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The impact of institutionalization on the effectiveness of harm reduction: a qualitative study using drug users' representations

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Abstract

Context The French harm reduction (HR) model has been incorporated into health policies at the institutional level since 2004. To assess the effectiveness of this process, this article examines the representations of people who inject drugs (PWID) treated in care centers in France. In particular, it focuses on how they perceive themselves and their drug injection practices.

Methodology We conducted a qualitative study using semi-structured interviews with 24 PWID attending both low- and high-threshold care centers. Lexical analysis and advanced statistical methods, including hierarchical clustering and correspondence analysis, were employed to elucidate the intricate relationships between the language utilized, the characteristics of the participants, and the care context.

Results The analysis identified four lexical classes, which collectively represented 96.9% of the corpus. These were: economic aspects (C1), social relationships and stigma (C2), therapeutic and medical care (C3), and technical skills (C4) related to drug injection practices. Two principal factors of variability significantly influenced these classes. Factor 1 primarily distinguished the discourse of PWID according to their socio-economic status, forming a gradient from those in more precarious situations—who accessed low-threshold care centers—to those with greater social stability—who accessed high-threshold care centers. Factor 2 highlighted the influence of temporal markers on discourse, particularly the period of drug injection initiation. This factor reveals a pronounced contrast between participants who initiated injection prior to the 2000s and those who began during or after the 2000s.

Conclusion Our results demonstrate that PWID's experiences and perceptions were shaped not only by their socio-demographic characteristics but also by their social context, particularly the type of care center they attended. This study's findings reveal the limitations of the institutionalized HR model in the French healthcare system and advocate the development of a community-based approach to HR that aligns with its original principles.

Keywords Harm reduction, Public health policy, People who inject drugs, Social representations, Low threshold, France

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Background

In the late 1980s and early 1990s, the escalating HIV/AIDS crisis among people who inject drugs (PWID) in France catalyzed the formation of dedicated advocacy networks. Peer-led user associations, such as ASUD, alongside AIDS activist groups, such as Act Up-Paris and AIDES, mobilized to defend the rights and health of marginalized PWID [17]. Their collective actions initiated a dual dynamic: the politicization of PWID by making them visible to the general public, and the reframing of addiction as a public health issue rather than a moral failing or criminal deviance [12]. This mobilization, followed by concrete interventions—including over-the-counter syringe sales, needle-exchange programs, and opioid substitution therapies—laid the groundwork for broader public-sector engagement in pragmatic harm reduction (HR) strategies, and contributed to measurable declines in HIV transmission and other drug-related harms among PWID [35].

Building on this civic mobilization, HR gradually gained institutional legitimacy in global health governance. Recent resolutions from the United Nations [20] and the European Union [9] reflect growing international consensus on this legitimacy. However, the institutionalization process has been far from uniform [14]. Early adopters like Switzerland and Portugal pioneered supervised consumption sites (1986) and decriminalized drug use (2000). In contrast, the United States only began to integrate HR principles in the 2010s, following the opioid crisis and mounting international pressure [7]. This international variability underscores how the institutionalization of HR has been shaped by a complex interplay between scientific evidence, societal values, and political pressures [31], highlighting the decisive role of socio-political configurations in shaping national HR trajectories.

In France, HR was formally codified in public health in 2004 with Law no. 2004–806, which aimed to both integrate marginalized PWID into the healthcare system and expand HR services nationwide. This institutionalization produced a dual model of service delivery: high-threshold centers and low-threshold services. The former are structured around the normative logic of the French biomedical system which comprises standardized pathways, administrative prerequisites (e.g., appointments, sobriety, identity checks), and long-term rehabilitation goals [10]. In contrast, low-threshold centers were conceived as a pragmatic exception to the normative-based approach. They offer quasi-unconditional access, anonymity, and immediate support (e.g., sterile syringe distribution, overdose prevention kits) to PWID in situations of extreme precarity [38]. These models are still the two main means of HR implementation in France today [16].

Despite its formal integration into national public health policy, the institutionalization of HR in France has generated a series of tensions and unintended consequences. While the expansion of HR services represented a major policy achievement, it also introduced processes of professionalization and bureaucratization which, in some cases, diluted the HR movement's original ethos of pragmatic, user-led, and rights-based engagement [37]. This formalization raised concerns among practitioners and advocates as to whether the newly institutionalized HR model still met the needs of the lived realities of PWID, particularly those most marginalized [7]. Moreover, France's decades-old enforcement of its policy criminalizing all drug use (Law no 70–1320, 1970) continues to sustain stigma, entrench exclusion, and constrain the transformative potential of HR strategies [6]. These paradoxical mechanisms underscore the ambivalent legacy of HR's institutionalization in France, and highlight the need for a critical examination of how institutional HR configurations shape PWID's experiences and subjectivities within the country's health care system. In this context, the present study investigated how France's dual institutionalized HR model (i.e., low-threshold and high-threshold services) condition PWID's representations of their practices, identities and experiences. Drawing on the theory of social representations [18], it explores whether these services are still aligned with their original values of HR, and whether they adequately respond to contemporary public health challenges. Specifically, the study aimed to:

(1) Examine the social representations of PWID currently enrolled in HR centers (i.e., providing either low- or high-threshold services) regarding their injection practices and their self-positioning as users within the country's health care framework;
(2) Identify the key socio-cultural and institutional factors shaping these representations;
(3) Assess how the divergence between the two types of HR service influences PWID's experience and subjectivity.

