



The Effectiveness of Harm Reduction Programs in Seven Prisons of Iran

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Abstract

Background: Starting in 1990 many programs were initiated to prevent and control the spread of HIV/AIDS in prisons in accordance with the policies of the Ministry of Health. This study attempts to evaluate the effectiveness of harm reduction programs vis-à-vis drug abuse and dependency in 7 prisons in Iran.

Methods: The methodology used is Before-After testing and the sample population is incarcerated prisoners in 7 large prisons in 7 provinces with diverse geographical, criminal, and numerical factors and the population sample is estimated at 2,200 inmates.

Results: Findings show that Drug addiction tests conducted on prisoners, right after their admittance indicated that 57% used at least one of the three drugs of morphine, amphetamines, and hashish (52% morphine, 4.5% amphetamines, and 3.9% hashish). Two months later, on the 2nd phase of the study, test results indicated that only 10% of subjects continued using drugs ($P=0.05$). Heroin and opium were the two most prevalent drugs. Smoking, oral intake, and sniffing were the three most popular methods. Of those who continued to use drugs in prison, 95% admitted to drug use records.

Conclusion: Intervention policies in prisons resulted in reduction of drug consumption, from 57% of the newly admitted inmates to 10% after two months of incarceration.

Keywords: Addiction, Harm reduction, Prison, Iran

Introduction

National surveys (1,2), records and various research findings (3-6), and the increase in drug offenses in Iran, have all indicated the persistence of a major social problem. Published data shows that 33.4% of those admitted to prisons are addicted to drugs and 60% of all incarcerations in the country are drug related (7, 8). Additionally, 20-30% of private or public medical treatment referrals are drug related, and around two thirds of the intravenous drug users (IDU) have prison records (9-11).

Over a period of ten years (1993-2003), the number of prisoners in Iran saw a 60% increase (12). The prison environment is conducive to high-risk

behaviors and the spread of contagious diseases (13).

The lifestyle of drug addicts makes them especially vulnerable to diseases that are transmitted through blood (like hepatitis or AIDS). Injection, unprotected sexual intercourse, repeated physical quarrels involving blood exchange, usually facilitate transmission of diseases (14), importantly including the AIDS virus. Unprotected sex, sharing of syringes, sharing of needles for tattooing, body piercing, and blood bonding fraternal rituals in prison can cause the HIV virus to spread (15,16). As such, governments and international organization employ different methods to control or re-

duce harms resulting from incarceration, addiction, and contagious diseases. Harms reduction includes all interventions programs, strategies and policies that attempt to reduce the health, social, and economic ills resulting from drug use among individuals, groups of people, or nations (17); and include education on the ills of consumption and the risks involved, introduction of less harmful substances as replacement, controlled programs of needle exchange, condom distribution, and hepatitis vaccination (14).

Currently 9 countries (Sweden, Germany, Spain, Moldavia, Kyrgyzstan, Belarus, Luxemburg, Armenia, and Iran) are implementing this prison-based NSPs program. Several assessments of in-prison harm reduction program show a reduction in needle sharing and hepatitis C infection.

In Iran since the 1990s various services under the title of HIV/AIDS prevention and control programs have been initiated in prisons in accordance with the policies set by the Ministry of Health and Medical Education, including education and awareness of inmates and their families, informing officials and key decision makers, setting up triangular clinics or consultation facilities on behavioral diseases in prisons and rehabilitation centers (by 2009, the number of triangular clinics and rehabilitation centers had reached 128). Therapeutic programs for substance dependency include detoxification, medication-free psychotherapy, agonist treatments (by 2008 the number of prisoners treated with methadone had reached 25,407 countrywide), and prevention and care programs for uncontrolled sexual behaviors (by providing inmates with private rooms to meet their spouses), condom availability at triangular clinics, identification and treatment of sexually transmitted disease (STD) patients in triangular clinics, and counseling of spouses of prisoners by midwives or health workers (18).

The current study was undertaken to arrive at a scientific and comprehensive study of prison conditions in Iran and with the aim of evaluating harm reduction programs in 7 large prisons of Iran.

Methods

Our approach in this research was quantitative and experimental based on hypothesis testing through statistical analysis in which phenomena were explained based on their affinity with other variables. The methodological strategy of the study was based on the research-experimental design known as the before-after or the one-group pretest-posttest design that was examined by the paired student's *t*-test (19).

Statistical Population and Research Sample

Samples were drawn from prisoners incarcerated in 7 large prisons of 7 provinces of Karaj, Gorgan, Zahedan, Orumiyeh, Bandar Abbas, Yazd, and Kermanshah in 2008. Prison conditions differ in terms of geography, type of crime, and number of prisoners. The mean number of prisoners admitted into these 7 prisons during one week in 2008 was 827.

