



International HIV/AIDS Alliance in Ukraine

ICF “International HIV/AIDS Alliance in Ukraine”

**RESEARCH ON BEHAVIOUR AND HIV PREVALENCE AMONG INJECTING
STIMULANT USERS**

SUMMARY OF THE OPERATIONAL STUDY FINDINGS

L. Shulga, M. Varban, N. Pogorelaya, T. Andreyeva, A. Zamoshets et al. (2010). **Research on behaviour and HIV prevalence among injecting stimulant users. Summary of the operational study findings**, ICF “International HIV/AIDS Alliance in Ukraine”

Authors:

Lyudmila Shulga, Master of Public Health, ICF “International HIV/AIDS Alliance in Ukraine”

Marina Varban, PhD in Psychology, ICF “International HIV/AIDS Alliance in Ukraine”

Natalia Pogorelaya, PhD in Social Science, Independent Consultant

Tetiana Andreyeva, PhD in Medical Science, School of Public Health, Kyiv-Mohyla Academy

Oleksandr Zamoshets, Department of Illegal Drugs Control, Ministry of Internal Affairs of Ukraine

Maksym Ovcharenko-Fedorov, Sociologist, Independent Consultant

Yevheniya Polshikova, Sociologist, Independent Consultant

Yuriy Taran, Sociologist, Independent Consultant

Olga Chiketa, Chemist, Kyiv-Mohyla Academy

Anatoliy Podrushniak, Toxicologist, PhD in Medical Science, L.I.Medved Institute of Eco-Hygiene and Toxicology

This publication was prepared and published within the framework of the Programme “Support of HIV/AIDS Prevention, Treatment and Care for the Most Vulnerable Populations in Ukraine”, supported by the Global Fund to Fight AIDS, Tuberculosis & Malaria.

The views described herein are the views of the authors, and do not represent the views or opinions of The Global Fund to Fight AIDS, Tuberculosis & Malaria, nor is there any approval or authorization of this material, express or implied, by The Global Fund to Fight AIDS, Tuberculosis & Malaria.

Edition:

Layout:

Editors: Olena Kozhushko, Ihor Andruschenko

© ICF “International HIV/AIDS Alliance in Ukraine”, 2010.

Distributed free of charge.

Acknowledgements

ICF “International HIV/AIDS Alliance in Ukraine” and the authors are grateful to all executives and staff members of the following institutions for their prompt organisation and professional research:

Vinnitsia Regional Civil Congress “Stalist” (Sustainability), CF “Virtus Rehabilitation Centre for Drug Dependent Persons”, CF “Public Health”, NGO “Centre for Family Support”, NGO “Impulse Club” (Dnipropetrovsk Region), CO “Svitanok Club”, NGO “Stimul Foundation”, Donetsk Regional Charitable Foundation “Oberih”, Slaviansk City Civil Organisation “Nasha Dopomoha” (Our Help) of Donetsk Region, Transcarpathian Regional Charitable Foundation “Rada Zhyttia” (Council of Life), CF “Drop-In Centre”, NGO “Eney Club”, Centre for Psycho-Social Rehabilitation of Youth with Chemical Dependencies “Krok za Kromom” (Step by Step, Kyiv), CF “Nadiya i Spasinnia” (Hope and Salvation), Sevastopol City Organisation “Youth Centre for Female Initiatives”, Bakhchisarai Charitable Foundation “Centre for Re-Socialization of Drug-Dependent Youth ‘Tvoya Peremoha’ (Your Victory)” (Crimean AR), Luhansk Charitable Foundation “Anti-AIDS”, Luhansk Charitable Foundation “Krok u Maybutnye” (Step into Future), Mykolayiv Regional Charitable Foundation “Nove Stolittia” (New Century), NGO “Centre for Youth Development”, Charitable Association of Help to People living with HIV/AIDS “Svit Nadii” (Light of Hope), CF “Public Health” (Poltava), Kharkiv City Charitable Foundation “Blago” (Welfare), Kherson Regional Charitable Foundation “Mangust”, Association for Assistance in Solving Drug-related problems “Victoria” (Khmelnyskyi), NGO “Smila City Information-Counselling Centre for Protection of Family and Individuals “Dialogue” (Cherkasy Region), CF “Nova Simya” (New Family) in Chernivtsi.

Content

Methodology	
Key Findings	
Changes in the structure of injecting drug use	
Socio-demographic portrait of an injecting stimulant user	
Cooking of stimulant drugs at home	
Risks faced by people who cook stimulants at home	
Risks related to making stimulant drugs. Expert opinion	
Use of stimulants	
Risks related to stimulants drug use	
Drug use related Behaviour	
Sexual behaviour	
Condom use during the last sexual contact	
HIV prevalence.....	
Drug overdose	
Conclusions	
Recommendations	

METHODOLOGY

Aim: Study characteristics and behaviour of stimulant users in order to develop a model of HIV prevention work in Ukraine.

Objectives:

- Identify types of the most widespread stimulant drugs in Ukraine which are cooked at home as well as study peculiarities of the cooking process and related risks;
- Study behaviour patterns of the stimulant users;
- Identify key factors leading to HIV infection among stimulant drug users.

Stages

Stage One consisted of:

- 1) Secondary analysis of outcomes of the behavioural studies held among drug users in 2004-2008.

Research Title	Sample Size	Sample Structure
2004, October-November, Initiation Research	808	Kyiv, Odesa, Pavlohrad, Poltava
2004, July-August, Monitoring of IDUs Behaviour	3542	14 regional centres + periphery towns and villages
2006, July-August, Monitoring of IDUs Behaviour	1820	12 regional centres + periphery towns and villages
2007, June-August, Monitoring of IDUs Behaviour, RDS sampling method	4094	14 regional centres + periphery towns and villages
2008, June-September, Monitoring of IDU Behaviour, RDS sampling method	3711	16 regional centres

- 2) Review of the international studies held among stimulant drug users;
- 3) Qualitative study among persons who cook synthetic psychotropic stimulants at home. Survey among persons who cook synthetic psychotropic stimulants at home was held in May-June 2009 in 22 cities of Ukraine – Dnipropetrovsk, Novomaysk, Dniprodzerzhynsk, Kryvyi Rih (Dnipropetrovsk region), Bakhchisarai, Simferopol, Sevastopol (AR Crimea), Donetsk, Druzhkovka, Slovyansk (Donetsk region), Smila (Cherkasy region), Luhansk, Khmelnytskyi, Kyiv, Poltava, Chernivtsi, Mykolayiv, Kharkiv, Kherson, Odesa, Uzhgorod, and Vinnytsia. 50 people were interviewed. An in-depth interview was chosen as the *research method*. Representatives of the local HIV-servicing NGOs acted as recruiters of the stimulant users who cook drugs at home. Professional interviewers who worked with the respondents possess wide experience of in-depth interviews among various respondent categories (including IDUs). Interviews were recorded, and all the records were decoded into the text format afterwards.
- 4) Analysis of the peculiarities of the technological process and chemical ingredients of stimulant drugs cooked at home as well as their effects on human body. The analysis was

carried out by expert chemists and toxicologists¹ on the basis of studying interviews of those who cook stimulants at home.

Stage Two included an HIV test related mass survey among stimulant drug users. The survey was held by Kyiv International Sociology Institute in August-October 2009. The survey was carried out in the same 22 cities of Ukraine where the qualitative study took place in Stage One. 1581 persons were interviewed. **Research method** applied was semi-structural interviews with stimulant drug users. Selection of the respondents to participate in the survey was held with the help of RDS (respondent-driven sampling) method. 44 professional interviewers took part in the field work. Upon completing the interview, every respondent was proposed to get tested for HIV. Those who consented were tested for HIV with rapid tests (Formasco® CITO TEST HIV-1/2). All respondents who were tested for HIV were provided pre- and post-testing counselling services as well as referred to AIDS Centres for approval of the rapid-test results.

Study Limitations

Key limitations of this study were justified by the following factors:

- The study covered mainly the regional centres of Ukraine (22 cities);
- Sampling consisted mainly of stimulant users aged 18 and over;
- Notwithstanding the RDS method, recruiters for “seeds” were NGO representatives working with the stimulant users. Therefore, sampling contains big number of stimulant users who are clients of their projects.

¹ Among experts were Chemistry scientists of Kyiv Mohyla Academy and the Department of Illegal Drugs Control, Ministry of Internal Affairs of Ukraine and toxicologists of the L.I. Medved Institute of Eco-Hygiene and Toxicology

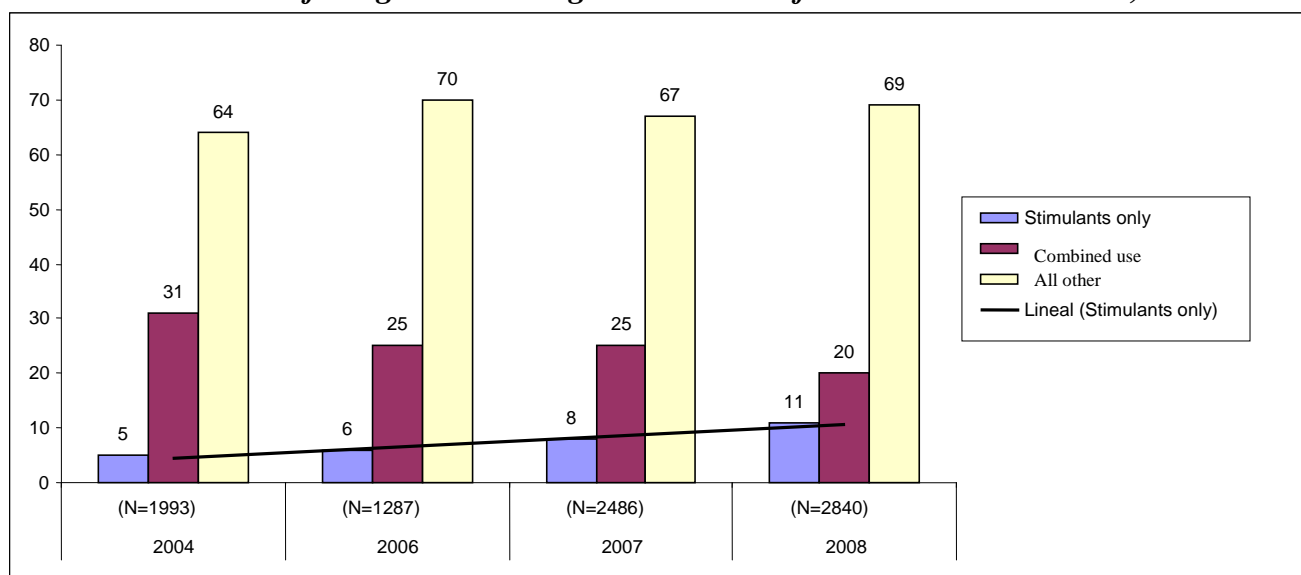
KEY FINDINGS

Changes in the structure of injecting drug use

Results of the secondary analysis of IDU behavioural monitoring data demonstrate that opiates preserve the dominant position in the structure of drug use, yet there is also a clear sign of increasing tendency in consuming stimulant drugs only ('stimulants only'). In 2008, IDUs using stimulant drugs only were 11%, which is 2.5 as much as compared to 2004 (see figure 1).

