Exploring The Factors Related to the First Usage of Crystal and Providing Some Preventive Solutions: A Qualitative Study

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Abstract

**Background:** Crystal (methamphetamine) usage is increasing among teenagers and young people in the country. In this matter, one of the practical and important ways to control it is to identify the causes of its first usage. Thus, in this paper, the factors related to the first usage of crystal in consumers and providing a preventive solution were designed and performed in Golestan province, Iran.

**Methods:** In a qualitative study, 19 crystal consumers entered the study in Golestan province by snowball sampling from DIC (drop-in center) and addiction treatment centers. The interviews were mostly carried out individually with the participants, in which only one interview was conducted in an addiction treatment camp in the form of a group-focused discussion. Data analysis was implemented through content analysis in MAXQDA 10 software.

**Results:** The mean age of the participants was 35.05± 6.06 years with a range of 23-46 years. Meanwhile, the mean and standard deviation of usage time was 7.42±3.61 via a range of 1-14 years. Based on the obtained qualitative data, the reasons for first usage of crystal in six classes of "crystal usage to other drugs rehabilitation"; "Lack of awareness of the addictive nature of crystal"; “stimulating curiosity in public with crystal-usage friends”; “cheap price and comfortable usage”; “anti-sleep effects and increasing work efficiency” and "misconceptions (therapeutic effect), increase attractiveness, and increase sexual drive" were included.

**Conclusions:** The achieved results indicated that crystal is mostly abused to opium rehabilitation. Meanwhile, the lack of awareness of addiction and misconceptions can prepare to crystal usage. Furthermore, performing the Interventions to increase the level of awareness that crystal is addictive and its negative impact on opium rehabilitation as well as the necessary policy-making to facilitate accessing it by reducing its production can also be effective to prevent the crystal usage.

**Background**

In the early twentieth century, the amphetamines and their derivatives were first abused as bronchodilators [1]. In this regard, the methamphetamine (crystal) is a strong stimulant of addictive substances that affects the central nervous system, which is easily produced in underground laboratories [2, 3]. The acute effects of methamphetamine usage are related to increasing the energy and attention, increasing the positive mood, and decreased appetite [4].

The half-life of methamphetamine is approximately long, as compared to other stimulant substances such as cocaine and nicotine, which is between 8–12 hours. Here, it should be mentioned that this substance is a central nervous system stimulant, it facilitates the release of Norepinephrine and Dopamine from Neurotransmitter and delays their re-absorption to some extent [5]. Besides, the methamphetamine deprives tissues of oxygen by vasoconstriction, while the high norepinephrine circulation can lead to tissue damage [6, 7]. Moreover, the continued usage of methamphetamine can damage various organs in the
In this regard, the heart risks such as chest pain, arrhythmia, hypertension, cardiomyopathy and even heart attack have noticeably been observed in young consumers [7–9].

The results of a conducted study of 353 methamphetamine consumers who went to the emergency department indicated that about 18.7% of them, had mental health problems, 18.4% suffered from trauma, 11.11% suffered skin infections, and 9.6% suffered from oral problems [10]. At the meantime, the heart attack and seizures have also been reported in methamphetamine consumers [11–13].

Other problems such as movement problems such as hyperkinetic movements, the stereotyped and repetitive behaviors may also be observed [14, 15]. In this matter, recent studies confirmed the relationship between methamphetamine usage and severe dental disease, known as "meth mouth" [16, 17]. Other studies reported that about 40 percent of methamphetamine consumers have experienced complete neurodegenerative psychological damage [18]. Here, the crystal usage would cause tolerance and dependence on it that would lead to creating a condition called psychosis methamphetamine, which is a paranoid schizophrenic [19].

The relevant researches have shown that crystal usage is rising among teens and young around the world, which can lead to complications such as pathology, mental retardation, auditory hallucinations, suicidal ideation, depression, anxiety, violence, and fatigue, suspicion, aggression, severe temptation to usage, high-risk sexual behaviors, cardiovascular problems and even death [20, 21].

