



Methamphetamine Dependence, Psychological Well-being, Criminality and High Risk Sexual Behaviors in Female-Only Methadone Services in Tehran and Karaj, Iran

Omid Massah,^{1*} and Sara Shishehgar²

¹Substance Abuse and Dependence Research Center, University of Social Welfare and Rehabilitation Sciences, Tehran, IR Iran

²Faculty of Health, University of Technology Sydney, Sydney, Australia

*Corresponding author: Omid Massah, MD, Substance Abuse and Dependence Research Center, University of Social Welfare and Rehabilitation Sciences, Koodakyar St. Daneshjoo Blv, Evin, Tehran, IR Iran. Tel: +98-2122180097, Fax: +98-2122180095, E-mail: omchomch@gmail.com

Received 2017 February 18; Revised 2017 April 24; Accepted 2017 September 27.

Abstract

Background: Methamphetamine (MA) abuse is a health concern among drug abuse patients in Iran.

Objectives: This study aimed at determining the prevalence of MA dependence among a group of female methadone users and investigating the current psychological well-being, high risk sexual and criminality behaviors, and the status of receiving MA treatment.

Methods: This study was a cross-sectional survey conducted in Iran. The study was conducted at 5 central female-only methadone services in Tehran and Karaj, during years 2011 to 2013. A questionnaire was devised to collect baseline data. The general health questionnaire-28 and the Opiate Treatment Index were used to assess psychological well-being, and criminality and high-risk sexual behaviors.

Results: Overall, 245 females were registered at these sites. Of them, 201 females (82%) were dependent on MA while on treatment. Duration of MA dependence was 6 years. However, only 14.3% of the participants reported lifetime MA treatment. No participant was on MA treatment. Participants reported high rates of MA-related depression (76.4%), anxiety (68.4%), social dysfunction (41.2%), and somatic symptoms (38.2%), respectively. Untreated MA dependence in methadone treatment was associated with engagement in high-risk sexual behaviors (43.8%) and criminality (28.7%). Only 10% of the participants reported receiving a lifetime matrix model. All of them reported that the Matrix model was long and it was not easily available in methadone services.

Conclusions: The study showed that the high prevalence for MA dependence and its adverse health impacts while receiving MA treatment remained the same. Effective psychosocial treatments should be delivered for MA dependence among female methadone users.

Keywords: Dependence, Female, Iran, Methadone Maintenance Treatment, Methamphetamine

1. Background

Amphetamine-type stimulants, including methamphetamine (MA), are the second most commonly used illicit drugs in the world, after cannabis (1). Methamphetamine dependence in Iran is associated with multiple harms (2-4). A previous study assessed the clinical course of patients with MA-induced psychotic disorder in a 3-month follow-up. Overall, 50 patients (7 females and 43 males) were assessed. Forty-six patients (92%) were re-assessed at follow-up. More than half of the patients, who relapsed to MA use, did not adhere to the treatment again. Positive, negative, and manic symptoms were improved in abstinent patients (5). In a qualitative study, 45 males (35 MA-dependent patients, 5 family members, and 5 psychi-

atrists and medical doctors) were interviewed. The results showed the negative impacts of MA dependence on sexual function. A dramatic increase in libido, erectile dysfunction, premature ejaculation, and losing control during sexual intercourse was reported (6).

Methamphetamine dependence has increased in Iran (7). A review from Iran indicated that MA dependence has increased among females and opioid-dependent people on methadone maintenance treatment (medication assisted treatment). The result showed that MA and ecstasy dependence in 2016 was < 1% in the general population, yet this prevalence was higher in patients on methadone (7). Another study showed that dependence on methamphetamine requires special treatment and rehabilitation

programs (8).

2. Objectives

The study aimed at determining the prevalence of MA dependence among a group of female methadone patients. The other aims were to investigate current psychological well-being, high risk sexual, criminality, and the status of receiving MA treatment.

3. Materials and Methods

This study was a cross-sectional survey of the prevalence of MA dependence in central female-only methadone services of Tehran and Karaj, Iran. All the female-only methadone services in Tehran and Karaj were included in this study. All of the females in these 5 methadone services were recruited. Females were needed to be at least 17 years old and being on methadone treatment for at least 2 months. All females met the criteria of the diagnostic and statistical manual of mental disorders, fourth edition, third revision for MA dependence (9). There were several exclusion criteria including reporting withdrawal symptoms and drug intoxication at the time of interviewing.