Figure 1

Structure of drug use in 12 regional centres of Ukraine in 2004-2008, %



“Stimulants only” – those who have used only stimulants for at least one month

“Combined use” – those who have taken not only stimulants but other drugs, too, and also combined drugs with alcohol.

“All other” – those who have taken some drugs per se and in combinations with other drugs.

This tendency is most distinctly tracked in provincial towns, where use of “stimulants only” has increased by 5.5 times between 2004 and 2008. Also, the data differs greatly in every city. Thus, in 2007, in Dniprodzerzhynsk (Dnipropetrovsk region), the users of “stimulants only” constituted 32% of all interviewed IDUs; in Makiyivka (Donetsk region) – 28%. “Stimulants only” answers were mainly given in Donetsk (38%), Kharkiv (23%), Sumy (15%) and Odesa (13%). Results of the studies of 2004-2008 demonstrate that in these cities, percentage of “stimulants only” users and those who practice combined drug use (stimulants plus other drugs) has increased recently, which symbolizes a new tendency (statistically significant at the 1% level). Odesa presents the only exception as the overall number of stimulant users was high already in 2004.

Analysis results demonstrate significant increase in stimulant users among young people of age 18 and under, especially in 2007-2008. In total, over the 4-year time, this IDU segment has increased from 14% to 52% (statistically significant at the 1% level). Within the age group 19-24 of stimulant drug users there is a similar tendency, i.e. from 4% in 2004 to 52% in 2008 (statistically significant at the 1% level). This means that young people who start using drugs, start with stimulants right away.

Drug use Initiation Research (2004) has demonstrated that 28% of all IDU-interviewees had started with stimulants. According to the research results in 2009², every fifth respondent who proved to be taking stimulants also mentioned their first drug was a stimulant; 48% mentioned marijuana or hash, 31% -opiates. Whereas, the trend to start with stimulants marked in previous years among younger people was also proved by results of the study in 2009. Thus, compared to other age groups, 14-19 old drug users significantly more often start with stimulants ($p<0.01$) (Table 1). Analysis of the drug use period demonstrates that over the last 10 years there is a trend in increase of IDUs who start with the stimulants.

Table 1

***Type of the first drug taken by the respondents
(study of 2009), % ($p<0.01$)***

	Age 14–19 (N=162)	Age 20–24 (N=410)	Age 25–34 (N=683)	Age 35 and over (N=325)
Marijuana/Hash	59	54	45	38
Stimulant	26	22	19	15
Opiate	14	22	35	46
Hard to say/refused to answer	1	2	1	1
Total	100	100	100	100

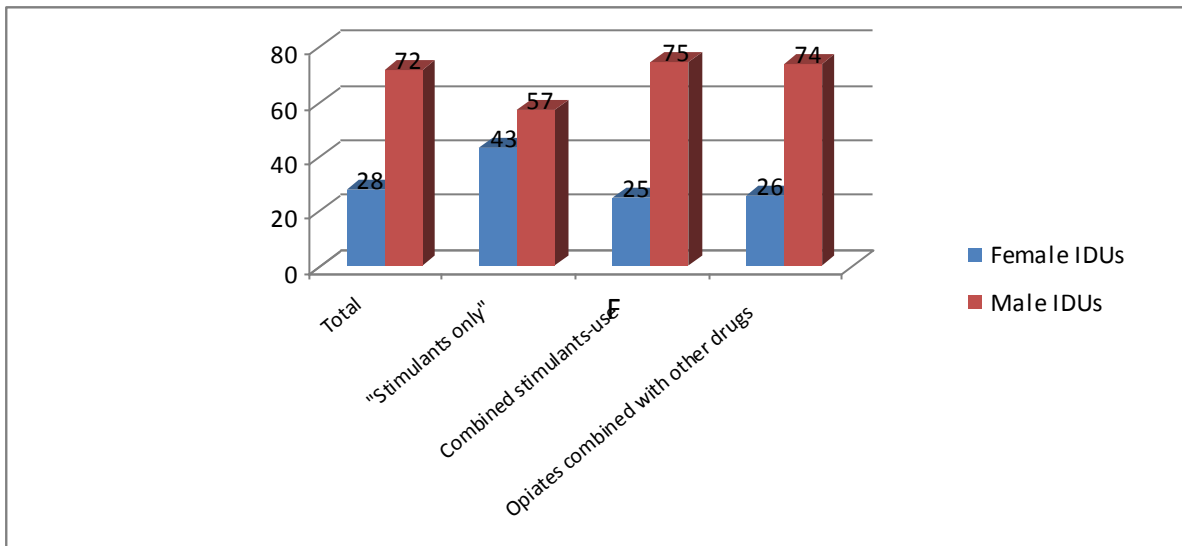
Findings of the survey in 2009 prove that there is a significant difference in age structure of stimulant users in different cities of Ukraine. Thus, in Eastern Ukraine stimulant drug users group aged 34 and over is not or hardly represented (Donetsk – 14%, Kharkiv – 2%, Luhansk – 0%). Whereas, in the capital city this age group constitutes 25%, in Kherson – 32%, and in Mykolayiv – 43%. In Kherson and Kyiv stimulant users aged 14-19 form respectively 0 and 2% of all the interviewed sampling. Contrariwise, in Luhansk, this age group of stimulant users makes 14% and 24% – in Kharkiv. Confidence intervals analysis concludes the recruitment of respondents for this survey was satisfactory, which proves adequacy and reliability of the age indicators reflected in the survey.

Results of research in 2004-2008 demonstrate that the group of those who use stimulants only differs from other groups by its major female component (Table 2).

Figure 2

IDU Community Structured by Gender, %

² The survey was held by Kyiv International Sociology Institute in August-October 2009 in 22 cities of Ukraine. A total of 1581 stimulant drug users were interviewed. Research method applied was a semi-structural interview; sampling was done with the help of RDS (respondent-driven sampling) method.



Statistically significant at the 5% level. Confidence interval: 95%.

In accordance with the data of the research held among stimulant users in 2009, number of women varies from 11% in Vinnytsia to 55% in Luhansk. Generally, women constitute approximately one third of all stimulant drug users in Eastern Ukraine (Dnipropetrovsk region, cities of Luhansk, Kharkiv, Poltava), whereas in Kyiv and Mykolayiv they form 28%, in Donetsk – 24%, and Kherson – 20%. Women start drug use with stimulants more often than men, i.e. 28% among females and 16% - males ($p < 0.01$).

Results of the same research prove that over one third of all interviewed stimulant users, experiment with different types of drugs, and every tenth has not yet decided on a drug of “his/her choice” and consumes the substances that are easy to access (Table 2). Moreover, female stimulant users tend to experiment with various drugs more often than male ($p < 0.01$).

Table 2

Distribution of answers to the following question: “Have you found a drug or combination of drugs which satisfies you most of all?”, %

	Total	Males (N=1141)	Females (N=440)	Age 14–19 (N=162)	Age 20–24 (N=410)	Age 25–34 (N=683)	Age 35 and over (N=325)
Yes, there are several of such drugs. I take them depending on my mood.	36	34	41	44	48	33	23
Yes, there is this one drug.	32	32	32	31	29	33	33
Yes, there is this drug but I cannot afford it.	13	14	10	15	6	14	20
No, there is no such a drug. I use those I can afford.	10	11	9	5	9	10	14
None of the drugs satisfies me, I cannot get over my dependency.	5	6	3	1	3	7	6
Difficult to say/Don't know/Don't remember	4	3	5	4	5	3	4
Total	100	100	100	100	100	100	100

With age, percentage of those who prefer taking combinations of different drugs and consumes them depending on the mood decreases ($p < 0.01$). At the same time, the number of those stimulant users who have to take any affordable drugs increases with age: in the age group of 14-19 they were 5%, among those aged 25-34 – 10% and in the age group of 35 and over – 14% ($p < 0.01$). This presupposes an increased risk of overdose and significant physical effects of toxic substances among such drug users.

In the course of a research in 2009, stimulant users were asked about the reasons of their choice of drug (Table 3). Among most common reasons that influenced their choice of stimulant drugs, the interviewees mentioned the effect of raising working ability, high energy level, commutability, sexual activity; they also remembered to mention the drug's low price.