In this way, a 2015 UN report revealed that the production of stimulant substances has been increased from 34 tonnes in 2009 to 88 tonnes in 2013 [21], which this is probably why the Iranian studies have reported that in recent years, the usage pattern has been changed from the traditional substances to industrial, while the usage type has been converted from tobacco to injection. In 2008, more than 6% of drug addicts over the age of 12 in Iran were crystal consumers, while most of them were young people. Hence, the amount of crystal usage has dramatically increased from 2008 to 2012. A conducted study in 2010 by praying people found that 25% of drug addicts were crystal consumers, in which the average age of them was 18 years [22, 23]. The results of an implemented study in the country showed that 15% of Iranian addicts abuse the crystal [25]. The results of a study in Zahedan also confirmed that the amount of crystal usage among people referring to a methadone maintenance center has been increased from 6% in 2009 to 20% in 2011 [26]. To succeed in the addiction control and prevention programs, it is essential to identify the main causes of people's addiction and its contributing factors. In the meantime, the qualitative studies can provide vital and valuable information to the researcher by reaching the mental content of individuals due to they are more in-depth. For this reason, to determine the main causes of people's tendency to abuse the crystal, such (qualitative) studies can provide access to the real conditions of people and their experience, based on which without any change or intervention, they can gather data and prepare an accurate reflex of the main causes of the crystal usage [27].

Here, it should be noted that methods based on questionnaires and closed-ended questions that are commonly employed, may restrict the depth of participants' answers, and as a result, the quality of the data gathered may be either reduced or incomplete. As such, the questionnaire-based methods, where there
is little or no information on an issue or area of content or information, are not the proper method to choose. In such cases, the qualitative methods are strongly better [28]. Regarding the fact that the number of qualitative, in-depth and comprehensive studies on the causes of crystal usage in our country is limited to obtain comprehensive, in-depth and first-hand information, this paper was conducted in Golestan province to explore the main factors related to the first usage of crystal among its consumers.

**Methods**

In this qualitative study, which was conducted in 2019 on 19 participants from different cities of the province who either have been consuming the crystal for at least 6 months or have previously consumed it for the same period? These participants were chosen from DIC centers, addiction treatment camps, and the location of the crystal addicts. After describing the aims of the study and obtaining informed consent, they entered the study and were interviewed. In one of the addiction camps, the interview was conducted in the form of a group discussion (6 people). The rest of the interviews were conducted individually and in a comfortable and safe place at the choice of the participant (camp interview room and DIC centers). Here, to collect data, the in-depth semi-structured interviews were utilized. The interview time averaged 45 minutes. The interviews with the permission of the participants, recorded and then written word-for-word on paper. Interview questions were asked with the help of an interview guide. As the study is progressed, some interview questions were revised or some new questions were added. In addition, before starting any interview, all participants completed the social demographic specifications questionnaire and the crystal consumption pattern, and then the interview began with communication and gaining the trust of the participant. In the following, the participant was asked to share his/her experiences about the causes of people's tendency to start crystal usages, and then was asked to focus on expressing his/her personal experiences about the main reasons that led to his/her desire to abuse the crystal. The next questions will be designed based on both people's initial answers and interview guidance. Moreover, based on the need, in interviews, some exploratory questions such as "What do you mean?" Or "If you can please explain more", employed. At the end of each interview, the participant was asked to speak slowly if he/she spoke, and then to talk to him or her about the possibility of further interviews (Table 1). The sampling continued until saturation. In this paper, 14 participants went to saturation stage, but to ensure this, the interviews continued until the 19th person. The interviews finished due to the repetition of conversations and the lack of new content added to the previous content of the interviews. Written informed consent form was obtained from all participants.

To analyze the obtained data, we interview the audio interface in the form of a secret scripture, followed by a careful study of the scriptures, which are the same units of analysis that were attempted to obtain a general sense of them. The text of the interviews was then organized with open source code. To do so, the Lundman's and Grenheim's methods were performed for analysis [29]. The extracted code management was carried out through studying and based on MAXQDA10 text data organization software.

**Results**
The average age of the participants was 35.05 ± 6.06 years with a range of 23–46 years. The mean and standard deviation of usage time was 7.42 ± 3.61 with a range of 1–14 years. In addition to the crystal, all participants mentioned the simultaneous usage of other substances or their usage history. Most participants had a diploma degree, were ethnically diverse, and were unemployed or working (as listed in Table 2). According to the qualitative data, the reasons for the first usage of crystal were located in six main floors, which are specified in Table 3.

3.1 Crystal usage to other drugs rehabilitation

Most participants (14 people) have mentioned morphine as the reason for the crystal usage. In other words, they believed that by consuming the crustal, they could rehabilitee the addictive drugs containing morphine, such as opium, crack, and heroin, and that does not have hangover and body pain.

I went for it because of a dirty thought, I meant a dirty thought that I was thinking of leaving crack and I wanted to leave it and I heard that crystal doesn't have morphine and that's why I went to abuse it ” (Participant 3).

