

Sexual Behavior and Age Differences in Methamphetamine Dependent and Non-Dependent Men Who Have Sex with Men (MSM)

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ABSTRACT

Objective: Methamphetamine consumers use can have more efficient practices, be hyperactive, and take sexual risk-taking behaviors. These behaviors are particularly remarkable in homosexuals.

Methods: The present study was conducted based on casual-comparative method in the field of descriptive studies. Since 1 March to 25 June 2015, a total of 62 MSM subjects were selected based on chain method and divided into two groups of methamphetamine dependent (n=30) and non-dependent ones (n=32). sexual behaviors were examined by sexual behavior questionnaire based on 3 dimensions of sexual thoughts, sexual pleasure, and sexual hyperactivity. High-risk sexual behavior were evaluated by sexual behavior questionnaire, their relation with participants' educational status, occupation, age, income, and number of sexual partners in the last 3 months were analyzed using the parametric T-test.

Results: Data analysis showed that methamphetamine dependent MSM were significantly higher ($P < 0.01$) in all 3 components of sexual thoughts and pleasure, hyperactivity, and sexual behavior compared to non-dependent group. However, regarding age, there was no significant difference between age and sexual risk behavior ($P = 0.05$).

Conclusion: methamphetamine dependent MSM have a unique experience of thoughts, pleasure, and aspirations and have high tendency to high-risk sexual behavior. These findings are consistent with the previous research on the importance of stimulant consumption and specifically methamphetamine in creating high-risk sexual behavior. Controlling methamphetamine use plays an important role in preventing the transmission of infectious diseases.

1. Introduction

Most of the methamphetamine (MET) consumers in the United States are 18 to 25 years old men who often have (Winslow et al., 2007) high-risk sexual and (Spindler et al., 2007) unprotected behavior.

MET consumption by increasing sexual experiences (Sherman et al., 2008) and sexual pleasure (McKirnan et al., 2001) is associated with high-risk behavior, risk of HIV infection (Cartier et al., 2008), multiple sexual partners (Zapata et al., 2008) and sexual perversion (Harawa et al., 2008). Also sexual hyperactivity has been observed in 84% of methamphetamine users. Hence taking more Viagra and

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higher scores on sexual impulses can be observed in them (Semple et al., 2002). For years, MET use was considered a strong incentive to intensify sexual activity among MSM (Gorman et al., 2003). MSM comprise nearly 2% of the U.S. population (Purcell et al., 2012). In the United States, MSM are considered a vulnerable group to acquire HIV (CDC, 2012) and the majority of risky relationships in them is formed in the context of early relationships (Reilly & Woo, 2004; Weinhardt et al., 2004). It is estimated that 68% of new HIV cases occur among homosexuals and 80% among young homosexuals with multiple partners (Sullivan et al., 2009). MET consumption in MSM has a high prevalence in some areas of the United States (Halkitis et al., 2007).

Because of ideological policies, there is no accurate estimate on the number of MSM in of Iran. Some features of MET such as availability, low cost, and deterrent effects (noted in relation to sex) have made it popular among MSM population. In addition, the social dimension of MET facilitates social and sexual function in subgroups such as homosexuals and bisexuals (Mattison et al., 2001). There is a significant prevalence of consuming stimulants in homosexuals. For example, the results of a large-scale research between 1999 and 2000 indicate that 13% of homosexual participants reported MET use in the last 6 months (Chesney et al., 2003; Koblin et al., 2003).

Studies also showed that 28% of participants have experienced at least one MET use episode during follow up (Colfax et al., 2004). A study on 2172 homosexuals showed that recreational use of drugs, especially MET is highly prevalent among urban MSM (52%) and is associated with high-risk sexual behavior (Stall et al., 2001). MET use is associated with unprotected anal intercourse in MSM (Mansergh et al., 2001; Mansergh et al., 2006). In unprotected anal relations, the risk of HIV transmission is high when the HIV-negative partner is the host (Hallett et al., 2011; Vernazza et al., 2008).

