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SOCIO-BEHAVIORAL RISK FACTORS FOR HIV INFECTION AMONG SYNTHETIC DRUG USERS (BASED ON THE RESULTS OF FOCUS GROUP STUDIES)

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Abstract

Introduction.The article analyzes the specific risks of HIV infection typical for users of modern synthetic drugs (cathinone group stimulants and cannabimimetics).

Aim. to assess the subjective perceptions of users of new psychoactive substances (synthetic drugs) about the behavioral risks of HIV infection.

Materials and methods. A qualitative study was conducted using the method of semi-structured focus groups, including 38 participants aged 30-62 who applied to the Centers for the Prevention and Control of AIDS in the cities of Astana, Karaganda, Shymkent, Kostanay, Oskemen and Petropavlovsk (from March to August 2025). For focus groups, a scenario was developed that includes the following thematic sections: current widespread use of NSAIDs; injection risks for HIV infection; sexual practices under the influence of new psychoactive substances; the demand for and accessibility of social and medical care for NPS consumers. The thematic analysis, the identification of key semantic units with the assignment of "codes" to them were carried out using the MAXQDA qualitative data analysis software.

Results. The analysis of focus group transcripts identified key behavioral and social determinants of HIV infection risk. It was revealed that the use of synthetic stimulants often proceeds in the format of multi-day sessions ("marathons"), which leads to a critical decrease in self-control. Special attention in the study is paid to the phenomenon of chemical sex (chemsex), which is accompanied by polypartnerism, rejection of barrier contraception and traumatic sexual practices. In addition, the risk of transmission of infection through the sharing of instruments (both with injection, and with intranasal or inhalation routes of administration) was recorded. Focus group participants demonstrate a low level of subjective perception of the risk of HIV infection, mistakenly associating it exclusively with "traditional" injection drug addiction.

Conclusion. The conducted research shows the need for further study of the social and behavioral characteristics of surfactant consumers using quantitative methods and representative samples. It is necessary to develop and implement adapted preventive strategies that will take into account the specifics of new drug use formats, the close connection of synthetic drugs with risky sexual behavior and the social characteristics of consumers.

***Keywords**: HIV infection, synthetic drugs, behavioral risks, injection use, risky sexual behavior.*

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Резюме

СОЦИАЛЬНО-ПОВЕДЕНЧЕСКИЕ ФАКТОРЫ РИСКА ЗАРАЖЕНИЯ ВИЧ СРЕДИ ПОТРЕБИТЕЛЕЙ СИНТЕТИЧЕСКИХ НАРКОТИКОВ (ПО РЕЗУЛЬТАТАМ ФОКУС-ГРУППОВЫХ ИССЛЕДОВАНИЙ)

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Введение. В статье анализируются специфические риски инфицирования ВИЧ, характерные для потребителей современных синтетических наркотиков (стимуляторов группы катинонов и каннабимиметиков).

Цель: оценка субъективных представлений потребителей новых психоактивных веществ (синтетических наркотиков) о поведенческих рисках для заражения ВИЧ.

Материалы и методы. Проведено качественное исследование с использованием метода полуструктурированных фокус-групп, включающее 38 участников 30-62 года, обратившихся в *Центры по профилактике и борьбе со СПИД* в городах Астана, Караганда, Шымкент, Костанай, Оскемен и Петропавловск (с марта по август 2025 г.). Для проведения фокус-групп разработан сценарий, включающий следующие тематические разделы: существующая распространенная практика употребления НПВ; инъекционные риски для заражения ВИЧ; сексуальные практики под воздействием новых психоактивных веществ; востребованность и доступность социальной и медицинской помощи для потребителей НПВ. Тематический анализ, выделение ключевых смысловых единиц с присвоением им «кодов» были проведены с помощью программного обеспечения для анализа качественных данных MAXQDA**.**