3.2. Lack of awareness of the addictive nature of crystal

A large number of participants (12 people) believed that the crustal was not addictive and that consuming it did not contain the hangover of morphine, and that is why they started abusing it. In Iran, drug dealers are called "butlers". The butlers told the studied participants that the crystal did not cause any addiction or dependence. On the other hand, the participants also believed that the crystal did not cause physical dependence and that if you wanted to leave it, it would not be physically painful. However, after abusing it, they realized that although the crystal does not cause any physical dependence, it severely affects the consumer psychologically.

The butler told us that a new drug has arrived that is very fun and not addictive. I said it's addictive !! Because we considered addiction to be a pain in the body, and we thought that a substance that causes pain in the body is addictive, then our way of thinking was like this, and we were not at all familiar with mental and psychological hangover. We considered hangover to be physical, while the crystal is not physically hangover, and the body has no pain when it breaks. We were told to abuse these substances, which gives them a good mood and makes them feel weird, and we did that. (Participant 4).

3.3 Stimulating curiosity in public with crystal-usage friend

Curiosity and seeing of the crystal usage by friends, introducing it, and their compliments have caused a number of participants (4 people) to mention it as the main reason for the first usage of crystal. Curiosity irritates young people when new drugs enter the consumer market.

We were sitting in a group. The crystal had just arrived and we were curious what it was. When they complimented us, we abused it. (Participant 6).
Then, I saw how many people were consuming and enjoying it. Then, one of my friends said, "Give it a try, but I said no and I didn't." But after a while we went there, I wanted to know what it was, and I abused it. (Participant 15).

### 3.4 Cheap price and comfortable usage

The participants believed that the price of crystal was so cheap that it could be paid for. In addition, the comfortable and easy usage of crystal is one of its advantages over other drugs, so that they can abuse it with just a small pipe and a match or lighter wherever they want.

The addict population, e.g. myself, see the cheaper substance, the more it definitely abuses. With this market situation, most young people are moving towards abusing it, because it is both easy to abuse and comfortable, while its price is suitable (Participant 1).

Yes, they said that these substances are good substances and there is no hangover. It is very cheap and is very easy to abuse. Pour it into a small pipe, and the lighter inside the pocket, wherever we want to go, even in the bathroom, we can easily abuse it. We light a match under it and consume it (participant number 5).

### 3.5 Anti-sleep effects and increasing work efficiency

Another reason for the first usage of crystal was its anti-sleep effects, as well as the increase in speed and efficiency of work, which was mentioned by a number of participants. They only wanted to test the crystal for the first time and take advantage of its potential to help them stay awake, but this usage continued after the first time. People who need to stay awake at night or those who are looking for more energy to do more work are among those who abuse the crystal.

I ate methadone and then fell asleep while guarding. One day, I was at the house of one of my friends, I was making nonsense, he was also consuming industrial substances and he said that if you abuse this, you would not sleep. Then I told myself to abuse it once to see what it is!! I tried it once and then it continued on. (Participant 13).

Yes. I was told to abuse it, because your work is hard. So come here and abuse it once. If you abuse the crystal, your work efficiency will be increased. If you work 12 hours now, you can work 18 hours. If you work 18 hours, you can work 20 hours. Early on, I was able to work the same amount of time, but later it didn't take more than an hour. (Participant 9).

### 3.6 Misconceptions (therapeutic effect), increase attractiveness, and increase sexual drive

A number of participants had misconceptions about crystal that caused them to the first usage. One of them stated that the reason to abuse the crystal was the kidney stone disease treatment and also they believed that the crystal usage helps them to excrete the kidney stones:

I had kidney stones and worked somewhere as a laborer. I asked one of the kids who worked there how it was that you worked for three days and went to work again. He said that I would abuse the crystal and this
would reduce the body water and I would not work anymore. Then I said that this should be good for kidney stones. (Participant 12).

A few people also believed that as they heard that the crystal usage can increase the sexual pleasure and affects the beauty of appearance and face, they started abusing it. My friend was abusing it and I didn’t know. His first words it was good for sex and beauty. At first, it was talk, and student spending was high. Most doctors abused it to wake him up. Now I have nothing to do with advertising. For these three reasons, I also started abusing it (Participant 16).

Discussion

This study was conducted to explore the main factors related to the first usage of crystal among its consumers in Golestan province. The achieved results of this study revealed that six classes were obtained for the first usage of the crystal. One of the most important reasons for the first usage to abuse the crystal was to other drugs rehabilitation. Regarding the fact that all participants in the study were simultaneously addicted to other drugs or abused them before addiction to crystal, so based on a common but misconception, they believed that they could not abuse other substances such as crack, heroin and opium by abusing the crystal.

