

## Opium addiction in patients with coronary artery disease: a grounded theory study

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Received: 20 April 2014

Accepted: 16 March 2015

Published: 3 October 2015

### Abstract

**Background:** There are widespread misconceptions about the positive effects of opium on coronary artery disease (CAD). Thus, we performed a study to explore the opium addiction process contributing factors among CAD patients using a grounded theory approach.

**Methods:** The sample comprised 30 addicted CAD patients and their family members, physicians, nurses and friends. Purposive and theoretical sampling was employed; semi-structured interviews were conducted. Coding and constant comparative analysis techniques were as proposed by Strauss and Corbin (1998).

**Results:** The core category was 'Fighting for Survival', comprising three main themes, namely, 'the gateway', 'blowing into the fire' and 'getting stuck in the mud'.

**Conclusion:** Increasing knowledge about the adverse effects of opium on the cardiovascular system would reinforce prevention and rehabilitation measures. Involving patients' family-members in addiction prevention and rehabilitation programs and referring patients to specialized rehabilitation centres could help patients quit opium. Healthcare providers (HCPs) should notice to the effects of opium consumption among CAD patients; nursing care must be holistic in nature. Although opium is stigmatised in Iran, HCPs must treat addicted CAD patients similar to other patients. Nursing students' must be aware of the negative effects of illegal drugs on CAD patients and the misconceptions regarding the positive effects thereof. Any misconceptions must be probed and clarified. Rehabilitation centres must be supervised by cardiologists and HCPs.

**Keywords:** Coronary artery disease, Opium consumption, Drug abuse, Qualitative research, Iran.

*Cite this article as:* Farahani MA, Ghaffari F, Seyed Fatemi N. Opium addiction in patients with coronary artery disease: a grounded theory study. *Med J Islam Repub Iran* 2015 (3 October). Vol. 29:267.

### Introduction

In 2011, the United Nations Office on Drugs and Crime estimated that 12–21 millions (3–5%) of 15–64-year-old people worldwide were opium users. Most of the users live in countries like Iran and Turkey that are located on the route of opium trafficking from Afghanistan to Balkan and East and central Europe (1). Ray et al (2006) reported that 69 cases per 100,000 people living in rural areas of the north of Iran are opium users (2).

In addition to geographic location, some

misconceptions also contribute significantly to the high prevalence of opium consumption in Iran. Iranians, particularly villagers, deeply believe in the therapeutic effects of opium in the treatment of problems such as headache, toothache, earache, sexual impotence, etc. (3). It is believed that Iranian traditional medicine practitioners have propagated this belief. Consequently, the use of opium as a painkiller has become increasingly prevalent among Iranians (4). These beliefs have led to the outbreak of opium addiction in Iran.

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Opium consumption is particularly more prevalent among several patients including those with heart problems. Cardiac patients generally use opium to manage their heart problems. However, the evidence show that opium not only has no protective effect on heart (5,6) but also can exert adverse effects on it and on central and autonomic nervous system (7). The most prevalent adverse effects of opium on cardiovascular and respiratory systems are tachycardia, bradycardia, and orthostatic hypotension (7). Shirani et al (2010) reported that opium consumption does not slow down the atherosclerosis of carotid arteries in opium-addicted patients. They referred to opium consumption as a risk factor for coronary artery disease (CAD) (8).

As opium is pure morphine and morphine in turn inhibits pain pathways, opium consumption can obscure the presence of an acute heart attack. Consequently, an opium-addicted patient with an acute heart attack may lose the golden time between the onset of symptoms and the administration of thrombolytic therapy(9). Studies have shown that one of the major leading causes of death among opium users is CAD. It is second only to accidents as a leading cause of death among opium users (1,10).

The process of becoming dependent on addictive drugs is influenced by different personal, cultural, and social factors. Accordingly, different people may become addicted differently (11). It is widely accepted that people's tendency towards drug abuse is so much complex that cannot be thoroughly understood through a single theory (12); nevertheless, unfolding this process by using the grounded theory approach can provide valuable information about the contributing demographic, situational, contextual, cultural, and psychosocial factors.