A questionnaire was devised to collect data. Part of the questionnaire, included open-ended questions regarding lifetime MA treatment and problems associated with MA treatment. The questionnaire assessed 36 females in a 2-week test-re-test; the reliability was $\alpha = 87\%$. Females were MA-dependent and on treatment. General health questionnaire (10) and opiate treatment index (11) were used to assess mental health, criminality, and high-risk sexual behaviors. Both questionnaires were assessed on the same females and showed high reliability ($\alpha=83\%$ on the first one, $\alpha=89\%$ on the second one, respectively).

Females were informed that the study was confidential and voluntary. Participants received 8 USD for participation. Tehran University of Medical Sciences (90-01-49-25493) approved the study. Consent forms were obtained from all participants. Data were analyzed using SPSS version 23 software.

3.1. Study Procedures

An interview room was used for conducting the study at each center. Participants were interviewed between 10th of January 2011 and 26th of December 2013. Each individual was invited and interviewed by a female clinical psychologist.

4. Results

Overall, 245 female methadone patients were registered at the sites. Of them, 201 females (82%) met the criteria for MA dependence (9) while in treatment. Most of the participants reported stable living conditions (63.6%). Duration of MA dependence was 6 years. However, only 14.3% of the participants reported lifetime MA treatment. No participant was on MA treatment while in treatment (Table 1).

Table 1. Participant Characteristics (n = 201)

Characteristics	Mean/Percent
Female	
Mean age, y (range 19 - 62)	039 (SD 8.5)
Mean schooling, y (Range 0 - 12)	007 (SD 6.5)
Living conditions	
Stable	128 (63.6)
Unstable	073 (36.4)
Employment	
Jobless	137 (68.1)
Employed	64 (31.8)
Marriage	
Currently married	76 (37.8)
Currently unmarried	125 (62.2)
Current MA dependence	(100)
Age of MA dependence	31 (SD 5.8)
Duration of MA dependence	6 (SD 8.2)
Duration of methadone treatment (range 2 - 26 months)	8 (SD 5.3)
Lifetime MA treatment	
Matrix Model	029 (14.3)
Present MA treatment	000 (0)

Dependence on MA was accompanied with high rates of depression (76.4%), anxiety (68.4%), social dysfunction (41.2%), and somatic symptoms (38.2%) on the general health questionnaire-28, respectively. Furthermore, MA dependence was associated with engagement in high-risk sexual behaviors (43.8%) and criminality (28.7%) on the Opiate Treatment Index. Among participants, who reported lifetime Matrix treatment, all reported that the Matrix Model was long (100%) and it was not easily available (56%) in methadone services (Table 2).

5. Discussion

To the best of the author's knowledge, this brief report is the first survey of the prevalence of MA dependence

Table 2. Adverse Health Impacts of Methamphetamine Dependence (n = 201)

Characteristics	Mean/Percent
General Health Questionnaire-28	
Depression	153 (76.4)
Anxiety	138 (68.4)
Social dysfunction	83 (41.2)
Somatic symptoms	77 (38.2)
Opiate Treatment Index	
High risk sexual behaviors	87 (43.8)
Criminality	58 (28.7)

amongst 5 Iranian female-only methadone treatment services. The report is important because it shows how MA dependence can be associated with multiple harms, which may negatively influence methadone outcomes. The present report addressed MA dependence among Iranian female methadone users, who have been underreported (12). In this study, female patients were middle-aged. Most of them reported stable living conditions yet they were generally unemployed. This is consistent with a study, which indicated that most female methadone patients were unemployed and middle aged (13).

In this study, MA dependence was associated with high rates of MA-related depression, anxiety, social dysfunction, and somatic symptoms. This indicated poor psychological well-being. Furthermore, MA dependence in treatment was associated with engagement in high-risk sexual behaviors and criminality. This issue demands an effective treatment. Comorbidities, such as poor mental health, can reduce positive drug treatment outcomes (14). Further studies are suggested in this regard.

At the time of interviewing, no participant was on MA treatment. Among participants, who reported lifetime Matrix treatment, all of them reported that the matrix model was long and it was not easily available in methadone services. Some studies showed that the matrix model might be used for the treatment of MA dependence (15-18). Effective psychosocial treatments should be provided.

5.1. Conclusions

The study showed the high prevalence of MA dependence and its adverse health impacts while receiving MA treatment remained constant. As MA dependence continues among female patients, it is necessary to ensure that adequate resources are allocated to different treatment approaches, such as the Matrix Model. However, the treatment is intensive and may not be cost-effective for female patients. Methadone services should provide short psychological treatments.

Acknowledgments

The authors would like to thank all the individuals, who participated in this research. Also, the authors thank the staff at the female-only methadone services in Tehran and Karaj.

Footnotes

Authors' Contribution: Omid Massah conceived and designed the study and analyzed the data. Sara Shishehgar gathered the data and drafted the manuscript. Omid Massah revised the manuscript draft. All authors read and approved the final manuscript.