Table 3

Distribution of answers to the following question “Why do you consume stimulants?”
N=1581

	%	Rank
They help me achieve high energy level and increase my working ability.	60	1
They are cheaper than other drugs.	39	2
I become more commutable after I take stimulants.	33	3
They enforce my sexual activity.	30	4
Stimulants are helpful for art and inventions activity.	26	5
All of my friends consume stimulants.	21	6
This is less harmful than taking opiates.	9	7
I cannot afford opiates.	7	8.5
Other.	7	8.5
It is fashion nowadays.	6	10
Difficult to say.	1	---

Total exceeds 100%, as the respondents were able to choose more than one answer.

Socio-demographic portrait of a stimulant drug user

Findings of the research held in 2009, allowed to compile a generalized portrait of a stimulant user (Table 5). It is usually a male (70% of general population, confidence interval: 67.7–72.5%) aged 25-34 (40% of general population) with college or technical education (66%, confidence interval: 63.1–68.7%). He has either never been married and does not live together with his sexual partner (43% of general population, confidence interval: 38.7–47.9%), or lives with his sexual partner, being officially married or living on civil marriage (39%, confidence interval: 34.1–43.3%). He usually owns his own living premises, either an apartment or a private house (82%, confidence interval: 76.2–87.8%) and irregular temporary jobs (35%, confidence interval: 28.3–41.5%) or is unemployed (33%, confidence interval: 26.8–40.0%).

Socio-demographic portrait of a female stimulant drug user

Female stimulant users differ from males. Usually they study at universities and work at the same time (for comparison, female opiates consumers group is mainly represented by young students, yet they rarely work and are housewives). Females consume stimulants less often because of the low prices and more often to increase their sexual activity and working

ability. Women more often consume stimulants under the influence of others, injections over the last 30 days are more frequent than among men, yet they take methcathinone and cathinone more rarely. Women tend to obtain drugs from their friends more often than men, and they cook the drug by themselves twice as seldom, therefore, they depend on men. Peroral way of consuming stimulants is more popular among women. When they have to take a break in drug use, women take sedatives more often and more rarely consume alcohol within this period as compared to men. Notwithstanding the fact that both women and men are equally under the risk of overdose, in cases of occurrence women were provided the first aid in artificial respiration more often than men (0.021). Women tend to have one permanent sexual partner more than men; they also tend to have casual partners twice as seldom. Nevertheless, women use condoms with their permanent sexual partners much more seldom than men. Besides, HIV is more common among female stimulant users than among male.

Table 4

Socio-demographic characteristics of stimulant users

	Weighted data array, %	Confidence interval 95%
Sex		
Male	70	67.7 – 72.5
Female	30	27.5 – 32.3
Age		
25–34	40	35.4 – 44.6
20–24	29	24.0 – 33.2
35 and over	21	16.1 – 25.3
14–19	11	6.2 – 15.4
Education		
College, technical education	66	63.1 – 68.7
High school	23	19.8 – 25.4
Higher education	12	8.8 – 14.4
Marital Status		
Are not officially married, do not live with a sexual partner	43	38.7 – 47.9
Are officially married or live in civil marriage	39	34.1 – 43.3
Divorced	18	13.7 – 22.9
Place of Birth and Residence		
Resides in the hometown (where was born)	81	75.6 – 86.8
Over 1-year residence	16	11.4 – 21.6
Resides in this town temporary	1	0.0 – 7.0
Resides less than 1 year	1	0.0 – 6.9
Place of Residence		
Apartment/private house	82	76.2 – 87.8
Shared apartment	9	3.2 – 14.8
Dormitory	5	0.0 – 10.6
Place of Residence		
In the street	1	0.0 – 6.9
Shelter, orphanage/boarding school	0.1	0.0 – 5.9
In a basement or an attic	0.1	0.0 – 5.9
Other	3	0.0 – 8.7
Type of Activity		
Temporary jobs	35	28.3 – 41.5
Unemployed	33	26.8 – 40.0
Permanent job	17	10.3 – 23.5
An academy/university/institute student	4	0.0 – 10.1
Housewife/ home-career	4	0.0 – 10.4
On disability pension	3	0.0 – 9.4

	Weighted data array, %	Confidence interval 95%
Professional technical college student	2	0.0 – 8.4
Technical college student	2	0.0 – 8.2
School student	1	0.0 – 7.3
Other	0.4	0.0 – 7.0

Analysis of networks of the stimulant users has identified a wide circle of their friends who also consume stimulant drugs, as well as great differences on the regional level (Table 5). All in all, in half of the samples the respondents mention knowing 5 or more other stimulant users, one third of them know 6-10 of such people, 13% mentioned 11-20 friends who take stimulants and 4% know over 20 of such people. Generally there is no significant difference in the number of friends who take stimulants between male and female respondents and it makes up mainly 8 persons. There is a difference within the groups of stimulant users with different length of drug use (statistically significant at the 1% level). Respondents with 4-9 year drug use experience possess the most wide networks of friends who also use drugs (9.2 people), those with experience of 10 years and over – know 7.7 other drug users and those who consume drugs for less than 4 years – mention 7.2 persons.

Table 5

Size of the stimulant users networks by cities

City	Sample size	Network size	Standard deviation
Novomoskovsk	33	20.0	23.26
Luhansk	103	14.9	10.10
Dniprodzerdzhynsk	53	13.3	5.13
Slovyansk	53	10.7	10.75
Bakhchisarai	33	10.6	4.95
Kryvyi Rih	53	9.8	4.84
Donetsk	119	9.3	7.60
Vinnytsia	78	8.5	7.52
Chernivtsi	53	8.2	6.97
Kostiantynivka	53	7.8	2.80
Kyiv	154	7.6	8.53
Smila	53	6.9	5.87
Uzhgorod	44	6.3	6.94
Mykolayiv	128	5.9	4.11
Dnipropetrovsk	48	5.9	7.53
Sevastopol	38	5.9	4.49
Khmelnyskyi	74	5.9	6.09
Odesa	77	5.6	5.60
Kherson	102	5.5	4.05
Kharkiv	103	5.3	2.38
Poltava	78	5.2	4.91
Simferopol	38	4.6	2.20

Cooking of stimulant drugs at home

According to the results of the research in 2009 (Table 6), 64% of respondents purchase cooked drugs, 22% cook drugs by themselves at home and 32% consume drugs cooked by their friends or people they know.

Table 6

Distribution of those who cook stimulants by themselves or consumes drug cooked by their friends, %

	I cook it myself	My friends cook it

Sex		
Male	27	29
Female	10	41
Length of drug use		
10 years and more	31	25
4–9 years	16	39
0–3 years	7	40
Total	22	32

Women cook drugs by themselves more rarely than men ($p < 0.01$), and more often consume drugs cooked by other people. Depending on the length of drug use, there is a tendency in increasing number of people who cook the drugs by themselves with years ($p < 0.01$).

Results of the survey among stimulant users held in 2009 show that in the 22 target cities several types of stimulant drugs are cooked at home (Table 7).

Table 7

Types of stimulant drugs which are cooked at home

Name of the drug	Slang names	Key substances needed to cook the drug	Additional substances or conditions needed to cook drugs
Methamphetamine	Meth, crank, crystal, speed, white cross, white crunch	Pseudoephedrine* + iodine + red phosphorus or ephedrine** + iodine + red phosphorus	Baking soda, liquids to clean tubes (“Krot”, “Mr. Muskel”), concentrated hydrochloric acid, concentrated acetic acid, petroleum (A76, A96, “Kalosh”), ethyl alcohol, “Belizna” (bleach), acetone (nail polish liquid removers).
Amphetamine	Amp, amphetamine	Fenamine*** + iodine + red phosphorus	Baking soda, liquids to clean tubes (“Krot”, “Mr. Muskel”), concentrated hydrochloric acid, concentrated acetic acid, petroleum (A76, A96, “Kalosh”), ethyl alcohol, “Belizna” (bleach), acetone (nail polish liquid removers). 10–15% hydrochloric acid is added to granules obtained from the powder and are boiled for an hour. The rest of the process reminds preparing methamphetamine.
Methcathinone/ephedrone	Mash, gagers, goob, jeff, mulka, speed	Ephedrine + manganese (potassium permanganate) + acid (acetic or acetylsalicylic)	Heating to the level of 50–60°C
Cathinone	Mash, gagers, goob, jeff, mulka, speed	Pseudoephedrine + manganese (potassium permanganate) + acid	Room temperature

		(acetic or acetylsalicylic) or Phenylpropanolamine**** + manganese (potassium permanganate) + acid (acetic or acetylsalicylic)	
--	--	--	--

* Pseudoephedrine is obtained from pills, powders of medications "Actifed", "TriFed", "Zestra", "Grippex", "Terofun", "Rino-Stop", "Teraflu", etc.

** Ephedrine is obtained from pills "Teofedrine", "CldFlu+", Teofedrine-Neo", "T-phedrine" or syrups "Solutan", "Broncholitin", "Sunored", "Ephedrine hydrochloride" (pills, powder or solution), etc.

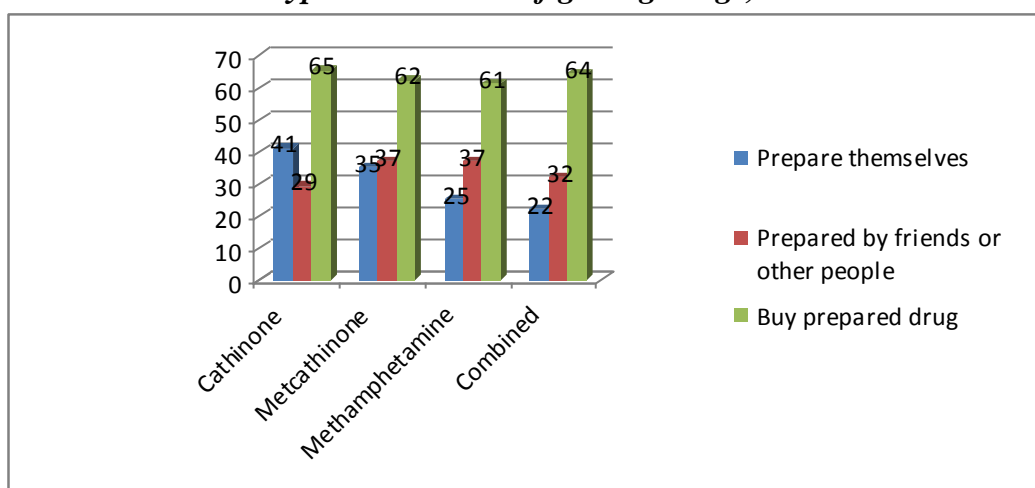
*** Fenamine – obtained from pills "Coldact", diet pills "Mazindol". "Terepak", "Fepranone", "Gracydine", "Dezopimon", "Mefonlin", etc.

