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Required interventions in open drug scenes: A mixed method study in Tehran, Iran

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Abstract

Background

Open drug scenes are public environments where dealing and using drugs occur in public, contributing to substantial health and social harms. In Iran, responses are largely coercive, with compulsory residential interventions mandated by law. Despite Several harm reduction measures have been introduced, little is known about their context-appropriate and feasibility for addressing drug scene–related issues.

Methods

This study is based on a two-phase mixed qualitative design. First, we conducted 25 semi-structured interviews with key informants, including people who use drugs (PWUDs), service providers, municipal representatives, and police officers, to explore potential interventions. Second, a two-round Delphi process with 14 experts was used to assess the feasibility and effectiveness of suggested interventions. Data were analyzed using content analysis and descriptive statistics.

Results

Five major themes of required interventions emerged: policing, urban design, behavioral change interventions, social facilities, and education. Delphi panel ratings identified highly feasible and effective strategies such as expanding drop-in center operating hours, implementing peer-led interventions, increasing shelter availability, establishing rehabilitation centers alongside harm reduction facilities, and shifting policing toward harm reduction approaches. Educational and community engagement initiatives, including raising awareness about infectious diseases and promoting waste separation, were also prioritized. In contrast, interventions such as supervised consumption rooms, prescription-based access to substances, and “housing first” approaches received lower feasibility scores, reflecting contextual barriers in Iran. Stakeholder perspectives diverged: PWUDs emphasized rights-based approaches and access to basic social supports (housing, employment, identity documents), while service providers prioritized empowerment through rehabilitation and health-focused interventions.

Conclusions

Findings highlight the need for integrated, context-specific strategies that balance law enforcement, harm reduction, rehabilitation, and community engagement. While punitive approaches dominate current responses in Iran, our results support a shift toward community-based and health-oriented models. Also, all citizens—including PWUDs—should be recognized as community members, with both rights and responsibilities.

Background

Open drug scenes - public places where using and dealing drugs are prevalent - are high risk environments that contribute to a range of health and social harms (1, 2). Studies have shown that substance use in public, unsafe disposal of drug paraphernalia, street-based income-generating activities, loitering, the “pull effect” attracting more users, criminal activities, and interpersonal conflict or violence are examples of drug scene-related social problems (2). Addressing these social impacts is a common priority for both public health and law enforcement sectors (3).

National and local responses vary widely (4). Interventions related to drug scene range across a continuum from preventive to corrective policies which differ in their underlying attitudes toward drugs and people who use drugs (PWUDs). At one end of the policy spectrum are punitive measures prioritizing public order and law enforcement; at the other end are preventive approaches focusing on health and social needs of PWUDs (3). Many countries implement a combination of preventive and corrective strategies, attempting to balance public order with healthcare priorities (3). Some countries including Spain, Belgium, Ireland, Luxembourg, the Netherlands, and the UK have developed national drug policies and enacted specific legislation-e.g., the UK’s 2003 Anti-Social Behavior Act (5). Others such as Hungary, Italy, Germany, the Czech Republic, Iran, and Slovenia, address these issues more indirectly through broader public order measures or general drug laws, such as Norway’s drug control statutes (4, 5).

In Iran, Articles 15 and 16 of the 2010 Drug Control Law criminalize drug use unless individuals who use drugs are engaged in treatment (Article 15). Those not in treatment are referred, by judicial order, to compulsory camps free of charge. These are mostly abstinence-based residential centers with some provision of methadone maintenance treatment for a period of 3 to 12 months (Article 16) (4, 5). Despite these measures, concerns remain about its coercive nature and outcomes such as low rate of sustained abstinence (6, 7).

Beyond law enforcement, harm reduction and social support interventions- such as opioid substitution therapy, supervised consumption rooms, prescribed diamorphine programs, and low-threshold housing and employment services are used to reduce drug scene-related social problems worldwide (8–10). The cities including Amsterdam, Frankfurt, Vienna, Zurich, and Lisbon all appeared to effectively closed the exciting drug scenes through an integrated, coordinated, long-term public health and law enforcement services (3). Countries such as Iran, Canada, Ireland, Norway and Brazil continue to face persistence drug scene challenges, despite employing diverse harm reduction, treatment, and rehabilitation measures (1, 11, 12).

Some studies have explored innovative approaches tailored to local contexts- for instance, the implementation of tolerance zones in Berman, Germany, supported by street work services, which indicated potential in reducing public issues while meeting the needs of target groups (13). Similarly supervised consumption rooms have addressed specific health and safety concerns in several countries (14). However, these measures have not eliminated drug scene-related problems, and evidence on context- appropriate, sustainable solutions remains limited.

The present study draws on the risk environmental framework, which emphasizes that the initiation and continuation of substance use disorders are not solely determined by individual characteristics, but emerge through the interaction of community-level dynamics, the physical conditions of urban space, access to required health and social services, and the broader policy reforms regarding required interventions (15, 16). Accordingly, the interventions examined in this study span multiple levels—including social and environmental measures, policy-level reforms, and behavioral change strategies—to ensure a comprehensive assessment. This multi-layered approach enabled the study to develop a holistic picture of effective interventions for managing open drug scenes in Tehran.

