

their peers, and instead tried to develop a context in which IDUs would reach out their peers with the opportunity to participate in a study that has immediate benefits only for the recruits rather than recruiters.

Our findings demonstrate that whilst HIV level is low, HCV infection is highly prevalent amongst IDUs in this city. It has been demonstrated that amongst IDUs, HIV infection is often introduced several years after HCV infection. Populations with a high prevalence of HCV infection and low prevalence of HIV, such as that in this study, may reflect either harm-reduction programs which are effectively preventing the emergence of HIV, or a window of opportunity for the prevention of HIV infections amongst HCV-infected individuals.

Our findings also show that high prevalence of HCV infection is strongly associated with the duration of drug injection in general, and with a history of injecting Temgesic solution in particular. In addition, our analysis showed a dose-dependent relationship between high levels of HCV infection and the frequency and the duration of injecting Temgesic solution in a lifetime. Our qualitative data highlighted several potential ways by which HCV might be transmitted through the Temgesic solution or its vials. Participants provided several accounts indicating that some IDUs in this city collect used vials and refill them, sell the remaining half of the drug liquid, pass or sell the empty vial to more underprivileged IDUs, or share the liquid with previously used needles or syringes. Although, it is not possible to attribute high proportions of HCV infection to injecting Temgesic solution alone, this may be responsible for the additional risk of HCV transmission in this city and other areas in Iran where this addictive solution is heavily marketed.

We are uncertain of the exact components of the addictive solution marketed as Temgesic, but reports from neighbouring provinces and Tehran indicate that it contains heroin and corticosteroids, as well as other chemical compounds. Laboratory analyses on similar vials collected in Tehran have revealed a mixture of diacetylmorphine (heroin), acetylcodein, and pheniramin as the main opioid compound (Azizi et al., 2008). Additionally, these analyses have established that the vials contained high levels of corticosteroid, which is assumed to be responsible for additional adverse health outcomes, including exogenous Cushing's syndrome, amongst people who injected this drug in Tehran. However, no buprenorphine was present in the vials (Azizi et al., 2008).

The association between HCV infection and a history of injecting Temgesic solution in Foulad-shahr and Isfahan is a very important finding, given the widespread marketing of this addictive solution in Iran over the past several years. Although additional investigation could help to support these findings, it is crucial that those making health policy in Isfahan and elsewhere in Iran take these findings into serious consideration in order to prevent the further transmission of HCV amongst the large population of drug users.

Possible limitations to the study could have affected the results. The design of our study was cross-sectional, which precludes us from determining exact temporal relationship between risk behaviours and HCV infection. Our study included some self-reported information gained from interviews, which could be biased by the participants recall ability under the influence of drugs (Latkin, Vlahov, & Anthony, 1993; Shrestha et al., 2006). It is possible that peer-driven sampling may have selectively attracted those IDUs who needed the incentives, which may have biased our small sample. By excluding a secondary incentive, we have missed an opportunity to assess the level of non-response bias, although this is not possible even in other RDS-related studies using dual incentive because many participants do not show up to collect the secondary incentive. As the participants were recruited from one city in a certain area of Iran, the findings of this study cannot be generalised to outside this region. Further studies using larger sample sizes are

needed to investigate prevalence and associated factors with HCV infection in other areas in Iran.

In conclusion, our findings suggest that the injection of the Temgesic solution carries a particular risk for HCV infection. Though Isfahan has already enhanced its HIV-related interventions to strengthen HIV surveillance and to improve harm-reduction programs amongst IDUs, such programs should be extended and integrated with an HCV prevention program, including educational components that warn IDUs of the dangers of injecting the Temgesic solution, which has been available for several years in Iran.

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Conflict of interest statement

None.

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Patterns of Drug Use and HIV-Related Risk Behaviors among Incarcerated People in a Prison in Iran

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ABSTRACT *Previous research indicates that prisoners in Iran are at risk of drug-related harm, including acquisition of blood-borne infections. In response, several prevention interventions have been introduced into prisons in Iran, such as methadone maintenance treatment (MMT). MMT is now provided to opioid-dependent prisoners in 142 of the 230 prisons and correctional settings in Iran. A baseline behavioral survey was conducted in Karaj Central prison which mainly holds prisoners with drug-related charges. Overall, 203 male prisoners from randomly selected rooms in two prison blocks were interviewed using a structured questionnaire in 2007, just before the introduction of MMT program in this prison. Among participants, 7% reported never having used illicit drugs in their lifetime, but 51% had used non-injecting illicit drugs, and as high as 42% reported having injected an illicit drug. Up to 79% (160/203) of all participants reported using drugs, and about 6% (12/203) reported drug injecting during their current incarceration term. Same-gender sexual practice during current incarceration term was reported by 2.5% (5/203) of all male prisoners. Comparison between injecting and non-injecting drug-using prisoners indicated that drug injectors had higher rates of previous incarcerations, commenced drug use at a younger age, were more likely to have used illicit drugs in the previous week, were more likely to have been treated by a physician for drug addiction, had higher rates of registration for methadone treatment inside prison, and were more likely to have been tested for HIV infection. These study findings provide a behavioral profile of prisoners in regard to drug-related harm and can be considered in any plan to introduce or improve provision of MMT in prisons in Iran or other countries with similar features.*

KEYWORDS *Drug use, HIV risk behaviors, Prison, Iran*

INTRODUCTION

Several HIV outbreaks seem to have occurred inside Iranian prisons in the mid-1990s¹ in major cities including Shiraz, Kerman, Kermanshah, and the capital, Tehran. Several studies have also reported the risk of HIV transmission in association with shared drug injecting in Iranian prisons.² HIV outbreaks among

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drug users in prisons adversely affect HIV prevalence among injecting drug users (IDUs) in the general community,^{3,4} and there is still concerning evidence on the elevated risk of HIV incidence among prisoners in Tehran.⁵ While biological surveillance data from 14,470 prisoners sampled in different provinces in 2005 showed that 3% of them tested positive for HIV infection, prevalence varied significantly between provinces, ranging from 0.2% in the North-Eastern province of Khorasan to 14% in the Western province of Kermanshah. Prevalence of HIV infection among adult prisoners in Tehran was an average of 4%.⁶

Iranian prisons, like in many other countries, contain a disproportionate number of individuals with drug use problems. It is estimated that a little less than half of the prison population in Iran are convicted of drug-related charges, with the majority of them related to illicit drug use.⁷ There was an average of 135,000 prisoners at any point in time in the 230 prisons and custodial settings, and as many as 600,000 individuals entered and exited prisons during the 2004 Iranian fiscal year: between March 2004 and February 2005.⁷ The high recidivism rate of prisoners in Iranian prisons and previous outbreaks of HIV infection among prisoners present a challenging situation for health policy makers in preventing HIV infection among injecting drug users and among their drug-using and sexual networks.