Sometimes, this misconception has been proposed by addictive drug dealers to sell their drugs, which here is the crystal. Another factor influencing this misconception has been the promotion and recommendation of friends addicted to crystal. This misconception stems from the fact that crystal consumers are more likely to emphasize the physical dependence on opium, and their perception is more of the physical symptoms of quitting opium such as crack and heroin. Nevertheless, later on, they known the stained crystal and then realized their misconception, as evidenced by a significant number of the studied participants.

While the crystal usage makes it tolerable and dependent on it, which causes a condition so-called psychosis methamphetamine, which is a paranoid schizophrenia-like condition [19]. The results of a study conducted by Noori et al. confirmed that the tendency to opium rehabilitation is the most important cause of the tendency to abuse the crystal [30]. Furthermore, due to the tolerance phenomenon caused by abusing some previous substances such as heroin and crack, it seems that people start abusing novel substances such as crystal. The results of a study indicated that reducing the effects of the abused previous substances and re-turning to another substance was the most important reason to change the previous substance and to turn around crystal [24].

On the other hand, the belief in the non-addiction of crystal was one of the reasons for the first usage of crystal, which was mentioned by a number of consumers. Lack of information about the addictive nature of substances such as crystal can be considered as one of the important causes of addiction. Bostanizadeh and Karami investigated women addicted to crystal in one of the country's prisons. They described some issues such as non-addictiveness of crystal, heroin and crack, weight loss and obesity as interfering factors that facilitate the usage crystal [31]. Stimulating curiosity with friends who abused the crystal was another reason for the first usage of crystal. Curiosity with peer pressure has always been one
of the most important reasons to start abusing a variety of substances, based on which starting to abuse crystal is no exception. The results of the conducted study by Sahami and Kazemi using the Grounded Theory revealed that to abuse the crystal, joining to crystal-abusing friendship groups creates a tendency to abuse, which has gradually generated some beliefs in the individual. At first, the usage motivation is raised by curiosity or recreation, but over time, sterile beliefs about addiction are established in the individual, which leads to coercion, voracity, and diversity of abusing [32]. Another study confirmed that curiosity is one of the causal classes to abuse the crystal [31].

A number of participants mentioned the low price and ease of abusing it as the reason for the first usage of crystal. Regarding the abundant production of crystal in Golestan province, which has been well known as a central kitchen among consumers, the term of its abuse has increased, and therefore, it has overcome the demand and reduced its price, as compared to previous years. On the other hand, it makes it easier to access. These two factors, represented as the facilitators, can prepare the stage for the crystal usage. On the other hand, its ease usage is one of the reasons for the first usage. Abusing some traditional substances such as opium and juice requires special time, organization and equipment, whereas the crystal usage is easily and possible via a pipe and lighter, and it does not take more than a few minutes. Meanwhile, there is no special smoke and smell. However, the time of abusing the opium is very long compared to the one of crystal, and due to the smell and smoke caused by smoking; it can be accompanied by a lot of attention. In their study, Yoosefi Lebni et al. reported that easy access and easy use was the one reasons of the Crystal use in their participants (33).

The anti-sleep effects and increasing work efficiency were the other reasons for the first usage, which were mentioned by the participants in this study. Note that as the crystal is a class of amphetamines and is a stimulant, it can lead to insomnia and prolonged awakening, as well as increased energy. It would lead creating an overnight that people turn around it to increase the work efficiency. The participants in the study, who mentioned this factor, said they had either seen it with their own eyes among their friends, or that the effects had been passed on to them, thus encouraging the crystal usage among them. In one study, the tendency to increase performance and efficiency was mentioned as one of the important reasons for the first usage of crystal [30]. Today's, the crystal is abused by drivers and other groups to increase awareness and performance [24].

Misconceptions such as the kidney stones disease treatment, increasing sexual pleasure, and facial beauty were the other causes of crystal usage. Aesthetic issues such as facial beauty and weight loss in both studies have been described as reasons for the tendency for the first usage of crystal [30, 31]. Nevertheless, the subject of medical treatments has previously been more concerned with opium usage [34]. However, in the current research, one of the participants mentioned belief in the treatment of kidney stones.

**Conclusion**

The results of this paper indicated that morphine rehabilitation, the lack of awareness (non-addictiveness of crystal), curiosity, compliments of friends, cheap price and comfortable usage, anti-sleep effects and
increasing work efficiency, and misconceptions were the most important reasons for the first usage of crystal.