By clarifying these dynamics, the study contributes to the ongoing debates on the effectiveness, adaptability, inclusiveness, and ideological coherence of current HR policy in contemporary France.

Methods

The present study analyzed data from semi-structured interviews collected during a qualitative study on drug injection practices, as perceived by PWID currently receiving treatment in low- and high-threshold care centers in France. We wished to ensure as diverse a

participant profile as possible in terms of sex, age class, socioeconomic background, geographical region of residence, and level of health care utilization. To achieve this, we recruited participants from four different care centers—two providing low-threshold services, and two providing high-threshold services—located in two cities of different sizes and population densities in southern France. Health professionals from the four care centers facilitated recruitment by presenting the study and its objectives to PWID. Specifically, they presented the study to prospective participants as an investigation of injection behaviors within the broader context of substance use and healthcare pathways. Inclusion criteria were as follows: 18 years of age or older, living in France, reporting drug injection in the previous six months and currently receiving treatment in a low- or high-threshold care center, voluntarily agreeing to participate in the study, and able to communicate in French. The interviews were conducted face to face by the principal investigator in designated private spaces in the four participating care centers. To acknowledge their participation, each respondent received a €10 service voucher. This figure was intentionally set to offset potential barriers to participation while minimizing the risk of recruitment bias.

Sample

As per standard recommendations, no strict rules exist to determine the required sample size for exploratory qualitative studies [13]. A total of 24 participants—16 men and 8 women—were recruited, 12 for each type of HR service. Participants' ages ranged from 28 to 54 years. The sample was socioeconomically diverse: 12 participants reported stable housing, seven reported precarious housing, and five were homeless. Nine had an upper secondary school diploma, 11 had a vocational training certificate, while four had no formal education. Age at the time of first drug injection ranged from nine to 31 years (mean 19.6 years). Seven participants first injected drugs in the 1980s or earlier, eight in the 1990s, six in the 2000s, and three after 2010.

Data collection

Data were collected over a 16-week period between February and May 2019. Each participant participated in a single semi-structured interview. The semi-structured interviews collected detailed and nuanced information on PWID's experiences, attitudes, and representations regarding their drug injection practices. We designed an ad hoc interview guide to encourage participants to talk about their representations of their drug injection practices. The guide was structured using a funnel approach, incorporating open-ended questions, non-directive prompts, and predefined thematic areas. Specifically, the guide comprised three main sections as follows: (1) Respondents were encouraged to spontaneously share their views on their injection practices. This initial phase aimed to establish rapport and to elicit participants' fundamental representations of their drug injection practices. (2) This section explored drug injection initiation, the evolution of injection practices, risk perception, and interactions with care structures (e.g., "Can you describe your first experience with drug injection?"; "What have been your experiences with care centers and/or harm reduction services?"). (3) This section consisted of a brief questionnaire collecting sociodemographic information and contextual details about participants' drug injection experiences. Participants completed this questionnaire after the interview ended. This section consisted of a brief questionnaire collecting sociodemographic information and contextual details about participants' drug injection experiences. Participants completed this questionnaire after the interview ended.

This biographical approach, which balanced guided inquiry with opportunities for spontaneous narrative, reflects best practices in qualitative health research [13]. All interviews were audio-recorded, fully transcribed, and anonymized to maintain confidentiality. Interview length ranged from 20 to 100 min (mean 50.4 min).

Analysis methods

We performed a lexical analysis on transcribed interview to identify the themes related to drug injection in participants' discourses that shaped their representations on injection practices. By 'discourse', we mean the organized set of linguistic expressions and narrative structures produced by participants. This encompasses not only the explicit content of their speech but also the underlying patterns, themes, and contextual nuances that articulated their lived experiences, perceptions, and attitudes toward drug injection practices. This conceptualization of discourse draws on established methodologies in lexical analysis and lexicometrics [28, 29]. Lexical analysis focuses on the words and expressions used in a text to determine meaning, trends, and relationships between different linguistic elements. It combines qualitative and quantitative methods to analyze word frequencies, word co-occurrence, and word distribution in a single text or a set of texts. This approach enables the exploration of large and complex textual data sets and reduces researcher interpretation errors. The interview transcriptions were analyzed using *Interface de R pour les Analyses Multidimensionnelles de Textes et de Questionnaires* (IRaMuTeQ) software (version 0.7 alpha 3), a textual data exploration tool developed by P. Ratinaud [28] that runs on the R statistical computing environment [26]. IRaMuTeQ integrates data processing and statistical

analysis tools to describe textual corpora and to automatically analyze them. In our study, the lexical analysis was conducted on a lemmatized corpus of the 24 textual interviews. Lemmatization is a linguistic process where words are reduced to their base or dictionary form (e.g., injecting → inject, users → user,this enables a more consistent and structured classification of textual data. Like other statistical methods which identify significant word associations (e.g., Chi-square test (χ^2)) to aid lexical class formation, IRaMuTeQ determines the final number of classes, autonomously extracting principal themes and eliminating the need for researcher intervention.

Specifically, the lexical analysis used Reinert's method for hierarchical clustering (HC) [29] which identifies homogeneous sets of discourse in the textual corpus based on word frequency and co-occurrence. This first exploratory step ensured that the major themes in the discourses could be automatically extracted into lexical classes without researcher intervention. The results of the HC were presented in a dendrogram, which is a type of tree diagram used to represent the relationships between the lexical classes identified in the textual corpus (Fig. 1). The dendrogram was used to visualize the hierarchical structure of the data and to identify relevant grouping levels for analysis.