Though the response against the danger of HIV outbreaks among drug-injecting prisoners was somewhat unclear at the beginning, the Iran Prison Organization has undertaken comprehensive and progressive control measures in the past several years. Through the adoption of harm-reduction policies, the Iran Prison Organization started implementing several programs for drug-using prisoners.^{8,9} Accordingly, the organization has started comprehensive HIV prevention interventions for drug-using prisoners in many provinces throughout the country; its main activities include epidemiological surveillance, education programs, and drug treatment and prevention programs which include methadone maintenance treatment (MMT) and pilot programs for needle and syringe exchange.^{7,8}

Treatment of drug-using prisoners has been prioritized in order to deal with the large number of drug-using prisoners and to try to reduce drug-related harm, such as transmission of blood-borne infections in prisons in Iran. While there is a range of drug treatment modalities for drug-using prisoners in Iran, MMT has been a focus of attention for opioid-dependent prisoners. Currently, spread over the 30 provinces of Iran, there are 142 prisons with clinics that provide MMT to opioid-using prisoners. The number of drug-using prisoners under maintenance treatment with methadone has increased from 100 people to more than 25,400 between 2002 and 2008.⁶

Considering the challenges in regard to the prevention of blood-borne infection transmission and the implementation of extensive preventive measures against drug-related harm in Iran, there is still very limited research-based evidence to document the behavioral and health situation of prisoners in the country. This study is part of a larger project initiated by the United Nations Office on Drugs and Crime (UNODC) Country Office of the Islamic Republic of Iran and was conducted to determine baseline measurements before the introduction of the MMT program for opioid-dependent prisoners in Karaj Central prison, Iran. As many prisons in Iran had already introduced MMT program for drug-using inmates, Karaj Central prison was selected for this study, as it was about to start the MMT program when we conducted this baseline survey. Karaj Central prison is a large custodial setting near Tehran, holding an average of 4,000 to 4,800 prisoners at any given time, many of whom are charged with drug-related offenses.

METHODS

The project's protocol stipulates the evaluation of the MMT program in two prisons in Tehran through a longitudinal study, incorporating multiple separate measurements before and after the introduction of the MMT program.^{10,11} This report outlines the results of a quantitative survey conducted in 2007, before the introduction of the MMT program in Karaj Central prison near Tehran, Iran.

The prison consists of two large units; each has five blocks with a capacity to hold 480 prisoners each. Unit 1, which usually holds prisoners with more serious convictions and longer incarceration terms, was planned as the place to introduce an MMT program. We conducted a baseline measurement in two blocks in Unit 1, prior to the introduction of the MMT program in September, 2007. Prisoners were selected using a one-stage cluster sampling design. First, rooms of two blocks were randomly selected with equal probability of selection. Then, all prisoners staying in the randomly selected rooms were invited to participate in the study, thereby producing a sample considered to be self-weighted and representative of their recruited prison blocks.

All eligible respondent prisoners participated in individual, anonymous, face-to-face interviews using a structured questionnaire. The questionnaire was developed from a behavioral questionnaire previously tested and used with IDUs and non-IDUs in Iran, and some modifications were made to the questionnaire following the findings of the preliminary qualitative study among 30 prisoners in 2006.¹² Participants were asked up to 80 questions about their demographic details, current and past incarcerations, drug use characteristics, HIV-related risk behaviors, as well as regarding their possible use of methadone inside prison. There were no reported non-respondents in this study.

Three interviewers, psychologists from another prison, were given training on interview techniques for data collection at a 1-day workshop prior to the interviews. The interviewers had experience working with prisoners in general, but they were neither affiliated to the studied prison, nor were they providing any health or treatment care to the prisoners who participated in the study. In order to evaluate the cross-reliability of interviewers, a psychiatrist field supervisor randomly invited 25 prisoners to answer an additional ten questions, including seven questions identical to those in the main questionnaire. There was perfect inter-rater agreement between the interviewers and the supervisor on the seven duplicate questions for the 25 prisoners in the two survey rounds.

Statistical analyses were conducted using SPSS Complex Samples 13.0 (SPSS Inc. Chicago, IL, USA) to adjust for any possible effect of clustering. Summary statistics included frequency and proportions for categorical variables, medians, and means [with standard errors (SE)] for continuous variables. Bivariate analyses for complex samples were performed to examine the association between the history of drug injection and other socio-demographic and behavioral characteristics, as well as to obtain odds ratios (OR) and 95% confidence intervals (CI) for the associated factors with the outcome variables.

The ethics committee of the Iran Prison Organization reviewed the study protocol and, after we had incorporated the comments from the committee, permission was obtained from the organization to undertake the study. Participants' personal identification was not required, and interviews were carried out in an environment that could provide, as much as possible, personal privacy and confidentiality. Refusal to participate in this study did not interfere with the health care and treatment of prisoners. Respondents were informed about the purpose of

the study, the voluntary nature of their participation, and the anonymity of all collected data before providing verbal informed consent for participation. No monetary incentive was given to the participants.

RESULTS

Sample Description

Overall, 203 male prisoners were recruited from randomly selected rooms in Karaj Central prison and interviewed in September, 2007. Univariate analysis incorporating cluster effect on the sample of prisoners shows that the average age of prisoners was 34.8 years. Prisoners had diverse ethnic identities, but the majority (54%) were Fars, 28% were Azeri, and the remainder belonged to other ethnic minorities including Kurd, Lur, and Gilak. About 7% of the participants were illiterate; 4% were able to read and write with no school education, and 26% had reached high school or higher educational levels. About 40% were single; 53% were married at the time of interview, and the remainder (7%) were divorced or separated. As many as 91% of the prisoners reported having had a job before entering prison (Table 1).

Excluding 22 participants who did not respond to the question regarding number of previous incarcerations, respondents had been incarcerated an average of 4.8 times before their current term. All respondents had previous incarceration history, and up to 35% had been incarcerated five times or more before entering this prison. At the time of the interview, almost half of the prisoners (49%) had already served less than 12 months of their term, 69% reported their release to be within 12 months after the interview (Table 1). Just less than 7% reported having taken temporarily leave during their current incarceration term. Up to 69% of the prisoners reported receiving financial support from their family, and the last time they did so was between 2 to 5 weeks before being interviewed. Support from family was also mentioned as the main way to cover expenses while in the prison.