Most of the studies on opium addiction in CAD have been conducted by using quantitative approaches. Quantitative approaches cannot provide a deep understanding about complex phenomena such as addiction. Moreover, as the phenomenon of addiction

has a close relationship with demographic, situational, contextual, cultural, and psychosocial factors, investigation of the issue in different societies seems crucial. The aim of this study was to explore the process of opium addiction and its contributing factors in patients with CAD.

## Methods

### *Design*

This was a grounded theory study conducted in 2012–2013. The grounded theory approach is useful for exploring the processes of human experiences and the conditions and contexts in which these processes take place (13).

### *Participants*

The study population consisted of opium-addicted patients with CAD who were hospitalized in a post coronary care unit affiliated to a public heart research center in Tehran, Iran. The inclusion criteria were having the ability to speak Persian and having at least one-year history of opium consumption. We started the sampling process by employing the purposive sampling method to recruit a sample with maximum variation in terms of variables such as gender, marital and employment status, and the length and way of opium consumption. Then, we employed the theoretical sampling method to explore the dimensional range of the emerged concepts and categories. The sampling process was pursued until saturation. Consequently, we recruited a sample of 18 opium-addicted patients with CAD, three non-opium-addicted patients with CAD, two physicians, three nurses, two family members, and two of friends of the patients.

### *Data collection*

We collected the data by conducting semi-structured face-to-face and telephone interviews as well as by making detailed field-notes. Interviews were arranged according to participants' preferences and conducted in a quiet room. Three participants were interviewed twice. The first-

round interviews were face-to-face while the second-rounds were on the phone. The basic questions of the interviews included:

- How did you start using opium?
- What factors affected your opium consumption?

Subsequently, we also employed probing questions to delve into the participants' experiences. All of the interviews were recorded using a digital sound recorder. Interviews ranged in length from 30 to 40 minutes.

### Data analysis

Data collection and data analysis were conducted concurrently. To analyze the data, we employed the coding and constant comparative analysis techniques as proposed by Strauss and Corbin (1998). Accordingly, immediately after each interview, we transcribed it verbatim. The process of analysis consisted of open coding, axial coding, and selective coding. The generated codes were compared with each other and categorized according to their similarities and differences. Categories, in turn, were also compared and merged with each other or divided into other categories. Finally, we identified the core category and linked it with other categories using selective coding.

### Ethical considerations

A university-affiliated Institutional Review Board and Ethics Committee approved the study. The aim and process of the study were explained to the participants. We assured the participants that participation/ withdrawal from the study was voluntary. Moreover, we guaranteed the confidentiality of the participants' personal information. Finally, we asked the participants to read and sign the informed consent form of the study.

### Rigor

Generally, there are four criteria - including credibility, confirmability, dependability, and transferability- for main-

taining the rigor of a qualitative study (14). Accordingly, we employed techniques such as prolonged engagement in the study setting, thick descriptions of the study process and findings, member- and peer-checking, and constant comparative analysis.

## Results

In total, we conducted 30 interviews with subjects who used opium for  $4.5 \pm 1.7$  years in average (Table 1).

In the open coding, we primarily generated 739 codes which were abstracted and reduced to 65 codes. The codes were categorized into three main categories including 'gateway', 'blowing into fire', and 'getting stuck in the mud'. The core category of the study was 'Fighting for Survival'. Below, we explain these themes and categories (Table 2).

### Gateway

This theme reflected the causal and contextual conditions for having the motivation for starting opium consumption. Two sub-themes were 'volition' and 'compulsion'.