Результаты. В ходе анализа транскриптов фокус-групп определены ключевые поведенческие и социальные детерминанты риска заражения ВИЧ. Выявлено, что употребление синтетических стимуляторов часто протекает в формате многодневных сессий («марафонов»), что приводит к критическому снижению самоконтроля. Особое внимание в исследовании уделено феномену химического секса (хемсекса), который сопровождается полипартнерством, отказом от барьерной контрацепции и травматичными сексуальными практиками. Кроме того, зафиксировано сохранение риска передачи инфекции через совместное использование инструментария (как при инъекционном, так и при интраназальном или ингаляционном путях введения). Участники фокус-групп демонстрируют низкий уровень субъективного восприятия риска инфицирования ВИЧ, ошибочно ассоциируя его исключительно с «традиционной» инъекционной наркоманией.

Заключение. Проведенное исследование показывает о необходимости дальнейшего изучения социальных и поведенческих особенностей потребителей ПАВ с использованием количественных методов и репрезентативных выборок. Необходимо разработать и внедрить адаптированные профилактические стратегий, которые будут учитывать специфику новых форматов наркопотребления, тесную связь синтетических наркотиков с рискованным сексуальным поведением и социальные особенности потребителей.

Ключевые слова: *ВИЧ-инфекция, синтетические наркотики, поведенческие риски, инъекционное употребление, рискованное сексуальное поведение.*

Для цитирования:

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Түйіндеме

СИНТЕТИКАЛЫҚ ЕСІРТКІНІ ҚОЛДАНУШЫЛАР АРАСЫНДА АИТВ ЖҰҚТЫРУ ҚАУПІНІҢ ӘЛЕУМЕТТІК-МІНЕЗ-ҚҰЛЫҚ ФАКТОРЛАРЫ (ФОКУС-ТОПТЫҚ ЗЕРТТЕУЛЕРДІҢ НӘТИЖЕЛЕРІ БОЙЫНША)

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Кіріспе. Мақалада заманауи синтетикалық есірткілерді, атап айтқанда синтетикалық катинондар мен синтетикалық каннабиноидтарды қолданумен байланысты АИТВ-инфекциясының ерекше қауіптері қарастырылады.

Мақсаты. Жаңа психоактивті заттарды (ЖПЗ) тұтынушылардың АИТВ-инфекциясын жұқтырудың мінез-құлықтық қауіптері туралы субъективті көзқарастарын бағалау.

Материалдар мен әдістер. Сапалық зерттеу 2025 жылдың наурыз-тамыз айлары аралығында Астана, Қарағанды, Шымкент, Қостанай, Өскемен және Петропавл қалаларындағы ЖИТС-тің алдын алу және оған қарсы күрес орталықтарына жүгінген 30–62 жас аралығындағы 38 қатысушының қатысуымен жартылай құрылымдалған фокус-топтық талқылаулар әдісі арқылы жүргізілді. Фокус-топтарға арналған нұсқаулық келесі тақырыптық бөлімдерді қамтыды: ЖПЗ қолдану ерекшеліктері, АИТВ жұқтырудың инъекциялық қауіптері, ЖПЗ әсерінен болатын сексуалдық тәжірибелер, сондай-ақ ЖПЗ тұтынушылардың әлеуметтік және медициналық қызметтерге қолжетімділігі мен оларды пайдалану ерекшеліктері. Мәліметтерді тақырыптық талдау MAXQDA сапалық деректерді талдау бағдарламасының көмегімен жүргізілді. Негізгі тақырыптар мен мағыналық бірліктер анықталып, жүйелі түрде кодталды.

