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Structural and social determinants of healthcare avoidance among people who inject drugs in Albania

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Abstract

Background: In Eastern Europe and the Balkans, HIV epidemics among people who inject drugs (PWID) are shaped not only by injecting practices, but also by structural vulnerabilities, including stigma, criminalization, and barriers to healthcare access. In Albania, community-based harm reduction services have expanded, but healthcare avoidance and HIV risk persist among PWID.

Methods: This study analyzed data from an Integrated Biological and Behavioral Surveillance (IBBS) survey among PWID in Albania, using respondent-driven sampling. Bivariate analyses examined associations between social, structural, and behavioral factors and avoidance of healthcare services in the past 12 months. Multivariable logistic regression was used to identify factors independently associated with healthcare avoidance.

Results: Overall, 12.9% of participants reported avoiding healthcare services in the past year. In bivariate analyses, healthcare avoidance was strongly associated with internalized stigma, exclusion from family activities, and fear of police persecution, but not with injecting frequency or history of incarceration. In multivariable analysis, fear of police persecution emerged as the strongest independent determinant of healthcare avoidance (adjusted odds ratio [aOR] = 43.19, 95% CI: 22.20–84.04), followed by exclusion from family activities (aOR = 2.80, 95% CI: 1.55–5.07). Internalized stigma showed a positive, but reduced association, while imprisonment history and injecting behaviors were not independently associated.

Conclusions: Healthcare avoidance among PWID in Albania is driven primarily by structural and social factors rather than injecting behaviors alone. Addressing stigma and reducing the deterrent effects of policing are essential for improving healthcare engagement and HIV prevention outcomes.

Keywords: People who inject drugs; HIV; Stigma; Healthcare Avoidance; Structural Vulnerability; Albania

1. Introduction

Injecting drugs remains responsible for a disproportionate level of both acute and chronic health harms associated with the consumption of illicit drugs. Half a million Europeans are estimated to have injected an illicit drug in the last year. This underlines the scale of the ongoing challenges in this area and the fact that reducing the harm associated with injecting drug use remains an important public health priority [1].

People Who Inject Drugs (PWID) represent a key population at heightened risk for HIV infection worldwide. Unsafe injecting practices, particularly needle and equipment sharing, remain the primary transmission pathways. However,

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growing evidence demonstrates that individual behaviors are deeply involved within broader social and structural contexts that shape vulnerability to HIV. Although members of the general population also engage in frequent unprotected vaginal and anal sex, their likelihood of having an HIV-infected partner is much lower than that of members of key populations [2,3].

Socio-structural factors such as stigma, discrimination, harassment, social marginalization, and criminalization of drug use limit access to healthcare and prevention services. In many settings, incarceration is a frequent experience among PWID, with prison environments often lacking harm reduction services and fostering high-risk injecting practices. These may contribute to higher transmission of HIV and other infections. This is particularly evident among sex workers, sexual minorities, and people who inject drugs [4.5]. Marginalization or social rejection can push these individuals toward isolation, unemployment, poverty, and unstable living conditions. It can also expose them to physical and sexual violence and may limit their access to HIV prevention services (6). Fear of police harassment, arrest, or discrimination by health care providers may also discourage members of key populations from accessing prevention and treatment services.

In Eastern Europe and the Balkans, HIV epidemics among PWID have been strongly linked to punitive drug policies, limited harm reduction coverage, and high incarceration rates [7].

By the end of 2025, the total number of registered HIV cases in Albania was 1987. The prevalence was estimated at 0.083%, with an overall incidence of 5.3 per 100,000 people. The majority of registered HIV cases are males. Since only a small proportion of the population is being tested for HIV, especially among key populations (KPs), the available data are likely to be an underestimation of the actual number of HIV cases [8]

The disproportionate dominance of males among PLWH can also serve as an indicator of an underestimated epidemic among PWID, as most of the injectors are males [9]. Additionally, the latest estimates are showing that there are 6677 to PWID living in Albania [10]

The Programmatic Mapping Exercise of Key Population conducted in 2019 showed that PWID are the largest key population in Albania. The highest proportion of PWID injects, usually in abandoned places/houses, open spaces, streets, parks, etc. This mostly happens when ordinary people do not frequent these places, and therefore, PWID is also not a very visible group. Also, a small proportion of PWID use their homes for injecting drugs, and more hidden spots are frequent [10].