Studies show that MSM who do not use condoms are aware of the infection risk (Brooks et al., 2012; Nieto-Andrade, 2010) because unprotected anal relation among MSM is considered as a sign of love and intimacy to the sexual partners (Blais, 2006; Davidovich et al., 2004). MSM are influenced by a number of factors such as intimacy, autonomy, equality, commitment, and satisfaction in making decision about sexual behavior (Mitchell & Petroll, 2013) and dynamics of sex-related differences in this high-risk behavior (Starks et al., 2014).

Research shows that HIV stigma is associated with the transmitter's high-risk behavior (Hatzenbuehler et al., 2011). In the study of Ober and colleagues (Ober et al.,

2009), men who knew that their partners are HIV-positive used MET 10 times more than those who did not know the HIV status of their partners. Besides, having multiple relationships increases the risk of HIV transmission in newly infected MSM (Kim et al., 2010; Morris et al., 2011). In the study of Ober and colleagues (Ober et al., 2009), MET use was associated with an increase in the number of sexual partners. Regarding the psychological characteristics, there are some differences between monogamous and polygamous relationships of homosexuals such as psychological distress (Wagner et al., 2000), increase in sexual risk behavior because of multiple sex partners (Mitchell et al., 2012), and low desire to discuss the use of safer sexual practices among couples (Crawford et al., 2003) in polygamy.

Although belief in monogamy among MSM couples is a protective factor, studies have shown that believe in monogamy alongside MET consumption can still be associated with dangerous behaviors in people with HIV (Blashill et al., 2014). On the other hand, in methamphetamine MSM consumers who are not HIV carriers, either with monogamous or polygamous tendencies, MET consumption is not associated with the transmitted dangerous behavior (Blashill et al., 2014). These results also showed an increase in risk appetite of methamphetamine MSM consumers.

Currently, there is a growing concern over sexual obsessions as important determinants of sexual risk behaviors and simultaneous use of the multi-stimuli (Parsons et al., 2008; Parsons et al., 2007). Previous research about homosexuals has shown that sexual obsession is associated with sexual relationship under the influence of stimuli (Groves et al., 2010; Semple et al., 2010). This obsessive sexual orientation can lead to increased sexual risk-taking.

With regard to what mentioned above, understanding the past, and challenges ahead in the spread of methamphetamine use, particularly in groups at risk like homosexuals, this study aimed to investigate the sexual behavior of methamphetamine MSM consumers and compares them with a matched group of MSM non-consumers. This research was conducted with the hope of providing a theoretical context or planning a more efficient treatment for MET users.

2. Methods

The present research has a causal-comparative design and a descriptive method of analysis. Data were collected since 1 March until 25 June 2015 using snowball sampling. For this purpose, Among the MSM community how living in Tehran, 62 men who had sex with men were selected among from participants in the seasonal meeting. The sampling method was snowball sampling and the ethical principles

such as privacy of the participants, obtaining the written informed consent, and supporting their welfare and comfort were observed during the study. As MSM are the minority, they can be considered as the vulnerable members of the society. And because the possibility of “being informed” or “acting willingly” is significantly low among the vulnerable members of the society, obtaining the written informed consent is more important in this group. In this study, the informed consent was obtained without coercion, threat, enticement, and seduction and their decision to continue or decline from the study were respected. It was also tried that the research method does not contradict with the religious and cultural principles of the participants and the participants were respected in all stages of design, implementation and reporting in terms of human dignity, respect and protection of their physical and mental integrity so that conducting the research would not delay the process of medical care for the participants. After ensuring the observation of ethical principles, the participants were divided into two groups of MET dependent subjects (n=30) and MET non-dependent ones (n=32).

The methamphetamine-dependent group had a history of at least 3 years consumption. The inclusion criteria included a minimum age of 18 years, ability to read and write, having MSM identity and long-term dependency on MET for at least 3 years and 5.0 g daily consumption. The exclusion criteria were simultaneous dependency on other drugs, history of certain diseases or severe mental disorders, and using of neuroleptics.

