcohol screening and intervention into HIV programs is not only beneficial but necessary, given the association between alcohol use and HIV outcomes. Incorporating the SBIRT model (screening, brief intervention and referral to treatment) within harm-reduction programs, HIV clinics and opioid agonist treatment sites provides a feasible and evidence-based approach for identifying risky alcohol consumption, improving readiness for change and connecting individuals to relevant care [16,17]. The current infrastructure for HIV services in EECA countries and Georgia provides an opportunity to institutionalize SBIRT in routine care. Consequently, SBIRT could help transform fragmented and episodic care into a more comprehensive, continuous and person-centered system capable of responding to coexisting risks that impede HIV treatment success.

Another essential component to enhance the system is stigma reduction. Research consistently demonstrates how stigma—whether at individual, institutional or provider level—discourages people from accessing services by diminishing their trust in the legitimacy and value of treatment. Individuals are less likely to view themselves as eligible for care and more likely to deny or minimize the severity of alcohol consumption when alcohol use is framed as a moral failing rather than a treatable health condition [6,11].

Addressing harmful narratives and increasing awareness in communities could significantly improve treatment-seeking behavior in settings like Georgia, where PWID experience multiple layers of stigma related to HIV status, drug use and alcohol consumption. Public campaigns, provider trainings and contact-based interventions have shown effectiveness in shifting attitudes and enhancing willingness to seek and offer care.

It is important to strengthen the workforce and provide sustainable financing mechanisms to integrate AUD ser-

vices into HIV care at the policy level. Insufficient training among frontline providers, overreliance on specialized psychiatric centers and limited investment in behavioral health are structural barriers identified in this review [7,20]. It could be particularly valuable in the EECA region to deliver brief interventions by harm-reduction workers, nurses and peers using task-shifting models that have shown promise in resource-constrained settings. To ensure consistency and scale-up, it would be practical to integrate alcohol interventions into national HIV budgets, donor-supported transition plans or universal health coverage schemes [7,16,18].

For achieving the UNAIDS 95-95-95 goals, it is important to strengthen AUD care, considering the evidence linking alcohol use with diminished ART adherence and viral suppression [1,11]. Better screening and management of alcohol use can be linked to enhanced adherence, reduced onward transmission, viral suppression and improved continuity within the HIV care cascade. From a broader perspective, integrating AUD responses within HIV care and harm reduction could lead to greater equity, effectiveness across national HIV responses and sustainability.

It is important to acknowledge several limitations of this review, even though it offers a comprehensive synthesis of available evidence. Cross-study comparison is challenging due to the narrative design of the review, which does not allow for formal risk-of-bias assessment, and due to inconsistency in definitions of ART adherence measures, service utilization and alcohol use. Available evidence greatly relied on self-reported alcohol use, which may underestimate true consumption patterns due to recall or social desirability bias [3,4]. In addition, due to limited PWID-specific research in many regions, it was sometimes necessary to extrapolate findings from wider PLHIV samples. The Georgian quantitative analysis included here, although highly relevant, is unpublished and has not undergone peer review, which should be considered when interpreting its findings.

These limitations underscore important directions for future research. Longitudinal studies are needed to identify how AUD interacts with ART outcomes over time among PWID. Implementation research is important for understanding the feasibility and cost-effectiveness of integrating SBIRT into harm-reduction and HIV services in EECA. Future studies should also focus on interventions that enhance illness recognition, reduce stigma and strengthen motivation, since perceived need consistently emerges as the strongest determinant of service use [16,18,20]. Gender-responsive research is also needed, as women who inject drugs often face specific social and structural barriers that influence both access to services and alcohol consumption. Emerging digital and low-threshold interventions may offer new pathways for engagement and warrant systematic evaluation in PWID populations.

Conclusion

This review determined that despite the significant effect of AUD on HIV treatment outcomes in PWID, it remains undertreated within existing service systems. To address these gaps, system-level reforms are needed to integrate alcohol screening and intervention into HIV care, reduce stigma, expand the behavioral health workforce and strengthen financing. Implementing such reforms in Georgia and across the EECA region would not only improve alcohol and HIV outcomes but also enhance the overall resilience and effectiveness of national HIV responses.

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