Нәтижелер. Фокус-топтардың стенограммаларын талдау АИТВ-инфекциясын жұқтыру қаупімен байланысты бірқатар маңызды мінез-құлықтық және әлеуметтік факторларды анықтады. Синтетикалық стимуляторларды қолдану көбінесе бірнеше күнге созылатын үздіксіз тұтыну кезеңдерімен («марафондармен») сипатталып, бұл өзін-өзі бақылау мен қауіп-қатерді бағалау деңгейінің айтарлықтай төмендеуіне әкелген. Зерттеуде бірнеше жыныстық серіктеспен қатынасқа түсу, тосқауылдық контрацепциядан бас тарту және жарақаттаушы сексуалдық тәжірибелермен байланысты химиялық жыныстық қатынас құбылысына ерекше назар аударылды. Сонымен қатар қатысушылар инъекциялық, интраназальды және ингаляциялық қолдану кезінде пайдаланылатын құралдарды ортақ қолдану арқылы АИТВ жұқтыру қаупін арттыратын мінез-құлық түрлерін сипаттады. Қатысушылардың көпшілігі АИТВ жұқтырудың жеке қаупін төмен бағалап, инфекцияның берілуін тек дәстүрлі инъекциялық есірткі қолданумен байланыстыратыны анықталды.

Қорытынды. Зерттеу нәтижелері ЖПЗ тұтынушылардың әлеуметтік және мінез-құлықтық ерекшеліктерін сандық әдістер мен репрезентативті іріктемелерді қолдана отырып әрі қарай зерттеу қажеттілігін көрсетеді. Сонымен қатар синтетикалық есірткіні қолданудың заманауи үлгілерін, ЖПЗ тұтыну мен қауіпті сексуалдық мінез-құлық арасындағы тығыз байланысты және осы топтың ерекше әлеуметтік сипаттамаларын ескеретін АИТВ-инфекциясының алдын алу стратегияларын әзірлеу және енгізу қажет.

Түйінді сөздер: *АИТВ-инфекциясы; жаңа психоактивті заттар; синтетикалық есірткілер; мінез-құлықтық қауіп факторлары; инъекциялық есірткі қолдану; қауіпті сексуалдық мінез-құлық; химиялық жыныстық қатынас.*

Дәйексөз үшін:

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Introduction

The human immunodeficiency virus (HIV) epidemic is one of the most pressing health challenges facing the global community. According to the Joint United Nations Programme on HIV/AIDS (UNAIDS), key populations and their sexual partners account for the majority of newly diagnosed infections worldwide [1]. People who inject drugs (PWID) occupy a special place among vulnerable groups [2]. However, it is noted that over the past decade, the global drug scene has undergone a transformation: a large-scale shift from traditional opioids (heroin) to new psychoactive substances (NPS), primarily synthetic cathinones (mephedrone, alpha-PVP) and amphetamines [3, 4].

Unlike opiate users, for whom behavioral risk factors for HIV infection have been more extensively studied, NPS users exhibit extreme forms of risky behavior [5]. This fact necessitates a review of prevention programs and an examination of the socio-behavioral risks characteristic of this target group.

NPS produce euphoric effects, have a short half-life, and strongly affect the human dopamine system. This leads to a specific pattern of use known as “marathon” or “binge” use, in which the drug is administered repeatedly over several consecutive days without sleep or rest [6].

High injection frequency (up to 15–20 times a day) while in an altered state of consciousness reduces behavioral control. The risks of HIV infection increase significantly due to the vasoconstrictive effect caused by stimulants: users face difficulties in locating veins, leading to multiple punctures, bleeding, the passing of syringes from hand to hand, and the use of shared containers for rinsing needles and filters [7]. The literature indicates that the likelihood of sharing injection equipment among PWID is 2–3 times higher than among heroin users [8].

One of the key factors in the epidemiological threat is the impact of synthetic drugs on sexual behavior. Psychostimulants increase libido and prolong sexual intercourse, which has led to the emergence of the “chemsex” phenomenon—the targeted use of PWID to facilitate and intensify sexual desires [9, 10].