Data were collected using the available resources, observations, interviewing the participants, and questionnaires. The observations were mainly participatory. An important amount of the data was collected using the clinical interviews. For this purpose, the structured clinical interview for DSM (SCID) was used during the screening for the clinical diagnosis of substance abuse. In addition, the data were mainly collected by 3 questionnaires: The demographic questionnaire (response rate of 0.93) for evaluating the demographic characteristics of the participants, the questionnaire of sexual behavior under the influence of drugs (the response rate of 0.95) for evaluating 3 dimensional aspects of sexual behavior and methamphetamine survey (response rate of 0.95) for estimating the consumption index at baseline phase. All the questionnaires were completed by the participants. As it was expected, an acceptable ratio of the responding was observed which indicated the coordination between therapeutic measures and observing the ethical principles by the researcher.

The structured clinical interview for DSM-IV drug dependence (SCID), demographic questionnaire by the research-

er, a questionnaire of sexual behavior under the influence of drug use and questionnaire of crystal use were used in this study to meet the research purpose.

SCID is a clinical interview which is used for diagnosis of disorders based on DSM-IV. Inter-rater reliability of SCID has been reported 0.60 (First et al., 2002). Diagnostic consistency of the instrument in Persian for most specific and overall diagnosis had the reliability of higher than 0.60. Kappa coefficients for the current detection and diagnosis of lifetime were 0.52 and 0.55, respectively (Sharifi et al., 2009).

Demographic questionnaire was developed by the researcher to collect personal information such as age, education, marital status, employment, and duration of drug use.

The sexual behavior questionnaire consists of 12 items, which was designed and evaluated by Vaziri and Lotfi Kashani (Vaziri & Lotfi Kashani, 2010) and evaluates the thoughts, desire, performance, sexual pleasure, and sexuality of high-risk sexual behaviors. Each of the 3 dimensions has 4 questions. The questionnaire was designed in such a way that besides providing a total score in each dimension makes it possible to compare the individual dimensions. A survey was conducted on 30 drug-dependent patients and its obtained reliability (0.76) was estimated by test-retest in a 15-day period. This questionnaire is designed in a 4-point Likert-type scale from false and right do match 0 to 3 scale, and can be completed written or orally.

In order to easily understand research process, four instruments used in this study, timing and purpose of the instruments are shown in Table 1.

Both parametric analysis of variance and T-test were used In this study, according to the interval scale in sexual behavior questionnaire, the analysis of variance ($P < 0.01$) was used to compare the 3 means in the 3 dimensions of thoughts, pleasure, and sexual performance; sexual hyperactivity; and sexual risk behavior. Also since the variances equity was established by Levene's test, applying this test was permitted (Shadish & Cook, 2002).

3. Results

The findings of the data analyses are shown in the following tables. Table 1 shows the instruments used in the study, research purpose, and timing estimates.

Demographic features of the participants

Table 2 shows the frequency distribution of the research participants based on their demographic characteristics. As

Table 1. The research instrument, purpose and timing.

Instruments	Purpose	Timing
SCID	Clinical diagnosis of drug abuse	During screening phase
Demographic questionnaire	Evaluation of demographic features	Baseline
Sexual behavior questionnaire	Evaluating sexual behavior dimensions	Baseline

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it is seen, those who were married (dependent group=60%, non-dependent=65.36%) and had a higher than high school degree (dependent group=63.30%, non-dependent=56.25%) are more than single subjects and those with a lower than high school degree. On the other hand, most of the study participants were over 25 years old and employed. Regarding age, most of the participants, 76.66% and 62.50% in dependent and non-dependent groups, respectively were over 30 years old. About 53.33% of the participants in dependent group and 68.75% in non-dependent group were employed.

Regarding monthly income, most of the MET-dependent participants (60%) had an income of less than 500 dollars in month. This amount was earned by 59.38% of non-dependent group.