Given this gap and in line with the risk environmental framework focusing on multi-level interventions about managing drug scenes, there is a need to identify and prioritize innovative, context-based interventions that balance public order, health, and community perspectives. This study combined qualitative interviews with a Delphi process to capture the experiences of stakeholders living in/around or working about drug scenes in Tehran, Iran, and to develop a set of feasible and effective interventions for managing their impacts.

Methods

This article is a part of a larger study conducted from November 2020 to February 2021 which explored two main topics; first, the drug scene-related community impacts, and second, the required interventions to manage these issues (1). The first part, focusing on identifying drug scene-related community issues, has been published separately (2, 17).

The current study focuses on the second part, aiming to identify and develop interventions for managing drug scenes-related impacts in Iran. To achieve this, two methods were employed, including:

1. Semi-structured interviews to gather a broad and context-based range of potential responses to drug scenes-related impacts
2. A Delphi approach to reach consensus on a set of feasible and effective interventions for managing drug scene-related issues.

In the first phase, we performed in-depth interviews with 25 key informants. Participants were people who use drugs (N = 9), harm reduction service providers (N = 7), mayor and NGO service provider (N = 7), and police officers (N = 2). We used purpose and snowball sampling method. In this study, the interviewees were mostly men (76%). The inclusion criteria for PWUDs were: being older than 18 years, residing/frequently presenting in drug-scene areas, and speaking in Persian. The other interviewees were speaking Persian, having first-hand knowledge of drug scenes based on their practical experiences. The exclusion criteria were lack of experiences with drug-scene places and being intoxicated to the extent that it impeded their participation in the interview. Participants received a gift card valued at approximately USD 8 (5,500,000 rails) as compensation for their time.

We used semi-structured interview guide with a main question: *"What interventions are needed to reduce the harms associated with open drug scenes?"* In addition, participants' personal experiences related to this issue were also explored through probing questions. The interview guide was progressively developed following each interview transcription and coding based on the findings of the previous interviews (1). We provided field notes during interviews. SE conducted the face-to-face interviews. She had no relationship with interviewees and had experiences in conducting qualitative research. We conducted the interviews at the interviewees' office or harm reduction centers where the participants were likely feel convenient and uninterrupted during the interviews. We obtained verbal informed consent before each interview for recording our meeting. The interviews lasted among 45 to 90 minutes. The interviews continued until data saturation; no more themes revealed based on the comparative method of data analysis (18, 19). We utilized conventional content analysis method for analyzing data using MAXQDA software version 10th (20). In this analysis method, we categorized the codes into main sub-themes and themes, and revised them to include emerging codes.

We considered the rigor of the data based on Koch's criteria by conducting both interviews and Delphi method (triangulation), asking the interviewees to review the findings to confirm the accuracy of their experiences (member checking) and using peer checking (21). Additionally, we carefully documented the research process, including audio-recorded interviews, notes, memos, codes, and themes.

In the second phase, we utilized a Delphi method to reinforce the qualitative findings as well as develop the effective and feasible interventions for drug scene-related issues (22, 23). The Delphi method is primarily a structured and interactive communication technique used to gain insight into a complex topic by consulting a panel of diverse experts (24, 25). A recent review of the Delphi technique within the health sciences reported that most studies involved two or three round, in which experts participated in repeated surveys until a consensus was reached (24). We used a two-round Delphi process due to avoiding overburdening participants with multiple rounds of data collection.

We initiated this phase with an initial checklist of required interventions for drug scene-related issues, which was developed based on the qualitative findings (Table 1). Then, we identified and enrolled participants who had experience about drug scenes and carried out two rounds. In the first round, participants were invited to suggest additional interventions for managing drug scene-related issues. In the second round, these suggested interventions were incorporated into the checklist and participants were asked to rate the feasibility and effectiveness of all interventions.

Initially, we identified a list of 33 potential key informants across Iran, representing individuals having experiences about drug scenes. The participants were PWUDs who have lived experiences in drug scenes, professors at universities who direct research on drug scenes, and service providers who work near drug scenes such as NGO and harm reduction staffs. All were invited to participate in the Delphi process via email, phone call or in-person communication. We also followed up to ensure the invitation was received and to describe the objectives and procedures of the study. In the end, our Delphi panels

consisted of 14 key informants including 11 faculty members and service providers, and 3 PWUDs. We obtained verbal informed consent from participants prior to their participation in the Delphi panel.

Delphi rounds and procedures. For the first round, the participant received detailed information about the study with a checklist of potential interventions for managing drug scene-related impacts (Table 1). They were asked to suggest any additional interventions not listed in the checklist. After gathering the completed checklists, the research team briefly explained the procedures for the second round and let participants know that they would receive a follow-up email with instructions within 1–2 weeks. We then reviewed the literature and participants' feedback, and incorporated emerging codes into a revised checklist (Additional file 1). Data from participants and literature review feedback were analyzed using a conventional content analysis approach to categorize the raw data into summary themes.