Deceleration of Interest: None declared.

Funding/Support: This research did not receive any specific grant from funding agencies.

References

1. United Nations Office on Drugs. *World Drug Report 2004*. 1. United Nations Publications; 2004.
2. Mehrjerdi ZA, 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*. 2014;25(6):420-7. doi: [10.1177/0956462413512806](https://doi.org/10.1177/0956462413512806). [PubMed: 24287028].
3. Alam Mehrjerdi Z, Barr AM, Noroozi A. Methamphetamine-associated psychosis: a new health challenge in Iran. *Daru*. 2013;21(1):30. doi: [10.1186/2008-2231-21-30](https://doi.org/10.1186/2008-2231-21-30). [PubMed: 23577655].
4. Alam Mehrjerdi Z. Crystal in Iran: methamphetamine or heroin kerack. *Daru*. 2013;21(1):22. doi: [10.1186/2008-2231-21-22](https://doi.org/10.1186/2008-2231-21-22). [PubMed: 23497450].
5. Javadian S, Shabani A, Shariat SV. Clinical Course of Methamphetamine-Induced Psychotic Disorder in a 3-Month Follow-Up. *Prim Care Companion CNS Disord*. 2016;18(6). doi: [10.4088/PCC.16m02002](https://doi.org/10.4088/PCC.16m02002). [PubMed: 27907276].
6. Dolatshahi B, Farhoudian A, Falahatdoost M, Tavakoli M, Rezaie Dogahe E. A Qualitative Study of the Relationship Between Methamphetamine Abuse and Sexual Dysfunction in Male Substance Abusers. *Int J High Risk Behav Addict*. 2016;5(3). e29640. doi: [10.5812/ijhrba.29640](https://doi.org/10.5812/ijhrba.29640). [PubMed: 27803891].
7. Shadloo B, Amin-Esmaili M, Haft-Baradaran M, Noroozi A, Ghorban-Jahromi R, Rahimi-Movaghar A. Use of amphetamine-type stimulants in the Islamic Republic of Iran, 2004-2015: a review. *East Mediterr Health J*. 2017;23(3):245-56. [PubMed: 28493273].
8. Rafiey H, Ghaderi S, Morovat B, Noori R, Effatpanah M, Mahjoub A, et al. Amphetamine Type Stimulants Use in the Adult Population of Tehran: Implications for Long Term Rehabilitation. *Iran Rehabil J*. 2017;15(4):303-8. doi: [10.29252/irip.irj.15.4.303](https://doi.org/10.29252/irip.irj.15.4.303).
9. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision*. Washington; 2000.
10. 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):17-9. doi: [10.22100/ijhs.viii.24](https://doi.org/10.22100/ijhs.viii.24).
11. 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].

12. 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](https://doi.org/10.5812/ijhrba.30327).
13. 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](https://doi.org/10.1016/j.drugpo.2013.05.003). [PubMed: [23773684](https://pubmed.ncbi.nlm.nih.gov/23773684/)].
14. Simpson JL, Grant KM, Daly PM, Kelley SG, Carlo G, Bevins RA. Psychological Burden and Gender Differences in Methamphetamine-Dependent Individuals in Treatment. *J Psychoactive Drugs*. 2016;**48**(4):261-9. doi: [10.1080/02791072.2016.1213470](https://doi.org/10.1080/02791072.2016.1213470). [PubMed: [27541988](https://pubmed.ncbi.nlm.nih.gov/27541988/)].
15. Lee NK, Rawson RA. A systematic review of cognitive and behavioural therapies for methamphetamine dependence. *Drug Alcohol Rev*. 2008;**27**(3):309-17. doi: [10.1080/09595230801919494](https://doi.org/10.1080/09595230801919494). [PubMed: [18368613](https://pubmed.ncbi.nlm.nih.gov/18368613/)].
16. 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](https://pubmed.ncbi.nlm.nih.gov/12215081/)].
17. Sami S, Effatpanah M, Moradi A, Massah O. Matrix Model as an Intensive Rehabilitation in Three Methadone Services in Iran. *Iran Rehabil J*. 2017;**15**(3):293-8. doi: [10.29252/nrip.irj.15.3.293](https://doi.org/10.29252/nrip.irj.15.3.293).
18. Massah O, Effatpanah M, Shishehgar S. Matrix Model for Methamphetamine Dependence Among Iranian Female Methadone Patients: The First Report From the Most Populated Persian Gulf Country. *Iran Rehabil J*. 2017;**15**(3):193-8. doi: [10.29252/nrip.irj.15.3.193](https://doi.org/10.29252/nrip.irj.15.3.193).