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Integration of Methamphetamine Harm Reduction into Opioid Harm Reduction Services in Iran: Preliminary Results of a Pilot Study

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Abstract

Background: Methamphetamine as one of the most prevalent drugs can reduce the efficacy of interventions designed to reduce HIV prevalence such as opioid substitution therapy and other harm reduction interventions. Harm reduction facilities and interventions have mainly been designed for opioid users, but due to the high prevalence of methamphetamine use among the clients, these settings could be appropriate entry points for providing methamphetamine focused harm reduction interventions.
Objectives: The present study aimed at examining the effects of the integration of a methamphetamine harm reduction intervention into opioid harm reduction services of drop in centers (DICs) on the high- risk behaviors of the participants.
Methods: This prospective study was conducted to evaluate changes in high- risk behaviors associated with methamphetamine use among regular methamphetamine user clients of 10 DICs located in provincial capitals of Iran from September 2014 to March 2015. Participants were evaluated before and after a manual based psychoeducation intervention.
Results: In total, 357 clients (18.5% females, and 81.5% males) entered the study; of whom, 60.3% of males and 83.3% of females were daily methamphetamine users at initial assessment. The prevalence of injection in the last 3 months was 8% and 1.6% among male and female participants, respectively. The frequency of sexual intercourse among participants had a significant reduction after intervention. The use of a condom in the last intercourse was increased significantly, moreover, having sexual intercourses without condom under the influence of methamphetamine was reduced, especially among females.
Conclusions: The results of the present study provide provisional data on the effectiveness of stimulant harm reduction among clients of DICs in Iran. In addition, our findings revealed that service providers believe that this integration is feasible and the clients found it acceptable. Conducting studies with more rigorous design and longer follow-up is highly recommended.

Keywords: Harm Reduction, Iran, Methadone Maintenance Treatment, Methamphetamine, Stimulant Harm reduction

1. Background

Methamphetamine has been a leading psychostimulant drug in Iranian amphetamine-type stimulants (ATS) illegal market since 2009. During 2010 and 2011, Iran was among the countries with highest amount of methamphetamine seizure in the word (1). Methamphetamine users are highly involved with HIV related risky behaviors such as methamphetamine injection (2, 3) and unsafe sexual activities (3-5). International studies also found a link between unprotected sex among female sex workers and methamphetamine use (4, 5).

There are evidences showing that methamphetamine can negatively affect the effectiveness of harm reduction strategies such as methadone maintenance therapy (MMT), needle and syringe programs (NSPs), and HIV prevention psychoeducation (6). In addition, treatment as prevention is a very important strategy for HIV control, but methamphetamine use increase antiretroviral therapy (ART) nonadherence (7), which is in turn associated with poor HIV disease outcomes (8). Some studies in Iran have found that active drug use is one of the main factors affecting both positive prevention (9) and access and use of the services among people who live with HIV/AIDS (10). Even among noninjecting methamphetamine users, the risk of pipe sharing is high, leading to an increase in the risk of blood born viruses' transmission, mainly hepatitis C transmission (11).

There are evidences that show methamphetamine harm reduction programs have positive effects on reducing HCV transmission, improving client general health status, and even reducing injection among methamphetamine users (11, 12).

The first reports of methamphetamine seizure in Iran date back to 2005 (1). Soon after methamphetamine entry in Iran, some concerns were raised about the rapid spread of methamphetamine use among Iranian people who use

drugs (PWUD) (13) and its effects on patients who were undergoing opioid substitution therapy (14). A more recent review study provided data on methamphetamine associated harms including blood-borne viral infections, psychosis, and intoxication in Iran (15). Results of 2 biobehavioral surveys conducted on those who injected drugs (PWID) and referred to drop-in centers (DICs), showed an increasing trend in life time use, past month use, and last month injection of methamphetamine among PWID from 67%, 42%, and 13.6% in 2011 (16) to 84%, 61%, and 29.3% in 2013 (17). However, study sites of these 2 studies were not exactly the same. A more recent study reported the prevalence of current methamphetamine use among patients receiving MMT in 3 different settings including private outpatient drug abuse treatment centers, DICs, and vulnerable females counseling centers as 11.1%, 31.1%, and 33.3%, respectively (18).

Due to the rapid spread of methamphetamine use among PWUD clients referring to DICs and its devastating effects on opioid focused harm reduction programs, national authorities supported a pilot program to integrate the methamphetamine harm reduction in DICs in Iran through a grant received from United Nations Office On Drug and Crime (UNODC) in Tehran. In the present study, we present preliminary results of a pilot project.

2. Objectives

The present study aimed at examining the effects of integration of methamphetamine harm reduction intervention into opioid harm reduction services of DICs on high-risk behaviors of the regular methamphetamine users referring to DICs.