### Volition

Our participants referred to instances such as peer pressure, presence of an ad-

Table1. The personal characteristics of participants with CAD disease

Variable	N	%
Age		
45-50	2	11.11%
51-56	9	50%
57-62	3	16.67%
63-68	4	22.22%
History of CAD(years)		
2-4	4	22.22%
5-7	8	44.45%
8-10	6	33.33%
Taking types		
Inhaling	10	55.56%
Injecting	8	44.44%
Level of education		
Illiterate	5	27.78%
Elementary school	6	33.33%
Diploma	4	22.22%
B.S. or higher	3	16.67%
Employment Status		
Self-employed	9	50%
Clerk	5	27.78%
Retired	4	22.22%

Table 2. Themes and subthemes

Gateway	Volition, compulsion
Blowing into fire	Perceiving opium consumption as a real threat, experiencing conflict between craving for quitting and compulsion to continue consumption
Getting stuck in the mud	Accepting the reality of addiction, resorting to defense mechanisms

dicted family member, easy access to opium, and employment in certain occupations as the compulsive conditions for opium consumption. A participant blamed his addicted friends and stated,

*“Access to opium was very easy. I could have access to opium only by a brief walk to the street and a simple contact with the suppliers. Access to opium is cheaper than access to cigarette”.*

Another participant who had two addicted brothers mentioned that “the first time I tried opium was with my brothers”.

### Compulsion

On the other hand, some of our participants mentioned that they involuntarily began to use opium. Most of these participants believed that false cultural belief about the positive effects of opium on cardiovascular disease and sexual impotence was an important leading cause of opium consumption. A participant who had voluntarily chosen to consume opium mentioned,

*“I saw the miracle of opium with my own eyes; since the beginning of the disease, it is opium that has empowered me and prevented me from disability. Whenever I have chest pain, opium has its pain-relieving effects”.*

On the other hand, some of our participants did not believe in the positive effects of opium on cardiovascular disease. A non-addict patient with CAD stated,

*“I believe that opium cannot eliminate or even relieve my heart problem. These [beliefs about the positive effects of opium on heart problems] are all autosuggestion. One should consider the fact that opium may ruin his life. I believe that opium has no benefit except for annihilation”.*

Another important factor contributing to the opium consumption was peer pressure which was in turn derived from the widespread misconceptions about the positive

effects of opium. A participant who, under peer influence, had begun consuming opium for managing his heart problem mentioned,

*“My friend and I were working in a small clothing factory. My friend continuously recommended me that if like to to get rid of heart problem and save my life, I would better consume opium”.*

On the other hand, peers also had an important role in addicted-patients' decision to quit opium and in opium consumption relapse. An addicted friend of an addicted patient stated,

*“I saw with my own eyes that my friend experienced a heart attack immediately after quitting opium and died after several days. Consequently, I am afraid of quitting. I fear of becoming disabled and confined at home”.*

In addition to peer influence, personal experiences from childhood age for the short-term positive effects of opium were another determining factors contributing to opium consumption. A patient who deeply believed in the positive effects of opium on heart disease mentioned,

*“My mother also had heart problem. As long as she smoked opium, she had no problem. Opium was effective in reducing her blood pressure. [Moreover,] when I had toothache, my grandmother gave me some opium solved in water and I got rid of pain. I have seen the miracle of opium from childhood”.*

Those participants who had voluntarily chosen to consume opium had fewer problems with the social stigma of opium consumption. In other words, they had a less negative attitude towards addiction and believed that opium can save their lives. A patient who had voluntarily chosen to consume opium since three years ago mentioned,

*“I think of opium as a medicine. I have*

*no problem with it”.*

### *Blowing into fire*

The second theme of the study was ‘blowing into fire’. This theme stood for the intervening conditions for becoming addicted to opium. The two sub-themes of this theme were ‘perceiving opium consumption as a real threat’, and ‘experiencing conflict between craving for quitting and compulsion to continue consumption’.