**** Phenylpropanolamine is obtained from pills "Coldact", "Effect", "Orinol", "Kontak-400", etc.

Respondents would cook solution containing cathinone or methcathinone ("mash") by themselves, whereas they tend to purchase the one with methamphetamine ($p < 0.01$) (figure 3).

Figure 3

Types and means of getting drugs, %



Total exceeds 100%, as the respondents were able to choose more than one answer.

Among cities where stimulant users mainly purchase cooked drugs are Khmelnytskyi (85% of respondents), Smila and Vinnytsia (79%), Luhansk (76%). The majority of the stimulant users who cook the drug themselves live in Kherson (40%), AR Crimea (39%), Uzhgorod and Chernivtsi (33%), Mykolayiv and Odesa (32%). It is worth mentioning that in these cities methcathinone and cathinone use prevails. Kharkiv stands out of all the cities participating in this study, due to the biggest number of those drug users who note that it is their friends who cook drugs for them (80% of all samples). It is interesting that methamphetamine is the most popular drug in this city.

A survey held among drug users who cook stimulants at home³ has demonstrated that they can get an unimpeded access to all the needed components. They also know addresses of pharmacies in their cities where they can purchase such medications which are presumably not available at a much higher price (generally the prices are tripled in comparison to the official prices). Drug users face certain troubles purchasing the needed medications since the

³ The survey was held in May-June 2009 in 22 cities of Ukraine. A total of 50 people were interviewed. Research method applied was an in-depth interview.

pharmacists try to illegally sell medications containing ephedrine to those people they know in person. Since the major part of such medications are available under prescriptions only, some respondents try to obtain a prescription with the help of their friends who have respiratory health problems, sometimes, they try to bribe doctors in order to get necessary prescriptions. There exists a resale market or so called “pharmacy base” for those who do not have any personal contacts among the pharmacists. Matches serve as the source of red phosphorus in most of the regions. Preference is given to “Kazachky” (packages with the image of Kozak on the label). Absolute majority of the respondents cook crystalline iodine from ordinary iodine solution from any pharmacy. Another ingredient called potassium permanganate can be purchased from markets. Petroleum, hydrochloric acid, detergents that contain alkaline, acetum and other are available at household markets, stores, at chemical factories, etc.

Proportions of all ingredients are measured “by eye” or with the self-made scales. Quality of a drug is measured by its taste or results in the special “feeling high” upon trying it, since other indicators “may be false”. This makes the cooking process dangerous in terms of possible getting a “bad quality” product, with admixtures, high level of narcotic substances which may lead to overdose, vein burns, etc.

Risks faced by people who cook stimulants at home

Among risks related to cooking of stimulants respondents named the following:

- Explosion of a glass container with drug when overheated (in such cases the substance may burn the skin and mucous membranes);
- It is impossible to put out fire once the red phosphorus is burning, which may lead to burns and fires, damage and troubles with the firemen, neighbours and police;
- Careless handling of flammable substances (e.g. petroleum) and an open fire may lead to burns, fires, damage, etc.;
- Evaporations of iodine and acids released during chemical reactions. Nevertheless, only one respondent has mentioned that such evaporations are dangerous for skin, corroding it and leading to burns. Almost half of the respondents have noted that in the drug-making process they sometimes experience dizziness, nausea. Some respondents constantly have these symptoms. Paradoxically, not all of them relate these symptoms to the drug-making process. Only one respondent of all puts on a mask when preparing a drug.

Usually, stimulants-making process is carried out indoors; as there is a belief that draughts may interrupt chemical reactions. Drug-makers open ventilating windows on the final stage only, when it is necessary to extract (“blow-out”) the remaining iodine from the ready-made product. A significant number of respondents mention that they prefer to do this very close to ventilating windows to ensure that no iodine vapours remain in the room. Some respondents ask their assistants to “blow-out” the vapours to avoid dangerous inhaling. This last example is unfortunately revealing the attitude of the drug-makers to the safety of other people. Among all respondents only several people agreed that stimulants-making process is dangerous not only for the makers but also for those who are around even after the drug solution “cooking” process is completed. They think that danger is caused by evaporations of acids which deposit on the surfaces of the room where the cooking process takes place, and are harmful for human body, which is indeed true.

Some female and male drug-makers with in-depth knowledge of chemistry demonstrate a little less risky behaviour. In the drug-making process, they tend to use safety precautions

items as rubber gloves, special fixtures to hold the hot and dangerous substances and also special instruments, etc.

The majority of stimulants makers do not pay much attention to risks related to the drug cooking process. For instance, those who make “mash” have noted that they do not see any risks in its cooking.

Risks related to making stimulant drugs. Expert opinion

Having analyzed stimulants-making processes, chemists and toxicologists note that there are a number of risk factors hazardous for health to be kept in mind, such as:

- 1) Formation of toxic and carcinogenic substances at the time of separation of ephedrine/pseudoephedrine from the tablets and syrupy medications. For instance, in the process of alcohol extraction from "Zestra" cetirizine is allocated, which in combination with toxic chemicals shows hematotoxic action (destruction, dissolution of red blood cells), which is accompanied by plasma levels of haemoglobin and causes anaemia, severe weakness, discomfort in the area of the heart, palpitation, shortness of breath, increased formation of gallstones, etc. Moreover, preservatives of benzoate and parabenzoate sodium are allocated forming benzoic and parabenoic acids in the acidic environment. These acids are carcinogenic substances with additive effects, which lead to a decrease in the concentration of potassium in the blood serum and can cause allergic reactions. Besides, when heated, they can undergo partial thermal decomposition with the formation of benzo (a poisonous substance, prolonged exposure to small amounts of which can cause anaemia and leukaemia, changes in the bone marrow) and phenol (a strong poison that accumulates in the kidneys and liver and destroys hematopoietic and nervous systems).
- 2) Another hazard is posed by ethanol vapours produced in the poorly ventilated rooms, where ethanol is in large quantities in open containers. Inhalation of ethanol vapours may cause irritation of the respiratory tract, coughing, headache, fatigue, sleepiness. In turn, a consequence of ethanol vapours effect on the eyes is their redness and burning. In addition, ethanol vapours are highly flammable, and their mixture with air is explosive. Therefore, with open flames in a room saturated with ethanol vapours, vapours or liquid itself can ignite, causing fire risks, as well as possible severe burns of skin and mucous membranes of eyes of those present in the room.
- 3) Another source of hazard is the use of synthetic detergents to clean the house drains i.e. “Krot”, “Yorsh” and “Mister Muskul” to obtain sodium hydroxide needed for the chemical reaction to cook methamphetamine and amphetamine. Sodium hydroxide (the technical name of "caustic soda") is the strongest among all the available alkalis. In above-mentioned substances sodium hydroxide is contained in practically pure form. Its concentrated solutions or crystals' contact with one's skin causes severe chemical burns. Working with sodium hydroxide is allowed in goggles and rubber gloves only.
- 4) Concentrated hydrochloric acid is added in the methamphetamine cooking process. Presence of concentrated hydrochloric acid remains in the obtained drug crystals poses the main hazard. Hydrochloric acid, like all concentrated acids, can cause severe burns of skin and mucous membranes when splashed or handled carelessly. Chemical burns caused by acids tend not to heal for a longer time. There are usually scars after acidic burns remaining visible on the skin over the years. Contact with concentrated acids in the eye leads to partial or complete loss of vision. In addition to this, hydrochloric acid vapours ("the fog") are highly toxic, they form when the acid is heated with the water vapour or if the air is moist. When inhaled, they cause coughing, hoarseness, temporary loss of voice. These vapours are

easily condensed on the skin, especially on the mucous membranes forming concentrated acid, which can also cause chemical burns (partial or complete loss of vision in case of condensation on the mucous membrane of an eye). Staying within the environment of hydrochloric acid vapours for a longer time, one may develop ulcers of skin and mucous membrane, the vapours also destroy tooth enamel. Peroral intake of concentrated hydrochloric acid causes burns of mucous membranes of the mouth, serious damages of esophagus and walls of the stomach. In some cases, an "icy" acetic acid is used instead of hydrochloric acid. Concentrated acetic acid (over 80%) is called "icy". Concentrated acetic acid is flammable. At temperatures over 39° C, flammable vapours are formed with the air (one must not open a container with concentrated acetic acid near the open fire, gas or electric stove, any hot surfaces, one must not keep the acid in direct sunlight). Contact with skin causes blistering and chemical burns. Inhalation of the vapours causes coughing, burning of mucous membranes of respiratory tract, dizziness, shortness of breath. Symptoms of poisoning can occur at a later time. There were several times when use of the "accumulator acid" (i.e. concentrated sulfuric acid) was mentioned during the interviews. It is a very dangerous acid, since among all the mineral acids its devastating effect on the living tissues is most severe. Once even a small amount of concentrated acid gets into a human body through ingestion, it causes sudden shock or collapsing reaction (a form of acute circulatory failure characterized by a sudden fall in vascular tone or a rapid decrease of the circulating blood mass which leads to reduction of venous flow to the heart, the arterial and venous pressure fall, hypoxia of brain, and depression of vital bodily functions). Skin burns caused by this acid are much stronger compared to those by other acids. Vapours of this acid, although produced in smaller quantities, are extremely harmful to the skin, respiratory tract and eyes.