Characteristics Related to Drug Use

As shown in Table 2, of the 203 participants in the survey, 189 (93%) reported having used an illicit drug in their lifetime, where the mean age of starting drug use was 19.5 years of age. Seventy-nine percent (160/203) of prisoners had used illicit drugs during their current incarceration, and as many as 67% (135/203) had used drugs the week before being interviewed (Table 2). High-grade crystal heroin, known as "crack", was the main illicit drug used by prisoners; 95% (128/135) used crack heroin, 2% (3/135) heroin, and 2% (2/135) reported using mainly opium in the week prior to the interview. During the week prior to the interview, smoking was the main route of drug administration, followed by sniffing and ingestion. As this survey was a baseline measurement before the introduction of the MMT program, none of the study participants reported being under MMT.

Among all prisoners, 42% (86/203) reported injecting a drug in their lifetime and are categorized here as IDUs. The mean age for commencing injecting drug use was 23.9 years. Of the 86 IDUs, 82 could remember/report the place of their first injection: 63% of them (52/82) first injected at home, 28% (23/82) in a public place, and 9% (7/82) first injected in a prison.

Twelve people, approximately 6% of all prisoners or 14% of IDUs, reported injecting drugs during their current incarceration term, nine of whom had used a shared injecting device at some time. Of the 12 people who injected drugs during

TABLE 1 Socio-demographic and general characteristics relating to prisoners in Karaj Central prison in Iran in 2007

	<i>n</i> or mean	Percentage (%)	95% CI
Overall number of participants	203	—	—
Mean age, years (SE)	34.8 (0.4)	—	34.0–35.6
Ethnicity			
Fars	110	54.2	46.6–61.5
Azeri	56	27.6	22.7–33.1
Others	37	18.2	13.5–24.2
Education			
Illiterate	14	6.9	4.6–10.1
Able to read and write	9	4.4	2.0–9.7
Primary school	52	25.6	19.0–33.6
Junior high school	76	37.4	32.0–43.2
High school	47	23.2	15.9–32.5
College/university	5	2.5	0.5–10.4
Marital status			
Single (never married)	81	39.9	31.7–48.7
Currently married	107	52.7	45.4–59.9
Divorced/widowed/separated	15	7.4	4.8–11.3
Employment			
Had job before entering prison	184	90.6	85.9–93.9
Jobless before entering prison	19	9.4	6.1–14.1
Number of previous incarcerations (excluding current term)			
None	0	0.0	—
1–2 times	56	27.6	19.2–37.9
3–4 times	54	26.6	18.1–37.3
5 times or more	71	35.0	26.7–44.3
No response	22	10.8	7.9–14.8
Mean number of previous incarcerations (SE)	4.8 (0.4)	—	3.8–5.7
Time elapsed since incarcerated			
<12 month	100	49.3	41.6–57.0
≥12 months	101	49.8	42.7–56.8
No response/do not remember	2	1.0	0.2–4.1
Time remaining until release from prison			
<12 month	140	69.0	61.9–75.2
≥12 months	54	26.6	21.3–32.6
No response/do not know	9	4.4	2.2–8.9
Have relocated within this prison			
No	170	83.7	78.6–87.8
Yes	33	16.3	12.2–21.4
Have taken temporarily leave during current incarceration			
No	189	93.1	87.5–96.3
Yes	14	6.9	3.7–12.5
Have received money from family during current term			
No	63	31.0	24.5–38.4
Yes	140	69.0	61.6–75.5
Time elapsed since last received money, days (SE)	24.1 (5.6)	—	12.0–36.2
Amount of money last received from family (equivalent in US\$; SE)	42.4 (7.4)	—	26.5–58.4

CI confidence interval taking account of cluster effect, SE standard error of the mean

TABLE 2 Drug use characteristics of prisoners in Karaj Central prison in Iran in 2007

	<i>n</i> or mean	Percentage, %	95% CI
Overall number of participants	203	–	–
Have used illicit drugs in lifetime			
No	14	6.9	4.2–11.0
Yes	189	93.1	89.0–95.8
Mean age at first illicit drug use, years (SE)	19.5 (0.4)	–	18.6–20.4
Have used illicit drug during current incarceration			
No	43	21.2	14.3–30.2
Yes	160	78.8	69.8–85.7
Have used illicit drug during past week in this prison			
No	68	33.5	25.8–42.1
Yes	135	66.5	57.9–74.2
Have injected illicit drug in lifetime			
No	117	57.6	47.5–67.2
Yes	86	42.4	32.8–52.5
Mean age at first illicit drug injection, years (SE)	23.9 (0.9)	–	22.0–25.9
Have injected illicit drug in current incarceration			
No	191	94.1	90.8–96.2
Yes	12	5.9	3.8–9.2
Have injected illicit drug-using shared equipment during current incarceration			
No	194	95.6	91.6–97.7
Yes	9	4.4	2.3–8.4
Have injected illicit drug during past 6 months in this prison			
No	196	96.6	93.5–98.2
Yes	7	3.4	1.8–6.5
Have injected illicit drug during past week in this prison			
No	201	99.0	95.7–99.8
Yes	2	1.0	0.2–4.3
Have physical fought with other inmates in this prison			
No	156	76.8	66.9–84.5
Yes	47	23.2	15.5–33.1
Time elapsed since last physical fight, months (SE)	3.4 (0.8)	–	1.7–5.1
Have been treated by a physician for drug addiction before entering this prison			
No	93	45.8	38.5–53.5
Yes	110	54.2	46.7–61.5
Have registered to be treated with methadone in this prison			
No	193	95.1	89.6–97.7
Yes	10	4.9	2.3–10.4

CI confidence interval taking account of cluster effect, *SE* standard error of the mean

their current incarceration term, three people used needle/syringe and nine used handmade injection tools for their last drug injection. Of the 12 people who injected drugs in this prison, nine reported using shared tools (needle/syringe or handmade injection tools) for their last drug injection. Only two IDUs reported injecting behavior during the week prior to the interview (Table 2).

More than 23% of the participants reported having had a physical fight with another prisoner during their current term. Of all 203 prisoners, 54% reported being treated by a physician for drug addiction before entering this prison. At the time of data collection, less than 5% of the prisoners (10/203) had registered their names to be treated with methadone in this prison (Table 2).

As mentioned, 140 prisoners received money from their family during their current incarceration term. Among these prisoners, 69% (97/140) reportedly used some of the money to buy drugs, with the majority of these people (79/97 or 81%) reported using more than half of the money received from family to buy drugs.

HIV/AIDS-Related Knowledge and Behaviors

The Prison Organization in Iran provides some conjugal rooms in prisons to allow married prisoners to meet and have some private time with their spouses. We asked our study participants if they had ever used these conjugal rooms. In contrast to our expectations, only two prisoners in our sample (1% or 2/203) reported having ever used a conjugal room to meet their spouse. Condoms are freely available in these conjugal rooms, and prisoners are encouraged to use condoms when they meet and have sex with their spouse. One of the two prisoners who had used a conjugal room reported using a condom the last time he had sex with his wife, but the other prisoner had not.

