Delusional Problems and Mood Instability in Acute Psychotic Patients Dependent to Methamphetamine named “Shishe” among Iranian Population

Seyed Mehdi Saberi1, Farideh Khodabandeh2*, Alireza Kahani1 and Seyed Mehdi Marashi1
1Legal Medical Organization, Iran
2Psychiatry Department, Shahid Beheshti University of Medical Sciences, Tehran, Iran

Abstract

Background: Dependence to methamphetamines appears to be resulted in mood disturbances as well as potential psychotic behaviors. This study determined prevalence of some psychiatric problems, including delusions and mood alterations due to addiction to methamphetamine (named Shishe among Iranian population). We also compare these psychiatric aspects between Shishe-addicted and non-addicted subjects to assess relationship between consumption of methamphetamines and appearance of psychological disturbances.

Methods: Participants included 50 Shishe-dependent patients and 49 non-addicted subjects as controls that all suffered from acute psychotic alterations recruited from the Iranian Legal Medical Organization between June and December 2010. The drug-dependent samples met DSM-IV criteria for methamphetamine dependence. Face to face interviewing was the source of information on the presence or absence of different types of delusions and manifest mood symptoms.

Results: With respect to overall prevalence of delusions or mood alterations, regardless of underlying socio-demographic factors, need to physical restrain, delusional jealousy, disorientation, mutilation, and manifestation of mood instability were more prevalent in Shishe-addicted than non-addicted ones, while persecutory delusion was similarly revealed in both groups. Separate set of multivariable logistic regression analyses determined whether the two groups differed in the appearance of mood instability symptoms and delusions with the presence of potential cofounders including socio-demographic indices. Addition to Shishe could be a main indicator for appearance of jealous delusion, disorientation, and self-mutilation.

Conclusion: Acute psychotic patients addicted to Shishe as the most common form of methamphetamines in Iran can experience some serious types of delusions and mood impairments particularly jealous delusion, disorientation, and self-mutilation.

Keywords: Psychiatry; Methamphetamine; Mood; Delusion

Introduction

Co-occurring mental instability and addictive disorders are commonly reported in different societies and these co-morbidities can be frequently seen in emergency rooms, homeless shelters, obituaries, and even on the streets [1]. These social abnormalities were frequently manifested by methamphetamine-induced psychotic disorders with delusions as well as with mood alterations [2]. Methamphetamines that are variously named in different populations such as “Shabu” in southeast of Asia, “Philopon” in south Korea, “Piko” in central Europe, and “Shishe” in Iran, can be potentially associated not only with vital organs abnormalities such as heart and brain damages, susceptibility to infection especially HIV, weight loss, and dental problems, but also associated with psychiatric conditions such as thinking impairment, memory problems, aggression, violence, and even psychotic behavior [3]. The observable adverse influences of methamphetamines use on cognitive abilities have been clearly identified, including impairment of ability to learn, recall, make inferences, manipulate information, and ignore irrelevant information [4]. Some of these deficits were even present longer after short time of abstinence. Beside serious physiological side effects of these agents, recent psycho-pharmacological researches have been focused on a variety of methamphetamines-related psychiatric problems [5]. Addicted ones to these substances appear to be more psychologically disturbed, to have more psychotic problems, and to be more out of control than other substance abusers [6]. Chronic methamphetamine use can also lead to psychotic behavior, including intense paranoia, confusion, visual and auditory hallucinations, and violent behavior. Psychotic symptoms can even persist for months or years after using these agents [7].

The primary aim of the current study was to determine prevalence of some psychiatric problems, including delusions and mood alterations due to addiction of methamphetamines (named Shishe among Iranian population). We also compare these psychiatric aspects between Shishe-addicted and non-addicted subjects to assess relationship between consumption of methamphetamines and appearance of mental disturbances.

Materials and Methods

Participants included 50 Shishe-dependent patients and 49 non-addicted subjects as controls that all suffered from acute psychotic alterations recruited from the Iranian Legal Medicine Organization between June and December 2010 and diagnosed as first episode of acute psychosis. Because of the absence of hotline connection in our country, all individuals were referred by the Tehran emergency services, private ambulance, police, or psychiatric patient transport system to

Copyright © 2012 Saberi SM, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.
The referred hospital. The inclusion criteria were as follows: aged 26 to 34 years; native Persian speaking; and having a confirmed ICD–10 diagnosis of DSM-IV (SCIDIV) [8,9]. People hospitalized with psychosis for 6 months before current admission were excluded. Participants were also excluded if they had a history of stroke, traumatic brain injury with loss of consciousness exceeding 20 minutes, epilepsy, or attention deficit disorder. Participants and their families gave written informed consent after being appraised of the study risks and were reimbursed for participation.