- 5) Cooking of crystalline iodine is associated with danger, because it is a specific substance that easily goes from solid to gaseous state, producing rather toxic vapours. In crystalline form it can cause irritation and chemical burns of the skin, mucous membranes, and in case of contact with eyes may lead to partial or complete loss of vision. Inhalation of iodine vapours causes respiratory failure, and their concentration in the air of over 3 mg/m³ is life threatening. Iodine vapours poisoning may result in pulmonary edema caused by cardiac failure. Introduction in a human body of iodine dose exceeding 500 mg per day causes toxic poisoning and is called iodism. This disease, depending on its duration and severity, may have a large number of symptoms: damages of brain, central nervous system, liver, skin, weakening of the immune system and visual impairment, inflammation in all parts of the respiratory system, the weakening of muscle strength and tone. The use of strong oxidants (e.g. "perhydrol", "white") makes the process of preparing a crystalline iodine fire hazardous, because, once it contacts dry hot items (rags, wood shavings), these oxidants may ignite. They can cause chemical burns in case of skin contact, and in case of eyes, such contact results in the loss of sight. Remains of oxidants on iodine crystals get into the mix, oftentimes referred to as the "vint", which means that there is a high probability of their getting into a human body intravenously, which can lead to local oxidation of blood cells, blood coagulation and destruction of vessel walls.
- 6) Continuous intake of powdered red phosphorus through the respiratory tract, as well as other ways, may result in chronic poisoning, which manifests itself as inflammation of the mucous membrane of upper respiratory tract, toxic hepatitis symptoms, calcium exchange (development of osteoporosis, brittle bones, and sometimes necrosis of bone tissues), cardiovascular and nervous systems disorders. Interaction with red phosphorus near an open flame may cause inflammation and lead to severe burns, moreover, while burning it

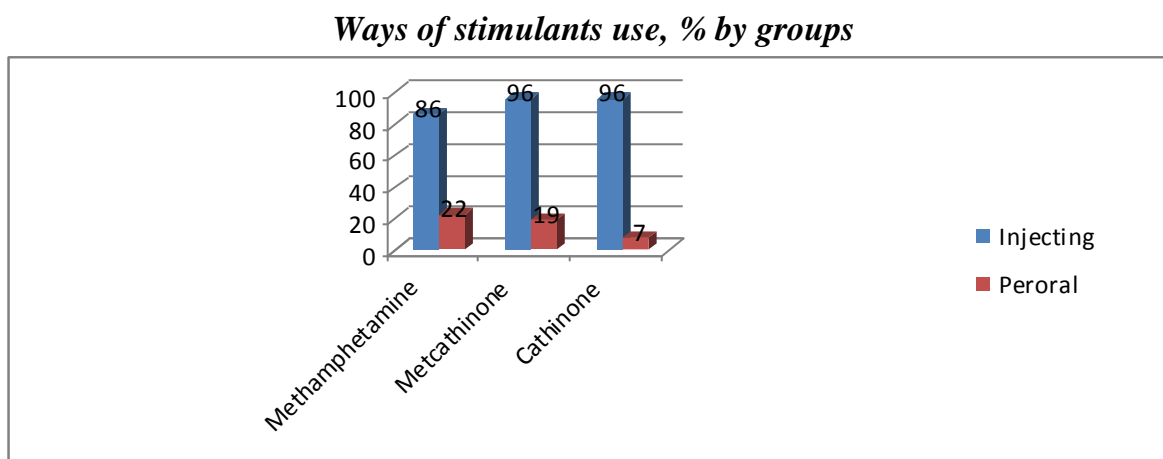
may scatter sparks which endanger the eyes or clothes of those who are nearby. Obtaining red phosphorus from match boxes leads to formation of lead chloride, which may enter the prepared solution from poorly washed phosphorus crystals. Lead chloride, like all other lead compounds, is toxic to the human body and has a negative effect on the cardiovascular, central nervous, reproductive systems, and also depresses the hematopoietic function.

- 7) Certain chemical compounds or substances fill the air of the room where the stimulants-making process takes place. Permanent cooking of drugs in the same room leads to their accumulation on the surrounding surfaces (ceiling, wallpapers, upholstery, curtains, etc.), which affects the microclimate of the premises and persons living in it. In some cases, organic solvents, vapours of organic acids may negatively affect persons located in adjacent rooms.
- 8) Use of glassware (often household one) or vials with reaction mixtures for heating, especially over an open flame, can cause cracking and conceal a threat of injury by broken glass and burning with the hot solution.
- 9) Plastic dishes are also hazardous, especially the bottles. Temperature rise which is often observed when stirring syrup with concentrated alkalis, in combination with a fairly aggressive strongly alkaline environment can lead to overheating the plastic bottle, its deformation and rupture, especially when it is filled-up and covered. Hot substance from the bottle can get on skin and into eyes, causing severe thermal and chemical burns. Besides, most plastic bottles (especially ones used for drinks) are not intended for organic solvents (which petrol is). Petroleum leaches toxic additives from plastic (as they are present due to the production process). These toxic additives may appear in the cooked drug.
- 10) Presence of minute mechanical particles (dust, ash) from poor filtering of the cooked drug can lead to serious post-injection consequences. It is dangerous when particles of fat, oils and greases get into the injection solution through utensils or unwashed hands. By mixing with blood such substances may result in spontaneous blood clotting reactions, temperature rise, fever, etc. When preparing a solution containing methcathinone ("mash"), a number of casual dishes and tools for stirring the mixture (sticks, pens, syringe-needles cases) are usually used, especially when preparing the drug in the "field" (on porches, in attics, on the street, etc.), which may lead to penetration of different contaminants into the solution, and then into the blood of the recipient. Since the solution containing methcathinone, unlike a solution containing methamphetamine, is not boiled, there may be bacterial contamination through utensils, tools and unwashed hands. The threat of intravenous infection is significantly increased if microorganisms occurred in the drug in the end of the process (after the major part of potassium permanganate has already reacted).
- 11) Manganese compounds are the most dangerous for human body. Potassium permanganate is a strong oxidizer which causes severe internal chemical burns and leads to blood clotting. Manganese oxide evolving from the reaction, just like other manganese compounds, is one of the aggressive neurotropic poisons of chronic action. First, it causes severe fatigue, weakness, drowsiness, dull headache, backache, limbs, loss of appetite, then the slow-down of movements, impaired gait, urination, impotence, insomnia, depression, tearfulness. It may result in the development of manganese parkinsonism, when nervous system undergoes deep organic changes: significantly stiffened and slowed down motion, a masklike face, muffled voice, monotone speech without any emotional colouring.

Use of Stimulants

There were three ways of stimulants consumption defined in the course of a study in 2009. The injection-use is the most widespread (Table 10). It is worth mentioning that methamphetamine-containing solution is predominantly consumed in Kharkiv and Poltava. Rectal way of consumption is exceptionally rare, thus, only 9 persons mentioned having used stimulant rectally; in all of these 9 cases methamphetamine was used.

Figure 4



Total exceeds 100%, as the respondents were able to choose several positions in the list of drugs.

62% of those who cooked stimulants themselves are aware that this process is dangerous for health (Table 11). Some respondents specify reasons of poisonous vapours, e.g. acid synthesis, iodine, red phosphorus and chlorine decomposition.

Table 8

Hazardous factors of stimulant-making process, (N=246), %

	64
Hazard for certain bodily systems	17
Burns of lungs, mucous membrane, nasopharynx, fingers	7
Toxication of the body/organism, hazardous substances accumulation	5
Sudden health depression: nausea, suffocation	5
It is dangerous if the safety precautions are not observed	1

Total exceeds 100%, as the respondents were able to choose several factors.

Yet, the majority of respondents are not aware of specific hazardous effects of the drug cooking process at home on their health and more so, on other people's health.

It is worth mentioning that a significant part of stimulant drug user respondents in Kyiv and Khmelnytskyi (accordingly 34% and 21%) are not aware of what the stimulant drug consists of and how it is cooked. This can be justified by the fact that 85% of respondents in Khmelnytskyi purchase an already-made drug (having no idea about health threatening ingredients of that drug), and it is the maximal indicator among the regions.

Research of 2009 has shown that stimulant-users have already got health problems (Table 12). Majority of such problems are related to the nervous system.

Table 9

Distribution of answers to the question about negative effects of stimulant use, (N=1581), %

	All respondents	Sex		Drug use period		
		Male (N=1141)	Female (N=440)	0–3 years (N=303)	4–9 years (N=487)	10 years and more (N=739)
Irritability	70	69	72	71	72	67
Fatigue	62	62	61	66	62	59
Bad mood	50	49	51	51	50	48
Insomnia	47	49	43	40	45	53
Lack of energy	43	42	46	45	46	41
Headaches	30	29	33	35	28	28
Loss of appetite	29	31	24	29	25	32
Sleepiness	28	28	27	26	28	28
Suffocation	24	24	23	31	23	20
Fears, nightmares	20	21	18	17	20	21
Absence of sexual attraction	20	20	19	17	20	20
Heartache	18	18	17	17	18	17
Other	5	5	4	3	4	6

Total exceeds 100%, as the respondents were able to choose several factors.

Among the most popular ways of overcoming negative effects among respondents using stimulants during breaks in stimulants use were: consumption of big amounts of liquid (45%), smoking cigarettes (40%), drinking vodka (39%), taking other drugs (36%), sleeping (31%), drinking beer (30%), taking sedatives (29%), drinking wine (20%), and having various food (14%). Only 2% of respondents never had any negative effects. It is worth noting that in the category “Other” respondents mentioned marijuana (24 people), opiates, particularly tramadol (13 people) as well as analgesics (5 people).

Risks related to stimulants drug use

The majority of stimulants “cooks” are rather well aware of the risks related to consumption of stimulants, such as:

- mental disorders (paranoia, depression);
- memory impairment;
- dystaxia, shaking hands;
- speech speed-up;
- negative effects on liver, kidneys, heart;
- bones and teeth destruction;
- once impurities, particularly oil, occur in the drug solution, this can lead to sudden fever, runny nose, loss of consciousness, etc.