Considering that given the fallout of one-fifth of the prisoners after two months (in the Rasht prison study), and the fact that in this study differing conditions in terms of the number of prisoners and fallout after two months were in effect, the number of samples collected were 2,200 (Table1) .

Table 1: Study sample in 7 prisons of Iran

Prison	Study Sample
P1	200
P2	200
P3	300
P4	300
P5	400
P6	500
P7	300
Total Sample	2,200

Study Techniques

The main technique in this study was interview using questionnaires. Two questionnaires were designed. One focused on prison conditions and the other on the effectiveness of harm reduction programs. Participants were tested and interviewed upon admission and after two months of

incarceration. A pilot study was carried out by asking research assistants in provinces to complete the two questionnaires for prison entrants (newly admitted prisoners) to the prison organization, after which the shortcomings of the questionnaires were evaluated and discussed with the research team to amend ambiguities.

In the next phase, the questionnaire was reevaluated and sent to provinces along with test kits. The study officially got under way in January 2009.

Data Collection Procedures

In the first phase, trained, in-prison health officials interviewed newly admitted prisoners to the 7 prisons. Having obtained the prisoners' consent to participate in the study, drug tests using 4-medication kits were conducted to complement the interviews. Each prisoner and prison facility was given an identification number. In the 2nd phase, all prisoners who had remained in prisons two months after the initial phase were interviewed and drug tests were again conducted. Newly admitted subjects received preventative and care services for drug abuse and high-risk infections much like other prisoners. Two months later the second part of the questionnaire was completed for in-prison subjects and drug tests were administered using kits from the previous test. Subjects were reminded of the 2nd phase at least two months after completing the first questionnaire.

To avoid discrepancies between kits manufactured by different companies, 3,500 ACON brand kits manufactured by Azma Kosar Company were obtained (2,200 for the first phase, estimated 800 for the second phase, and 500 extra).

Completed data was entered in a software program followed by descriptive analysis and correlation of variables using SPSS 16 software.

The proposal of this project has been approved both at Ethical Committee at the University of Social Welfare And Rehabilitation Sciences and Prison Organization. Consent forms were gathered from all participants after they had been informed about the goal of the study, the confidentiality of the information, and their rights to participate voluntarily.

Results

The average age of newly admitted prisoners was 31 yr, the greater number of which belonged to the 20-30 age group. Most of the subjects were young; 87% were in the below-40 age group and half were 29 or younger. In the over-50 age group, most of the subjects (58%) were in the Kermanshah Province.

Subjects were put into the two general categories of urban and rural. 81% of the inmates resided in cities and 19% in rural areas. The Karaj Penitentiary held the larger number of urban residents and Golestan the smaller ones. Data analysis shows that people living in rural areas are less likely to be incarcerated and this is also true of drug use records ($P=0.003$, $P=0.000$).

Offenses such as addiction, selling and buying of drugs, embezzlement were equally distributed between urban and rural residents. Around 10% of urban dwellers and 4.17% of rural residents mentioned drug use or selling and buying of drugs as the reason for their arrest.

5.4% of the interviewees had received university education, 16.5% had graduated from high school, and 63.3% received some formal education. Subjects with primary education or those capable of reading and writing comprised 14.6% of the sample population. Those with secondary education had the largest share of prison admissions. Correlating between education and type of offense shows that theft was the main cause of arrest (38.9%) and pre-high school diploma subjects comprised the largest number of theft offenses (41.9%) [$P<0.000$].

37.8% of subjects were unmarried, 58.3% married, and 1.9% divorced. Among those with prior prison records, the number of unmarried and married subjects was equally distributed. 45.6% of single individuals and 43.1% of married individuals had prior records of incarceration. Divorcees had a much higher percentage of prior records [$P<0.000$].

79.4% of the subjects were employed and 16.8% were unemployed. The rest were conscripts or didn't have a specific job. A high percentage of

those with prior prison records were employed (76.6%). Among subjects with prior prison records, there is a significant correlation between prison records and holding employment: 65.8% of those employed and 69.9% of the unemployed said that they had previously used drugs. Among those who had used drugs, there is also a significant correlation between drug use and employment. In other words, of those with prior

record of drug use a high percentage was employed (79.8%) [$P < 0.000$].

Drug Use Status

All of the prisoners were tested for addiction to Morphine, Hashish and Amphetamine. Results show that 47.6% were addicted to morphine, 9.3% to hashish, and 5.4% to amphetamines (Table2).