T-test results of dependent and non-dependent groups

In Table 3 shows the T-test between MET dependent and non-dependent groups. As it can be seen methamphetamine consumption is significantly ($P < 0.01$) Different on all 3 as-

pects of sexual behavior including thoughts, desires, performance, pleasure, heightened risk of sex, and sexual behavior. The differences in the components of sexual behavior are shown in Figure 1.

Comparison of age index in two groups

As it is seen in Table 4, According to the mean difference (0.72), standard deviation (0.62) and significant level (0.498), there is no significant difference between two groups on terms of age index ($P = 0.05$).

4. Discussion

The present study found that methamphetamine dependent MSM were significantly higher in all 3 components of sexual thoughts and pleasure, hyperactivity, and sexual behavior compared to non-dependent group. However, regarding age, there was no significant difference between age and sexual risk behavior. literature review clearly indicates the impact of drug abuse on the reckless and high-risk sexual behaviors. In this regard, the results of various

Table 2. Demographic characteristics of the participants.

Characteristics	Group	MET-dependent		MET Non-dependent	
		No.	%	No.	%
Marital statues	Single	12	40	11	34.37
	Married	18	60	21	65.36
Education level	Lower than high school degree	11	36.70	14	43.75
	Higher than high school degree	19	63.30	18	56.25
Age, y	Under 25	7	23.33	12	37.50
	25 and over	23	76.66	20	62.50
Occupation	Employed	16	53.33	22	68.75
	Unemployed	14	46.66	10	31.25
Monthly income	Less than 500 Dollars	18	60	13	40.62
	More than 500 Dollars	12	40	19	59.38

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Table 3. T-test results of dependent and non-dependent groups.

Component	Group	Mean and SD	T	Sig.
Sexual thoughts, desires, performance and pleasure	Dependent	12.34±1.21	2.74	0.01
	Non-dependent	8.93±1.69		
Sexual hyperactivity	Dependent	12.09±1.44	2.68	0.01
	Non-dependent	8.89±1.73		
Sexual high risk behavior	Dependent	11.89±1.39	2.95	0.01
	Non-dependent	8.02±1.47		

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studies are convincing. In the study of Jimins (2003) 20% of a sample of 110 subjects, who were all black and Latino MSM, reported 84% alcohol, 59% marijuana, 23% poperz nitrate, 20% crack and 20% of heroin, just before or during sex with the same sex during the last 6 months of the survey (Jimenez, 2003). The results showed that sexual behaviors were significantly influenced with MET use in different dimensions. Methamphetamine stimulated the desires, thoughts, hyperactivity, and high-risk sexual behaviors of MSM participating in the study. The findings of the study were consistent with the results of Zapata et al. (2008), Semple et al. (2009), Harva et al. (2008), Sherman et al. (2008) Winslow et al. (2007), Mourinho et al. (2009), Yen (2004), and Iritani et al. (2007).

Another important indicator in MET abusers is their age index. For example, Solomon and colleagues (Salomon et al., 2009) found that young homosexuals are more likely to

use marijuana, hallucinogens, cocaine, and amphetamines while adult homosexuals are more likely to inject heroin and steroids which is a risk factor for HIV infection. Homosexuals over 30 years old use crack more probably and those below 30 years old have a higher likelihood of methamphetamine use (Ober et al., 2009). Three studies showed the protective results of increased sexual risk behavior in young MSM (Ostrow et al., 2009; Klitzman et al., 2002; Plankey et al., 2007). In this study there was no significant difference between age and sexual risk behavior in two groups. In contrast with the findings of a study (Mustanski, 2008) showing that older homosexuals compare to younger MSM show more risky sexual behavior when involved in drinking and sexual activity. Some studies show no differences in demographic characteristics and risk behaviors in a single-partner and multi-partner MSM (LaSala, 2004) while other studies showed single-partner sex as a protective factor in male drug users (Parsons, 2013).