It should be noted that the widespread prevalence of social and behavioral risks among heterosexual youth in the context of “chemsex” includes:

• a decline in the instinct for self-preservation, leading to a refusal to use contraception;

• during group sessions, there are multiple sexual encounters with partners they barely know;

• prolonged sexual intercourse damages the integrity of mucous membranes, thereby increasing the risk of the virus entering the bloodstream [11, 12];

• providing sexual services in exchange for drugs against a backdrop of severe addiction [13].

Users of synthetic drugs are at increased risk of HIV, hepatitis B and C, and other sexually transmitted infections (STIs) due to the overlap of injection and sexual risk behaviors, which creates a synergistic effect.

The social profile of a synthetic drug user differs from the classic stereotype of drug users. Often, these are socially connected groups of young people, which creates an illusion of safety and control over the situation [14, 15]. However, the rapid development of tolerance and social degradation leads to marginalization.

Social factors contributing to the spread of HIV infection among PWID include: fear of criminal prosecution for drug use and the stigma associated with HIV infection, which forces individuals to conceal their diagnosis, thereby reducing their likelihood of seeking medical care and testing [16, 17]. Furthermore, existing substitution therapy programs are designed for opioid users (methadone, buprenorphine) and therefore cannot be applied to synthetic drug users [18].

At the same time, the issue of socio-behavioral determinants of HIV infection among synthetic drug users has not been sufficiently studied. In the international literature (S. Bourne, D. Stuart, T. Rhodes), the phenomenon of “chemsex” and its impact on health have been thoroughly analyzed [9, 12]. However, against the backdrop of a shift in the threat toward synthetic psychoactive substances (PAS), empirical studies are fragmentary in nature or focus exclusively on the medical aspects of PAS toxicology, without taking into account social and behavioral contexts [5, 19].

There are significant gaps in research on the barriers to adherence to safe behaviors among NPS users, as well as in the development of effective prevention programs.

Based on the above, there is a scientific contradiction between the rise in synthetic drug use, extreme behavioral risk factors, and the lack of evidence-based HIV prevention programs among groups of PWID.

Materials and methods:

This qualitative study, using the method of semi-structured focus groups, was conducted as part of IRN Project AR23490363, “Scientific Basis for Improving HIV Prevention Among Users of New Psychoactive Substances in Kazakhstan under Current Conditions,” with the support of the Ministry of Science and Higher Education of the Republic of Kazakhstan. Data collection was carried out at the Centers for AIDS Prevention and Control in the cities of Astana, Karaganda, Shymkent, Kostanay, Oskemen, and Petropavlovsk (from June to August 2025). Outreach workers from the AIDS Prevention and Control Centers and drug users were invited to participate in the focus groups on a voluntary and anonymous basis. The number of focus group participants is presented in Table 1.

Table 1.

Distribution of focus group participants.

City	Total number (people)	Gender	
		Men (absolute)	Women (absolute)
Astana	6	6	-
Karaganda	6	5	1
Shymkent	6	5	1
Kostanay	8	5	3
Oskemen	6	4	2
Petropavlovsk	6	4	2
Total	38	29	9

A total of 38 people (29 men and 9 women) participated in the focus groups; their ages ranged from 30 to 62.

Inclusion criteria: regular use of synthetic cathinones (“salts”) for more than one month; voluntary informed consent to participate in the study.

Exclusion criteria: respondents who did not provide voluntary informed consent to participate in the study, minors.

A script was developed for the focus groups, covering the following topics: current patterns of use of new psychoactive substances (NPS); injection-related risks of HIV infection; sexual practices under the influence of new psychoactive substances; and the need for and availability of social and medical assistance for NPS users.

Focus group participants were informed of the study's objectives and signed a voluntary informed consent form to participate; group discussions were conducted in a safe environment for participants, without the presence of outsiders. The focus groups were moderated by specially trained professionals. Focus groups lasted an average of 60 minutes, and all responses were recorded with the participants' consent. Thematic analysis and the identification of key thematic units, each assigned a "code," were conducted using the MAXQDA qualitative data analysis software.

Results.