For the second round, the revised checklist, was resubmitted to the same participants to obtain their feedback. They were asked to rate each proposed intervention for feasibility (on a six-point Likert scale ranging from 0 = not at all feasible to 5 = completely feasible) and effectiveness (on a six-point Likert scale ranging from 0 = not at all effective to 5 = completely effective) and to suggest any additional interventions not included in the checklist. We received 14 responses, with no new suggested interventions.

We finally analyzed the descriptive quantitative data on the effectiveness and feasibility of potential interventions using Microsoft Excel version 2016. For each intervention, the mean feasibility and effectiveness scores were calculated. Although the number of participants was relatively small, reporting means and standard deviations is a common practice in Delphi studies to summarize experts' ratings. Interventions with a combined mean score of less than 6 were classified as having lower feasibility and effectiveness, while those scoring 6 or higher were considered to have higher feasibility and effectiveness.

Ethics. Ethics approval for the broader study was obtained from the Iran University of Medical Sciences, Research Committee ((IR-IUMS.REC.1397.278). All procedures followed the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments. All participants provided verbally informed consent prior to participation

Results

Semi-structured interview results: Semi-structured interviews revealed insights regarding the required interventions for drug scene-related issues. Five main themes emerged: policing, urban design, behavioral change interventions, social facilities, and education (Table 1).

Table 1
Required interventions for reducing the drug scene-related issues

Themes	Sub-themes	Codes
Policing	organizational and operational reforms	Allocating budget for research
		Utilizing international best practices and successful models
		Interagency collaboration
		Engaging experienced policy makers and transfer experiences into newly recruited authorities
	Law enforcement	Elimination of drug scenes
Urban design		Establishing treatment facilities outside urban areas
		Utilizing architectural design in planning service-related spaces
Behavioral change interventions	Abstinence	Long-term treatment in compulsory care for PWUDs
	Harm reduction	A rehabilitation center alongside drop-in center
		Supervised injection/consumption facilities
		Prescription-based access to controlled substances for PWUDs
Social facilities	employment	Creating employment for those who are abstinent
		Creating employment for PWUDs
	housing	Increasing shelter availability
	others	Providing identification document
		Providing accessible recreational facilities
education	Training of PWUDs	Training PWUDs on appropriate responses to children in drug scenes
	Rising awareness of residents	Raising public awareness about infectious diseases
		Community sensitization to reduce resistance and foster acceptance of local harm reduction interventions
		Education on fair and strategic distribution of public donation
		Educating residents on waste separation practices

4 − 1. Policing

Although PWUDs, residents, and service providers emphasize the need for organizational and operational reforms ——the *police*, who primarily interacted with residents opposed to drug scenes, believe that the key policy goal should be the elimination of these drug scenes.

People who use drugs (PWUDs) emphasize the need for budget allocation for research aimed at finding solutions to address the drug scene-related issues -not to pursue a war on drugs, but to develop effective and rights-based strategies. One typical response was the following: *There should be a budget allocated for someone who wants to research this issue, and a solid solution should be found for how to truly address it. Maybe 'fight' isn't the best word—what I mean is, they need to come up with a real strategy*.

Residents typically believe that policymakers need to learn from successful experiences of other countries in addressing drug scene-related issues, which may include either punitive or liberal approaches as stated by this resident responder: "*policymakers need to address the roots of drug issues at hangouts. If they want to have at least some level of control, they could either adopt strict laws like in Dubai or take a more liberal approach like in the Netherlands. They should look into what other countries have done successful. This isn't the first place in the world facing this problem—they should take other countries' experiences into account*".

Service providers advocate that policymakers who are experienced, qualified, and committedly interested in this field, should be engaged- individuals who have a proper understanding of the conditions and needs of PWUDs. One provider formulated this as follows: "*Experience is very important. We need skilled policymakers—those who know what they're doing. Unfortunately, they're currently full of people who don't even know why they're in this field. They've ended up here by mistake. It's crucial that we hire people who are competent, who can actually do the work, who have lived or worked closely with addicted people, and who understand what a user is really saying*".

Another important issue for the providers was the need for effective interagency collaboration, where organizations coordinate and prioritize referrals from one another, formulated as follows: "*There should be cooperation among organizations. For example, if I send a letter to the municipality, it should be acknowledged and followed up. If I write to the head of the HIV department, the letter should be taken seriously and the issue should be addressed accordingly*".

On the contrary the *police*, who primarily dealing with residents protesting against drug scenes, believe that the main goal of policymakers should be the elimination of these drug scenes as stated by on police officer: "R*esidents say that if the drug scenes are eliminated, everything will be solved. Overall, the residents believe that there shouldn't be any drug scenes—they fundamentally oppose the existence of these places. Therefore, the message is clear: policymakers should eliminate drug scenes*".

4 – 2. Urban Design

While residents believe that treatment centers should be relocated away from residential areas, service providers argue that the design and location of such facilities can significantly influence service uptake

among PWUDs and therefore should be planned based on their preferences and needs.

Resident

“In our culture—at least from what I know—the biggest barrier is choosing a location for treatment centers. Wherever you decide to set up a center, it becomes a problem. No one is happy to have an addiction treatment facility next to their home. I think these centers should be located farther away from residential areas.”

