



# Methamphetamine Dependence Among Iranian Female Methadone Patients: A Cross-Sectional Survey of Three Cities of Iran

Mohammad Tavakoli,<sup>1</sup> Mohammad Effatpanah,<sup>2,\*</sup> Afsaneh Moradi,<sup>3</sup> and Alireza Mahjoub<sup>4</sup>

<sup>1</sup>Shokoufeh Methadone Clinic, Tehran, IR Iran

<sup>2</sup>School of Medicine, Ziaei Hospital, International Campus, Tehran University of Medical Sciences, Tehran, IR Iran

<sup>3</sup>Department of Psychology and Educational Sciences, Al-Zahra University, Tehran, IR Iran

<sup>4</sup>Students Research Centre of International Campus, Tehran University of Medical Sciences, Tehran, IR Iran

\*Correspondence author: Mohammad Effatpanah, School of Medicine, Ziaei Hospital, International Campus, Tehran University of Medical Sciences, Tehran, IR Iran. Tel: +98-2155176816, Fax: +98-2155751333, E-mail: m.effatpanah@gmail.com

Received 2017 March 15; Revised 2017 May 23; Accepted 2017 October 05.

## Abstract

**Background:** Methamphetamine (MA) dependence is a health concern in Iran (Persia). One main impacted group is female methadone patients.

**Objectives:** The aim of this paper was to briefly report the prevalence of MA dependence among female methadone patients in 3 large cities of Iran. The other aim was to report the status of psychological well-being and social functioning among MA-dependent and non-MA dependent participants.

**Methods:** In the first survey of Iran, 570 females were recruited from 38 main methadone clinics in Mashhad, Karaj, and Isfahan. A researcher-designed questionnaire was used to collect baseline demographics, details of MA use, and treatment history.

**Results:** Of them, 266 females were MA-dependent. In other words, the prevalence of MA dependence among females was 46.6%. The length of MA dependence was 5 years. The adverse health impacts of high doses of methadone use were the main self-reported reasons for MA dependence. These adverse health impacts included depression ( $n = 118$ , 44.36%), oversleeping ( $n = 88$ , 33.08%), and low physical energy to do the housework ( $n = 60$ , 22.55%). However, lifetime MA treatment was only 25%. The prevalence of MA dependence was significantly associated with poor psychological well-being ( $P < 0.01$ ) and social dysfunction ( $P < 0.01$ ) among MA dependent females compared with non-MA dependent females.

**Conclusions:** Methamphetamine dependence was common and associated with serious health problems. Special treatment services should be provided for these females.

**Keywords:** Methadone, Methamphetamine, Rehabilitation, Women

## 1. Background

Currently, Methamphetamine (MA) dependence is a serious health problem in Iran (Persia) (1). There is no medication for the treatment of MA dependence (2). Psychological interventions, such as cognitive-behavioural therapy (CBT), are the main treatment methods (3). In the recent years, MA dependence has become a health concern in methadone treatment clinics of Iran (4). The reasons associated with this problem originate in the adverse health impacts of high doses of methadone, such as sexual dysfunction and depression (4, 5). However, to date, there are only a few studies on female methadone patients and the prevalence of MA dependence among this group in the Iranian community. The prevalence of MA dependence in methadone treatment clinics may have important health implications (6). This issue may lower positive methadone treatment outcomes (7). However, the dearth of research

studies is a main problem and there is no well-developed rehabilitation program for this group in Iran (8).

## 2. Objectives

The aim of this paper was to briefly report the prevalence of MA dependence among female methadone patients in 3 large cities of Iran. The other aim was to report the status of psychological well-being and social functioning among MA-dependent and non-MA dependent participants.

## 3. Materials and Methods

### 3.1. Research Centres

The study sites included 38 main methadone treatment services in 3 large cities of Iran (i.e. Mashhad, Karaj,

and Isfahan). Seven centres were female-only, located in low socio-economic areas. Eight centres were located in high socio-economic areas. The remaining study sites were located in middle class areas. The criteria for selecting the study sites were the number of female patients. This was because the current number of female methadone patients is dramatically less than male methadone patients in Iran.