Focus group participants noted that psychoactive substances are fairly easy to obtain, with purchases most often made online (through closed online drug marketplaces and Telegram channels) using a "stash" system.

The most common methods of synthetic drug use are: intranasal, oral, sublingual, and smoking. However, participants noted that there has recently been an increase in the number of drug users who inject synthetic NPS, which may lead to an increased risk of HIV infection among this group of users.

Thematic Analysis

Based on a review of the transcripts, the focus group participants' responses were structured into the following key categories (parent codes), reflecting behavioral risks and barriers:

I. Risky Behavior

1. Sexual Activity (Libido)
2. Refusal to Use Contraception
3. Loss of Control/Memory
4. Injection Risks (Sharing Syringes)

II. Characteristics of New Psychoactive Substances

1. "Marathons" (prolonged use)
2. Availability via the internet/stash spots
3. Illusion of safety (non-injection route of administration)

III. Barriers to prevention

1. Bureaucracy and record-keeping
2. Lack of anonymity (requirement for an IIN)
3. Hours of operation for drop-in centers

IV. Participants' recommendations

1. Vending machines/terminals for distributing protective equipment
2. Safe consumption rooms
3. Prevention work in schools

Analysis of Key Risks of HIV Infection Among PWID

Sexual Behavior and Loss of Control

The overwhelming majority of focus group participants confirmed that the use of synthetic drugs ("salts," "speed," mephedrone) triggers a sharp increase in sexual desire. Participants noted that while under the influence of drugs, "the brain doesn't think" about protection. Some described instances of intentionally removing a condom due to a subjective feeling of discomfort or a sensation of heat while on stimulants ("I'll burn the rubber," "the tires are heating up"). Under the influence of non-opioid psychoactive substances, criteria for choosing a partner disappear ("everyone seems beautiful," "you don't even look at who's in front of you"). The use of a drug (butyrate) to intentionally render partners helpless for the purpose of engaging in sexual intercourse without consent was mentioned.

According to participants, the main risk of PWI is the complete loss of "inhibitions." While opioid users are often passive when using opioids, under the influence of PWI they become active and dangerous to themselves (unprotected sex, casual encounters, injecting whatever is available during a "marathon" session).

Injection risks

Although non-injectable methods of use are more common among new users, experienced users inject NPS to achieve a "high." When the drug runs out, control is completely lost. In a state of "crash" or "withdrawal," users may use someone else's equipment, limiting themselves to rinsing it with water or wiping it down with alcohol. Participants admit that they may use someone else's syringe due to an unbearable urge to inject. Prolonged use (up to 10 days without sleep, a "marathon") leads to people mixing up syringes or sharing equipment. As injection drug users noted, drop-in centers are closed at night and on weekends, which also forces them to use old or shared equipment ("The need for syringes and condoms often arises at night or on weekends, when the centers are closed"). The requirement to present identification (IIN) for testing or to receive other assistance deters users who wish to remain anonymous, and the high cost of rehabilitation (ranging from 500,000 to 2 million tenge) makes professional drug treatment inaccessible.

There is a clear divide between the "old guard" (opioid users) and young people (users of synthetic drugs). Long-term users are more knowledgeable and disciplined when it comes to syringe hygiene. Young people who use PWID often do not consider themselves "drug addicts" because they do not inject, and as a result, they underestimate the risk of sexual transmission of HIV.

An interesting fact also emerged during discussions with focus group participants: long-term opioid users tend to distance themselves from users of synthetic drugs ("salt users"), characterizing their behavior as unpredictable and destructive. This division within the community hinders the implementation of peer-to-peer programs and requires the development of differentiated approaches for different user groups.

The following recommendations were made to improve preventive care: installing terminals/vending machines for the free and anonymous distribution of condoms and syringes; creating safe rooms where people can obtain sterile equipment and psychological support in an informal setting; ensuring that outreach services and drop-in centers operate on Saturdays and in the evenings; begining risk education in schools starting in 7th grade, given the early age of drug use initiation and online drug purchases.