Service provider

“When it comes to the architecture of treatment centers, we need to consult with architects and consider how the physical space influences the willingness of drug users to access services. Social workers and architects should collaborate to design spaces in a way that make them comfortable and welcoming to drug users—spaces that reflect their preferences and needs.”

4 – 3. Behavioral Change Interventions

While PWUDs emphasize the need for harm reduction strategies such as establishing supervised consumption facilities or providing regulated access to controlled substances to reduce crime, service providers stress the importance of “empowering” PWUDs through parallel rehabilitation services and extended abstinence-based care.

PWUDs suggested that prescription-based access to controlled substances for PWUDs need to be considered as a way to reduce drug scene-related issues.

PWUD: *“There should be a designated place where a person who uses drugs can go, use their substance, and then return home. Drugs shouldn't be available everywhere or to just anyone. Also, users shouldn’t be allowed to bring substances home. For example, there could be one specific area where drugs are sold—nowhere else—and a specific site where users go to consume. It's similar to how methadone is handled at the DIC: we go there in the morning, take our dose, consume it on-site, and are not allowed to take it home.”*

PWUD

“The government essentially had to provide substances to drug users so that they wouldn’t be forced into theft or committing crimes. For example, there was a time when opium was distributed by doctors. That way, it was easier for drug users to access their substances without resorting to illegal activities.”

Service providers emphasized the need to develop rehabilitation centers alongside drop-in centers.

Service providers of DIC: *“It is very important that, alongside harm reduction and treatment centers like this one, parallel rehabilitation centers are established. For example, after providing treatment for six months, we can refer individuals to rehabilitation centers where they can enroll in skills training classes and receive talent identification. We have clients with lots of knowledge and skills—some speak English very well—who*

could be valuable to society. If drug users know there are centers that value their abilities and plan programs accordingly, it might support their recovery process."

Some others argue that the current duration of compulsory care is insufficient. They suggest that extended periods of care are necessary to support both long-term abstinence and empowerment of PWUDs, as many tend to relapse shortly after discharge.

Service provider: *"I think the duration of treatment in compulsory camps should be three times longer than it currently is, because 99% of drug users want to use drugs again right after discharge. The current period is too short. They need a longer stay in the camp to become empowered and to truly quit using drugs."*

4–4. Social Facilities

Whereas PWUDs highlighted the need for basic social support services such as job opportunities both during drug use and after abstinence, as well as assistance with obtaining identity documents, service providers emphasized health-based social support like increasing shelter availability and establishing health promotion centers.

PWUDs repeatedly reported the need for assistance in obtaining identification documents; viewing them as both critical and a prerequisite for accessing employment opportunities. Without proper IDs, many are unable to obtain jobs after treatment and relapse into drug scenes to earn income. As one PWUDs noted: "*Those who get clean—like when they go to rehab and quit using—often relapse and return to the drug scene after discharge because they can't find work due to lacking IDs. If there were services that could help us get our IDs, we might be able to find jobs and stay away from drug hangouts*."

Furthermore, PWUDs highlighted a need for low threshold and flexible employment opportunities that align with their current patterns of drug use. As a PWUD stated: *"I like both carpet weaving and tailoring, because with these kinds of work, you can take a short break to use drugs and then get back to your work again."*

Service providers emphasized the need to expand supportive services, especially shelters, to facilitate disengagement from drug scenes by PWUDs. As one service provider explained: "*As a treatment team, I believe that for this number of individuals in drug hangouts, establishing only a limited number of drop-in centers (DICs) and shelters is insufficient. Each DIC and especially each shelter can accommodate at most about thirty people. Therefore, it is important to ensure sufficient access to supportive services, especially shelters, to prevent these individuals from remaining in the drug scenes.*"

In addition, service providers expressed a need for accessible recreational facilities such as sports facilities as a part of comprehensive interventions to improve mental health and social engagement of PWUDs.

Service provider: "*There should be a sports club where drug users can go and exercise for free. For example, this club could have a football field, a gym, and wrestling and martial arts halls so that drug users*

can work out there. Exercise can have a positive impact on their mental well-being."

4–5. Education

Both PWUDs and service providers emphasized the need for community-based education as a critical intervention within drug scenes. PWUDs expressed concerns regarding how to appropriately interact with children who are exposed to open drug scenes and acknowledged the need for training in this area. At the same time, service providers highlighted the necessity of broader community education on various issues, including promoting local acceptance of harm reduction interventions, raising awareness about infectious diseases, guiding the strategic distribution of public donations, and educating residents on waste separation practices. These educational interventions were viewed as essential to foster a more supportive and safer environment both for PWUDs and the surrounding community.

PWUDs expressed concern about the presence of children around drug scenes and reported uncertainty about how to appropriately interact with them in such contexts. This highlights the perceived need for training to help them in drug scenes to handle situations involving children and minimize potential harm. As a PWUDs noted: "*Some drug hangouts are only 50 to 100 meters away from nearby houses. The small kids in the neighborhood play around—not inside the hangouts, but nearby. I once saw a five- or six-year-old child pick up a discarded cigarette filter from the street and take a couple of puffs. I scolded the child, but then I thought maybe I was wrong—maybe ignoring it would have been safer. Honestly, I didn't know what the right thing to do was in that moment. I think we need to learn what the appropriate way to react in such situations is*."