Table2: Percentage of addiction to three types of drugs in newly admitted prisoners in 7 prisons of Iran in 2008

Addiction	Drug Type		
	Morphine No. (%)	Hashish No. (%)	Amphetamine No. (%)
Positive	1153(52.4)	203(9.2)	117(5.3)
Negative	1035(47)	1986(90.3)	2072(94.2)
Unanswered	12(0.6)	11(0.6)	11(0.6)
Total	2200(100)	2,200(100)	2200(100)

The 4th kit test indicates that 23.4% of the subjects in the sample population tested positive for benzodiazepines, which are drugs intended for nervous and psychological complications. It is clear that the use of such drugs do not indicate addiction and they were not included in the study.

Second Phase -- Two Months into the Study

After two months, 605 subjects (or 27.5%) of the total 2,200 of the 1st phase of the study were still in prison and the rest had been set free. Collected data based on interviews with remaining prisoner in the 2nd phase indicated that only 10% had used drugs over this period. The highest percentage of drug use in the study sample belonged to the prisons of P2 followed P1.

The pattern of consumption of the 10% sample (N=62) indicated that heroin had the highest share (38.7%) followed by opium (27.4%). Together, the two drugs comprised 60% of all drugs used, with hashish and methamphetamines coming next. The most prevalent forms of consumption were smoking (80%), oral in-take (18%), and sniffing (1.6%). 90% of those who used drugs over this period had prior records of substance dependency. Around 5% experienced their first use in prison during this period, which given the

total 10% population of subjects using drugs in the 2nd phase, comprised 0.5% of those who remained in prison (3 of the 605 subjects).

In 57% of the cases, subjects paid cash to obtain substances, which 50% of the time came from their families. 13.9% of the subjects claimed that the most common source of drugs in prison were prisoners themselves (hiding smuggled drugs in their clothes or anus). Around 85% of the subject expressed ignorance as to the source of drugs in prison and didn't answer this question.

According to testimonies, the location of consumption was in the wards and in the majority of cases during the morning.

High-risk behaviors among prisoners included injection of substances, shared needled, group injections, unprotected sex, and unsanitary tattooing in prison. Of the 538 prisoners who furnished information on IDUs in prison, only 4 (0.7%) admitted to have injected drugs in prison but none gave out specific information on the number of injections or the type of syringe used. Prisoners also didn't furnish any information on possible payment for syringes or group injection and shared needles.

Harm Reduction Services

Of subjects interviewed, 81 said that they had received treatment and harm reduction services. Golestan Prison with 40.7% offered treatment for the highest number of prisoners, followed by West Azerbaijan (37%), and Tehran (16%).

Services included detoxification, maintenance care, self-help group therapy, motivational interview, psychiatric treatment, needle exchange and injection equipment distribution programs, cognitive-behavioral treatment, HIV testing and counseling, disposable razor-blade distribution, and self-help services. Among these, motivational interviews (53 subjects) ranked highest, followed by maintenance care (N=44), psychiatric treatment (N=42). Two months after the 1st phase, drug tests were conducted using the same kits as in the previous

phase, this time on the 605 remaining in-prison subjects. Results obtained from the 2nd phase of testing show that 66 subjects (11%) tested positive for at least one of the 4 drug-type tests conducted. These findings deviated by a factor of 0.8 from subject testimonies (10.2% admitted having used drugs during this period). The highest use of drugs belonged to morphine with 8.8% of the study sample, followed by benzodiazepine (7.2%). Of the 53 subjects testing positive for morphine, 9 also used benzodiazepine and 2 used hashish. None of the subjects tested positive for 3 or all 4 tests (Table 3).

Of those testing positive, there were subjects who did not receive harm reduction treatments, the highest being morphine and benzodiazepine users (Table 4).

Table 3: Frequency distribution and percentages of follow-up tests according to drug type in 7 prisons of Iran in 2008

Follow-up drug test results	Morphine No. (%)	Hashish No. (%)	Amphetamine No. (%)	Benzodiazepine No. (%)
Positive	53 (8.8)	12 (2)	1 (0.2)	44 (7.3)
Negative	552 (91.2)	593 (98)	604 (99.8)	561 (92.7)

Table 4: Frequency distribution and percentages of follow-up tests for drug type and treatment programs in 7 prisons of Iran in 2008

		Morphine		Hashish		Amphetamine	
		Positive No. (%)	Negative No. (%)	Positive No. (%)	Negative No. (%)	Positive No. (%)	Negative No. (%)
Received in-prison treatment and harm reduction	Yes	6(1)	75(12.6)	3(0.5)	78(13.1)	1(0.2)	79(13.3)
	No	47 (7.9)	467(78.5)	9(1.5)	505(84.9)	0(0)	514(86.7)
Significance		0.610		0.245		*0.011	

Results of all 4 drug-types according to prison facilities show that subjects tested positive for morphine highest in West Azerbaijan (28.3%), Sistan-Baluchistan (22.6%), and Yazd (17%) respectively. For benzodiazepine, prisons of Yazd (34%), West Azerbaijan (27.3%), and Kermanshah (20.5%) rank highest.