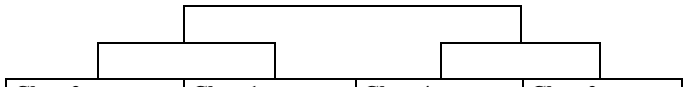
To identify the key variables associated with the lexical classes that have a significant impact on the data, we then performed a correspondence analysis (CA) of the results of the HC. Illustrative variables such as sex, age, type of housing, highest level of education, injection initiation period (in decades), and the care center frequented, were included in this analysis. Although relationship status, having children, injection frequency and polysubstance use are important variables in individual trajectories and risk behaviors, we did not include them in our CA. We chose to prioritize healthcare accessibility and structural inequalities over individual pathology models [4] in the CA. By focusing on institutional and social determinants rather than individual behaviors, we wished to highlight whether and how structural conditions shape PWID's representations and care engagement. The results of the CA are presented in a factorial plane that illustrates the positions of the lexical classes (Fig. 2) and the associated illustrative variables on the main factorial axes (Fig. 3). The spatial arrangement of data points along the vertical and horizontal axes allowed us to identify: (a) the factors that structure the data, and (b) the main lexical profiles within the corpus. Table 1 summarizes the results of the CA, according to two main factors. Coordinates for each factor indicate the placement of lexical classes and modalities of the variables along the axes, reflecting variance in the data. Contributions indicate the role of each lexical class in defining the factors. Correlation values (r) demonstrate the strength and nature of associations of lexical classes and modalities of the variables with the factors. In this context, the correlation values in Table 1 are descriptive and should not be interpreted as evidence of statistical significance or causality. Rather, they indicate structural associations between illustrative variables and discursive patterns within the corpus. Additionally, characteristic interview excerpts associated with each lexical class were generated using IRaMuTeQ to illustrate the contexts of specific discourses.

Results

IRaMuTeQ segmented the 24 interviews into a corpus of 3049 text segments. Of these, 2957 (96.9%) were successfully classified. This very high transformation percentage ensured we could perform a nuanced analysis of discursive structures. The HC process resulted in four distinct lexical classes. Figure 1 illustrates the organization and size of these classes, with the characteristic words for each one. The composition of the classes was as follows, with the relevant words in French translated into English:

Class 1 (C1) comprised 604 text segments (20.4% of the corpus) and focused on the economic dimension and market value associated with drugs. The characteristic words of this class were "give", "buy", "money", "pump" (i.e., slang for syringe), "neighborhood", "atm", "id", "procedure", and "social".
Class 2 (C2) comprised 676 text segments (22.9%) and focused on users' social aspects and interpersonal relationships. It also included aspects of the social stigmatization of PWID. Characteristic words included "talk", "family", "shame", "foolishness", "death", "friend", "people", "aids", and "hepatitis".
Class 3 (C3) was the largest class with 1071 segments (36.2%) and addressed the therapeutic and medical follow-up dimensions of drug consumption. The characteristic words related to medical care including, "methadone", "subutex", "treatment", "codeine", "injection", "opioid" and "skenan" (a morphine-based medication).
Class 4 (C4) comprised 606 segments (20.5%) and focused on the technical dimension and experiential knowledge of injection practices. Characteristic words included "high", "rush" (French slang for the sudden rush/euphoria experienced immediately after injection), "blood", "heart", "vein", "registering" (pulling back slightly on syringe plunger to ensure blood/vein has been found), "cut", "cotton", and "filter".

The CA conducted on the HR results revealed several factors of variability, the two most important factor accounting for 72.4% of the total variance. Figure 2



Class 2	Class 1	Class 4	Class 3
22.9%	**20.4%**	**20.5%**	**36.2%**
talk	give	high	really
friend	buy	send	stop
account	pump	cocaine	think
people	day	blood	craving
death	money	rush	try
give	center	heart	methadone
aids	euro	vein	subutex
steal	prescription	produce	time
nonsense	bring	water	hit
hepatitis	doctor	speed	dope
family	force	crack	smoke
addict	listen	registering	continue
cousin	care	intense	treatment
life	there	crash	use
shame	week	effect	moment
squat	open	quality	drug
allow	wait	vice	precisely
young	nurse	brain	best
sleeve	box	pleasure	girl
know	treatment	cut	don't_know
truth	month	injection	start
mother	resell	seek	injection
laze_about	car	filter	relationship
home	live	cotton	codeine
room	pack	heartbeat	question
enter	era	exactly	opiate
bastard	pharmacy	amphetamine	inject
age	colleague	body	part
apologize	come	struggle	skenan
world	equipment	nose	risk
avoid	lille	paranoia	personal
environment	break	send back	difficult
die	window	buzz	clear
shock	card	hallucination	impression
buddy	apartment	catheter	south
uncle	bag	happen	consumption
appointment	free	morphine	rather
hide	neighborhood	inject	put back
fuck_all_to_do	prison	injection	thing