Integrated Biological and Behavioral Surveillance (IBBS) studies provide critical evidence on risk behaviors and service gaps among key populations. While previous IBBS rounds in Albania have documented injecting practices and HIV prevalence among PWID, limited research has comprehensively examined the role of structural and criminal justice factors in shaping HIV risk [11].

The goal of the IBBS was to monitor levels of HIV prevalence and HIV-related behaviours in PWID, assess the coverage with HIV interventions, and provide information for better advocacy, planning, and design of future prevention programs.

2. Methods

2.1. Study design

A cross-sectional survey was conducted among PWID aged ≥ 18 years and was implemented in major urban areas of Albania, Tirana, Berat, Elbasan, and Durres in 2024.

2.2. Study population

The inclusion criteria were all persons who injected drugs for non-medical purposes in the past month. aged ≥ 18 years, in possession of a valid peer recruitment coupon, lived in the survey area for at least three months before the survey, and were capable and willing to provide written or verbal informed consent to participate.

2.3. Sample size estimation

For the sample size estimation, Fisher's formula was used. Considering a 95% confidence level, a 1.96 standard deviation, the prevalence of 75% (prevalence of using sterile injecting equipment the last time PWID injected), and d= 0.07. A total of 759 participants were selected from four districts

2.4. Sampling procedure and participant recruitment

This survey used Respondent-driven sampling (RDS) to recruit PWID in Tirana, Durres, Berat, and Elbasan. RDS is a variant of a chain referral sampling method which, when implemented and analyzed properly, yields data representative of the populations from which the samples were gathered [13]. Recruitment begins with several purposefully selected members of the study population referred to as "seeds". After enrolling and completing the steps in the survey, each seed is given a fixed number (usually no more than three) of uniquely numbered coupons with which to recruit peers (other eligible PWID) into the survey. These recruited peers who also enroll in and complete the survey steps are considered the first wave of respondents. Successive waves of recruitment, ideally resulting in long recruitment chains of respondents, continue until the sample size is reached [14, 15, 16].

Originally, four seeds were selected for the Tirana site, and two for other sites, Durres, Berat, and Elbasan. Seeds were selected with large social networks and based on diverse characteristics; from diverse geographic areas of the cities, married and unmarried, of different self-identities, and of different socio-economic levels. Respondents who presented a valid recruitment coupon to a survey site were screened for eligibility and provided informed consent for a face-to-face interview, HIV pre-test counselling, and a finger-prick test for HIV, syphilis, and HCV testing. The maximum number of waves was in Tirana (10 waves). Having six or more recruitment waves is considered adequate for RDS surveys. The recruitment process went well in all sites, and there was no need to add more seeds to reach the sample size.

2.5. Data Collection

A standardized behavioral questionnaire based on the previous IBBS surveys was used, and some minor edits to the Global AIDS Progress Report Reporting (GARPR) indicators were made in accordance with UNAIDS guidance. The behavioral tool collected data on Socio-demographic characteristics, drug injecting history, needle and equipment sharing behaviors, Access to drug treatment and harm reduction services, experiences of stigma, discrimination, and violence, social exclusion from family or community activities, Healthcare avoidance in the past 12 months, and history of imprisonment or detention. After completing the behavioral survey, participants underwent the biological portion of the surveillance research, which consisted of the following: pre-test counselling, rapid tests using whole blood taken by finger stick, post-test counselling, and referral for positive STI results.

2.6. Data analysis

Descriptive statistics were used to summarize sociodemographic characteristics, injecting behaviors, stigma-related experiences, and imprisonment history. Categorical variables were presented as frequencies and percentages, and continuous variables as means with standard deviations and medians. Bivariate associations between selected social, structural, and behavioral variables and avoidance of healthcare services in the past 12 months due to stigma-related reasons were assessed using Pearson's chi-square test. Fisher's exact test was applied when appropriate. Variables were selected for multivariable analysis based on statistical significance in bivariate analyses and theoretical relevance as social and structural determinants of healthcare access among people who inject drugs.

Multivariable logistic regression was used to identify factors independently associated with healthcare avoidance. All variables were entered simultaneously into the model. Adjusted odds ratios (aORs) with 95% confidence intervals (CIs) were reported. Model fit was assessed using the Hosmer–Lemeshow goodness-of-fit test, and multicollinearity was evaluated using variance inflation factors. Statistical significance was defined as a two-sided p-value <0.05. All analyses were conducted using IBM SPSS Statistics version 26.