However, expert chemists and toxicologists state that stimulant-drugs effects in human body are much wider. Thus, they consider that stimulants use causes violation of membrane structures of axons, primarily of long myelinated axons of large diameter (motor neurons). In turn, the presence of residual organic solvents, salts, heavy metals, mineral acids and alkalis in a drug solution being ingested into a human body affects on cellular and membrane structures

of different organs and systems, greatly enhances chronic pathologies. In other words, there happen irreversible changes at the cellular level.

Besides, oral intake of strongly acidic solution leads to chemical burns of the mouth, throat, esophagus and stomach. Key symptoms of acid poisoning (in particular with hydrochloric acid) are nausea, vomiting, diarrhoea, severe and sudden pain in internal organs, severe cases may result in death.

Adding water (or other specified liquids) into a cooked solution somewhat reduces its acidity, but the total amount of other toxic substances present in the ultimate product does not decrease when the latter is diluted. Permanent artificial elevation of gastric acid with solutions, even with low acidity, (especially if the stimulator is used on an empty stomach) leads to rapid emergence of a stomach ulcer, which may eventually develop to malignant tumours.

Amphetamines, when consumed over longer time, can cause axonopathy, a multiple lesions of peripheral nerves, manifested in paralysis, impaired sensibility, trophic and vegetative-vascular disorders mainly in the extremities, as well as toxic encephalopathy or neuropathy (incurable damage of the brain and nervous system, which disrupts the coordination of movements, speech). Usually, these diseases develop over 3-4 months of regular stimulant drug use. Changes are irreversible and incurable.

Use of “mash” results in manganese encephalopathy, a condition of manganese leading to toxic dementia, paralysis, reflexes disorder.

Drug use related Behaviour

Injections

According to the data obtained, 54% of injecting drug users mentioned that they always do injections by themselves, 22% noted that there is always someone else assisting them and 24% either inject themselves or let others inject them (Table 10).

It is worth noting that female IDUs inject themselves more rarely (42%) than men (58%) ($p < 0.01$). Lack of control over the injection substance, tools and process increases risks for women, both related to the use of stimulants and to getting infected with various diseases. Number of IDUs who inject themselves increases depending on their longer experience of drug use, thus, they are 25% among those who use drugs for less than three years and 67% among those who do drugs for over 10 years ($p < 0.01$).

Table 10

Answers to the question about who assists in injections, (N=1473), %

	Always injects him/herself	Always injected by someone else	Sometimes by him/herself, sometimes by others	Total
Sex				
Male	58	17	25	100
Female	42	36	22	100
Drug Use Record				
0–3 year	25	52	23	100
4–9 years	42	30	28	100
10 years and more	67	11	22	100

Total	54	22	24	100
-------	----	----	----	-----

Sharing instruments

The majority of respondents (89%) has not shared needles in the last month, 7% have shared once or twice, 1% - shared 3-5 times, 2% shared syringes for 6 and more times. Women share needles with others more often than men (0.019), moreover, they do so with their sexual partners. Besides, women tend to use drugs from an already filled syringe less often as compared to men, they also more rarely use same instruments for drug distribution.

66% respondents out of 184 people who have shared the syringe provided information on the number of previous users of that same syringe. In 50% of cases the syringe was used once before the respondent, in 6% of cases – by two people, 3% – by 3–5, 3% – by 6 and more people.

All respondents who had injected stimulants for 30 days were asked whether they passed on their used syringe to someone else. Most respondents (88%) never passed on their used syringe, 6% shared their syringe once, 2% - shared twice, 1% shared 3-5 times, 0.4% - did 6 or more times. Older respondents are less likely to share their syringes with other drug users (92% in the age group of 35 and over never shared their syringes, whereas among the age group of 25-34 this indicator was only 87%, $p < 0.05$).

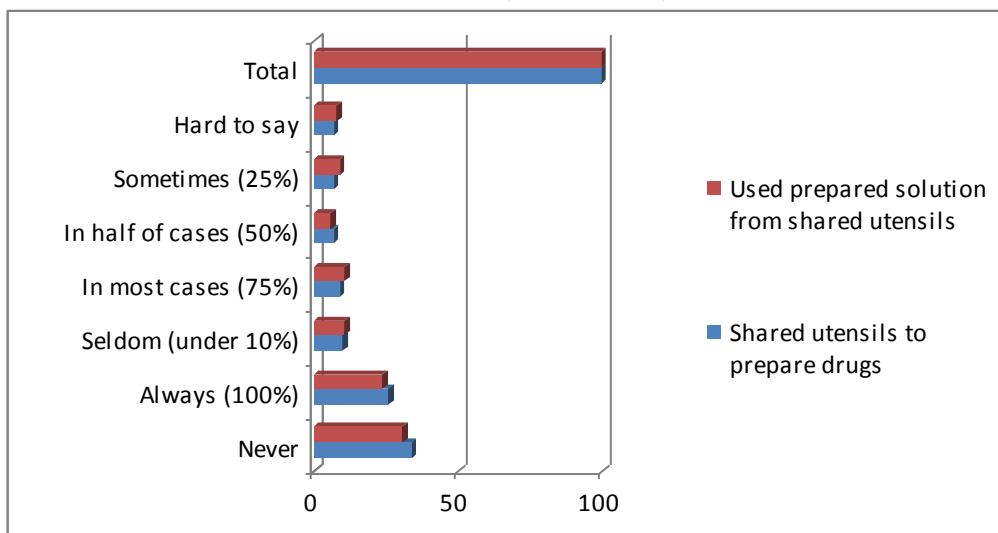
Needles are commonly shared with those who know each other well enough: friends (39% of those who have them), permanent sexual partner (37% of those who have them), spouse (22% of those who have them). Rarer are cases of sharing needles with casual sexual partners (8% of those who had them), with barely known people (5% of those who had them), drug dealers (2% of those who had contact with them).

Over the past month, 55% of all respondents consumed the drug from an already filled syringe (N=1461 respondents). There was no difference traced between respondents of different age and drug use record.

Among other impressive figures are those related to sharing instruments for drug cooking and for collection of drugs from a shared container. Over half of the IDU respondents practice this with different frequency (59% and 61% accordingly) (Figure 5).

Figure 5

Frequency of sharing instruments and using cooked solution from shared utensils in the last month, (N=1461), %



Such behaviour presents a rather dangerous risk factor due to sharing “dirty” (already-used syringes and needles) instruments or drug solution, etc.

Sexual Behaviour

According to the study of 2009, the vast majority of those who could identify their orientation (97%) classified themselves as heterosexuals. 41 people called themselves bisexual, 22 of them – men, 19 – women. 5 persons identified themselves as gay or lesbian persons, 2 people identified themselves as transgender. This fact is very important, because sexual orientation and different sexual practices are usually not taken into account in prevention projects for IDUs.

82% of stimulant users had had sexual contact with their permanent partners over the last 12 months (confidence interval 80–84%), 37% – with casual partners (confidence interval 34–39%), 8% – with commercial partners (confidence interval 7.6–9.5%), whereas 6% have used commercial sex services (confidence interval 4.4–6.8%), and 4% – provided sexual services themselves, for certain remuneration (confidence interval 2.8–4.4%). Women had less of casual contacts as compared to men, 24% against 36%, ($p < 0.01$).

It is worth to point-out the significant interrelation between the age and the number of casual sexual contacts: among young people under 20 half of sexual contacts are casual ones. Among the eldest group such contacts were mentioned only by every fifth respondent ($p < 0.05$). Luhansk and Khmelnytskyi stand out due to the highest number of casual contacts (55 and 56%, respectively), Dnipropetrovsk and Donetsk regions together with Vinnytsia and Kherson are located around one and the same rate of 32%.

The region also matters in terms of the prevalence of commercial sex. In Crimea, the figure is quite high (22% of respondents had provided such services). In Poltava (17%), Vinnitsa (13%) and Kherson (14%), these values are somewhat different as compared with the Crimean data. Another attention-grabbing fact is that on average young drug users aged 15-19 years have more sexual partners over 3 months and casual sexual partners (3.24 and 3.42 partner, respectively), and those who consume opiates and stimulants together (average indicator of sexual partners – 3.7 persons), while among all respondents the number of sexual partners over the last 3 months is 2.6 people. Average number of partners is 1.4 people (for those who have them), casual partners – 2.89, commercial – 4.22.

Also, respondents aged 20–24 differ by their approximate amount of partners whom they call “permanent” ($p < 0.05$). That means that they call a “permanent partner” not the only partner but several (more often, two or three).

Those who took only stimulants, had fewer casual sexual partners than those who used opiates (average – 2.8 and 3.4 of sexual partners, respectively, $p < 0.05$). This relationship is even more obvious to people involved in commercial sex: those who used opiates along with stimulants had twice as many commercial partners, rather than all the others. Despite the fact that this group is small - 34 people - the analysis showed a significant difference (average - 2.98 and 6.56 of sexual partners, respectively, $p < 0.01$) and a fairly high correlation coefficient η^2 .

Research of 2009, has shown that stimulant drug use effects sexual activity. Thus, frequency of sexual contacts with permanent partners increases indeed with the increase of injections frequency? Yet, such dynamics is mainly observed among the drug users who inject

drugs 1-2 time a month (62% had over 6 sexual contacts a month) and among those who inject 3–5 times a month (73% had over 6 sexual contacts a month), ($p<0.01$)).

This is also supported by another study (Corsi & Booth, 2008), where it was mentioned that methamphetamine users tend to have increased sexual activity when on drugs.

Condom use during the last sexual contact

Studies of 2009 demonstrate that stimulant users trust their sexual partners. Thus, 65% respondents stimulant users have not used a condom during the last sexual contact with their permanent partners; 20% - with commercial sexual partners and 18% – with casual and hardly known sexual partners. Women use condoms with their permanent partners more rarely than the men.