Below are key quotes from IDU users that clearly illustrate the current situation (Table 2).

Table 2.

Citation Matrix.

Category	Key quote	Source
Sexual behavior, chemsex	"When you're high on meth, bro, you don't even look at who's in front of you—everyone's a beauty. Then, when the high wears off, you look and it's a nightmare."	Olzhas, 34 years old (Astana)
	"Mephedrone stimulates sexual activity... between men... salt, speed, tropicamide, and butyrate drops are also added to drinks, especially for girls, to get them aroused and take advantage of their condition."	Irina, 42 years old (Oskemen)
Waiver of Protective Equipment	"There's a box of condoms lying around... it's marathon week... and we're not using condoms"	Valentina, 46 years old (Karaganda)
	"If I've had a drink, I don't use protection at all. It doesn't even cross my mind."	Olzhas, 34 years old (Astana)
Injection risk	"We shared needles... I knew he was HIV-positive... while I was high, I mixed up the syringes."	Vladimir, 39 years old (Shymkent)
	"When you lose control of the coumarin, just rinse the syringe with water"	Yura, 64 years old (Shymkent)
	"One person pricked themselves, left, then another person sat down, saw the blood, brushed it off, washed it, and pricked themselves too."	Andrey, 47 years old (Oskemen)
Barriers to accessing preventive care	"People don't want to draw attention to themselves... Set up terminals to distribute protective gear."	Ivan, 41 years old (Astana)
	"The clinics are open five days a week, but people can't get (syringes) on the weekends."	Timur, 50 years old (Karaganda)
	"You can only get tested for HIV if you have an ID. Before, you could get tested without an ID and anonymously."	Irina, 42 years old (Oskemen)
A Changing Drug Scene: The Illusion of Safety and Lack of Awareness	"Synthetic drugs are now widespread among young people. They're accessible, easy to use—no need to inject them; you can just order them online. There are also those who have switched from traditional drugs to synthetics, and some use both types of drugs. But while experienced users (of traditional drugs) already know how HIV is transmitted and so on, young people who use drugs are completely out of the loop, and it's very hard to reach them. Nowadays, even if drug users are in the same class or attend the same school, they don't know each other. Injection (as a route of HIV transmission) isn't as widespread, since they don't inject but mostly smoke; sexual transmission is more common, because after using drugs they have	Andrey, 47 years old (Oskemen)
	"They (young people) don't even consider themselves drug users because they don't inject drugs"	Irina, 42 years old (Oskemen)
	"Most of the time, they get it online, which is why they're hard to track down. He placed an order, drove over, picked up the stash, and that was it - he doesn't need anyone else. They've shut down somewhere and are on a 2–3-day binge."	Dmitry, 37 years old (Oskemen)

Discussion

Thus, the results of this study confirm a global trend: the emergence of NPS in local drug markets is radically altering the structure of HIV infection risks, shifting the focus from parenteral to sexual transmission. Participants from all regions included in the study noted the specific effects of mephedrone and "speed" on libido. This is consistent with international data on "chemsex", where stimulants are used to prolong the act and intensify sensations. Synthetic cathinones cause pronounced hypersexuality, which, combined with altered consciousness, leads to a conscious decision to forgo condoms. References to "extended marathons" (lasting up to several days) indirectly indicate a high risk of microtrauma to the mucous membranes, which significantly increases the likelihood of viral transmission during unprotected contact. The study revealed a critical loss of selectivity in partner choice while under the influence of drugs. Users note that social and aesthetic barriers disappear under the influence of NPS. Particularly alarming are reports of the use of NPS (butyrate) to render partners unable to resist, which shifts the risk of HIV transmission into the realm of criminal violence. Although synthetic drugs are often perceived by young people as "safe" (smoked/snorted), the study identified two dangerous trends: experienced users are switching to intravenous use of NPS to achieve a more intense effect, and while in a