### 3.2. Patients and Selection Criteria

All patients, who reported MA dependence in treatment, were recruited (convenience sampling). Participants needed to be on methadone treatment for at least 3 months and report MA dependence in the current methadone treatment based on the Diagnostic and Statistical Manual of Mental Disorders, fourth edition, text revision (9). Female gender and age of at least 18 years old were other inclusion criteria. Females were excluded if they self-reported drug withdrawal or severe intoxication at the time of interviewing.

### 3.3. Questionnaires

A researcher-designed questionnaire was used to collect baseline demographics, details of MA use, and treatment history. The reliability of the questionnaire was high ( $\alpha = 90$ ) in piloting on 30 females during 2 weeks. The Persian-validated versions of the general health questionnaire (GHQ-28) (10) and the social functioning subscale of the opiate treatment index (OTI) (11) were used to assess psychological well-being and social functioning. Higher scores on these 2 questionnaires indicated greater problems (10, 11).

### 3.4. Data Analysis and Ethics

Data were analysed using the SPSS version 18 software. Descriptive analyses, independent samples t-tests, and Chi Square tests were used for data analyses. The study was part of a larger research, which was approved by Tehran University (ID: 879543).

### 3.5. Study Procedures

The study was conducted during 12 months, during year 2012. Participation was confidential and voluntary. All participants signed consent forms before conducting the study. Three female clinical psychologists interviewed the participants in the study sites. Participants received small gifts for study participation following the end of interviews.

## 4. Results

Overall, 600 females were registered at the study sites. Of them, 570 females participated in the study. The study sites included 38 main methadone treatment services in 3 large cities of Iran. Thirty females did not agree with interviewing or did not meet the inclusion criteria.

The prevalence of MA dependence among participants was 46.6% ( $n = 266$ ). The length of MA dependence was 5 years. Main routes of MA administration in methadone treatment were smoking ( $n = 208$ , 78.19%), ingestion ( $n = 40$ , 15.03%), and injection ( $n = 18$ , 6.76%), respectively.

The adverse health impacts of high doses of methadone use were self-reported reasons of MA dependence. These adverse health impacts included depression ( $n = 118$ , 44.36%), oversleeping ( $n = 88$ , 33.08%), and low physical energy to perform the housework ( $n = 60$ , 22.55%). However, lifetime MA treatment was only 25% among MA-dependent females. This included therapeutic communities and the Matrix Model (Table 1).

**Table 1.** Baseline Characteristics of Methamphetamine-Dependent Patients

Variables	MA-Dependent Females ( $n = 266$ )
The length of MA dependence, y	5.00 (SD = 8.97)
<b>Routes of MA administration</b>	
Smoking	208 (78.19)
Ingestion	40 (15.03)
Injection	18 (6.76)
<b>MA impacts</b>	
Depression	118 (44.36)
Oversleeping	88 (33.08)
Low physical energy to do the housework	60 (22.55)
Lifetime MA treatment	66 (25.00)
Therapeutic communities	36 (13.53)
Matrix Model	30 (11.27)

The demographics of the 2 groups have been reported in Table 2. The mean age of the participants was 34.77 (SD = 8.41) years. The mean age of schooling was 6.50 (SD = 7.43) years. Most of the cases were currently married (54.38%) and unemployed (86.78%). There were no significant between-group differences between MA-dependent and non-MA dependent participants in terms of baseline characteristics. However, the prevalence of MA dependence was significantly more associated with poor psychological well-being on the GHQ-28 (group 1:  $M = 9.45$ , SD = 6.87, vs. group 2:  $M = 5.36$ , SD = 8.33,  $P < 0.01$ ) and social dysfunction on the OTI (group 1:  $M = 24.65$ , SD = 8.94, vs. group 2:  $M = 19.54$ , SD = 7.54,  $P < 0.01$ ) among MA dependent females than non-MA dependent females (Table 2).