We shall also note that those who had had contacts with commercial partners more often do not remember if they had used a condom than those who had had contacts with his/her spouse. With age, there exists a negative tendency to ignore condom use during sexual contacts with casual partners. Therefore, older drug users (aged 25-30 and over 35) tend more not to use condoms with such partners (24 and 30% accordingly).

HIV Prevalence

HIV Test results among injecting stimulant drug users during the study period in 2009 showed that HIV prevalence substantially varies across regions - from 0% in Uzhhorod to 69% in Kyiv (Table 11). Kyiv and Kryvyi Rih have the highest levels of HIV prevalence.

Table 11

Test Results for HIV using Rapid Tests, Related Survey Data (N=1581)

City	HIV Positive, %	Number of HIV Positive	Sample Size
Kyiv	62	95	154
Kryvyi Rih	49	26	53
Yuzhny (Odesa Region)	35	27	78
Mykolayiv	30	38	128
Khmelnyskyi	22	17	78
Chernivtsi	21	11	53
Slavyansk	21	11	53
Kostyantynivka	19	10	53
Sevastopol	18	7	38
Donetsk	16	20	129
Kherson	15	15	103
Dnipropetrovsk	13	7	54
Smila	13	7	53
Simferopol	13	5	38
Novomoskovsk	9	3	33
Bakhchysarai	6	2	33
Poltava	5	34	78
Vinnysya	5	4	78
Dniprodzerzhynsk	4	2	53

Luhansk	1	1	103
Kharkiv	1	1	103
Uzhhorod	0	0	53

Besides this, the study in 2009 used logistic models, which were to find the level of influence of demographic and behavioural factors on the risk of HIV infection⁴. The following hypotheses on HIV infection were tested:

- Share of HIV-positive among females is larger due to certain physiologic and social factors.
- Probability of infection depends on the stimulants consumption method (injection or non-injection).
- Probability of infection depends on risky behaviour: use of non-sterile equipment, unprotected sex.
- Probability of infection depends on the duration and level of risky behaviour: drug use record, regularity of non-sterile equipment use, number of unprotected sex partners and injection frequency, regularity of risky sexual contacts.

Analysis showed that the group of stimulant drug users 25-34 years of age has almost 7 times greater chance to be infected and the group of users 35 years and older almost 12-14 times greater chance to be infected than the 14-19 years old age group.

Women also have higher chance to get infected with HIV than men. On average this probability is 2-2.5 times higher for women than for men.

Almost 2 times higher is the chance to get infected with HIV for those who use opiates alternating them with stimulants (so-called “swings”), as compared to those who use only stimulants.

Users of non-injection stimulants have lower risk of HIV infection of about 70% compared to the injection stimulant users. This variable was significant at the 5% level in the model where drug use record variable was used instead of age. The first model where the respondent’s age was taken into the account, non-injection stimulant users have 60% lower chance to get infected, but this conjecture is supported at 10% significance level.

It was found that the group with drug use record of 4-9 years has 1.6 times greater chance to get infected with HIV and the group with the record of 10 years and more has 4 times greater chance to get infected than the group with 0-3 years of experience.

Analyzing sexual behaviour the only significant variable was sexual initiation age, the later the respondents were initiated the lower was the probability to get infected with HIV.

Inspection of the influence of negative consequences after stimulants use and ways of their elimination on the probability of HIV infection showed that respondents who mentioned “heart ache” as a result of stimulants use have 1.7 times greater chance to get infected than others. Similarly to the respondents who use other drugs to eliminate negative consequences of stimulants raise the probability of infection by 1.8 times. Respondents, who mentioned inaccessibility to opiates as the reason for stimulants use have 1.9 times greater chance to get infected than the others.

All cities have lower probability of infection than Kyiv.

Drug overdose

⁴ Only the variables that are statistically significant were used in logistic models: sex, age, drug use experience (injection and non-injection), opiates use, cooking of stimulants by oneself and friends, users of non-injection stimulants, sexual initiation age and reasons for stimulant use.

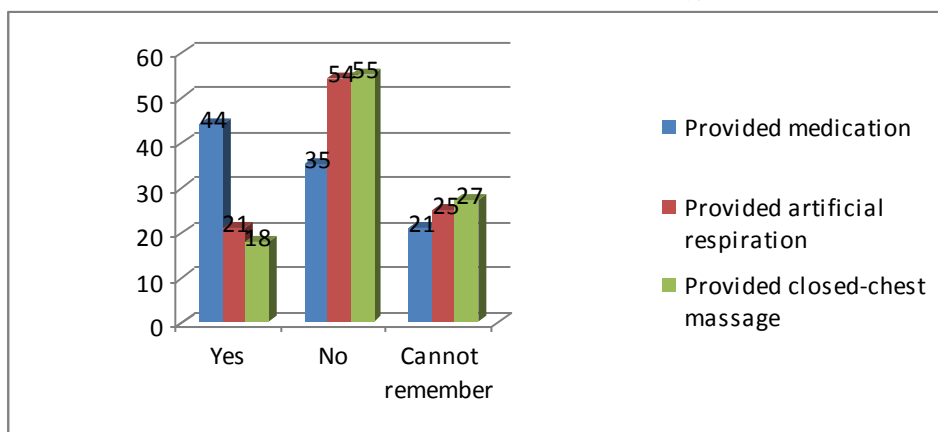
18% of respondents admitted that at least once in their life they had stimulants overdose (confidence interval 16-20%). As data suggest, males experienced overdose almost twice as frequently as females ($p < 0.01$). The share of overdoses substantially increases with experience: among the stimulant users with more than 10 years of experience overdoses happen almost 2.5 times more frequently than among those, whose drug use record is under 3 years ($p < 0.01$).

It was also found that the use of opiates alternating with opiates (“swings”) is associated with the frequency of overdoses: among these respondents the share of overdoses amounts to 27% versus 16% among other users.

52% of those who experience the overdose received any type of help from others. Most of the time medication was received as the type of help (44%) (Figure 6).

Figure 6

Types of first aids provided in cases of overdose to those who suffered, (N=290), %

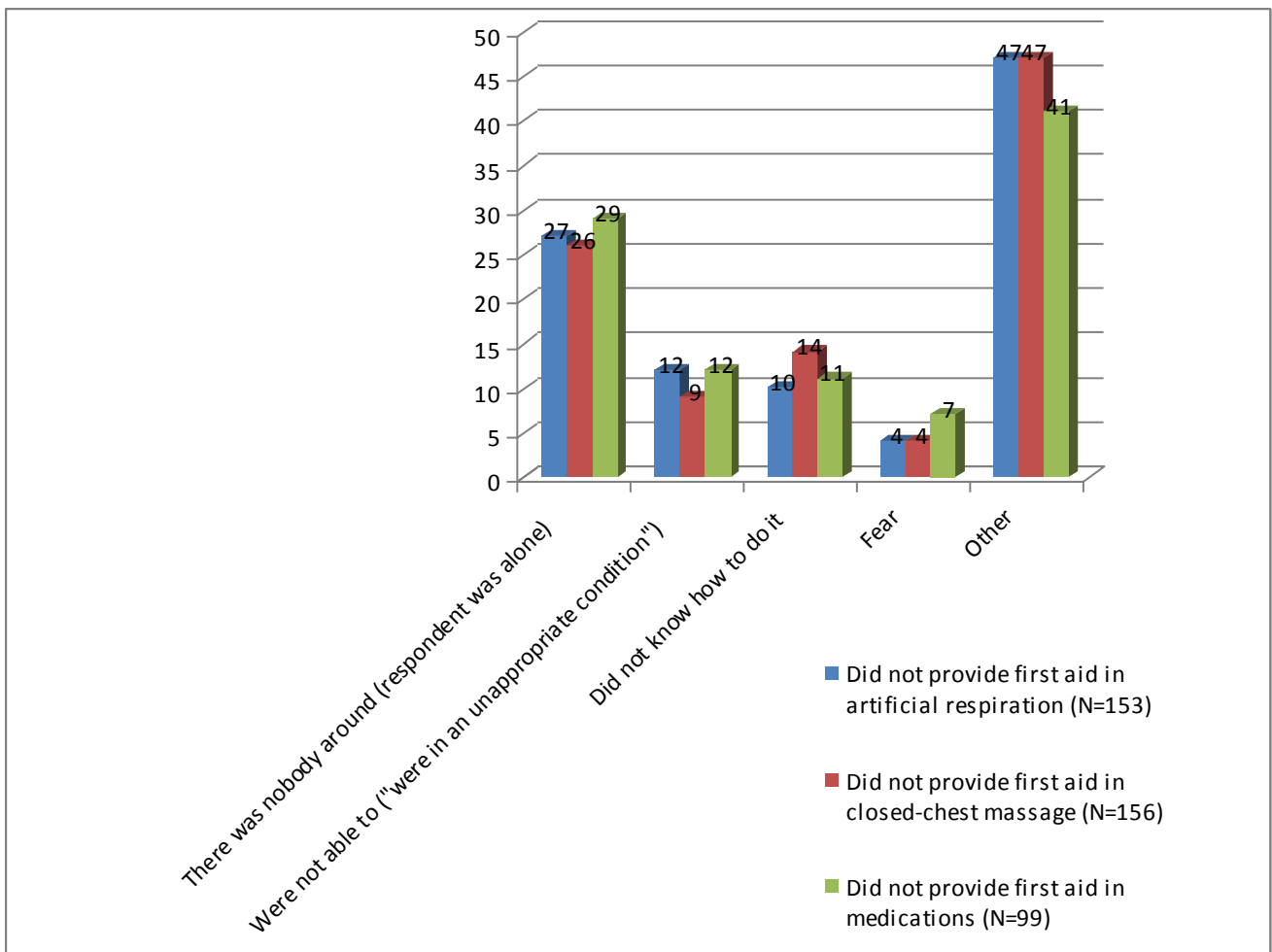


40 respondents acknowledged having received any other type of aid. Most often respondents (13 persons) named “cold shower” as a type of help: dousing with water, wrapping with a wet towel, cold bath. Four respondents acknowledged that they were given opiates. Two respondents mentioned that vomiting had helped them. Interestingly, in cases of overdoses women were given artificial respiration and closed-chest massage more often than men ($p = 0.021$).