3. Results

The sociodemographic characteristics of the study population are presented in Table 1. The majority of participants (98.9%) were male, while women represented only 1.1%. Participants had a mean age of 35.9 years (SD ±7.9), with a median age of 35 years, indicating a predominantly adult and mature population. The vast majority of respondents (96.6%) were aged 25 years or older, while only 3.4% were younger than 25 years.

Educational level varied considerably within the study population. A substantial proportion of participants reported low levels of formal education: 8.2% were illiterate, and an additional 24.5% had completed only primary education.

Nearly half of the respondents (46.2%) reported secondary education as their highest level attained. Higher educational attainment was less common, with 18.2% reporting higher education and only 2.9% having completed university.

Unemployment was prevalent among respondents, with nearly one-third (31.4%) reporting that they were unemployed at the time of the survey.

Table 1 Sociodemographic Characteristics (N=759)

Characteristics	N	%
Sex		
Male	751	98.9
Female	8	1.1
Age		
Mean (± SD)	35.9 (± 7.9)	
Median	35	
< 25	26	3.4
≥ 25	733	96.6
Illiterate	62	8.2
Primary education	186	24.5
Secondary education	351	46.2
Higher education	138	18.2
University	22	2.9
Unemployed	239	31.4

Table 2 presents participants' injecting history and current injecting practices. Initiation of injecting drug use occurred predominantly in early adulthood. Over half of participants (50.2%) reported initiating injecting between the ages of 19 and 24 years, while 41.6% initiated injecting at age 25 years or older. Early initiation was less common, with 8.2% reporting first injection before the age of 19, including 1.3% who initiated injecting at or before 14 years of age. The mean age at first injection was 24.2 years (SD ±6.1), with a median age of 23 years.

The duration of injecting drug use was long for most participants. A substantial majority of respondents (79.3%) reported injecting drugs for more than five years, while 18.6% reported an injecting history of two to five years. Only 2.1% reported injecting for one year or less. The mean duration of injecting was 11.3 years (SD ±6.7), with a median duration of 10 years, indicating a predominantly long-term injecting population.

High-frequency injecting was common. A total of 79.1% of participants reported injecting drugs daily or more frequently during the month preceding the survey. Risky injecting practices were also prevalent. In the past month, 42.7% reported injecting with a previously used needle or syringe, and 71.5% reported sharing injecting equipment.

Table 2 Drug injecting behaviors (N=759)

Characteristics	N	%
Age at first drug injection		
≤14 years	10	1.3
15-18 years	52	6.9
19-24 years	381	50.2
≥25 years	316	41.6

Mean (± SD)	24.2 (6.1)	
Median	23	
Duration of drug injection		
≤ 1 year	16	2.1
2-5 years	141	18.6
> 5 years	602	79.3
Mean (± SD)	11.3 (6.7	
Median	10	
Injected daily or more (last month)	600	79.1
Injected with a used needle/syringe (last month)	324	42.7
Sharing of injecting equipment (last month)	543	71.5

3.1. Stigma, discrimination, and Health-Seeking Behavior

Internalized stigma was highly prevalent in the study population, with 78.0% of participants reporting that they felt ashamed to inject drugs. Interpersonal stigma within the family context was also common: 42.3% reported having felt excluded from family activities because of their injecting drugs.

Avoidance of health services and HIV testing services in the past 12 months was reported by 12.9% of participants. Experiences related to law enforcement were reported by a notable proportion of participants. Nearly one in ten respondents (9.7%) reported fear of police harassment or arrest. In addition to police-related concerns, external stigma and discrimination were widespread. Almost half of the participants (49.3%) reported having been scolded because of injecting drug use, while more than one-third (36.8%) reported being blackmailed. Physical harassment or violence due to injecting drug use was reported by 19.6% of respondents.

More than half of the participants (51.1%) reported having ever been detained or imprisoned. Among those with a history of imprisonment, 14.9% reported injecting drugs while in prison. Of those who injected during incarceration, more than half (56.8%) reported sharing injection equipment while in prison, indicating a high-risk environment for HIV and other blood-borne infections within prison settings.