Fig. 1 Lexical class composition, sizes, and key terms in the corpus

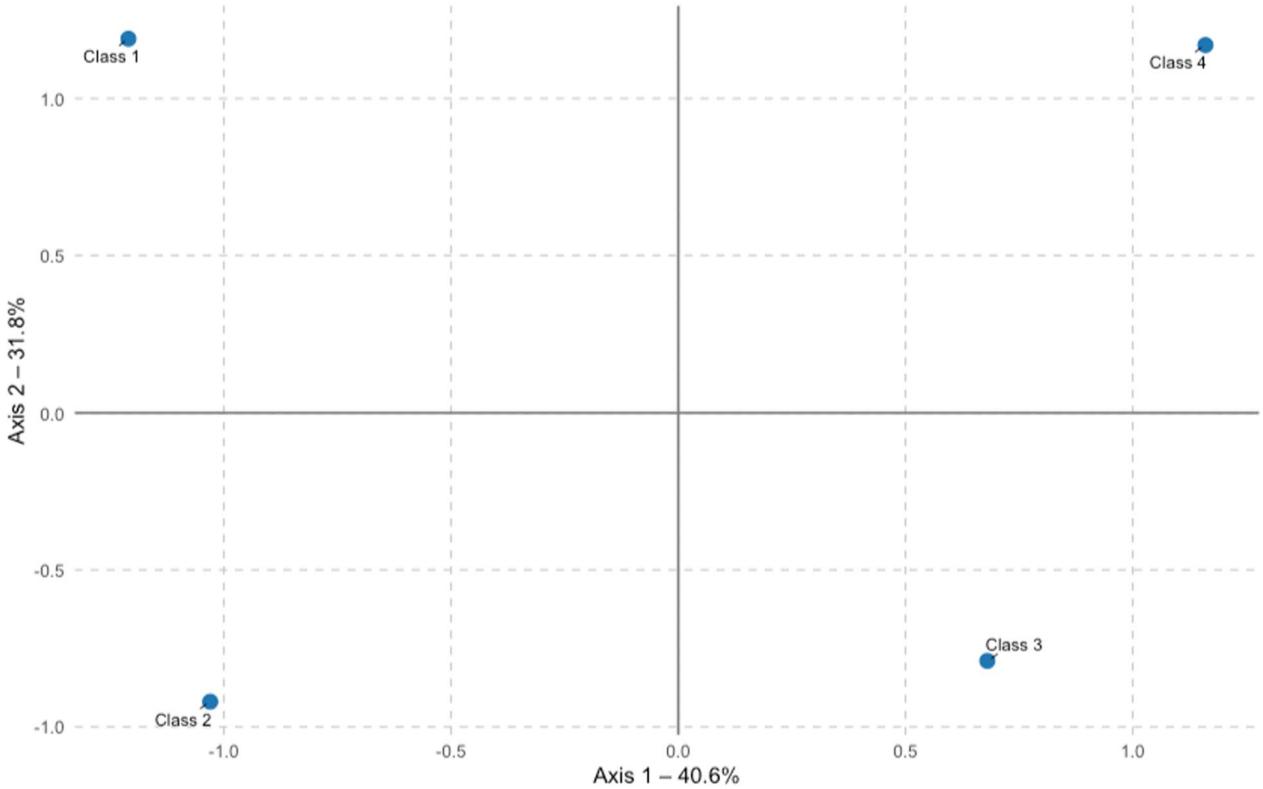


Fig. 2 Factorial plane of Factors 1 and 2 showing positions of lexical classes

illustrates the factorial plane of these two main factors—Factor 1 (x-axis) and Factor 2 (y-axis)—offering a visual representation of the distribution of the four identified lexical classes. The star-like structure of the data indicates that the classes did not overlap; accordingly, each represented a specific argumentative dimension within the corpus. The upper left quadrant represents the economic dimension (C1), the lower left the social dimension (C2), the lower right the therapeutic dimension (C3), and the upper right the technical dimension (C4).

Figure 3 illustrates the factorial plane of these two main factors (i.e., Factor 1 (x-axis) and Factor 2 (y-axis)). It provides a visual representation of the distribution of illustrative variables, highlighting their positions, oppositions, and associations across these axes. Table 1 summarizes the CA findings for the four lexical classes and illustrative variables, including their coordinates, correlations, and contributions to the two main factors.

An analysis of Factor 1, which accounted for 40.6% of the variance, highlighted the importance of housing stability, education level, and the care center frequented (Fig. 3) in the organization of the lexical classes (Fig. 2). Specifically, an analysis of the correlations with Factor 1 (Table 1) showed that the discourses of PWID without stable housing ($r = -0.80$), those with no educational diploma ($r = -0.54$), and those treated in low-threshold care centers ($r = -0.52$) differed, respectively, from the discourses of PWID with stable housing ($r = 0.93$), those who had an educational diploma ($r = 0.87$), and those treated in high-threshold care centers ($r = 0.60$). Consequently, Factor 1 identified two contrasting socioeconomic profiles, which we named the 'Low-Resource Profile' and the 'High-Resource Profile'.

The Low-Resource Profile mainly encompassed the most vulnerable PWID—whose narratives on drug injection are reflected in C1 and C2—and aligned negatively with Factor 1 ($r = -0.62$ and $r = -0.55$, respectively). These two classes predominantly contained terms reflecting themes of economic hardship, social stigma, and health vulnerabilities. For instance, words like "poverty", "homelessness", and "shame" suggest a discourse centered on the challenges faced by individuals living in precarity. This hypothesis is supported by discussions around epidemiological issues and health risks associated with drug use, as seen in terms like "risk", "hepatitis", "disease", "illness", and "aids". These two classes (i.e., C1 and C2) highlight a heightened awareness and concern for health threats, often reflecting the experiences of individuals utilizing low-threshold care centers. The following interview excerpts are characteristic of this profile:

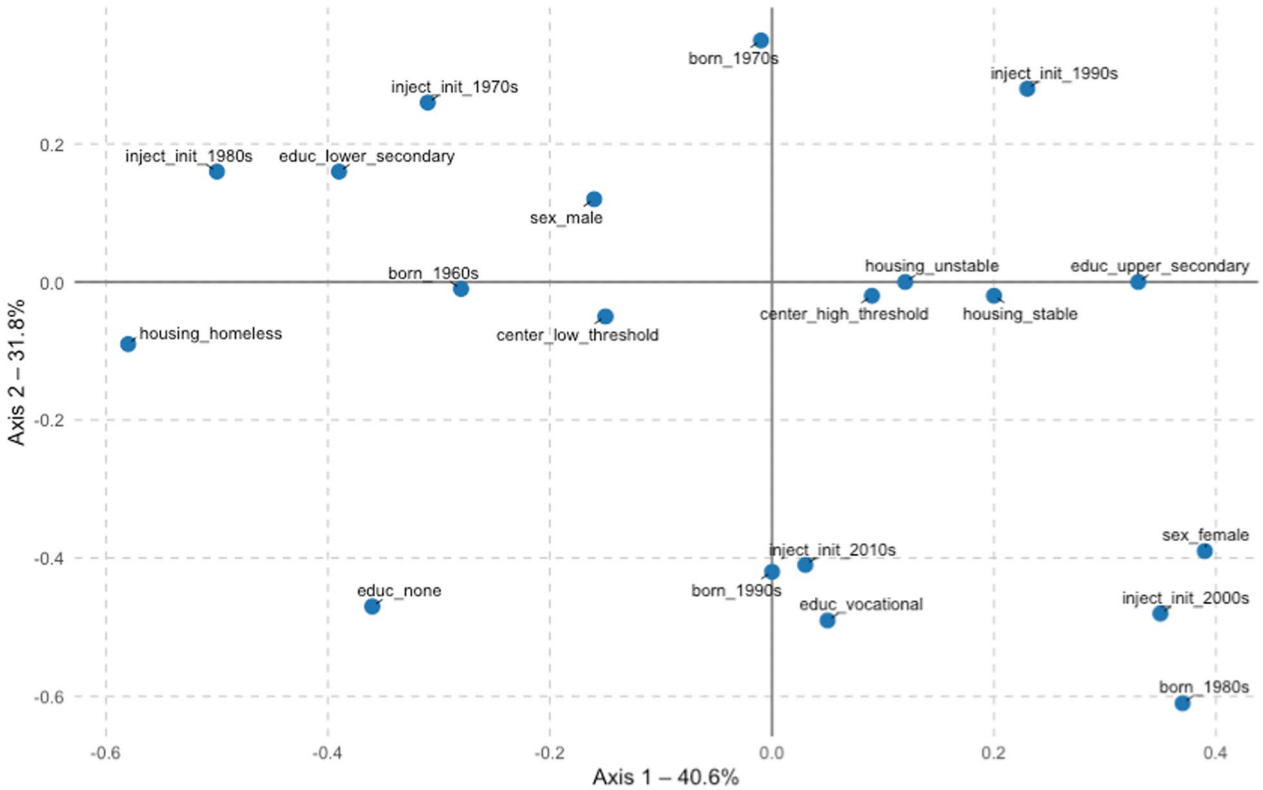


Fig. 3 Factorial plane of Factors 1 and 2 showing positions of illustrative variables

I feel supported here [in the care center]. Here you have the impression that people care about you, that they are interested in you. You don't come across as a drug addict. You're not a piece of shit. Here, no one pays any attention to you, yeah, it's good [...]. Outside, people yes, they call us drug addicts, liars, thieves and other things like that, and then, there is AIDS too. Here, the people welcome you warmly. Here you can speak more freely, because you know that they are used to it, and that's what they are there for. They don't judge you. (female, no educational diploma, precarious housing, low-threshold care center).

The other time, I went to ask for food aid from an association. The women at reception told me something that I don't understand that you had to be sick [to get food aid]. I told them I wasn't sick. They told me that you had to have hepatitis or AIDS to get help. (male, no educational diploma, homeless, low-threshold addiction care center).

In contrast, the High-Resource Profile mainly encompassed PWID with greater stability and resources—whose narratives on drug injection are reflected in C3 and C4—and aligned positively with Factor 1 (r = 0.51 and r = 0.59, respectively). These two classes predominantly contained terms reflecting themes of technical skills, risk minimization, and psychological awareness. For instance, words like "pain", "paranoia", "comedown" and "overdose" indicate a discourse focused on the management of immediate physical and psychological consequences of injection. This hypothesis is supported by discussions emphasizing knowledge, control, and analytical approaches to drug use, characteristics often observed among individuals with stable housing and higher educational attainment. These classes highlight an increased awareness of harm reduction strategies, typically associated with PWID attending high-threshold harm reduction centers. The following extracts illustrate this analysis:

Well, we inject ourselves with psychoactive poison. We don't inject medicine, we self-medicate, but we are not doctors. It's risky; you don't know what you're sending [into your veins]. You never know what you're sending, but I don't feel guilty about using drugs. I don't feel guilty about injecting drugs. I worry that it [drugs] has passed through the anus of I don't know how many people, and that it has been made in a jungle where there are a billion microbes.