Because there is great social stigma regarding homosexuality in Iran, we included a desensitizing explanation before asking homosexuality-related questions, by stating that other people may have the same experience. Among the 203 male participants, five (2.5%) reported having had sex with another man during their current incarceration term, and none had used a condom for the last same-gender sex (Table 3).

Up to 33% (67/203) of the prisoners reported having been tested for HIV infection in their lifetime; an average of 14.9 months had elapsed since their last HIV test (Table 3). The prisoners' HIV/AIDS-related knowledge was fairly good with an average of six correct answers to eight questions about HIV transmission routes and its prevention. However, misconceptions about HIV transmission were common among the prisoners; as high as 58% and 41% of them did not know that HIV cannot be transmitted from mosquito bites or from sharing a meal with someone who is infected, respectively. In addition, 9% of the prisoners did not know that HIV can be transmitted through shared use of needle/syringes, and over 18% of the prisoners did not know that switching from injecting to non-injecting routes of drug administration can reduce risk of HIV acquisition (Table 3).

Comparison between Non-injecting and Injecting Drug-Using Prisoners

Among the 189 prisoners who reported having used illicit drugs, 86 (46%) stated having injected a drug and are considered here as IDU, and the remaining 103 (55%) considered non-IDUs. Comparison between IDU and non-IDU prisoners showed that the two groups are more or less comparable in age, ethnic background, levels of education, job situation before entering prison, and the length of current term. However, a lower proportion of IDUs were married (OR 0.3; 95%CI 0.2–0.6), and IDUs had more previous incarcerations (OR 3.2; 95%CI 1.4–7.7) compared with the non-IDU prisoners (Table 4).

IDU prisoners started drug use at an earlier age (17.9 years) compared with the non-IDUs (20.8 years; P value<0.001) and higher proportions of IDUs (94% compared with 77%) reported using drugs inside prison during their current term (OR 4.9; 95%CI 1.4–17.0). Higher proportions of IDUs (70%) compared with non-IDU prisoners (48%) reported being medically treated for drug addiction before entering this prison (OR 2.4; 95%CI 1.1–5.4). Significantly higher proportions of

TABLE 3 HIV/AIDS knowledge and other related characteristics of prisoners in Karaj Central prison in Iran in 2007

	<i>n</i> or mean	Percentage (%)	95% CI
Overall number of participants	203	–	–
Have used a conjugal room for meeting with spouse during current incarceration			
No	201	99.0	96.2–99.7
Yes	2	1.0	0.3–3.8
Have had sex with another man in this prison			
No	198	97.5	93.5–99.1
Yes	5	2.5	0.9–6.5
Have tested for HIV infection			
No	136	67.0	59.6–73.7
Yes	67	33.0	26.3–40.4
Time elapsed since last HIV test, months (SE)	14.9 (2.9)	–	8.5–21.3
AIDS-related knowledge			
Have heard of AIDS disease			
Yes	197	97.0	94.0–98.5
No	6	3.0	1.5–5.9
Can people reduce the risk of HIV (AIDS virus) acquisition by having one faithful sex partner?			
Correct answer	136	67.0	60.2–73.1
Incorrect answer/DNK	67	33.0	26.9–39.8
Can people reduce the risk of sexual acquisition of HIV (AIDS virus) by using condom?			
Correct answer	155	76.4	66.8–83.8
Incorrect answer/DNK	48	23.6	16.2–33.2
Can a person with a healthy appearance be infected with HIV (AIDS virus)?			
Correct answer	164	80.8	69.8–88.4
Incorrect answer/DNK	39	19.2	11.6–30.2
Can a person get HIV (AIDS virus) from mosquito bites?			
Correct answer	85	41.9	33.9–50.3
Incorrect answer/DNK	118	58.1	49.7–66.1
Can a person get HIV (AIDS virus) by sharing a meal with someone who is infected?			
Correct answer	120	59.1	49.1–68.4
Incorrect answer/DNK	83	40.9	31.6–50.9
Can a person get HIV (AIDS virus) through using a shared injecting needle/syringe?			
Correct answer	185	91.1	84.1–95.2
Incorrect answer/DNK	18	8.9	4.8–15.9
Can people who inject drugs reduce their risk of HIV (AIDS virus) acquisition by switching the route of drug use from injection to non-injecting drugs?			
Correct answer	167	82.3	74.0–88.3
Incorrect answer/DNK	36	17.7	11.7–26.0
Mean score of AIDS-related knowledge ^a (SE)	6.0 (0.2)	–	5.5–6.4

CI confidence interval taking account of cluster effect, *SE* standard error of the mean, *DNK* do not know

^aThe eight questions about HIV transmission routes and its prevention that are described in this table were summed to assess HIV/AIDS knowledge; correct answers were each given a 1-point score

IDU prisoners have registered to be treated with methadone in the prison (OR 11.9; 95%CI 3.1–45.4).

In regard to other HIV-related characteristics, IDUs were shown to have marginally better knowledge of HIV transmission routes and its prevention. Comparable proportions of non-IDU and IDU prisoners reported having had

TABLE 4 Bivariate analyses for comparing non-IDU and IDU prisoners recruited from Karaj Central prison in Iran in 2007

	Non-injecting drug users (ref), <i>n</i> (%)	Injecting drug users, <i>n</i> (%)	Odds ratio (95% CI) or <i>P</i> value
Overall number	103	86	–
Mean age, years (SE)	34.7 (0.5)	34.3 (0.7)	<i>P</i> value not significant
Ethnicity			
Fars	56 (54.4)	52 (60.5)	1.00
Others	47 (45.6)	34 (39.5)	0.78 (0.44–1.39)
Education			
Primary school or less	41 (39.8)	27 (31.4)	1.00
Junior high school or more	62 (60.2)	59 (68.6)	1.44 (0.72–2.91)
Marital status			
Single (never married)	30 (29.1)	49 (57.0)	1.00
Ever married	73 (70.9)	37 (43.0)	0.30 (0.15–0.64)
Employment			
Had job before entering prison	95 (92.2)	75 (87.2)	1.00
Jobless before entering prison	8 (7.8)	11 (12.8)	1.74 (0.76–3.99)
Number of previous incarcerations (excluding current term)			
1–4 times	67 (74.4)	39 (47.6)	1.00
5 times or more	23 (25.6)	43 (52.4)	3.21 (1.35–7.66)
No response	13	4	–
Time elapsed since incarcerated			
<12 month	56 (54.4)	37 (43.5)	1.00
≥12 months	47 (45.6)	48 (56.5)	1.55 (0.74–3.21)
No response/do not remember	–	1	–
Time remaining until release from prison			
<12 month	79 (76.7)	51 (66.2)	1.00
≥12 months	24 (23.3)	26 (33.8)	1.68 (0.90–3.13)
No response/do not know	–	9	–
Age at first illicit drug use, years			
<20	48 (47.1)	58 (68.2)	1.00
≥20	54 (52.9)	27 (31.8)	0.41 (0.22–0.77)
Mean age (SE)	20.8 (0.7)	17.9 (0.3)	<i>P</i> <0.001
Used illicit drug during current incarceration			
No	24 (23.3)	5 (5.8)	1.00
Yes	79 (76.7)	81 (94.2)	4.92 (1.42–17.05)
Used illicit drug during past week in this prison			
No	38 (36.9)	16 (18.6)	1.00
Yes	65 (63.1)	70 (81.4)	2.56 (0.91–7.19)
Have physical fought with other inmates in this prison			
No	83 (80.6)	61 (70.9)	1.00
Yes	20 (19.4)	25 (29.1)	1.70 (0.53–5.50)
Have been treated by physician for drug addiction before this incarceration			
No	53 (51.5)	26 (30.2)	1.00
Yes	50 (48.5)	60 (69.8)	2.45 (1.12–5.36)
Have registered to be treated by methadone maintenance in prison			
No	102 (99.0)	77 (89.5)	1.00
Yes	1 (1.0)	9 (10.5)	11.92 (3.13–45.38)
HIV/AIDS knowledge score			
<5 out of 8	34 (33.0)	18 (20.9)	1.00
≥5 out of 8	69 (67.0)	68 (79.1)	1.86 (0.78–4.42)