Those respondents who did not receive any type of help were asked about the reason why this had happened (Figure 7).

Figure 7

Reasons of not providing the first aid in cases of overdose, %



We asked those who have at least once experienced an overdose with stimulants whether they or their friends tried to call an ambulance. 19% gave positive answers to this question, 72% – answered negatively, and 9% could not give an answer. Over half of those who had not called for a doctor mentioned that this was related to their fear of police. 14% did not find anyone who could make a call for help; 13% assessed the situation as one requesting emergency action with no time to call an ambulance, 5% had difficulty to answer this question.

CONCLUSIONS

1) Recently there has been observed a tendency of involving young people into stimulant drugs use. Initiation with stimulants is a rather wide-spread practice. Women start drug use with stimulants more often than men. The more frequent reason for using stimulants is the necessity to increase working capacity and vitality, rather than the cost of the drugs. Intensification of sexual activity is another key factor for using stimulants among women. Only for the users of the older age group the cost is an important factor in choosing stimulants.

2) The results of the research have indicated that the practice of taking various stimulant drugs with different chemical components and effects is rather widespread. Solutions containing methamphetamine, methcathinone and cathinone prevail. Furthermore, the use of opiates in turn with stimulants (“swing”) is widely diffused among men and stimulant users of older age (over 35) it also prevails in certain regions (the cities of Kyiv and Vynnytsia). It is worth noting, that the use of opiates and stimulants provokes a rather risky sexual behaviour, and therefore increases the risk of HIV infection.

3) A comparatively large number of stimulant consumers buy a ready-made drug in the syringe or share instruments to collect the drug. One in five of the surveyed always cooks the drug on his/her own. One third of those who prepare the drug themselves are not aware of how harmful is stimulants-making at home, and one half have no true apprehension of the process of its cooking and its components. Stimulants are more often cooked by men with a long record of drug use or those IDUs, whose injection frequency is higher.

Those who make the drugs themselves are at higher risk of contracting HIV.

Taking into consideration the fact, that according to the survey of the drug producers, they do not work in masks and/or gloves, often use improvised means for preparing drugs, don't disinfect the instruments with special solutions before employing them etc, there is a high chance of contaminating the drug and a threat of getting infected through both dirty instruments and drug solution.

Such risks are even higher among those who produce methcathinone and/or cathinone (slang names: mash, gagers, goob, jeff, mulka, speed). The technology of preparing these drugs doesn't imply boiling. For instance, cooking of methcathinone only requires warming the solution up to 50–60° C, while cathinone is cooked at a room temperature. According to toxicologists and chemists, the risk of contaminating the solution with various bacteria during cooking of these drugs is significantly higher. The contamination can happen when the solution is poured from one container to another, as well as through the dirty hands or improvised stirring instruments (sticks, pens, syringe needle cases etc), especially at the last stage of cooking, when the major part of potassium permanganate has already reacted.

4) High risk for the health of stimulant drug users is also related to the fact that producers usually measure the amount of components for preparing the drug very approximately (i.e. by eye), and only evaluate the quality of the cooked drug on how it “gets one high”. Furthermore, during the technological process the ready drug is not purified well enough, because of the use of improvised instruments and unboiled tap water for dilution. This can lead to various chemical additives, including those originating from medicine, and so possibly toxic, as well as “additional” mechanical parts (dust, cigarette ashes, sawdust, crumbs etc), oils, grease, and organic dirt to fall into the ready drug solution. When any of these substances or parts get into

the human body with the injection of a drug solution, they can cause spontaneous blood coagulation.

5) A relatively large number of stimulant users mentioned drinking alcohol or taking sedatives in order to minimize the negative sensations between the intakes of the drug. According to toxicologists and chemists, uncontrolled consumption of alcohol and medicine increases the toxic effect on the liver, and therefore is not recommended. The paper (Belhadj-Tahar & Sadeg, 2005)⁵ describes multiple cases of coma upon the overdose of methcathinone, diluted in alcohol and taken together with bromazepam.

6) Neither the producers, nor the consumers of stimulants are aware of the risk, which is brought for themselves and those around them by the domestic cooking of drugs. Usually their knowledge on the risk for themselves is extremely limited and superficial, while they attach no importance at all to the dangers for those around them.

7) Toxicologists and chemists noted that the consumption of stimulants leads to irreversible changes in the organism of users on the cellular level. The use of various medications and additional substances (acids, phosphorus, iodine, manganese, alkali) as raw material for the cooking of stimulant drugs, makes the drug solution very toxic and carcinogenic for the consumers, and so calls forth the malfunctions of liver, nervous, cardiovascular, and circulatory systems etc. According to the data of A.V. Pogosov⁶, daily consumption of cathinone during 2-3 months results in the development and progress of various neurological disorders conditioned by the toxic influence of the drug. This is, first of all, a multi-system lesion of the central nervous system (lesion of the nervous cells and nervous system function disorder), which leads to aesthetic disorders (weakness, fatigue, emotional lability, sleep disturbances etc), emotional-volitional disorders, decrease in the levels of personal and intellectual development with the loss of critical thinking, previous interests, and social decompensation.

8) There is a notable sexual activity among stimulant users, as well as a practice of ignoring condom use in relations with permanent partners. Considering the fact that in the period of three months stimulant users of all age groups have several of such partners, one can assume there exists a risk of HIV and other STIs.

According to the data of A.V. Pogosov⁷, the intake of methcathinone provokes both rapid increase in libido and potency, and simultaneous decrease in control of the behaviour, which can lead to promiscuous contacts, including homosexual ones. Methcathinone increases sexual arousal of women, which allows to easily manipulate them into sexual relations. At the same time it was discovered that the social circle considerably influences drug choice for women, and it's mostly their sexual partners to give them drug injections. Apparently, these are the factors that explain the reasons why male users of methcathinone often involve their sexual partners into drug use. Oral sexual contacts are a widespread form of sexual behaviour under the influence of methcathinone. Considering the frequent lack of control and a practice of ignoring condom use under the influence of drug, it is logical to assume that the risk of HIV and STIs for the stimulant users gets substantially higher.

⁵ Belhadj-Tahar, H., & Sadeg, N. (2005). Methcathinone: a new postindustrial drug. *Forensic Sci Int*, 153(1), 99-101.

⁶ Addictology Guidelines / V.D. Mtdnltvich (2007) – p. 381.

⁷ same – p. 386.

9) The stimulant users are rather helpless in the situations of overdose - they do not know how to provide first aid.

10) The results of the logistic analysis have shown that the stimulant users who experience heartache after consuming drugs, have 1.7 times higher chance of getting HIV infection than others. Since such symptoms can appear very quickly due to inhaling substances during and after cooking of drug, using various stimulants or opiates between the intakes of stimulants, as well as frequent and/or protracted use (so called “marathons”), all stimulant users belong to the risk group.

RECOMMENDATIONS

The following can be recommended based on the results of the studies and general conclusions:

- It is necessary to actively involve young IDUs, female IDUs taking stimulants, and people consuming stimulants in non-injecting way in HIV prevention. The model of “Introduction by the equal”, adapted to the needs of the users of injective and non-injective stimulants, can be used for this purpose.
- For the retention of the acquired stimulant users it is recommended to employ the Group-Level intervention model.
- Special attention should be given to the users of non-injective stimulants. It is recommended to apply the model of “Brief individual consultation”.
- It is necessary to develop the interventions for the work with female IDUs, who consume stimulants, taking into account their behaviour and social factors.
- It is necessary to increase the level of knowledge of social workers regarding the methods of cooking and consumption of stimulants, as well as their influence on the human body. For this purpose it is recommended to hold a number of educational events and create a series of informational materials for the stimulant users and social workers. It is primarily important to cover such issues as:
 - hygiene and safety instructions during the domestic cooking of drugs (clean instruments, use of gloves and masks, treatment of instruments, containers, hands, and stirring instruments with alcohol etc);
 - the influence of substances, used and discharged during the production, on the human body;
 - the substitute of crystalline iodine solvent (ethyl alcohol) with water in the technology of production in order to reduce the emission of toxic substances;
 - the prophylaxis of the overdose caused by stimulants and/or stimulants used together with opiates;
 - methods of exiting protracted use and eliminating negative consequences to preserve health and reduce the level of hospitalization related to the temporary mental disorders.
- A number of educational events need to be directed against the stereotypes and myths among social workers and IDUs, such as impossibility of participation of stimulant users in HIV prevention programmes, or the idea that acidity of a solution containing methamphetamine kills the virus (HIV) etc.
- Taking into account the state of health of stimulant users, it is necessary to involve neurologists and psychiatrists into consulting IDUs or establish a referral to these professionals. For this purpose it is recommended to use the method known as “case-management”.
- In the projects that work with the users of methcathinone and cathinone (slang names: slang names: mash, gagers, goob, jeff, mulka, speed), secure the availability of 10 ml syringes, and for those who use methamphetamine (slang names: meth, crank, crystal, speed, white cross, white crunch) - syringes of 2 ml and 5 ml. Paying due attention to the questions of reproductive and sexual health of stimulant IDUs, it is important to secure the availability of a large number of special well-lubricated condoms, including females ones, and lubricants among handouts.
- The organisations that work in the sphere of HIV prevention are recommended to consider the needs of stimulant users when planning the work. For this matter it is necessary to study

the peculiarities of the local drug-scene with more detail, using various methods of research provided in the Regional Participatory Assessment (RPA).