Table 2. Baseline Characteristics of the Two Groups (N = 570)

Variables	MA-Dependent Women (n = 266)	Non-MA Dependent Women (n = 304)	Total	X <sup>2</sup> /t	P Value
Mean age, y (range: 20 – 67)	35.10 ± 7.89	34.45 ± 8.93	34.77 ± 8.41	T = 0.34	0.24
Mean years of schooling	7.00 ± 7.89	6.00 ± 6.98	6.50 ± 7.43	T = 0.22	0.18
Stable living conditions	139 (52.25)	169 (55.59)	308 (54.03)	X <sup>2</sup> = 0.28	0.17
Married status	140 (52.63)	170 (55.92)	310 (54.38)	X <sup>2</sup> = 0.21	0.12
Unemployed status	200 (75.18)	240 (78.94)	440 (86.78)	X <sup>2</sup> = 0.33	0.13
Duration of MMT, y (range: 3 months-3)	2.00 ± 4.78	1.67 ± 8.95	1.83 ± 6.86	T = 0.18	0.19
Duration of drug dependence	9.00 ± 7.98	8.50 ± 8.96	8.75 ± 8.47	t=0.14	0.18
Poor psychological well-being	9.45 ± 6.87	5.36 ± 8.33	7.40 ± 7.60	T = 1.25	< 0.01*
Social dysfunction	24.65 ± 8.94	19.54 ± 7.54	22.09 ± 8.24	T = 1.23	< 0.01*

Abbreviation: MMT, methadone maintenance treatment.

## 5. Discussion

This study was important because to the best of the author's knowledge, this is among the first studies of MA dependence among female methadone patients in Iran. The study indicated that MA dependence was associated with adverse health impacts. This is consistent with a study from Iran, which indicated that female methadone patients experienced side effects because of MA dependence (8). A study from the US indicated that MA-dependent females showed adverse health impacts of MA use (12).

Methadone treatment providers should inform females about the adverse health impacts of MA dependence on methadone treatment. This should include providing sufficient MA education while on methadone treatment. Furthermore, MA prevention and treatment programs should be provided for these females while on treatment. Further studies are suggested to assess the relation-

ship between providing MA education, prevention, and managing MA dependence in methadone treatment.

The study indicated that participants experienced poor psychological well-being and social dysfunction. This was likely to be the reason for long duration of drug dependence. Among MA-dependent females, poor psychological well-being, and social dysfunction were higher than non-MA dependent females. This may reflect the negative health impacts of MA dependence on these females. However, MA treatment was negligible among participants. Special MA treatment services and rehabilitation programs, such as CBT, should be delivered for these females in methadone treatment services. Studies in the US indicate that CBT is effective for MA dependence (3, 13).

The study had several limitations. There were no male patients in this study. Therefore, it is difficult to generalize the study findings to male methadone patients. The study was limited to 3 cities of Iran. Therefore, it is difficult to generalize the study findings to other cities. Further studies are suggested.

## 5.1. Conclusions

The study confirmed that MA dependence was a serious health concern among female methadone patients. This issue demands to deliver an effective psychological treatment. Further studies are suggested on those aspects of treatment programs, which can lead to abstinence from MA in methadone treatment. This should include improving both psychological well-being and social functioning. Providing treatment programs is suggested while on treatment.