3. Materials and Methods

This prospective observational study aimed at evaluating changes in risky behaviors associated with methamphetamine use in clients who referred to 10 DICs in Iran from September 2014 to March 2015.

3.1. Study Sites

Integration of harm reduction programs in opioid harm reduction programs was conducted as a 3- month pilot study in 10 DICs located in 10 provincial capitals. A committee consisted of representatives from Ministry of Health and Medical Education (MoHME), United Nations Office on Drugs and Crime (UNODC) in Iran, and Drug Control Headquarter (DCHQ). Moreover, principal investigators selected the provinces and DICs, considering 3 criteria including geographical distribution, ethnic diversity, and prevalence of methamphetamine use (19).

3.2. Eligibility Criteria

The eligibility criteria for participants in methamphetamine-focus harm reduction psychoeducation were as follow: (1) being 18 years or older, (2) providing written informed consent, and (3) using methamphetamine at least once a month during the past 3 months. Methamphetamine users who used other drugs concurrently were also included.

Those clients who were delirious, severely intoxicated, psychotic, or had any serious medical illness were excluded from the study. The clients who had any urgent medical or psychiatric conditions were immediately referred to the emergency department in a publicly owned hospital of the city.

3.3. Intervention

Prior to the fieldwork, a guideline on methamphetamine harm reduction was developed in plain Farsi. Chapters of the guideline covered wide range of methamphetamine-related harm reduction issues including harms associated with ATS use, principles of methamphetamine harm reduction, how to address methamphetamine-related emergencies, methamphetamine harm reduction services, methamphetamine safe use kits, methamphetamine and sexual practice, and methamphetamine harm reduction psychoeducation.

The guideline was piloted in 2 phases. In the first phase, we investigated the effectiveness of methamphetamine harm reduction psychoeducation in 10 DICs; and in the second phase, we tested the feasibility and effectiveness of distribution of safer methamphetamine use kits plus methamphetamine harm reduction psychoeducation in one DIC. In this paper, we presented the results of the first phase of this pilot project. The mentioned interventions were added to harm reduction services provided through DICs and outreach teams. The eligible participants were invited for short-term (20 - 30 minutes) manual-based psychoeducation sessions, followed by booster sessions during their contacts with the program on a weekly basis.

The ethics committee of Substance Abuse and Dependence Research Center (SADRC) of University of Social Welfare and Rehabilitation Sciences (USWR) approved this study. Participation in the study was voluntary and participants could refuse to participate in the study at any point for any reason. If they decided to leave the study, they could still be able to participate in educational sessions and/or receive other services in the DICs. All participants provided written informed consent at study entry.

3.4. Training Process

A two - days workshop was conducted for service providers of all study sites. One DIC staff and 1 outreach

worker from each DIC participated in training workshop. If the selected DIC had MMT services in the center, the general physician of the DIC was also invited. In total, 27 service providers participated in the workshop; of whom, 7 were general physicians.

3.5. Data Collection and Analysis

During the intervention, different data were collected from both study participants and service providers. For the clients, a structured questionnaire consisted of 72-items including demographic data, drug use history and pattern, and HIV-related high- risk behaviors were completed at both the entry and endpoint of the study by the trained interviewers. In the present study, we adapted behavioral surveillance surveys (BSS) questionnaires to make it more appropriate for a stimulant-focused harm reduction intervention (12). The Cronbach's alpha for the questionnaire was 0.78. An online anonymous structured questionnaire with multichoices and open-ended questions was completed by service providers in monthly checkpoints.

Data analysis was conducted by performing a series of analyses using SPSS. 20.0. The results of the before and after assessments were compared with independent sample t test and the chi-square test. Statistical significance of the change in the means of within group study outcomes at follow- up assessment was assessed with paired t test.

4. Results

In total, 357 clients entered the study; of them, 66 (18.5%) were females and 291 (81.5%) were males. Among them, 217 individuals (173 males, 44 females) participated in the study for final assessment (P value = 0.3). Male participants with the average of 4.5 times had better participation in the educational sessions than female participants with the average of 3.1 (p value = 0.007).

Initial assessment of the participants showed that in 3 months prior to the initial assessment, 166 individuals (47.3%) were methamphetamine and heroin users and 90 (25.6%) were pure methamphetamine users. Opium with methamphetamine, alcohol with methamphetamine, and tramadol with methamphetamine were in in the third to fifth ranks, with 2%, 1.7%, and 0.5%, respectively. Of the participants, 23% were using 3 or more types of substances (except tobacco) including methamphetamine. At baseline, 55.2% of the females and 32.2% of the males were living with at least 1 methamphetamine user in their family (OR: 1.6, 95%CI: 1.3 - 2.1, P value: 0.000). Demographic details of the participants are presented in Table 1.