The drug-dependent samples met DSM-IV criteria for methamphetamine dependence on the basis of the SCID-IV [9]. The individuals in addicted group reported using Shishe regularly per week for 6 months before current admission were excluded. Participants were also excluded if they had a history of stroke, traumatic brain injury with loss of consciousness exceeding 20 minutes, epilepsy, or attention deficit disorder. Participants and their families gave written informed consent after being appraised of the study risks and were reimbursed for participation.

The drug-dependent samples met DSM-IV criteria for methamphetamine dependence on the basis of the SCID-IV [9]. The individuals in addicted group reported using Shishe regularly per week for 6 months before current admission were excluded. Participants were also excluded if they had a history of stroke, traumatic brain injury with loss of consciousness exceeding 20 minutes, epilepsy, or attention deficit disorder. Participants and their families gave written informed consent after being appraised of the study risks and were reimbursed for participation.

Belief of betraying the spouse, disorientation (mental confusion or impaired awareness, especially regarding place, time, or personal identity), self-harm or self-mutilation (the intentional injuring of one’s own body without apparent suicidal intent), as well as symptoms of manifestation of mood instability.

In current study, the subjects with substance-induced psychosis were compared to those with acute primary psychosis and no evidences of any substance use on prevalence of delusions and mood condition. Descriptive statistics are presented as mean ± SD or number (percentage). Depending on whether the measurement of a variable was categorical or scaled, group differences were tested using either chi-square test or unpaired t test. The multivariable logistic regression analyses were used to determine differences between the addicted and non-addicted groups with regard to the appearance of psychological deficits with the presence of baseline parameters including socio-demographic characteristics. Odds ratio (OR) and 95% confidence intervals (CI) were calculated. P values of 0.05 or less were considered statistically significant. All the statistical analyses were performed using SPSS version 16.0 (SPSS Inc., Chicago, IL, USA) and SAS version 9.1 for Windows (SAS Institute Inc., Cary, NC, USA).

Results

Table 1 indicates that the Shishe-dependent patients and the non-drug-using controls did not differ in terms of age, gender, and marital status. On the assessment of social components, a slight trend was observed in occupation condition indicating that Shishe-dependent individuals were less unemployed relative to non-drug-using controls. Table 1 also shows that Shishe users had significantly lower education level than control subjects. With respect to overall prevalence of delusions or mood alterations regardless of underlying socio-demographic factors (Table 2), restlessness and need for physical restrain, jealous delusion, disorientation, self-harm, and manifestation of mood instability were all more prevalent in Shishe-addicted than non-addicted ones, while persecutory delusion was similarly revealed in both groups. Separate set of multivariable logistic regression analyses determined whether the two groups differed in the appearance of mood instability symptoms and delusions with the presence of potential confounders including socio-demographic indices (Table 3). These analyses showed that addiction to Shishe could be a main indicator for appearance of spouse betraying delusion, disorientation, and self-mutilation.

Discussion

Our study revealed more prevalence of some delusional thinking as well as mood instability in psychotic patients dependent on Shishe compared to non-addicted ones. Also, the current study showed that some of these psychological aspects were more frequent in the former

### Table 1: Comparing baseline socio-demographic characteristics between psychotic disorder groups with and without psychoactive agent originations.

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Total group (n=99)</th>
<th>Shishe group (n=50)</th>
<th>Control group (n=49)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean age (yr), mean ± SD</td>
<td>29.9 ± 4.5</td>
<td>28.0 ± 3.3</td>
<td>31.4 ± 4.1</td>
<td></td>
</tr>
<tr>
<td>Age range, n (%)</td>
<td>18 to 34 years</td>
<td>26 to 34 years</td>
<td>&gt;34 years</td>
<td></td>
</tr>
<tr>
<td>Gender, n (%)</td>
<td>Male</td>
<td>Female</td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>Marital status, n (%)</td>
<td>Married</td>
<td>Single</td>
<td>Married</td>
<td>Single</td>
</tr>
<tr>
<td>Working condition, n (%)</td>
<td>Unemployed</td>
<td>Student</td>
<td>Self-employed</td>
<td>Employee</td>
</tr>
<tr>
<td>Education level, n (%)</td>
<td>Preliminary level</td>
<td>Secondary level</td>
<td>College degree</td>
<td></td>
</tr>
</tbody>
</table>

### Table 2: Comparing delusions and mood disorders between psychotic disorder groups with and without psychoactive agent originations.