Service providers suggested that raising community awareness through tailored graphic materials developed by committed local members is a key intervention to improve knowledge about infectious diseases and reduce associated stigma and fear.

Service provider: "*I think there is a need to raise awareness among residents about issues such as hepatitis. For example, we can ask committed community members to create graphic materials to inform local residents about the challenges related to hepatitis and the correct behaviors to adopt. I believe this would help reduce people's fear of the disease*."

Also, they highlighted the importance of preparing community members prior to establishing harm reduction centers in their neighborhoods. They emphasized the need to identify common public concerns based on experiences of other countries and address them through community education, noting that fear often stems from lack of information rather than real threats.

Service provider

"*In neighborhoods where we plan to establish harm reduction centers like shelters, we need to mentally prepare the local residents. Based on the experiences of other countries facing similar issues, we can anticipate what people might be concerned about. We should provide awareness-raising around these*

concerns so that the community is prepared for the new services. Sometimes people are more afraid of an issue than the issue actually requires — but when they have more information, their fear may diminish."

Service providers emphasized the need for coordinated and planned management of public donation in drug scenes, suggesting that unstructured donations, such as mass food distribution, may result in resource waste and limited service access. Structured scheduling of such aid is perceived as a necessary intervention to enhance efficiency and meet the actual needs of PWUDs.

Service provider: "*Sometimes we witness charitable donations being made to people in drug scenes, such as the distribution of hot meals. However, these efforts are often unplanned. For example, I might decide to distribute 1,000 meals on a day when only 15 people are present in the hangout. Therefore, there is a need to organize and coordinate charitable support. With better organization, such donations can be managed more effectively — for instance, by spreading the meal distribution across seven days instead of concentrating it on a single day*."

Promoting community-based recyclable waste separation is perceived by service providers as a practical intervention to reduce street littering and support income generation for PWUDs, by enabling them to collect bagged recyclables instead of searching through garbage bins.

Service provider: "*The best solution is for residents to separate their recyclable waste. They should place recyclable items in a designated plastic bag next to the garbage bin — something I always do myself. This way, instead of people who use drugs rummaging through the trash, potentially spilling its contents and making the street dirty, they can simply collect the prepared bags and earn some money*."

Delphi method results

in this study, a two-round Delphi process was used.

First round

Following the first phase of the study, a preliminary list of required interventions for managing drug scene-related issues –was established. These were supplemented by review the literature and feedback gathered during the first round of the Delphi method (Additional file 1).

As shown in Additional file 1, a new sub-theme - governance and administrative interventions- was identified in the policing theme. This sub-theme includes codes such as reducing inter-agency operational overlap and verifying undocumented immigrants 'residency status, reflecting administrative dimensions beyond traditional law enforcement. While the literature review provided codes including police crackdown plans, order-maintenance policing, problem-based policing, hot spot policing, and expanded police authority, participants in the Delphi section suggested additional intervention codes not previously identified. These codes include integrating addiction services into primary health care, shift in policing towards harm reduction approaches and deploying trained police officers for child and adolescent legal issues.

In the *urban design theme*, the literature emphasized modification of the physical environment (e.g. installing cameras or fences), while participants suggested enhancing environmental quality and specific actions such as removing hookah services from local restaurants.

For *behavioral change interventions*, the participants suggested that the abstinence-based interventions should include comprehensive pharmacological and behavioral treatments, random urine testing post-residential release, and court-based interventions. Further, the participants recommended that harm reduction interventions should include peer-led interventions, low-threshold basic needs provision, and extending operating hours of drop-in centers until shelters open.

In *social facilities*, particularly employment opportunities, no additional codes were suggested. The housing sub-theme remained limited to the literature's ‘housing first’ approach.

While *education* did not receive new codes, community engagement theme emerged; the participants highlighting the need to strengthen neighborhood attachment, increase community monitoring, and promote active resident involvement in vulnerable areas.

Second round

We received 14 responses with no additional recommended interventions for managing drug scene-related issues. The mean both feasibility and effectiveness scores for the required interventions are presented in Table 2 and 3. Table 2 lists the most feasible and effective interventions, while Table 3 present those considered less feasible and effective.

Table 2
most feasible and effective interventions recommended by 14 participants for managing drug scene-related issues

Theme/sub-theme		Codes	Mean feasibility and effectiveness scores (SD)
Policing	organizational and operational reforms	Reduce inter-agency operational overlap	6/6 (2/3)
		Integrate addiction interventions into PHC services	6/1 (2/5)
	law enforcement	Utilize trained police officers for child and adolescent legal issues	6/7 (1/2)
		Shift in policing towards harm reduction approaches	6/3 (1/2)
Urban design		Enhance environmental quality in vulnerable areas	6/2 (2/5)
Behavioral change intervention	Abstinence base	Provide comprehensive pharmaco-behavioral interventions	6/2 (1/9)
	Harm reduction	Establish a rehabilitation center alongside drop-in center	6/6 (2/6)
		Implement peer-led interventions	7/2 (2/1)
		Extend operating hours of DIC until the opening of shelters	7/5 (2/2)
Social facility	Employment	Creating employment for those who are abstinent	6/2 (2/8)
	Housing	Increasing shelter availability	6/9 (2/0)
Education		Raising public awareness about infectious diseases	6/5 (1/2)
		Educating residents on waste separation practices	6/2 (2/0)
Community Engagement		Increase active involvement of residents in vulnerable areas	6/3 (2/0)
Additional required intervention		*No emerging code*	