Table 3 Stigma, discrimination, and Health-Seeking Behavior (N=759)

Characteristic	N	%
Ashamed to be an injection drug user	592	78
Felt excluded from family activities because you inject drugs	321	42.3
Avoided use of health services and HIV testing in the last year	98	12.9
Fear of police harassment or arrest	74	9.7
Scolded for injecting drugs	374	49.3
Blackmailed for injecting drugs	279	36.8
Physically harassed or hurt you because you inject drugs	149	19.6
Ever been detained or imprisoned	388	51.1
Injection in prison	36	14.9
Shared injection equipment in prison	21	56.8

3.2. Bivariate Associations Between Social, Structural, and Behavioral Determinants of Healthcare Avoidance

Bivariate analyses were conducted to examine associations between selected social, structural, and behavioral factors and avoiding seeking of healthcare services in the past 12 months due to stigma-related reasons (Table 4). Overall, 12.9% (98/759) of participants reported healthcare avoidance during the reference period.

Stigma-related variables were strongly associated with healthcare avoidance. Participants reporting internalized stigma were more likely to avoid healthcare services than those who did not report stigma (16.0% vs. 1.8%; p < 0.001). Similarly, avoiding seeking health care was more frequent among participants reporting exclusion from family activities due to injecting drug use compared with those who did not report family exclusion (19.6% vs. 8.0%; p < 0.001).

Fear of police persecution showed the strongest association with healthcare avoidance (75.7% vs. 6.1%; p < 0.001). In contrast, neither the history of detention or imprisonment nor injecting frequency in the past month was significantly associated with healthcare avoidance (p > 0.05).

Table 4 Social and structural factors associated with healthcare avoidance

Exposure variable	Avoided healthcare (%) *	χ^2	p-value
Internalized stigma			
No	1.8	23.53	<0.001
Yes	16.0		
Family exclusion due to injecting			
No	8.0	22.30	<0.001
Yes	19.6		
Fear of police persecution			
No	6.1	287.25	<0.001
Yes	75.7		
History of detention or imprisonment			
No	14.8	2.36	0.124
Yes	11.1		
Injecting frequency (past month)			
Non-daily	14.5	0.43	0.511
Daily or more	12.5		

* Percentages represent the proportion of participants reporting healthcare avoidance within each exposure category. Pearson's chi-square test was used for all comparisons.

3.3. Independent Social and Structural Determinants of Healthcare Avoidance

To assess whether these bivariate associations persisted after accounting for potential confounding between stigma, policing, and injecting behaviors, a multivariable logistic regression analysis was conducted.

Variables included in the model were selected based on statistical significance in bivariate analyses and theoretical relevance as social and structural determinants of healthcare access.

After adjustment for all covariates, fear of police persecution emerged as the strongest independent predictor of healthcare avoidance. Participants who reported fear of being harassed or arrested by the police had much higher odds of avoiding healthcare services compared with those who did not report such fear (adjusted odds ratio [aOR] = 43.19, 95% CI: 22.20–84.04, p < 0.001).

Exclusion from family activities due to injecting drug use was also independently associated with healthcare avoidance. Participants reporting family exclusion had nearly threefold higher odds of avoiding healthcare services compared with those who did not report family exclusion (aOR = 2.80, 95% CI: 1.55–5.07, p = 0.001).

Internalized stigma (self-reported shame related to injecting drug use) showed a positive but borderline association with healthcare avoidance in the adjusted model (aOR = 2.85, 95% CI: 0.84–9.65, p = 0.093). In contrast, a history of detention or imprisonment was not independently associated with healthcare avoidance after adjustment (aOR = 0.87, 95% CI: 0.50–1.53, p = 0.631).

Sociodemographic variables, including sex and age, were not significantly associated with healthcare avoidance in the multivariable analysis.

Table 5 Independent factors associated with healthcare avoidance

Variable	aOR	95% CI	p-value
Fear of police harassment or arrest (yes vs no)	43.19	22.20 – 84.04	<0.001
Excluded from family activities due to injecting	2.80	1.55 – 5.07	0.001
Internalized stigma (ashamed of injecting)	2.85	0.84 – 9.65	0.093
Ever detained or imprisoned	0.87	0.50 – 1.53	0.631
Age (years, continuous)	0.99	0.95 – 1.03	0.412
Sex (female vs male)	1.94	0.06 – 61.12	0.709

4. Discussion

This study provides a comprehensive examination of the social, structural, and behavioral factors associated with avoiding seeking health care services among people who inject drugs (PWID) in Albania.