state of acute psychomotor agitation ("at the marathon") or withdrawal, users ignore safety rules by sharing syringes or rinsing them with water only. Focus group data also revealed a significant gap between the existing prevention system and the needs of this new group of drug users: the insufficient effectiveness of the current operating hours of drop-in centers, the requirement for identification documents (ID), and mandatory registration, which deter users from getting tested for HIV and obtaining protective equipment. Young people do not consider themselves "drug addicts" in the traditional sense and therefore do not respond to traditional prevention efforts, viewing them as relevant only to the "heroin" generation.

Thus, a comparative analysis of focus group data revealed fundamental differences in risk perception between users of "traditional" opioids and new psychoactive substances. These differences are driving a transformation of the drug scene and call for a reevaluation of existing HIV prevention and harm reduction strategies. While for opioid users the primary risk of HIV infection is traditionally associated with injection use, in the case of NPS the risk profile becomes hybrid. Data from discussions with study participants confirm that stimulants (mephedrone, alpha-PVP) provoke pronounced sexual disinhibition. The state described by participants as a loss of control over partner selection and a refusal to use condoms while under the influence ("my brain isn't thinking," "I'll burn the rubber") places sexual transmission of HIV on the same level as injection-based transmission. This is consistent with international data on "chemsex" practices, where stimulant use directly correlates with increased rates of sexually transmitted infections and HIV.

A comparison of responses from participants in different cities across Kazakhstan reveals a common problem: the existing prevention system (trust centers, needle exchange programs) remains "opioid-centric." People who use non-prescription drugs, especially young people, avoid these services out of fear of stigmatization and mandatory identification (they are required to provide an IIN). They perceive drug treatment registration not as medical care, but as a social barrier that limits their ability to find employment, etc. This creates a "gray zone" of drug use, where the most vulnerable group falls outside the scope of prevention programs.

Limitations of the study

The limitations of this study include the relatively small sample size and the use of qualitative research methods (focus groups), which are characterized by a non-quantitative approach to data analysis. The results of the qualitative study are presented as direct quotes from respondents and cannot be extrapolated to the entire population. Qualitative data are considered less representative, but they allow for an in-depth examination of the existing problem and provide information that is inaccessible to quantitative data analysis methods. Thus, the results obtained in this study may require further validation using representative samples and quantitative research methods.

Conclusion

Based on an analysis of transcripts from focus groups conducted in six cities across Kazakhstan, specific areas for modernizing HIV prevention and harm reduction programs can be identified. The primary focus should shift from the "opioid" model to the specific patterns of use of new psychoactive substances (NPS).

The shift toward synthetic stimulants is shifting the vector of HIV transmission toward sexual transmission. Traditional methods (syringe distribution) remain important but are insufficient. There is a need to focus on preventing "chemsex," implementing pre-exposure prophylaxis (PrEP), and removing bureaucratic barriers (such as the requirement for an HIV test result), which contribute to the hidden nature of this group.

The HIV problem among synthetic drug users in Kazakhstan requires the implementation of anonymous services (vending machines for protective equipment), the expansion of pre-exposure prophylaxis (PrEP) programs with simplified access, and the creation of specialized online platforms for communicating with "closed" groups of users. It is necessary to develop "digital outreach" through bots in messaging apps (Telegram) for ordering prevention supplies and receiving anonymous consultations, as the purchase of synthetic drugs occurs primarily through these channels.

The results of the study also demonstrate the need for further research into the social and behavioral characteristics of synthetic cathinone users using quantitative methods and representative samples.

***Conflict of Interest**. The authors declare that there is no conflict of interest. Data Availability Statement. The data supporting the results of this study are included in the article.*

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Data analysis – V. Baysugurova, Ramazanova M., Aimbetova G.

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All authors have read and approved the published version of the manuscript. The authors declare that this material has not been previously published and is not under consideration by other publishers.

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