<table>
<thead>
<tr>
<th>Delusions</th>
<th>Shishe group (n=50)</th>
<th>Control group (n=49)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Restlessness and need to physical restrain</td>
<td>29 (58.0)</td>
<td>16 (32.6)</td>
<td>0.011</td>
</tr>
<tr>
<td>Persecutory delusion</td>
<td>35 (70.0)</td>
<td>32 (65.3)</td>
<td>0.618</td>
</tr>
<tr>
<td>Spouse betraying delusion</td>
<td>15 (30.0)</td>
<td>2 (4.0)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Symptoms of manifest mood instability</td>
<td>5 (10.0)</td>
<td>12 (24.4)</td>
<td>0.050</td>
</tr>
<tr>
<td>Disorientation</td>
<td>14 (28.0)</td>
<td>0 (0.0)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Self-harm</td>
<td>11 (22.0)</td>
<td>2 (4.0)</td>
<td>0.008</td>
</tr>
</tbody>
</table>

### Table 3: The results of multivariable regression models with the presence of hide confounders including demographics and social components.

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Multivariate p-value</th>
<th>Odds Ratio</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Restlessness and need to physical restrain</td>
<td>0.119</td>
<td>1.776</td>
<td>0.859–3.676</td>
</tr>
<tr>
<td>Persecutory delusion</td>
<td>0.826</td>
<td>1.072</td>
<td>0.576–1.992</td>
</tr>
<tr>
<td>Jealous delusion</td>
<td>0.004</td>
<td>7.350</td>
<td>1.596–33.846</td>
</tr>
<tr>
<td>Symptoms of manifest mood instability</td>
<td>0.108</td>
<td>0.408</td>
<td>0.134–1.245</td>
</tr>
<tr>
<td>Disorientation</td>
<td>&lt;0.001</td>
<td>1.980</td>
<td>1.629–2.404</td>
</tr>
<tr>
<td>Self-harm</td>
<td>0.020</td>
<td>5.390</td>
<td>1.136–25.581</td>
</tr>
</tbody>
</table>

The referred hospital. The inclusion criteria were as follows: aged 26 to 34 years; native Persian speaking; and having a confirmed ICD–10 psychotic disorder according to the Structured Clinical Interview for DSM-IV (SCIDIV) [8,9]. People hospitalized with psychosis for 6 months before current admission were excluded. Participants were also excluded if they had a history of stroke, traumatic brain injury with loss of consciousness exceeding 20 minutes, epilepsy, or attention deficit disorder. Participants and their families gave written informed consent after being appraised of the study risks and were reimbursed for participation.

The drug-dependent samples met DSM-IV criteria for methamphetamine dependence on the basis of the SCID-IV [9]. The individuals in addicted group reported using Shishe regularly per week for 6 months preceding the study. They were not experiencing clinically significant levels of withdrawal symptoms, such as insomnia or reduced appetite, previously. Baseline demographic characteristics and clinical data were collected by face to face interviewing that was administered in 1 to 2 sessions that took place as soon as subjects were clinically stable enough to participate. The interview was also the source for information on the presence or absence of different types of delusions, including persecutory delusion (delusional belief to be tormented, followed, tricked, spied on, or ridiculed), jealous delusion (delusional belief of betraying the spouse), disorientation (mental confusion or impaired awareness, especially regarding place, time, or personal identity), self-harm or self-mutilation (the intentional injuring of one’s own body without apparent suicidal intent), as well as symptoms of manifestation of mood instability.

In current study, the subjects with substance-induced psychosis were compared to those with acute primary psychosis and no evidences of any substance use on prevalence of delusions and mood condition. Descriptive statistics are presented as mean ± SD or number (percentage). Depending on whether the measurement of a variable was categorical or scaled, group differences were tested using either chi-square test or unpaired t test. The multivariable logistic regression analyses were used to determine differences between the addicted and non-addicted groups with regard to the appearance of psychological deficits with the presence of baseline parameters including socio-demographic characteristics. Odds ratio (OR) and 95% confidence intervals (CI) were calculated. P values of 0.05 or less were considered statistically significant. All the statistical analyses were performed using SPSS version 16.0 (SPSS Inc., Chicago, IL, USA) and SAS version 9.1 for Windows (SAS Institute Inc., Cary, NC, USA).