Some suggested solutions:

- Informing and teaching about correcting misconceptions and approaches such as leaving other substances using the crystal
- Modifying the misconceptions about increasing the performance and physical efficiency, aesthetic and medical beliefs caused by crystal
- Making an appropriate policy to limit the supply of crystal and eliminate the factor of ease of access by the authorities

**List of Abbreviations**

Not applicable

**Declarations**

**Ethics approval and consent to participate**

Written informed consent form was obtained from all participants. Golestan University of Medical Sciences review board approved the ethical consideration of the study.

**Consent for publication**

Written informed consent form was obtained from all participants.

**Availability of data and materials**

The data are available from corresponding author; Abdurrahman Charkazi from reasonable request.

**Competing interests**

The authors declare that they have no competing interests.

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**Authors’ contributions**

SSS and AC designed and conceptualized the study, literature review, and data interpretation. FZ, AM and AS led the data interpretation and manuscript draft preparation. MSH, TJ and ME revised critically and finalized the manuscript. All authors read and approved the final manuscript.
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24. EFFICIENCY ON COLLEGE STUDENTS’PERSUASIVE SUBJECTIVE NORMS AGAINST SUBSTANCE ABUSE

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Tables

Table (1): interview guideline

| Interview guide |
|-----------------|
| 1 From your point of view, why some people start Crystal smoking? |
| 2 When was the first time you start crystal smoking? Why did you start it? |
| 3 Please explain more about your first experience of Crystal smoking? Where was it and who accompanied you in this experience? |
| 4 What are other reasons for initiation of Crystal smoking? |
| 5 You are welcome to add to what you provided on your Crystal smoking experience. |
Table 2: Study participant profile
| Place of residence | ethnicity | Education | Other drug use status | Time of addiction to Crystal (years) | Participant ID number |
|--------------------|-----------|-----------|-----------------------|------------------------------------|-----------------------|
| Gorgan             | Persia    | University degree | Cigarette, Opium, Hashish, Tamjizac | 13 | 1 |
| Aq Qala            | Persia    | Primary school | Methadone, Opium, Heroin, Crack, Cigarette | 14 | 2 |
| Aq Qala            | Turkmen   | High school dropout | Methadone, Opium, Crack, Cigarette | 8 | 3 |
| Aq Qala            | Turkmen   | High school dropout | Opium, Heroin, Crack, | 10 | 4 |
| Bandar Gaz         | Persia    | Primary school | Opium, Cigarette | 3 | 5 |
| Bandar Gaz         | Persia    | Secondary school | Opium, Cigarette | 4 | 6 |
| Aq Qala            | Turkmen   | Primary school | Opium, Cigarette, Crack | 10 | 7 |
| Ali Abad           | Persia    | Primary school | Opium, Cigarette, Crack | 10 | 8 |
| Aq Qala            | Turkmen   | Secondary school | Opium, Cigarette, Crack | 12 | 9 |
| Ghonbad            | Turkmen   | Secondary school | Opium, Cigarette, methadone | 7 | 10 |
| Ghonbad            | Turkmen   | Primary school | Opium, Crack | 4 | 11 |
| Ali Abad           | Turkmen   | Primary school | Opium, Cigarette | 6 | 12 |
| Azadshaher         | Persia    | High school diploma | Opium, Cigarette | 8 | 13 |
| Ghonbad            | Turkmen   | Secondary school | Alcohol, Methadone, Opium, Heroin | 8 | 14 |
| Ghonbad            | Persia    | Primary school | Cigarette, Methadone | 8 | 15 |
| Azadshaher         | Balouch   | Secondary school | Opium | 8 | 16 |
| Azadshaher         | Balouch   | Primary school | Opium, Cigarette | 4 | 17 |
Table 3: The extracted classes of the causes for the first usage of crystal in the studied people

| The extracted classes                                                                 |   |   |
|---------------------------------------------------------------------------------------|---|---|
| 1. Crystal usage to other drugs rehabilitation                                        |   |   |
| 2. Lack of awareness of the addictive nature of crystal                                |   |   |
| 3. Stimulating curiosity in public with crystal-usage friends                          |   |   |
| 4. Cheap price and comfortable usage                                                  |   |   |
| 5. Anti-sleep effects and increasing work efficiency                                   |   |   |
| 6. Misconceptions (therapeutic effect), increase attractiveness, and increase sexual drive |   |   |