Table 1 Correspondence analysis results: lexical classes and illustrative variables—coordinates, correlation, and contribution

Illustrative variable labels		Coord F1	Coord F2	Corr F1	Corr F2	CTR F1	CTR F2
Lexical classes							
	class_1	**−1.21**	**1.19**	**−0.62**	**0.61**	**0.31**	**0.29**
	class_2	−1.03	−0.92	−0.55	−0.49	0.24	0.19
	class_3	0.68	−0.79	0.51	−0.59	0.16	0.22
	class_4	1.16	1.17	0.59	0.60	0.28	0.28
Birth decade							
	born_1960s	−0.28	−0.01	−0.94	−0.03	–	–
	born_1970s	−0.01	0.35	−0.04	0.91	–	–
	born_1980s	0.37	−0.61	0.46	−0.76	–	–
	born_1990s	0.00	−0.42	0.00	−0.93	–	–
Sex							
	sex_male	−0.16	0.12	−0.61	0.48	–	–
	sex_female	0.39	−0.39	0.59	−0.59	–	–
Housing status							
	housing_homeless	−0.58	−0.09	−0.80	−0.12	–	–
	housing_unstable	0.12	0.00	0.56	−0.00	–	–
	housing_stable	0.20	−0.02	0.93	−0.09	–	–
Care setting							
	center_high_threshold	0.09	−0.02	0.60	−0.13	–	–
	center_low_threshold	−0.15	−0.05	−0.52	−0.17	–	–
Formal education level							
	educ_none	−0.36	−0.47	−0.54	−0.72	–	–
	educ_lower_secondary	−0.39	0.16	−0.72	0.30	–	–
	educ_vocational	0.05	−0.49	0.08	−0.75	–	–
	educ_upper_secondary	0.33	0.00	0.87	0.00	–	–
Injection initiation period							
	inject_init_1970s	−0.31	0.26	−0.61	0.50	–	–
	inject_init_1980s	−0.50	0.16	−0.94	0.31	–	–
	inject_init_1990s	0.23	0.28	0.58	0.71	–	–
	inject_init_2000s	0.35	−0.48	0.55	−0.76	–	–
	inject_init_2010s	0.03	−0.41	0.07	−0.89	–	–

Coord: Principal coordinates of each modality on Axes 1 and 2, indicating its position in the factorial space. Corr: Squared cosine (cos^2) on an axis; the proportion of a modality's inertia explained by that dimension (values 0–1; closer to 1 means better representation). CTR: Contribution to inertia; the percentage of an axis's total inertia attributable to each modality, indicating its relative weight in forming that dimension

(male, upper secondary school diploma, stable housing, high-threshold care center).

My life revolves around consumption; well, it's like a part of my work, my studies, my passion which is skateboarding, my romantic relationships, and my friendships. I tend to analyze my world a lot and the field in which I move, whether it's my hobbies, my life, or my relationships; I try to analyze them to improve them. If it's not to control them it is impossible, but to improve them. And when we talk about consumption, improving them is in the sense of doing the least harm possible by taking as much [drugs] as possible. It's about keeping one foot on the ground. Not to die of it [drugs]. It's about taking it but not dying. (male, upper secondary school diploma, stable housing, high-threshold care center).

In any case, injecting made me dream a little bit. I found that it had a little romantic side; not in the sense of romance, but, you know, the literary romantic side; a little melancholy, dark. Well, it's true that it was something that attracted me. I had read [the book] Christiane F. several years before, when I smoked a lot of joints. I knew that if hard drugs came my way, I would want to try them. (female, vocational diploma, stable housing, high-threshold care center).

Factor 2, which accounted for 31.8% of the data variance, revealed a significant influence of temporal markers on PWID's representations of injection. As illustrated in Fig. 3 and Table 1, C1 (r = 0.61) and C4 (r = 0.60) are associated with participants born in the 1970s (r = 0.91) and with those who initiated drug injection in the 1990s (r = 0.71) or earlier, such as the 1980s (r = 0.31) and 1970s (r = 0.50). Conversely, C2 (r = –0.92) and C3 (r = –0.79) are linked to participants born in the 1990s (r = 0.93), as well as to those who initiated injection in the 2000s (r = 0.76) and 2010s (r = 0.89). Factor 2 thus highlights a significant transformation in the representations of injection among PWID, shifting from pragmatic and experiential perceptions (C1 and C4) among older PWID socialized to drug use in the specific historical context of 1990s France, to a socio-health perspective focused on medical care and therapeutic issues (C2 and C3) among those who have more recently started injecting. The following interview excerpts are representative of these contemporary discourses:

> *At the beginning, I told myself that the doctor could give me Subutex, that I would not need to buy it on the street; so, I wasn't part of any care process at the beginning. Subutex, at the start, before getting it in treatment, I bought it on the street to shoot it. Because at the beginning, Subutex gets you high the first few times. For me, it wasn't medicine. So, when I was prescribed it, I couldn't take it properly, because for me, it was a narcotic. Because I was injecting it [before getting it on prescription]. It's still complicated all the same to see it as a treatment. That's why I think changing medications helped me a lot. (male, initiated drug injection in the 2000s)*
>
> *No, methadone, I take it, it stabilizes me, it's not to get me high. I take my dosage normally. I sometimes take Ritalin, that sometimes happens, and cocaine, yeah, because, here in any case, that's all there is. (male, initiated injection in the 2010s)*
>
> *[Drug injection] is abhorrent; it revolts me. Everything about injection, I've got the same [disgust]. Oh yes. It's the same. It's so trash. A cocaine injection leaves you barely able to stand, you're trembling. (female, initiated drug injection in the 2010s)*

Discussion

This study examined drug injection discourses of PWID frequenting low-threshold and high-threshold care centers in southern France. Using a CA, we identified four lexical classes that shed light on the different facets of drug injection among these PWID as follows: economic hardship, social stigma, medical management, and technical knowledge. Two primary factors of variability emerged. Factor 1 revealed two opposing perspectives: a socioeconomic and epidemiological view of injection practices, which was common among PWID with few resources who frequented low-threshold care centers, and a technical and therapeutic view of these practices, which was typical of people with many resources frequenting high-threshold care centers. In contrast, Factor 2 revealed the evolution of PWID's representations of injection practices towards a more medicalized approach, particularly from the 2000s. The implications of these results are discussed in the following sub-sections.