Results

Table 1 indicates that the Shishe-dependent patients and the non-drug-using controls did not differ in terms of age, gender, and marital status. On the assessment of social components, a slight trend was observed in occupation condition indicating that Shishe-dependent individuals were less unemployed relative to non-drug-using controls. Table 1 also shows that Shishe users had significantly lower education level than control subjects. With respect to overall prevalence of delusions or mood alterations regardless of underlying socio-demographic factors (Table 2), restlessness and need for physical restrain, jealous delusion, disorientation, self-harm, and manifestation of mood instability were all more prevalent in Shishe-addicted than non-addicted ones, while persecutory delusion was similarly revealed in both groups. Separate set of multivariable logistic regression analyses determined whether the two groups differed in the appearance of mood instability symptoms and delusions with the presence of potential confounders including socio-demographic indices (Table 3). These analyses showed that addiction to Shishe could be a main indicator for appearance of spouse betraying delusion, disorientation, and self-mutilation.

Discussion

Our study revealed more prevalence of some delusional thinking as well as mood instability in psychotic patients dependent on Shishe compared to non-addicted ones. Also, the current study showed that some of these psychological aspects were more frequent in the former
group, including jealous, delusion, disorientation, and self-mutilation even adjusted for potential co-founders such as socio-demographic parameters. In the previous researches, legal and social consequences of methamphetamines have been previously well documented, however its psychological deficits particularly among eastern countries remain neglected. On the other hand, although neurological side effects of these drugs using both animal and human models have been recently received attention, psychological components impairments have been already questioned [10-12]. Some studies revealed that exposure to methamphetamines in higher doses plays a crucial role in creating, accelerating and aggravating psychotic symptoms like aggression, depression, hallucination and paranoia in patients with psychosis [13]. Auditory, visual and paranoid hallucinations as well as delusions of reference typical symptoms have been observed not only in primary psychosis but also in amphetamines-induced psychosis [14,15]. In the current study, the significantly high prevalence of some types of delusions in Shishe positive psychotic Iranian patients is in agreement with previous studies [16]. Methamphetamine users might have a tendency to develop depression [17]; a finding seen also in our study among amphetamine positive psychotic group. In other reports, the most common psychiatric symptoms included activity, memory problems, paranoia, stereotypic behavior, delusions of reference, auditory hallucinations, and confusion or fright. Other psychological problems that were rarely pointed were paranoid ideation (e.g. Delusions of persecution or visual hallucinations), olfactory and tactile hallucinations, and the feeling that bugs or formation (defined as feeling that bugs or parasites were crawling over their body or on their skin) [18].

It is more important that different dosages of methamphetamine used might have different psychological consequences. It has been shown that acute administration of low oral methamphetamine doses might improve mood and cognitive performance [19,20], beside long-term abuse of larger doses, administered via different routes can be associated with mood disturbances and cognitive impairments [21,22]. Furthermore, during high dosage use of this agent, individuals can experience stimulant-induced psychosis characterized by delusions, paranoid thinking, and compulsive behavior, but these problems might not have appeared in lower dosages [23]. Moreover, discontinuing its consumption can also be resulted in some psychological instability. On the other hand, methamphetamine-induced psychosis manifested by delusions or hallucinations may be differentiated from psychotic disorders when symptoms resolve after amphetamines discontinuation. Some studies suggested that the individuals who stop using methamphetamine may experience different degrees of mood disorders such as depression and anxiety. In a mid-term follow-up of under-treated patients, methamphetamine users were more likely to have psychiatric difficulties, legal difficulties, family problems, and dissatisfaction with their lives than other substance users [24]. Even after two to five years of treatment, the rate of headaches and depression reported by former methamphetamine users was similar to the rate they reported during admission for treatment [25]. A recent study of methamphetamine users found higher levels of glucose (indicating greater activity) in brain regions linked to anxiety and drug craving, compared to the levels found in non-abusers [22]. This concept seems to be clinically very important for psychiatrists because it can help them to structured better treatment schedules for hospitalization of patients if necessary and also start appropriate long-term courses of antipsychotic drugs that prevent serious side effects of methamphetamines.

Conclusion

In conclusion, psychotic patients addicted to Shishe as the most common form of methamphetamines among Iranian population might experience some serious types of delusions and mood impairments particularly spouse betraying delusion, disorientation, and self-mutilation. Based on this finding, a complete mental status examination must be performed in hospitalized patients addicted to methamphetamines, with an emphasis on delusions and mood instabilities.

Acknowledgement

The authors would like to thank the personnel from the Research Center of Antinarcotics Police of Iran, Dr. Baheri, Dr. Sirus Izadi, Dr. Reza Mehr Mohhebbi, Dr. Majid Hazrati, and also psychologists and psychiatrists of Psychiatry Department of Tehran Legal Medicine Organization who gave up their valuable time for the study.

References