TABLE 4 Continued

	Non-injecting drug users (ref), <i>n</i> (%)	Injecting drug users, <i>n</i> (%)	Odds ratio (95% CI) or <i>P</i> value
Have had sex with a man in this prison			
No	100 (97.1)	84 (97.7)	1.00
Yes	3 (2.9)	2 (2.3)	0.79 (0.21–2.94)
Have tested for HIV infection in lifetime			
No	77 (74.8)	46 (53.5)	1.00
Yes	26 (25.2)	40 (46.5)	2.57 (1.65–4.03)

IDU injecting drug user, CI confidence interval taking account of cluster effect, SE standard error of the mean

sex with another man during their current incarceration term (between 2% and 3%). History of being tested for HIV infection was significantly higher among IDU prisoners (47%) compared with non-IDUs (25%; OR 2.6; 95%CI 1.6–4.0; Table 4).

DISCUSSION

Research-based evidence on the health status of prisoners from developing or transitional countries is extremely limited. This study forms a baseline measurement before the introduction of MMT and has documented a detailed profile of prisoners in a custodial setting in Iran. The study findings show that remarkably high proportions of prisoners reported using illicit drugs inside prison and that HIV-related risk behaviors exist among them. These findings justify and underscore the necessity of proper prevention and treatment interventions for incarcerated drug users in this prison.

Despite attempts to prevent the entry of drugs, the study findings show that the majority of prisoners who had been convicted of drug-related offenses continued using illicit drugs inside prison. Up to 67% of the respondents reported using illicit drugs in the prison during the week prior to the interview; opioids were reported to be the most commonly used drugs by the prisoners. High levels of drug use among prisoners have also been reported from other countries. In the UK, it is reported that just less than half of male sentenced prisoners used drugs during their current prison term.¹³ It is estimated that at least half of the prison population in Europe has a history of drug use, with many of them being affected by severe drug-related problems.¹⁴

HIV-related risk behaviors were not uncommon among respondent prisoners. As high as 42% of the respondents reported ever injecting a drug in their lifetime, of which 14% (12/86) reportedly continued injecting drugs while they were in this prison. A high proportion of IDUs (35%) has also been reported in a sample of drug-using prisoners elsewhere in Iran.¹⁵ According to a review of European studies, the percentage of heroin-dependent prisoners who continue to inject in prisons range between 16% and 60%.¹⁶ A more recent review reported a range of 2% to 74% of prisoners injecting while inside prison; however, the majority of studies report between 10% and 30% of injecting practices inside prison.¹⁷ Though literature from prisoners in developing or economically transitional countries is scarce, a study in Thailand shows that up to a quarter of male inmates in Bangkok reported injecting during incarceration.¹⁸

Importantly, most of the injecting practices inside this prison were reported to have been done using handmade and mainly shared injecting tools. The importance of this finding is underscored considering the fact that several HIV outbreaks have occurred inside Iranian prisons during the mid-1990s in major cities, including Tehran where there is still concerning evidence on the elevated risk of HIV incidence among prisoners.⁵ Potential risk of HIV transmission among incarcerated IDUs is not confined only to Iran. There is research evidence from some developed and developing countries indicating that incarcerated IDUs are at risk of HIV infection in the prison environment, especially those who use injected drugs¹⁸⁻²³; there have been several reports of HIV outbreaks among drug-injecting prisoners.^{24,25}

Investigating sexual behavior and related risks for HIV infection among prisoners in Iran is very challenging. Same-gender sex is still very taboo in Iran and could be heavily punished. Answering questions related to same-gender sex is particularly difficult for people who are already incarcerated because of the fear of additional penalties. Despite the sensitivities regarding same-gender practice, on average, 2.5% of prisoners, with no difference between injecting and non-injecting drug users, reported having had sex with another man in this prison. While low rates of same-gender sexual practices have been reported among prisoners in some European countries,^{26,27} other studies have reported higher proportions (over 10%) of male prisoners engaging in same-gender sex while in prison.^{28,29}

Importantly, the finding that none of those who had had same-gender sex in this prison used a condom for their last sex encounter is worrying and deserves careful consideration by the prison health policy makers. However, condom provision in a prison setting is also a challenging task in other countries. It has been reported that few systems in the United States have adopted condom provision for inmates, in the face of evidence that high-risk sexual behaviors occur in correctional settings.³⁰

High levels of opioid use, high proportion of IDUs, as well as existing shared drug injection among prisoners in this custodial setting underscore the need to introduce opioid-substitute treatment, such as MMT. Thus, the introduction of the MMT program for opioid-dependent prisoners in this prison is an important and welcomed effort by the Iran Prison Organization to tackle opioid-related harm among prisoners. Treatment of opioid dependence is an important strategy to deal with the health consequences associated with drug dependency. Opioid substitution treatment using methadone is an effective strategy in reducing illicit drug use, reducing mortality, and reducing the risk of HIV transmission.³¹ Meanwhile, it should be considered that no single treatment is effective for all individuals and, therefore, drug treatment services offering various treatment options are suggested in order to respond to the needs of different drug-dependent individuals.³¹

A high proportion of prisoners with a history of drug injecting can have important policy implications regarding the need for coverage of preventative interventions, including MMT program, in this prison. Comparison of the individual and behavioral characteristics between injecting and non-injecting drug users revealed important differences that should be taken into account in the development and implementation of health and treatment services for drug-using prisoners. As shown, higher proportions of IDUs used drugs in the week prior to the interview, a finding that may indicate high numbers of IDUs with heavy levels of drug dependence necessitating appropriate treatment. High proportions of IDUs who had undertaken treatment for their drug addiction, and a willingness to undergo methadone treatment may imply IDUs' openness to drug treatment inside prison.