The dual socioeconomic profiles of PWID: the role of education in shaping injection practices and internalized stigma

The Factor 1 findings echo extensive evidence that structural determinants, such as poverty, housing instability and social exclusion, shape drug use trajectories, deepen marginalization, and amplify shame and self-devaluation [23, 30]. Besides these perspectives, our data reveal that having formal education mediated how PWID talked about injection and negotiate stigma. Specifically, participants with upper secondary school or vocational qualifications frequently employed a biomedical, pragmatic register in their discourses (C4) which was characterized by technical vocabulary, health-oriented reasoning, and deliberate distancing from moralizing framings. This fostered a self-reflexive, non-pathologizing portrayal of their drug injection practices, consistent with HR principles. In contrast, PWID with no formal education more often resorted to fatalistic or moralistic narratives (C2), saturated with shame, guilt, and internalized stigma. These discursive asymmetries reflect unequal access to cultural capital and health literacy [3, 34]. In other words, differences in educational attainment and health literacy fundamentally shape the interpretive frameworks through which drug use is understood, experienced, and socially positioned. This internal differentiation within the PWID population demonstrates that they are not a cognitively or socially homogeneous group. Rather, educational capital emerges as a key stratifying factor, giving rise to distinct ways of knowing (epistemic positions) and divergent moral orientations regarding drug use and its associated risks. Empirical research confirms that individuals with no formal education are significantly more likely to internalize stigma than those with academic backgrounds [1, 32]. Conversely, having formal education functions as a protective factor against self-stigma [2], suggesting that the critical thinking skills and domain knowledge acquired through schooling equip individuals to resist negative societal narratives. Furthermore, public health guidelines underscore that stigma often stems from outdated moral frameworks, and that fostering

health literacy, especially via person-centered language (e.g., "person with a substance use disorder" rather than "addict", can mitigate its impact [19]). In this context, formal education and cultural capital jointly serve as vital resources, endowing PWID with the cognitive, discursive, and psychosocial tools needed to challenge and reframe stigmatizing narratives.

Threshold-based care in HR centers: a divergent focus on bodily vs. epidemiological risks among PWID

Besides social determinants, our analysis revealed that the institutional context of HR in France—operationalized through low-threshold versus high-threshold care centers—significantly influenced PWID's risk perceptions and self-representations, thereby confirming our initial hypothesis. For example, participants treated in high-threshold care centers focused on reducing intoxication and overdose risks, while those in low-threshold centers focused on preventing infectious diseases such as HIV and hepatitis C. This suggests that PWID's perceptions of their own drug use are directly linked to the health interventions and harm reduction services offered at the care centers they attend. This is supported by existing research, which highlights that the services and practices of healthcare structures impact PWID's risk management [33, 36]. Depending on the HR strategy used at a given care center, PWID are exposed to different health directives which influence their perceptions of drug use. These socially differentiated health directives raise questions about the varying preventive communication strategies employed within the health system. Despite the fact that all our study participants self-identified as active injectors at the time of the survey, their perceptions of injection practices reflected more the social representation of PWID within varying healthcare contexts than their actual practices. In our study, the drug injection practices of educated and socially integrated drug users—a population mostly frequenting high-threshold settings—were associated with physical risks. In contrast, the practices of PWID marginalized from the healthcare system—a population typically managed in low-threshold settings—were associated with epidemiological risks. In essence, while the practices of advantaged populations were perceived as individual risks, those of marginalized populations were viewed as collective risks. This distinction suggests that risk perception serves as an indicator of the social integration level of PWID within the healthcare system. In line with Quirion's [24] analysis of North American contexts, two HR policies are identified in the French healthcare system: one implemented in high-threshold centers for integrated users, and one in low-threshold centers which entails population risk management for PWID on the fringes of the healthcare system. Consequently, the institutionalization and differentiated application of these HR measures emerge as strategic mechanisms that perpetuate social health inequalities.

The medicalization of harm reduction: a shift towards individual responsibility and its implications for vulnerable PWID

Factor 2 shows that the growing trend of medicalizing drug use was especially evident among PWID in our study who started injecting drugs in the 2000s and 2010s. Although our cross-sectional lexical data preclude causal claims, the synchronicity between policy reforms and discursive shifts makes period effects the most parsimonious explanation. This context is crucial for understanding the impact of incorporating HR strategies in public health policies. In the 1990s, the primary aim of HR was to transform the social and behavioral dimensions of PWID [11] by empowering the wider PWID community and facilitating the exchange of vital knowledge and political perspectives through supportive organizations. However, this political and collective approach strategy was eclipsed by the subsequent medicalization of HR which restricted this approach to infectious risks, and steered HR strategies towards a more clinical and individualized approach to health management, which held users accountable for their use and which neglected focusing on the necessary reform of repressive drug policies in France. This phenomenon shows a kind of "hygienist depoliticization" [5]. It places political and social issues in the background and focuses on medical and hygiene-related considerations. This shift fits into a "neoliberal version of empowerment" [25] promoting individual autonomy to the detriment of structural and political determinants of dependency issues. In turn, this individualistic framing of representations hinders the development of collective strategies essential to truly empower users [21, 22, 27]. While this individual focus has merits in managing immediate risks, it overlooks the need for more sustainable community and policy strategies. Despite its widespread adoption, the institutionalized medico-liberal model fails to address the urgent challenges faced by the most vulnerable users [8]. Consequently, our results underline the importance of integrating a broader structural and historical understanding into HR policies to counterbalance the limitations inherent in current individualized and medicalized approaches.