The high prevalence of unemployment and the uneven distribution of educational attainment observed in this study show the broader socioeconomic context in which healthcare avoidance among people who inject drugs occurs. Lower educational attainment may limit health literacy, reduce awareness of available services, particularly in contexts where services for key populations are fragmented or poorly integrated. At the same time, unemployment may exacerbate financial insecurity and increase reliance on informal survival strategies, further distancing individuals from formal healthcare settings.

The injecting practices observed in this study provide important context for understanding patterns of avoiding health care services and HIV. The predominance of long-term injecting, high-frequency injection, and widespread sharing of injecting equipment indicates sustained exposure to HIV and other blood-borne infections. In this context, engagement with healthcare services and regular HIV testing are critical components of effective HIV prevention [17].

These findings illustrate that health-seeking behavior among people who inject drugs is shaped by several stigma-related factors, social, and structural constraints. The high prevalence of internalized stigma and family exclusion indicates that many individuals experience sustained marginalization not only in public and institutional settings but also within their social networks. Such experiences may undermine trust in health systems and reduce perceived acceptability of seeking care, including HIV testing.

The fact that more than one in ten participants avoided seeking health services and HIV testing in the past year is particularly concerning, given the high levels of unsafe injecting practices documented in the study. Healthcare avoidance does not occur in isolation but is situated within a broader context of enacted stigma, including experiences of verbal abuse, blackmail, and physical violence. Such experiences may shape perceptions of healthcare environments as unwelcoming or unsafe, reinforcing expectations of discrimination and contributing to the avoidance of healthcare services.

Police persecution and imprisonment further constrain health-seeking behavior. Although a smaller proportion of participants reported direct fear of police harassment, multivariable analyses demonstrated that policing-related fear

was the strongest independent predictor of healthcare avoidance. This finding suggests that even limited exposure to police involvement may have a disproportionate deterrent effect on using the health services.

Imprisonment represents an additional structural risk environment. The continuation of injecting drugs and the high prevalence of equipment sharing in prison highlight the increased contracting risk for HIV.

The multivariable analysis showed that fear of police persecution remained the dominant determinant in the adjusted model, with a magnitude of effect substantially greater than that of other variables.

Exclusion from family activities also remained independently associated with healthcare avoidance, reinforcing the importance of interpersonal stigma within the household and social network. Family exclusion may reduce social support, undermine trust, and limit access to information and encouragement needed to engage with health services.

Internalized stigma showed a positive but attenuated association with healthcare avoidance after adjustment. This might suggest that the effect of internalized stigma may be partially mediated through family exclusion and fear of police persecution.

Injecting frequency was not positively associated with healthcare avoidance in the multivariable model and showed an inverse association after adjustment. This finding may reflect increased contact with harm reduction services, outreach programs, and opioid substitution therapy among individuals who inject more frequently, facilitating access to healthcare despite ongoing risk behaviors.

A history of detention or imprisonment was not independently associated with healthcare avoidance after adjustment. This finding suggests that it is not imprisonment per se, but rather the ongoing anticipation of police interaction and other sanctions, that most strongly deters healthcare utilization.

This finding supports a structural vulnerability framework in which healthcare avoidance among PWID is produced through the interaction of stigma, social exclusion, and criminalization. While injecting practices determine biological exposure to HIV, structural and social factors determine whether individuals can safely access prevention, testing, and treatment services. As a result, HIV risk persists even in the presence of harm reduction and treatment programs when healthcare environments are perceived as stigmatizing or unsafe.

5. Conclusions

This study demonstrates that healthcare avoidance among people who inject drugs in Albania is shaped predominantly by structural and social determinants rather than by injecting behaviors or imprisonment history alone. Fear of police persecution emerged as the most powerful independent factor associated with healthcare avoidance, underscoring the central role of criminalization and police practices in discouraging engagement with health services. Exclusion from family activities further highlights the importance of interpersonal stigma as a barrier to care.

Interventions focused solely on modifying individual behaviors, such as reducing injection frequency, are unlikely to substantially improve healthcare engagement unless accompanied by efforts to reduce stigma, discrimination, and protection of confidentiality. Addressing police practices, strengthening community-based and peer-led services, and reducing stigma within families and healthcare settings may be critical for improving service uptake and HIV-related outcomes among PWID in Albania.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of ethical approval

The present research work does not contain any studies performed on animal/human subjects by any of the authors.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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