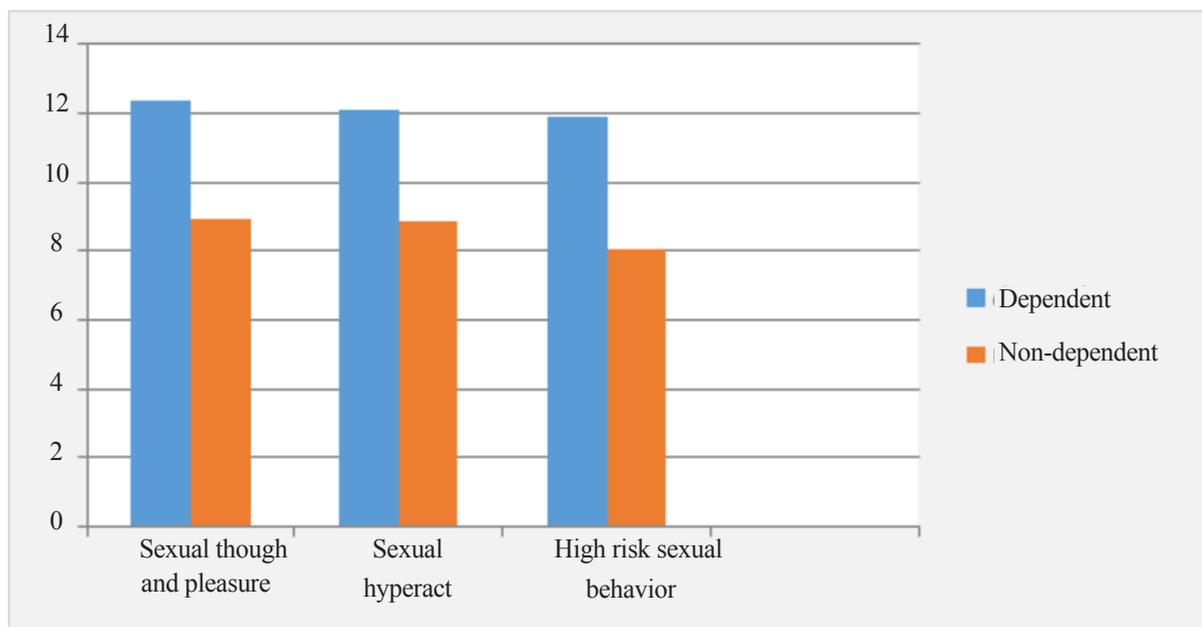
**Figure 1.** The difference between dependent and non-dependent groups in sexual behavior indicators.PRACTICE in
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Table 4. The results of T-test comparing the significant age difference in participants of both groups.

Statistical index	T	df	Sig.	Mean difference	Error difference	Lower	Upper
Age	0.822	60	0.498	0.726	0.625	1.256	-0.612

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Research suggests that methamphetamine consumption is related with risky sexual behavior (Morineau et al., 2011; Marquez et al., 2009) and an increased risk of pregnancy in the students who consume the drug (Pluddmann et al., 2008). Methamphetamine use is likely to increase sexual risk behaviors (Spindler et al., 2007). However, some studies (Mustanski, 2008; Ober et al., 2009) have indicated the temporal association between drug abuse and associated sexual risk behavior but do not show the possible causal relationship between these components. Since the methamphetamine is a stimulus for high-risk behaviors and increased risk of transmission of infectious diseases. Homosexuality is associated with the likelihood of sexual behavior transmission (Semple et al., 2002). These people are mainly exposed to risk to of HIV acquisition due to the prevalence of MET use along with high-risk sexual behaviors (Shoptaw et al., 2005).