Of the participants, 91% of males and 95% of females were daily methamphetamine users in some periods of their life; 60.3% of males and 83.3% of females were daily methamphetamine users in the past 3 months prior to baseline assessment. At baseline, daily methamphetamine use was significantly higher among females than males (OR = 1.3, 95%CI: 0.6 - 2.0, P value: 0.01). History for ever life methamphetamine injection among males was higher than females, with 12.3% and 3.2%, respectively (OR: 1.2, 95%CI: 1.08 - 1.3, P value: 0.02). At baseline, the prevalence of injection in the past 3 months among the males and females were 8% and 1.6%, respectively (P value = 0.09), showing a decreasing trend for males and females as 5.8% (P = 0.4) and 0% (P = 0.9) at month 3, respectively. However, these changes were not statistically significant. No significant changes were observed in the frequency of methamphetamine use in the final assessment compared to the baseline assessment (P value = 0.2). Pipe with 81.2% at baseline assessment and 83.3% at the 3-month assessment was the most prevalent route for using methamphetamine; the other most prevalent route of use was aluminum foil with 14.2%, and 10.8% at baseline and month 3 assessments, respectively. Comparison of route of administration in the last time use in males showed a nonsignificant change, but in females, using pipe was increased from 87.3% in initial assessment to 100% in the final assessment (P value = 0.05).

In the context of sexual behaviors, in the last week prior to baseline assessment, females who reported at least 1 sexual intercourse were more than males with 66.7% and 30.6%, respectively (OR: 3.4, CI: 2.11 - 5.5, P value: 0.000). Sexual intercourse was defined as sexual activity involving vaginal, anal, or oral penetration by penis. This measure reduced after intervention to 50% among females and 26% among males, and the observed change was significant among females (OR = 2.4, CI: 1.2-4.5, P value: 0.02), but it was not significant among males (OR: 1.04, CI: 0.67 - 1.61, P value: 0.9). The frequency of sexual intercourses among both female and male participants had a significant reduction after intervention (P value = 0.007). Table 2 demonstrates the details of sexual behaviors at baseline and at 3-month assessments among all participants; and Table 3 presents the same measures by gender.

Using condom in last intercourse was increased significantly (P value = 0.04). Meanwhile, having sexual intercourses without condom because of methamphetamine effects was reduced (p value = 0.006) (Table 1). The reported change was significant among females, but it was not significant among males (Table 2).

Participants' information about methamphetamine harms and side effects increased after educational sessions (P value = 0.001).

One of the objectives of the present study was obtaining the service providers opinions about the feasibility and acceptability of the intervention. According to the data ex-

Table 1. Demographic Characteristics of the Participants

Demographic Characteristics	Baseline			Month 3			P value
	Male (n = 291)	Female (n = 66)	Total (n = 357)	Male (n = 173)	Female (n = 44)	Total (n = 217)	
Gender, %	81.5	18.5	100	79.7	20.3	100	0.3
Age[a]	37.3 (8.7)	35.3 (9.7)	36.9 (8.9)	37.9 (8.8)	37.3 (9.7)	37.8 (9)	0.27
Completed Years of Education[a]	8.7 (3.7)	7.6 (4)	8.5 (3.8)	8.7 (3.5)	7.7 (4)	8.6 (3.6)	0.9
Marital Status, %							< 0.0
Married	29.6	24.2	28.6	27.2	4.5	22.6	
Separated	2.4	12.1	4.2	2.3	15.9	5.1	
Divorced	23	28.8	24.1	22.5	50	28.1	
Widowed	1.7	15.2	4.2	1.7	22.7	6	
Never Married	41.9	6.1	35.3	42.8	4.5	35	
Informal Relation	3.7	13.6	2	3.5	2.3	3.2	

[a]Values are expressed as mean (SD).

Table 2. Sexual Behaviors of the Study Participants at Baseline and Month 3 Assessments

Measure	Baseline	Month 3	P Value
Number of sexual intercourse in last week	1.206 ± 3.55	0.498 ± 1.35	0.007
Using condom in the last sex, %	39.4	50	0.04
Sex under influence of methamphetamine, %	38.7	33	0.2
Sex without condom because of methamphetamine effects, %	29.7	18.3	0.006

tracted from the online questionnaire, the opinions of the service providers about the intervention were as follow:

- Their fears, sense of insecurity, and anxiety about service provision to those who use methamphetamine were reduced.

- Tensions and clashes between methamphetamine user clients and staff was reduced,

- They found that prevalence of methamphetamine use among the clients of DICs is quite high. Before the study, the clients, especially those who were on Methadone Maintenance Treatment, were scared to report their amphetamine use.

- The clients had established better rapport and trust with the service providers.

- The above changes helped service providers to deliver more comprehensive services.