A history of being tested for HIV infection was significantly higher among IDUs than non-injecting prisoners. This is a welcome finding that significantly higher proportions of IDUs, who are at additional risk of HIV infection, have been tested for the infection; however, the time of testing in relation to entering prison is unknown. Health authorities are, therefore, encouraged to provide additional opportunities for voluntary HIV testing and counseling, particularly in light of the fact that prisoners have plenty of free time and may accept an offer for HIV testing and counseling while in prison.

Some limitations in this study should be noted. Although the research team and prison health staff made substantial efforts to help participants feel comfortable to share their thoughts and experiences, social desirability in responding to survey questions^{32,33} remains a potential source of bias in research involving drug-using people, especially those being held in a punitive setting. The studied prison is mainly holding prisoners with drug-related charges and a disproportionate number of drug users; thereby, findings of this study cannot be generalized to the general prisons in Iran. Further research is needed to investigate drug use and HIV-related harm among prisoners in other correctional settings in Iran.

In conclusion, the study findings show that remarkably high proportions of prisoners reported using illicit drugs inside prison and that HIV-related risk behaviors, including shared drug injection, occur among them. Overall, study findings underscore the necessity for provision of adequate drug treatment interventions, as well as HIV prevention interventions for incarcerated drug users in this prison. In this line, the Iran Prison Organization's plan to introduce MMT program in this prison is an important development in dealing with high rates of opioid use and related risk behaviors among prisoners.

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Research paper

A qualitative inquiry into methadone maintenance treatment for opioid-dependent prisoners in Tehran, Iran

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Background: This study aimed to investigate the context in which methadone maintenance treatment (MMT) is provided for opioid-dependent prisoners, and to identify barriers against further scale-up of MMT in Ghezel Hesar prison in Tehran.

Methods: This was a cross-sectional qualitative study using field observations, focus group discussions, and individual interviews. In total, 30 prisoners and 15 prison staff and health policymakers participated in this study in November 2006.

Results: The rate of drug injecting in the prison unit was unanimously reported to have decreased drastically since introducing the MMT program. In addition to the health benefits to MMT recipients, interview data indicates that MMT has had positive effects on socio-economic status of prisoners' families. Nevertheless, several impediments to the provision of MMT services and to its further expansion were also identified, including staff shortages, some degree of methadone diversion, widespread concerns over the possible side effects of methadone, and the stigma attached to methadone treatment.

Conclusion: MMT constitutes one of the main components of the Iran Prison Organization's comprehensive HIV prevention package and is becoming increasingly accessible to opioid-dependent prisoners in Iran. Our findings indicate that the MMT program in Ghezel Hesar prison has been helpful for many opioid-dependent prisoners to reduce their risk of drug-related harm and to ease social and financial burden over their families. Meanwhile, existing barriers against provision of MMT should be properly addressed before further scale up of the program.

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Introduction

There is solid research evidence indicating that prisoners experience high potential exposure to HIV infection in the prison environment, especially those who use drugs by injection (Beyrer et al., 2003; Macalino et al., 2004; Stark, Bienzle, Vonk, & Guggenmoos-Holzmann, 1997; Vanichseni et al., 2001), and there have been reports on HIV outbreaks among drug-injecting prisoners (Dolan & Wodak, 1999; Taylor et al., 1995). It is also known that HIV outbreaks have occurred inside prisons in Iran in the mid-1990s

(UNAIDS, 2006). Studies have reported on the risk of HIV transmission in association with shared drug injection in Iranian prisons (Razzaghi & Rahimi, 2005; Razzaghi, Rahimi, Hoseini, Madani, & Mohammad, 2000) and that sharing drug-injecting tools inside prisons was the main correlate of HIV infection among community samples of injecting drug users (IDUs) in Tehran (Zamani et al., 2005, 2006).

As a way of confronting the challenges associated with the transmission of blood-borne infections, particularly HIV infection, among IDUs and prisoners, authorities in Iran's Prison Organization have implemented comprehensive harm reduction practices for drug-using prisoners, including methadone maintenance treatment (MMT) (Farnia & Afshar, 2006; Zamani et al., 2007) and initiatives toward developing needle and syringe programs. Substitution maintenance treatment with methadone, a synthetic full opioid agonist, is a well-researched intervention that is effective in reducing or stopping drug injecting, resulting in an overall

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reduction in sharing practices among drug-using people (Dolan et al., 2003; Farrel, Gowing, Marsden, Ling, & Ali, 2005; Gossop, Marsden, Stewart, & Treacy, 2001; Tomasino, Swanson, Nolan, & Shuman, 2001). MMT can also prevent deaths due to overdose and reduce opioid use and re-incarceration (Dolan et al., 2005; WHO/UNODC/UNAIDS, 2004).

Although only a few countries in the Middle East provide opioid substitution treatment in prison (Larney & Dolan, 2009), Iran has been progressively expanding its programs in correctional settings. The number of opioid-dependent prisoners receiving MMT inside prisons has increased continuously since the initiative began with 100 prisoners in 2002. At time of investigation (late-2006), out of 230 prisons and correctional settings in Iran, 54 have been providing MMT to over 4200 opioid-dependent prisoners inside prisons (Farnia & Afshar, 2006). However, there was little research-based evidence on the context of MMT provision in a prison in Iran. This study aimed to investigate the context in which MMT is provided for opioid-dependent prisoners, potential impacts on the health status of the prisoners, as well as to identify some of the barriers against further scale-up of MMT in Ghezel Hesar prison in Tehran. The results of this qualitative study are intended to improve the provision of MMT in Ghezel Hesar prison and might also benefit other prisons planning to initiate or improve MMT programs.

Method

Design and sampling methods

The study protocol stipulates evaluation of MMT program in Ghezel Hesar prison through a longitudinal study incorporating both qualitative and quantitative methodologies. This paper represents the qualitative phase of the evaluation using a triangular design that sought multiple sources of information including interviews and discussions with drug-using prisoners, prison authorities and health care providers in Ghezel Hesar prison, and government health policymakers.

Participants were recruited through purposive sampling and included incarcerated drug users, prison authorities, and care providers who might offer different views on the provision and utilisation of MMT in Ghezel Hesar prison. Potential participants were approached and recruited with the help of prison medical staff, but the research team supervised the screening of eligible respondents.