Implications of study findings and future directions for harm reduction

This study presents a fresh perspective on the discourse surrounding drug injection among PWID receiving care in low- and high-threshold care centers in France. It

underscores the influence that the institutionalization of HR exerts on PWID perceptions, and consequently, the effectiveness of current HR services. In terms of the HR offer, our findings advocate a critical reassessment of current practices in care centers. It seems essential to move beyond a fixation on the infectious risk model, particularly for the most marginalized PWID who mostly frequent low-threshold care centers. More generally, our results raise significant questions about the institutional definitions that form the foundation of prevention and HR services. Consequently, our findings reveal the limitations of the institutionalized HR model within the French healthcare system. To ensure its effectiveness, it seems necessary to promote the direct participation of PWID in the design and the implementation of health policies. Collectively, our findings advocate the development of a community-based approach to HR that aligns with its original principles. Such a renewed HR model would mirror the goals of community-based participatory research (CBPR), which seeks to empower communities to take an active role in research and policymaking, thereby fostering more effective and sustainable health interventions [15]. However, in order to implement a true CBPR-based HR model, several structural and symbolic barriers that limit PWID involvement in policymaking need to be addressed. These include (i) persistent stigma and criminalization, which delegitimize this population's voice in institutional arenas; (ii) deep-seated mistrust toward healthcare and political institutions due to a history of exclusion and punitive treatment; (iii) the lack of institutional mechanisms to formally recognize experiential knowledge as a valid form of expertise. Moreover, participatory initiatives are often symbolic or tokenistic, and do not translate into genuine power-sharing. A critical reconsideration of the modes, formats, and conditions under which PWID are engaged in HR policy is necessary to avoid reinforcing their exclusion under the guise of inclusion.

Study limitations

This study has limitations. First, our methodological choice to include only francophone PWID limits the generalizability of our results. Although this decision aimed to ensure depth and clarity during interviews, it excluded non-French-speaking individuals, especially those from migrant backgrounds, whose experience with HR services may differ from that of the francophone population. Future research should integrate multiple languages to reflect the full diversity of PWID experiences in France. Second, variables such as injection frequency and polysubstance use were deliberately excluded from our correspondence analysis. Our focus was on institutional and structural determinants shaping PWID discourses rather than individual consumption patterns. Nevertheless, these behavioral variables could significantly influence PWID's trajectories, motivations for choosing care types, and perceptions of risk. Future research should consider methodologies that combine structural analyses with individual behavioral assessments to provide a more complete understanding of how these variables interact.

Conclusion

This study sheds light on the complex dynamics within care centers for PWID in France. The findings reveal two dominant perspectives among PWID: a socioeconomic and epidemiological outlook linked to individuals attending low-threshold centers, and a technical and therapeutic perception observed in those attending high-threshold centers. This dichotomy of risk perception reflects social stratification in healthcare access and preventive measures, emphasizing disparities in drug-related risk management. This finding underlines the need for a critical examination of threshold-based care models and their potential role in reinforcing health inequalities. The continued transition toward the medicalization of HR policies since the 2000s has significantly transformed PWID's attitudes and representations concerning drug injection practices. More specifically, the shift from a collective, political approach to individualized clinical risk management has profound implications for the most vulnerable PWID and raises questions about the ability of current HR practices to adequately address complex and varied needs in this population. Any review of HR services must consider not only infectious risks but also socioeconomic and structural dimensions affecting drug use. The study's findings also advocate the integration of a more comprehensive understanding of PWID's practices and representations. By adopting an inclusive, holistic perspective, care centers can effectively cater to diverse PWID needs and foster a more equitable and efficient reduction of drug-related risks.

Abbreviations

PWID	People who inject drugs
HR	Harm reduction
IRaMuTeQ	R interface for multidimensional text and questionnaire analysis
HC	Hierarchical clustering
CA	Correspondence analysis

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Author contributions

NK conceptualized the study, curated the data, performed the formal analysis, conducted the investigation, contributed to the methodology, wrote the original draft, and reviewed and edited the manuscript. PR and LD supervised the

study, advised on research design and methodology, and critically reviewed and edited the manuscript. All authors validated the final manuscript.

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Availability of data and materials
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Declarations

Ethical approval and consent to participate
Before the study, all participants provided oral consent to the use of their de-identified data in research publications. It was not mandatory to answer any interview question, and participants could withdraw from the study at any time without having to give a reason. Each participant received a 10-euro service voucher as compensation for the time spent doing the interview. Ethical approval was obtained from the Inserm Ethical Evaluation Committee (CEEI) n°IRB00003888 on 8 May 2016.

Consent for publication
Not applicable.

Competing interests
The authors declare no competing interests.

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