Table 2 presents the required interventions for managing drug scene–related impacts that achieved the highest combined feasibility and effectiveness scores (M ≥ 6) based on the second-round Delphi results. These interventions span multiple themes, with particularly high ratings for community-based harm reduction approaches such as extending DIC operating hours until shelters open (M = 7/5, SD = 2/2), implementing peer-led interventions (M = 7/2, SD-2/1), and establishing rehabilitation centers alongside drop-in centers (M = 6/6, SD = 2/6). policing measures, including the use of trained police officers for child and adolescent legal issues (M = 6/7, SD = 1/2), reducing inter-agency operational overlap (M = 6/6, SD = 2/3), and Shift in policing towards harm reduction approaches (M = 6/3, SD = 1/2) also ranked among the top priorities, as did social facility interventions such as increasing shelter availability (M = 6/9, SD = 2). Education-focused interventions—such as raising public awareness on infectious diseases (M = 6/5, SD = 1/2) and promoting waste separation (M = 6/2, SD = 2)— as well as community engagement strategies, including increasing active involvement of residents in vulnerable areas (M = 6/3, SD = 2) were similarly recognized as both feasible and effective.

Table 3
less feasible and effective interventions recommended for managing drug scene-related issues

Theme/sub-theme		Codes	Mean feasibility and effectiveness scores
Policing	organizational and operational reforms	Interagency collaboration	5/7 (2/4)
		Allocating budget for research	4/9 (1/5)
		Utilizing international best practices and successful models	5/3 (2/8)
	law enforcement	Elimination of drug scenes	4/9 (1/5)
		Provide police crackdown plan	3/8 (2/4)
		Provide order-maintenance policing	5/5 (2/4)
		Provide problem-based policing	5/5 (2/1)
		Provide hot spot policing	5/7 (2/4)
		Expand police authority on public behavior regulation	4/6 (2/4)
	Governance and administrative interventions	Register property in vulnerable areas	4/5 (2/7)
		Verify undocumented immigrants' residency status	5/0 (2/0)
Urban design		Remove Hookah from area restaurants	4/6 (2/9)
		Modify the physical environment	4/6 (2/7)
		Establishing treatment facilities outside urban areas	4/7 (2/6)
		Utilizing architectural design in planning service-related spaces	4/7 (2/2)
Behavioral change intervention	Abstinence base	Provide random urine tests after releasing from the RC	4/6 (2/3)
		Long-term treatment in compulsory care for PWUDs	3/8 (1/9)
		Provide court-based interventions	5/3 (2/1)
	Harm reduction	Prescription-based access to controlled substances for PWUDs	3/9 (1/7)
		Supervised injection/consumption facilities	5/7 (2/7)

Theme/sub-theme		Codes	Mean feasibility and effectiveness scores
		Provide low-threshold basic needs of actors in drug scene	5/7 (2/3)
Social facility	Employment	Creating employment for PWUDs	5/8 (2/6)
	Housing	Provide private housing (housing first)	3/9 (3/0)
	Others	Providing accessible recreational facilities	5/0 (2/6)
		Providing identification document	4/4 (2/7)
Education	PWUDs	**Training PWUDs on appropriate responses to children in drug scenes**	4/9 (2/9)
	Residents	Education on fair and strategic distribution of public donation	5/2 (1/8)
		Community sensitization to reduce resistance and foster acceptance of local harm reduction interventions	5/8 (1/8)
Community Engagement		Increase community monitoring	4/8 (1/2)
		Strengthen Neighborhood Attachment in vulnerable areas	4/8 (2/7)
Additional required intervention		*No emerging code*	

Table 3 presents the required interventions for managing drug scene–related issues that received the lowest combined feasibility and effectiveness scores (M < 6) in the second-round Delphi results. These interventions span across multiple themes but generally reflect approaches perceived as challenging to implement or less likely to produce significant impact under current conditions.

Within the policing theme, low-rated interventions included intensive enforcement measures such as police crackdowns (M = 3/8, SD = 2/4), elimination of drug scenes (M = 4/9, SD = 1/5), and expanded police authority on public behavior regulation (M = 4/6, SD = 2/4). Similarly, strategies such as adopting international best practices (M = 5/3, SD = 2/8) were also rated below the feasibility–effectiveness threshold.

In urban design, suggestions like removing hookah services from local restaurants (M = 4/6, SD = 2/9) and modifying the physical environment (M = 4/6, SD = 2/7) were considered less viable.

Behavioral change interventions such as long-term compulsory care for PWUDs (M = 3/8, SD = 1/9) and prescription-based access to controlled substances (M = 3/9, SD = 1/7) received the lowest ratings

across all categories.