Data collection

Several sources and methods were used for data collection including secondary analysis of reports made available from Ghezel Hesar prison and Iran Prison Organization, ethnographic observation of the health facilities in the prison and the administration of MMT to the prisoners, and in-depth interviews and focus group discussions with MMT providers and receivers, prison authorities and health policymakers.

To conduct focus group discussions among incarcerated drug users, a private room was made available in Ghezel Hesar prison. All interviews were conducted in Farsi, the official language in Iran. The specific topics of interest were introduced using an interview guide based on the research themes. Each participant was given refreshments during the discussions, but no monetary incentive was given. Prison staff and health policymakers were interviewed at either the Health Department of Ghezel Hesar prison or their offices. Most of the interviews were audio-recorded but, in a few cases, health policymakers answered several open-ended questions and their answers were documented by hand written notes.

In all, 30 prisoners, including three assistants for MMT administration, participated in seven focus group discussions conducted

inside Ghezel Hesar prison in November 2006. In addition to prisoners, 15 other people, including four physicians, two nurses, three psychologists, two prison managers and four health policymakers were interviewed.

Data analysis

All tape-recorded data were transcribed anonymously. Data analysis began after the first interview was completed in order to refine the research questions using the constant comparative method (Pope, Ziebland, & Mays, 2001). The analysis of this research was based on constructing a thematic framework (Ritchie, Spencer, & O'Connor, 2004), which was used to classify and organize data according to key themes: concepts and emergent categories. The process of interpretation was affected by the original research objectives, as well as by the themes that emerged from the data.

Ethical considerations

The study protocol was reviewed by the ethics committee of the Iran Prison Organization and, after incorporating the comments from the committee, permission was obtained from the Organization for the study. Participants' personal identification was not required, and interviews were carried out in an environment that could provide personal privacy and confidentiality as was possible. Refusal to participate in this study was intended to not interfere with the health care and treatment of participants. Respondents were informed about the aim and purpose of the study, the voluntary nature of their participation in the interviews, and the anonymity of all collected data before providing verbal informed consent for participation.

Setting

Ghezel Hesar prison, located in Karaj District near Tehran, is one of the 6 prisons in Tehran Province and the largest of the 230 prisons and correctional facilities in Iran. Ghezel Hesar incarcerates an estimated 11,000 male prisoners at any time, but the numbers fluctuate between 10,000 and 13,000. The majority of the prisoners have been convicted of drug-related offences. The Prison Organization reported that in 2007 there were about 147,000 prisoners in Iran, with Ghezel Hesar prison includes about 7–9% of all incarcerated people. Approximately 250–300 people enter and leave this facility every day. A large compound, Ghezel Hesar includes several units divided according to the crimes of the inmates.

MMT program in Ghezel Hesar prison

The MMT program was started in Ghezel Hesar prison in 2002 as a pilot study involving 50 participants. The pilot program showed promising results in terms of reducing high-risk behaviours (Bayanzadeh & Afshar, 2004; Bolhari et al., 2002). After evaluation of feasibility and benefits, the MMT program expanded to include increasing numbers of opioid-dependent inmates. At the time of data collection, 968 prisoners in Ghezel Hesar prison were receiving MMT from the health staff, with an additional 100 others or so had started MMT inside the prison, but were released when their sentences were completed.

Through the course of the MMT program, eligibility criteria expanded from status as an HIV positive IDU at the beginning of the program to status as an IDU, and currently consist of status as an opioid-dependent prisoner at risk for HIV according to a general practitioner. However, opioid-dependent prisoners with HIV-positive and IDU status are still prioritized in order to reduce their waiting time for entrance into the MMT program.

An initial induction dose of methadone is decided by a physician after clinical assessment of an opioid-dependent prisoner. In the

maintenance phase, the methadone syrup is administered by the help of a health assistant under supervision of a nurse.

Results

This section describes the characteristics of the sample, the context of drug use in Ghezel Hesar prison, and how the MMT program has impacted patterns of drug use, the health status of drug-using prisoners, and the social wellbeing of the families of prisoners. Lastly, obstacles against the provision of MMT in this prison are explained.

The 30 prisoners who participated in this study were male, with a median age of 38.0 years. Most of them were married but less than one-fifth had never been married at the time of the study. The participants had diverse educational backgrounds but half were educated up to the junior high school level. All of the participants, except 1 young participant, had a job or profession before entering Ghezel Hesar. The median length of the participants' incarceration in this prison was 27.0 months. Excluding 4 participants with life sentences, the median length of the remaining term was 19 months. One-third of the participants had been on MMT for a median length of 5.5 months at the time of the study.

Access to and use of illicit drugs by prisoners

The prison unit (Unit No. 1) in which this study was conducted, the general perception was that different kinds of drugs were available, with the most available drug being called "crack" (apparently high-grade crystal heroin that has been marketed in Iran for a few years). The respondents reported that drugs were generally more accessible inside prison than in the outside community. While the quality of drugs obtained in the prison was considered the same as that of drugs marketed outside the prison, the price of drugs inside prison was reported to be high, between 5 and 8 times more expensive than outside. While the high price of drugs inside prison may result in less frequent use among underprivileged prisoners, it might increase the likelihood that they will shift to injecting drugs as the most cost-efficient way to use.

Prisoner: When [a prisoner] wants to use a tiny amount of Heroin or crack [crack Heroin] which has recently become available in the prison, he cannot afford to buy enough to smoke it. Therefore, he pours it in a spoon and boils it and aspirates it into a pump [a hand-assembled injecting device] along with 2–3 other people and injects it into his vein. He thinks this will keep him right for about 10 h. It is not like this outside [of prison].

Perceived impacts of MMT on the rate of drug injection in the prison

One of the most striking changes in the pattern of drug use after the introduction of the MMT program was the overall reduction in injecting drug use in Unit No. 1 of Ghezel Hesar prison. This reduction in the rate of drug injection was reported by all study participants, including non-recipients of MMT, prison authorities and health policymakers.

Prisoner 1: Since this methadone program has started; I know 20–30 of my acquaintances who were injecting and in very bad shape. But since methadone has come, they have abandoned [injecting]. . . We had a block here called the "Pumping Block" [where many people used to inject drugs with hand-assembled devices called pump]! We don't have a block with that label anymore. When we used to enter that Block, there were small fires and injecting materials. Since the methadone program has

started, I have not seen any of this. Although people say that there are still some people injecting, I have not seen any.

The general impact of MMT on drug injection has also been reported on by the managing staff:

When any of the cell blocks were visited, there were significant numbers of people who were injecting; they were injecting with different tools and equipment, mainly handmade, and this was widespread in all the cell blocks of Unit No. 1. . . Implementation of this program [MMT program] has meant that we do not see injecting tools to the same extent anymore; I can't say there aren't any at all, but their use has been reduced significantly; we have treated over 90% [of the drug injectors] with methadone.