Research shows that 68% of new HIV cases are found among MSM (Goodreau et al., 2012). MSM are reported to engage in risky sexual behaviors and have high levels of HIV prevalence (Colfax et al., 2010; Plankey et al., 2007). They most probability have difficulty in managing AIDS which accelerates the mortality rate in these patients (Carrico, 2011a; Carrico, 2011b; Cook et al., 2008). Inefficiencies in the management of HIV disease are often associated with the transmission of the virus through risky behaviors (Johnson et al., 2008; Morin et al., 2007). It is estimated that in America, between 10% and 20% of MSM sexual activity during the last 6 months has been under the influence of MET consumption (Colfax & Shoptaw, 2005). These statistics show the need to expand research in this area more than ever. Stimulants abuse increases sexual desire and risky sexual behavior. This abuse can lead to arousal of sexual risk behaviors in different ways. In other words, recklessness in sexual relations has multiple dimensions. One of in the aspects of sexual risk behavior in methamphetamine consumers relates to the number of sexual partners. Several studies have investigated the relationship between sexual risk behaviors among key partners and adverse sexual partners among homosexual couples (Parsons et al., 2013; Mustanski et al., 2011; Hoff et al., 2010; Hoff et al., 2009), and concluded that the frequency of sexual relations with partners is an important factor. Multiple sexual partners increase the risk of HIV transmission.

Multiple studies have shown that MET is associated with multiple sexual partners and increase in the risk of HIV among homosexuals (Halkitis et al., 2003; Buchacz et al., 2005; Stall et al., 2001; Colfax et al., 2004). Increase in sexual partners besides the use of methamphetamine, cocaine, ecstasy, and alcohol, predicts seroconversion in MSM (Plankey et al., 2007). Another important factor in the incidence of risky sexual is non-protected anal sex. Long-term use of methamphetamine is associated with increased overlooking condoms (Ober et al., 2009; Stall et al., 2001). It is estimated that a significant portion (about 68.33%) of the HIV transmission process happens through unprotected anal sex with partners early in MSM sex (Sullivan et al., 2009; Colfax & Shoptaw, 2005). Unprotected anal sex is associated with high rate of methamphetamine use (Ober et al., 2009). In addition to risky sexual behavior such as multiple sexual partners and unprotected anal sex, one can point to some effective demographic factors. For example, in the study of Ober et al. (Ober et al., 2009), participants who reported crack use during sex were mostly black and participants who reported use of methamphetamine during sex were mostly white and Hispanic.

In other words, whites and Hispanics have higher rates of methamphetamine use during sex among homosexuals compared to the non-Hispanic blacks (Ober et al., 2009).

Study findings

The present study found that methamphetamine consumption is significantly ($P < 0.01$) Different on all 3 aspects of sexual behavior including thoughts, desires, performance, pleasure, heightened risk of sex, and sexual behavior. These findings are consistent with the previous research on the importance of stimulant consumption and specifically methamphetamine in creating high-risk sexual behavior. in this study, no significant difference was found between age and risky behavior among MSM group. it is hoped that these findings open a new horizon in the fields of diagnosis, treatment, and prevention of the stimulants abuse.

Study limitations

This study had several limitations. The most important restrictions were as follows: 1) Ideological measures in Islamic countries, including Iran create serious obstacles to find out data about the homosexuals, as far as the existence

of the disease is denied by officials and sometimes death penalty is determined for MSM; 2) The cross-sectional nature of the study limits the overall conclusion and comprehensive forecast; and 3) Using a self-report assessment in sensitive subjects often creates a favorable social image and thus, self-reporting is associated with possible bias. However, self-reporting has not been used only in 3 studies in the assessment of sexual risk behavior (Dolcini et al., 2003; Ostrow et al., 2009; Plankey et al., 2007).

Recommendations for future research

It is recommended to use a larger sample so that the characteristics of the target population can be determined more precisely (because of fewer statistical errors and real significance). Also, to obtain more reliable results, future researchers should conduct longitudinal studies on related issues so that the results can be compared with cross-sectional studies and the differences provide the contexts for gaining new knowledge in the research methodology. Furthermore, to do more precise evaluations, using the neuropsychological instruments besides the questionnaire is recommended. Finally, it is suggested that the same study conducted on a sample of WSW (women who have sex with women) population, the option which was not possible to be investigated in the present study.

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Conflict of Interests

The author declared no conflict of interests.

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