During the intervention period, the service providers were asked to complete online anonymous questionnaires. Of the respondents, 52% in the first evaluation and 67% in the second evaluation responded that they were highly satisfied or satisfied with the package. The education level of service providers showed consistency with the level of the client's satisfaction with the educational amphetamine package. The Cumulative percentage for answers "very high and high" for the following question "How did you find this intervention useful for your DIC clients?" increased from 63% to 73%.

Of the respondents, 26% believed that even without extra budget they could integrate educational curriculum in their routine activities at baseline assessment; this number increased to 66% at the 3- month assessment. According to the service providers' opinions, the very high and high need for these services at baseline and at the 3- month assessments were 73% and 87%, respectively.

5. Discussion

Results of our study provide preliminary evidence suggesting effectiveness of stimulant-focused harm reduction education on some of sex-related high-risk behaviors including frequency of sexual activities and condom use among people who used stimulants regularly and referred to harm reduction facilities in Iran. Our findings were consistent with those of international studies showing the effectiveness of HIV prevention interventions on high-risk sexual behaviors among different populations of drug users (20) including those who used stimulants (21, 22).

Despite the significant increase in knowledge of study participants about methamphetamine-related harms, the study did not find significant changes in drug use-related high- risk behaviors including frequency of

Table 3. Sexual Behaviors of the Study Participants at Baseline and Month 3 Assessments by Gender

Measure	Male			Female		
	Baseline	Month 3	P Value	Baseline	Month 3	P Value
Number of sexual intercourses in the last week	0.465 ± 0.98	0.266 ± 0.49	0.013	4.645 ± 7.28	1.833 ± 3.02	0.04
Using condom in the last time sex, %	38.1	43.1	0.3	45	84.6	0.001
Sex under influence of methamphetamine, %	40.1	34.8	0.4	32.8	23.3	0.3
Sex without condom because of methamphetamine effects, %	29.3	21.1	0.08	31.6	3.6	0.004

methamphetamine use and injection among regular stimulant users. This might be due to the low intensity of methamphetamine-focused harm reduction intervention compared to effective stimulant treatment interventions including matrix model, cognitive behavioral therapy (CBT) (23), contingency management (24), and community-reinforcement approach (25). However, little is known about providing psychosocial interventions to reduce stimulant use in resource-limited settings like harm reduction facilities in developing countries. More studies are needed to introduce feasible and effective behavioral interventions for stimulant use reduction among clients of low-threshold settings.

Females were more likely to use methamphetamine on daily basis compared to males, however, methamphetamine injection was much higher in males than in females. Females were more likely to live with other methamphetamine users and had more sexual activity than males. This might have been due to the fact that females were recruited from DICs that provided services for female drug users who were involved in sex exchange drug or money. This pattern was consistent with international studies, showing instrumental use of methamphetamine among females who are involved in commercial sex work (4, 26).

Males participated significantly more than females in the program sessions, which is consistent with international studies reported gender inequity in access to harm reduction services both in developed (27) and in developing countries (28). Despite the higher frequency of methamphetamine use and lower rate of participation in the intervention among females, analysis of data by gender revealed that an increase in the percentage of condom use in the last sexual intercourse and a decrease in unprotected sex due to methamphetamine effects were significant among females, but the decreasing trend was not significant among males. This is in contrast with other studies reporting lower effectiveness of risk reduction interventions among female drug users due to partner influence and power differentials in the society (29, 30). This finding might be explained by higher quality of services provided to females in specific DICs who participated in the study. More studies are needed to explore the mediating factors on the effectiveness of risk reduction interventions among females and males who use stimulants.

Harm reduction services for noninjecting drug users are not a priority area in Iran harm reduction national program. As a result, methamphetamine-focused harm reduction programs are not provided in drop-in centers and outreach programs across the country. This study provided preliminary data supporting the feasibility of integrating methamphetamine harm reduction within currently available harm reduction settings. The integration of services was acceptable for both services providers and clients.

There were some limitations to our study. We reported changes in outcome measure after the intervention compared to baseline, but due to lack of a control group, we could not contribute all observed behavioral changes to the intervention. Given that problematic methamphetamine use could play a devastating role in spreading HIV epidemic, it is imperative to conduct studies with clinical trial design to test the efficacy of the methamphetamine harm reduction interventions. Cohort studies with longer follow-ups could provide valuable data on the effectiveness of harm reduction intervention in the context of harm reduction service provision in the country.

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Footnotes

Authors' Contribution: Seyed Ramin Radfar and Alireza Noroozi conceived and designed the evaluation, collected and interpreted the clinical data, performed the statistical

analysis, and drafted the manuscript. Seyed Ramin Radfar, Setareh Mohsenifar, and Alireza Noroozi revised it critically for important intellectual content. All authors read and approved the final manuscript.

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