Perceived impacts of MMT on the health of drug-using prisoners

Both opioid-dependent prisoners who were receiving MMT and practitioners in Ghezel Hesar prison reported that MMT had several health benefits for opioid-dependent prisoners. Methadone maintenance has reportedly contributed to improved physical and mental health of the recipients.

Prisoner: Now, my view of life has changed and I see the world as more beautiful. It was not like this before; I wanted to die before, but not now! Now I want to live my life; now I want to complete my sentence and go back to my child; perhaps I can convince his mother to live with me again. This is the effect methadone has had on me; I've become very positive!

As mentioned earlier, MMT reportedly had a great impact in reducing drug injection and sharing practices among drug injecting individuals receiving MMT inside Ghezel Hesar prison.

Prisoner: I was an injector outside and after entering [this prison]; I was an "injector"! Now I have been in the methadone program for 6–7 months, and I have abandoned [injection]! I don't do it anymore. It is true that I have lost my life; I have lost everything, but I am happy that I have stopped injecting and that I am taking methadone.

Perceived impacts of MMT on the socio-economic status of prisoners' families

Prisoners have to spend more of their money, which comes mainly from their families, to buy drugs and it is common that they demand yet more money from their families and this can impose a great financial burden on their family. The drug-using prisoners urge their family to give them more money to cover the extremely high cost of drugs inside prison.

Prisoner: I'm talking about myself; during the seven years I have been in this prison, my wife and kids have not spent as much money as I have in paying for drugs! Sometimes I call them for money and they reply, "For the 50,000 [toomans] you take, we only spend 10,000! [toomans] What are you doing in there?" Then, I have to lie to them! I don't say that I am spending it on drugs; I say that there is no bread here, and I have to buy three loaves of bread for 10,000 toomans! I buy one canned fish for 5,000 toomans! I get the money for these.

Financial support from families to cover drug use-related expenses may not be feasible for many, especially for underprivileged families and those families for whom release of their incarcerated family member is some time away. This may contribute

to other social issues, such as putting marriages under pressure, which may lead to divorce.

Prisoner 1: Some guys beg; some get angry with their families in order to get money for drugs!

Prisoner 2: I saw a guy talking with his wife over the phone telling her, "I don't care how you do it, just go and get this money!"

Prisoner 1: I apologize for my rudeness, but you can understand what this means!

Prisoner 3: In my opinion, some families have ended in divorce because of these problems; they have abandoned him because they didn't have [money] to remit after they saw that he was addicted!

However, there were many accounts of how MMT had alleviated the financial strain on drug-using prisoners and on their families. Previous opioid-dependent prisoners who have received MMT do not need to ask their families to remit money now. The heavy financial burden on such prisoners' families has been lifted, thus helping to avoid a number of social consequences.

Prisoner: It [MMT program] has resulted in so many changes; because of my addiction, I used to force my family to visit me every week by telling them I was in debt! But now I am taking methadone and when they call me, I ask only about how they are doing! My family is aware that something has happened and they say, "Hey, you used to ask for money all the time, but not anymore".

Obstacles to the provision of MMT in the prison

Although the authorities of Ghezel Hesar prison have succeeded in implementing the MMT program and scaling it up to cover about 1000 opioid-dependent prisoners, they have not had an easy start to the program. Even now, they face several challenges that need to be overcome in order to continue the program in the prison. The following, although not exhaustive, are among the most commonly expressed challenges to implementing and scaling up the MMT in Ghezel Hesar prison.

Shortage of health staff

One of the main challenges to providing the MMT program inside Ghezel Hesar prison is the shortage of health staff. The importance of this shortage may be highlighted by considering that about 1000 prisoners have already received MMT, but that there are hundreds on a waiting list to receive it. There is strong demand from the prison health policymakers to increase the coverage of MMT for drug-using prisoners, but this, in turn, might be in conflict with the quality of care that the Health Bureau aims to provide for drug users in the prison. The shortage of personnel is not confined to nurses who supervise the methadone intake of the prisoners; it also affects the provision of psychological care to the prisoners who receive MMT.

Diversion of methadone

The MMT program started in Ghezel Hesar prison as a research-based program involving considerable supervision of the therapeutic use of methadone by registered prisoners. However, the rapid expansion of the program to include increasing numbers of eligible drug-using prisoners in the context of limited personnel has resulted in greater laxity with regard to the supervision of methadone use.

Consequently, several accounts from different sources have indicated that methadone diversion occurs to some extent:

Prisoner: When a guy goes to take methadone, he may skip taking it completely. Well, the Doctor cannot [supervise properly]; how can he check whether all 500 people have taken [their methadone]!

Diversion of methadone was actually observed in the ethnographic part of the study on how methadone has been provided to the opioid-dependent prisoners. It has also been recognizable by the prison managers and health personnel.

Prison staff: We really want to ensure that the supervisory mechanism prevents diversion, but we know that there are some prisoners who might be under financial strain and, although they take [methadone] in front of a nurse, when he leaves, the prisoner can spit it out and then sell it or exchange it for a cigarette. Such cases have been reported.

Prevalent concerns over the side effects of methadone

Although the side effects of MMT reported by those receiving the treatment do not seem to be major problems, they have caused serious concern for both prisoners under treatment and those who are on a waiting list to receive MMT. The level of concern regarding side effects of methadone was much higher among those drug-using prisoners who have not yet received MMT, but are registered to be treated with MMT.

Prisoner 1: Doctor, there are several rumours about methadone; some people say it damages the liver. Many people are still afraid of that.

Prisoner 2: Many people are afraid to take that [methadone].

Prisoner 3: But these stories involve people outside our Unit [where MMT is available]; and they say that they have heard this from doctors in the Health Department, but I don't believe them.

Prisoner 1: Some people are really scared about the side effects of methadone!

Stigma attributed to be under treatment with methadone

There were several accounts from prisoners receiving MMT that other prisoners or even prison staff stigmatizes those receiving MMT. This stigma might be attributed to the original inclusion criteria for receiving MMT, i.e., being HIV infected and subsequently being either HIV infected or an injecting drug user, many of whom are financially unprivileged. There were some additional accounts implying that the stigma against MMT might be attributed to the special attention paid to young prisoners who have been selling sex for drugs in Ghezel Hesar prison.

Prisoner 1: There is another issue concerning methadone; other people view us differently.

Facilitator: What do you mean by view differently?

Prisoner 2: For example, fellows think that [people receiving MMT] are extremely poor or, I apologize for saying this, are lasshi [here, an offensive expression of being homosexual]! Or sick, Methadone is viewed negatively now. Those who are not taking methadone think that those who are receiving methadone either have AIDS or, I apologize for saying this, have become