Among social facilities, “housing first” approaches (M = 3/9, SD = 3/0) and providing identification documents (M = 4/4, SD = 2/7) were ranked as less feasible and effective.

Educational interventions targeting PWUDs on appropriate behaviors when encountering children around drug scenes (M = 4/9, SD = 2/9) and residents for reducing NIMBY (not in my back yard)-related resistance to establishing treatment centers (M = 5/8, SD = 1/8) and strategic distribution of public donation (M = 5/2, SD = 1/8) also rated below the feasibility-effectiveness threshold. Similarly, community engagement measures like strengthening neighborhood attachment (M = 4/8, SD = 2/7) and increasing community monitoring (M = 4/8, SD = 1/2) were received as less feasible and effective.

Discussion

This study identified five main thematic areas of required interventions: policing, urban design, behavioral change interventions, social facilities, and education. The investigation by the Delphi method prioritized policy shift towards harm reduction approaches, community-based harm reduction, community engagement strategies, reduction of inter-agency operational overlap, integration of addiction services into primary health care and tailored social support interventions.

Policing

The qualitative interviews revealed divergent perspectives among stakeholders. While PWUDs and service providers emphasized the need for organizational reforms, dedicated research budgets, and collaborative policymaking at both national and international level, police officers prioritized the elimination of drug scenes. The Delphi findings refined these views, highlighting governance and administrative interventions, such as reducing inter-agency operational overlap, shifting policy toward harm reduction approaches, involving trained police officers for sensitive populations like children and integrating addiction treatment into primary health care. This aligns with the World Health Organization’s recommendation to embed substance use treatment into primary health care systems, ensuring early intervention and continuity of care across the health sector to provide necessary treatment specially in low-resource settings as well as populations who are traditionally difficult to reach or resist to conventional treatment approaches (26, 27). However, in Iran integrating addiction treatment into primary care has met with problems such as persistent stigma, limited workforce capacity, and gaps in provider training. This must be carefully addressed to ensure effective implementation (28–31).

These results are consistent with international research that advocate a shift from purely enforcement-based strategies -such as crackdowns- toward integrated, rights-based policing models that incorporate health and social services (32). Both global and local studies suggest that even reform efforts within enforcement frameworks may be inadequate to produce sustainable outcomes (32–35). In context like Iran, where punitive models remain dominants, a fundamental transformation of policing models requires redefining the police role from punitive enforcer to public health partner (36, 37). Specifically

trained and equipped police officers can play a key role in referring individuals to appropriate care and support services (38). Achieving harm reduction-oriented policing requires not only clear role definitions, adequate resources, and broad public and institutional support (39, 40) but also strong inter-agency partnerships to avoid parallel activities (41). There is a growing international and domestic consensus that a public health-oriented, harm reduction approach is more effective than punitive criminal justice models.

Urban design: Findings from the interviews demonstrated contrasting attitudes toward the placement of treatment centers. Residents supported relocation away from residential areas (reflecting NIMBY concerns) while service providers advocated user-centered facility design to enhance service uptake. The Delphi process extended these themes by emphasizing environmental modifications in vulnerable areas. These findings are aligned with previous studies highlighting the critical role of local neighborhood context and housing policies, including urban gentrification, in shaping service access and the behavior of PWUDs (42). For example, spatial constraints and restrictive rules in housing facilities have been shown to reduce the utilization of harm reduction programs, such as stable housing provision (43). The NIMBY effect remains a significant barrier globally (44). Studies show that locating services in hot spots can lead to visible drug use that might trigger public demand to close such services. Gentrification combined with increased NIMBY resistance may lead to displacement of the services from the neighborhoods even while the PWUDs remain (45). Therefore, successful urban responses require coordinated, multi sectoral approaches that integrate health services with broader social infrastructure. This was also emphasized by the Delphi experts in the current study (46).

Behavioral change interventions: The PWUDs strongly supported harm reduction strategies such as supervised consumption facilities and regulated access to substances while service providers stressed the importance of rehabilitation and extended abstinence-based care. Delphi participants corroborated these views by endorsing peer-led interventions, the establishment of rehabilitation centers alongside drop-in centers and also expanded operating hours. These findings are consistent with broader evidence that support the role of client-led and peer initiatives to develop engagement among vulnerable population who have often experienced stigma in healthcare settings (47–49). Previous studies have further demonstrated that extending operating hours of drop-in centers and implementing peer-based recovery programs, are critical factors in improving accessibility and effectiveness of interventions. This were also stressed by the Delphi experts in our study (50, 51). Moreover, our Delphi findings align with studies that emphasize the importance of hybrid intervention models that combine both rehabilitation services and drop-in centers to support people at different stages of recovery (52, 53).

In addition to harm reduction approaches, Delphi participants highlighted the need for comprehensive abstinence-based interventions, particularly those integrating psychological and pharmacological care. Previous studies have indicated that integrated treatment models where substance use care is delivered together with medical and psychological services for co-morbid conditions achieved higher abstinence rates than standard approaches that provide addiction care separately from other health services (27).