## References

1. Alam Mehrjerdi Z, Abarashi Z, Noroozi A, Arshad L, Zarghami M. Correlates of shared methamphetamine injection among methamphetamine-injecting treatment seekers: the first report from Iran. *Int J STD AIDS*. 2013;25(6):420–7. doi: 10.1177/0956462413512806.
2. Phillips KA, Epstein DH, Preston KL. Psychostimulant addiction treatment. *Neuropharmacology*. 2014;87:150–60. doi: 10.1016/j.neuropharm.2014.04.002.
3. Rawson RA, Huber A, McCann M, Shoptaw S, Farabee D, Reiber C, et al. A comparison of contingency management and cognitive-behavioral approaches during methadone maintenance treatment for cocaine dependence. *Arch Gen Psychiatry*. 2002;59(9):817–24. [PubMed: 12215081].
4. Shariatirad S, Maarefvand M, Ekhtiari H. Methamphetamine use and methadone maintenance treatment: An emerging problem in the drug addiction treatment network in Iran. *Int J Drug Policy*. 2013;24(6):e115–6. doi: 10.1016/j.drugpo.2013.05.003.
5. Radfar SR, Cousins SJ, Shariatirad S, Noroozi A, Rawson RA. Methamphetamine Use Among Patients Undergoing Methadone Maintenance Treatment in Iran; a Threat for Harm Reduction and Treatment Strategies: A Qualitative Study. *Int J High Risk Behav Addict*. 2016;5(4). doi: 10.5812/ijhrba.30327.
6. Alam-mehrjerdi Z, Abdollahi M, Higgs P, Dolan K. Drug use treatment and harm reduction programs in Iran: A unique model of health in the most populated Persian Gulf country. *Asian J Psychiatr*. 2015;16:78–83. doi: 10.1016/j.ajp.2015.06.002.

7. Alam-mehrjerdi Z, Mokri A, Dolan K. Methamphetamine use and treatment in Iran: A systematic review from the most populated Persian Gulf country. *Asian J Psychiatr*. 2015;**16**:17-25. doi: [10.1016/j.ajp.2015.05.036](https://doi.org/10.1016/j.ajp.2015.05.036).
8. Alam Mehrjerdi Z, Abarashi Z, Mansoori S, Deylamizadeh A, Salehi Fadardi J, Noroozi A, et al. Methamphetamine use among Iranian heroin kerack-dependent women: implications for treatment. *Int J High Risk Behav Addict*. 2013;**2**(1):15-21. doi: [10.5812/ijhrba.10216](https://doi.org/10.5812/ijhrba.10216). [PubMed: [24971266](https://pubmed.ncbi.nlm.nih.gov/24971266/)].
9. American Psychiatric Association. *The Diagnostic and Statistical Manual of Mental Disorders*. Washington; 2000.
10. Darke S, Hall W, Wodak A, Heather N, Ward J. Development and validation of a multi-dimensional instrument for assessing outcome of treatment among opiate users: the Opiate Treatment Index. *Br J Addict*. 1992;**87**(5):733-42. [PubMed: [1591524](https://pubmed.ncbi.nlm.nih.gov/1591524/)].
11. Khosravi A, Mousavi SA, Chaman R, Kish MS, Ashrafi E, Khalili M, et al. Reliability and validity of the Persian version of the World Health Organization-five well-being index. *Int J Health Stud*. 2015;**1**(1):page: 17-9. doi: [10.22100/ijhs.viii.24](https://doi.org/10.22100/ijhs.viii.24).
12. Simpson JL, Grant KM, Daly PM, Kelley SG, Carlo G, Bevins RA. Psychological Burden and Gender Differences in Methamphetamine-Dependent Individuals in Treatment. *J Psychoac Drugs*. 2016;**48**(4):261-9. doi: [10.1080/02791072.2016.1213470](https://doi.org/10.1080/02791072.2016.1213470).
13. Huber A, Ling W, Shoptaw S, Gulati V, Brethen P, Rawson R. Integrating treatments for methamphetamine abuse: a psychosocial perspective. *J Addict Dis*. 1997;**16**(4):41-50. doi: [10.1080/10550889709511142](https://doi.org/10.1080/10550889709511142). [PubMed: [9328808](https://pubmed.ncbi.nlm.nih.gov/9328808/)].