We compared drug test results obtained from subjects participating in the 1st and 2nd (two

months later) phase of the study using the paired student's *t*-test. The in-prison interventions program was significantly effective in a reduction in drug use ($t= 15.6, z=1.65, P < 0/05$)

To reject the null hypothesis by comparing data in the standard table, the resulting number (15.8) from the formula indicates 5%, in which the statistically significant $z=1.65$ is observable by $\alpha=0.05$. Thus, the determining ratio 1.65 or higher

ratios fall within the rejection area of the test and casts doubt on the null hypothesis of differences between means. Going by this data, the null hypothesis is rejected in favor of H1. To put it more simply, the mean reduction in drug use in the 2nd sample compared to the 1st sample is not due to accident or sample error and is statistically significant.

Discussion

The current study was designed to statistically assess the effectiveness of harm reduction programs related to drug use and substance dependency in 7 large prisons of Iran.

The findings showed that the intervention was effective. We can conclude that in-prison interventions lead to a reduction of drug use. In two months, the frequency of drug use dropped from 57% to 10%. Our findings are consistent with other studies of harm reduction programs (20-24). Even though harm reduction programs face some challenges and criticisms (25) most Studies show that these programs are beneficial (20, 21), In Germany, for example, studies conducted in two prisons on counseling and distribution of sterile needle programs shows that the percentage of IDUs using shared needles decreased and reduced the transmission of diseases (22).

In this study, out of a sample of 538 subjects who furnished information on injection in prison, only 4 subjects (0.7%) admitted to have had in-prison injection experience, 32 subject (5.3%) confirm receiving tattoos in prison, and 3 subjects (only 0.6%) admitted to having sexual intercourse in prison. These statistics show a partial correlation with in-prison surveys but less so than researches conducted in other countries. This finding is consistent with the RSA study in 2007 which indicates that 3% of prisoner (N=580) admitted to administering injection in prison and 2% said that their substance dependency started in prison (9,10). In a study conducted in Montreal, Canada, 73.3% of male subjects reported using drugs in prison and in a Germany study 67% of drug addicts continued using drugs in prison. In a 2001 study conducted in Australia, 43% of female subjects and

24% of male subjects were injecting drugs while 72% of women and 67% of men used shared needles and syringes in prison (22). In another study, 51% of inmates who spent more than 4 weeks in prison reported injecting drugs in prison (26).

In Iran harm reduction programs had a positive effect in reducing high-risk behavior and the spread of HIV/AIDS as well as other infections. These programs have helped addicts to reintegrate into society and lead a more natural and creative life (14). Inversely, evidences show that the absence of harm reduction programs lead to an increase in IDU and HIV/AIDS infections (14).

Studies were conducted in one of the prisons of Iran (Rasht) in 2008 with inmates (N=413) tested for drug addiction upon admittance and before release with thin-layer chromatography (TLC). Questionnaires were filled to complete the data. Around 81% of newly admitted inmates tested positive for drug use in the 1st phase of the study. In the 2nd phase, around 55% of those who had tests positive in the 1st phase tested negative (26).

“Harm reduction initiatives are commonly applicable for specific high-risk populations, including prisoners” (27). The implementation of comprehensive harm reduction strategies in prisons has the potential to reduce harm associated with risky behaviors which is consistent with findings of this study in reducing the substance abuse and risky behaviors. But it is important that this program continued beyond the walls of the prison environment, because the majority of the prisoners will be released from prison and will reintegrate into the general population and potentially back to their high risk behaviors.

Our research methodology encountered two main limitations; on one hand, since the interviewers were the staff of the prison, prisoners were not open to discuss some of the questions with them. In addition, during the study, several interviewers left (the prison/the project) and we had to train the new ones all over again.

Conclusion

We can assert that prisons are potentially dangerous environments for addicts. It is clear that with-

out further programming and appropriate measures to face this problem, there is a probability that dangers will increase. The current research was conducted in seven prisons in Iran and it shows that the programs have a significant effect on reducing the abuse of drugs among the prisoners studied. The aforementioned research findings affirm the necessity for the continuation of implementing effective intervention programs supported by strong theoretical and analytical research, leading to harm reduction and control of drug use in society.

Ethical considerations

Ethical issues including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc. have been completely observed by the authors.

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Resources

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