The lower feasibility ratings for supervised consumption sites and prescription-based access in the Delphi round reflect contextual challenges in implementing certain harm reduction interventions in Iran. These findings indicate that this measures are considered to be infeasible under current national conditions. This aligns with previous researches highlighting the need for tailored policy and programmatic responses to effectively implement emerging area of harm reduction interventions.

Social facilities: Interviews highlighted PWUDs' needs for social support services, including employment opportunities and assistance with identification documents. Service providers emphasized health-focused supports like shelter expansion and recreational facilities. Delphi results reinforced these priorities, particularly the importance of increasing shelter availability. These findings are consistent with studies emphasizing the provision of transitional shelters as an essential component of responses to drug scene-related vulnerabilities (54). However, previous research has highlighted the importance of comprehensive social interventions with a continuum of housing options, ranging from emergency shelters to permanent supportive housing. Such approaches are viewed not only as a way to end homelessness but also as a critical means to employment and substance use treatment (9).

Education and community engagement: Both PWUDs and service providers emphasized the importance of community-based education, particularly to protect children near drug scenes, promote public awareness about infectious diseases and practices such as waste separation. Delphi participants introduced community engagement as a distinct theme, highlighting neighborhood attachment and active resident involvement. Our findings confirm the critical role of education in fostering community involvement, but they do not detail the specific modalities for its implementation. This have been more explicitly addressed in prior research. Previous studies emphasize that public health agencies should organize educational sessions with community leaders and local groups, and actively participate in neighborhood forums to directly address quality of life concerns including the transmission of infectious diseases (10).

One limitation of this study is the imbalance in the number of respondents between service providers (n = 11) and substance users (n = 3) in the Delphi method. This disproportion may have influenced the findings, potentially emphasizing the perceived feasibility and effectiveness of health-based interventions—such as extended operating hours of drop-in centers, peer support groups, and rehabilitation centers—over interventions more directly aligned with the needs of substance users, such as supportive housing, and supervised consumption rooms. Additionally, the high variability observed in the ratings for interventions like "first house" and supervised consumption rooms suggests diverse perspectives among participants, highlighting the need for cautious interpretation of these results. Research with a larger sample of substance users would help to better capture their views and provide a more comprehensive evaluation of intervention effectiveness.

Conclusion

This study highlights the need for integrated and context-specific strategies that balance law enforcement, harm reduction, rehabilitation, and community engagement to address drug scene-related issues in Iran. While punitive approaches continue to dominate national responses, our findings support a policy shift toward community-based and health-oriented models. A coordinated framework is needed in which the health sector and law-enforcement agencies converge in addiction treatment, with the latter ideally playing a supportive, rather than punitive, role within a system that prioritizes public health. This shift would mark an essential step beyond fragmented responses toward a more coherent and effective drug policy.

The perspectives of different stakeholders further underline the problems: PWUDs primarily emphasize the necessity of rights-based approaches and access to basic social and health services, service providers prioritize empowerment through and comprehensive health-oriented interventions, and local residents emphasize the importance of adopting best practices to improve quality of life of the neighborhood. In this context, all citizens—including PWUDs—should be recognized as community members, with both rights and responsibilities. Expanding participatory approaches and addressing structural barriers is critical to achieve sustainable and effective responses to drug scene–related issues.

Abbreviations

PWUDs
People who use drugs
NGO
Non-governmental organizations

Declarations

Declaration of competing interest

None declared.

Clinical trial registration details

Not applicable.

Supplementary materials

Supplementary material associated with this article is available from the corresponding author upon request.

Ethics approval and consent to participate

Ethics approval for the broader study was obtained from the Iran University of Medical Sciences, Research Committee ((IR-IUMS.REC.1397.278). All procedures followed the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments. All participants provided verbally informed consent prior to participation

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Author Contribution

Interview and Delphi method: SE and MBSZ, respectively. It should be noted that SE has worked as a psychologist in several inpatient and outpatient substance-use treatment clinics and has no relationship with the participants. MBSZ has worked at the Ministry of Health and Medical Education as the head of the Addiction Department; thus, he knows Iranian experts in the field of addiction. Data collection: SE, MBSZ. Data coding and interpretation: SE, MBSZ, MV, HW, and TC. Study design and final approval of the manuscript: all authors.

Declaration of generative AI and AI-assisted technologies in the writing process

During the preparation of this manuscript, the authors used ChatGPT-5 tool to enhance language clarity, grammar, and stylistic consistency. All AI-generated suggestions were critically reviewed, and selectively implemented based on the authors' academic judgment. The conceptualization, methodology, analysis, and conclusions of the study remain the authors' original intellectual contribution.

Data availability

All data generated or analyzed during this study are included in this article. Further inquiries can be directed to the corresponding author.

Authorship contribution statement

Interview and Delphi method: SE and MBSZ, respectively. It should be noted that SE has worked as a psychologist in several inpatient and outpatient substance-use treatment clinics and has no relationship with the participants. MBSZ has worked at the Ministry of Health and Medical Education as the head of the Addiction Department; thus, he knows Iranian experts in the field of addiction. Data collection: SE,

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