### *Perceiving opium consumption as a real threat*

Although our participants firmly hold misconceptions about the effects of opium on CAD, they believed that opium consumption does not conform to the established social norms. They suffered from many personal, family, and social problems as a result of addiction. Either consuming opium voluntarily or compulsorily, our addicted participants finally had perceived opium consumption as a real threat to their health and life. Seeking information from lay and professional people was the consequence of such perceived threat. A patient with a 5-year history of opium consumption, whose wife had applied for divorce twice, stated,

*“When I found that I was becoming addicted to opium, I felt extremely shy of my family. Most of my budget was being spent on opium consumption. I feel uncertain about my future and life”.*

### *Experiencing conflict between craving for quitting and compulsion to continue consumption*

Our addicted participants perceived opium consumption as a real threat to their health and life and hence tended to quit opium; however, because of physical and psychological dependence on opium, lacking information about the adverse effects of opium on cardiovascular system, and lacking information about how to access to addiction rehabilitation centers, they feared of quitting opium. A patient with a 4-year history of opium consumption mentioned,

*“When I told my physician that I consume opium, I expected him, instead of simply nodding his head, at least to explain about the advantages and disadvantages of opium. Patients’ preferences and expectations are not important here [in hospital]. Nurses also had a similar reaction. When I told them that I consume opium, one of them simply said that if I have opium, I can consume it by swallowing”.*

The final outcome of experiencing conflict between craving for quitting and compulsion to continue consumption was psychological disorders such as feelings of despair, disillusionment, and guilt.

*“When my family found that I had become addicted, they, after a while, rejected me and left me alone. I feel now that I have gotten lost in the world; I feel I am at the extreme end of the world. I have no more hope for the life. If it had not been due to my heart disease, I would have gotten myself rid of opium by now”.*

Beside psychological disorders, opium consumption had resulted in the loss of family, community, and healthcare providers’ support. The family-members and healthcare providers’ main reason for being reluctant to support addicted patient in overcoming their addiction was the fear of developing withdrawal symptoms and life-threatening cardiac complications. The family, community, and healthcare providers’ indifference towards addicted patients was like blowing into a fire that had already engulfed them. A participating cardiologist said,

*“We ask patients to quit smoking cigarette because it causes no problem [for a cardiac patient]. However, we do not recommend patients, particularly those with a history of heart attack or unstable angina, to quit opium...on the other hand, we cannot recommend these patients to smoke opium in the coronary care unit. Instead, we recommend them to consume it by swallowing. Of course, after achieving hemodynamic stability and after opening blocked arteries by coronary artery by-pass graft-*

ing or stenting, we asked them to quit opium consumption after hospital discharge”.

In addition to the fear of developing withdrawal symptoms, the social stigma of addiction also played an important role in healthcare providers’ reluctance to consider addicted patients’ educational needs. A practicing staff nurse mentioned,

*“I prefer to spend my time caring for a non-addicted patient. To tell you the truth, I do not feel comfortable with addicted patients. I believe that addicted patients place a burden on the community”.*

#### *Getting stuck in the mud*

The third theme of the study was getting stuck in the mud. The consequence of the first two themes, i.e. the causal and contextual as well as intervening conditions, was to having no choice but to continue consuming opium. We coded this condition as getting stuck in the mud. This theme consisted of two subthemes including ‘accepting the reality of addiction’, and ‘resorting to defense mechanisms’.

#### *Accepting the reality of addiction*

Our participating addicted patients referred to dependence on opium, fear of developing withdrawal symptoms and life-threatening cardiac complications, and also receiving no support from the family and healthcare providers as the main reasons for having no motivation for quitting opium. Consequently, they were hopelessly compelled to accept the reality of addiction. An addicted patient stated,

*“I’ve been consuming opium for a while. I like to quit; but I fear; I fear of experiencing heart attack and becoming permanently disabled as a result of quitting opium consumption”.*

#### *Resorting to defense mechanisms*

Receiving others’ confirmation had left our addicted participants with no choice but to accept opium consumption as the only available treatment option for their heart disease. Meanwhile attempting to resolve the conflict between craving for quitting

and compulsion to continue consumption, our addicted participants had found themselves in a complicated situation, unable to make any changes, and having little chance of survival. They believed that finding themselves unable to survive from addiction had exacerbated the pain of becoming socially isolated. Consequently, they felt compelled to resort to defense mechanisms to escape from the blame and torment of opium consumption. The most commonly used defense mechanisms were projection and rationalization. An addicted patient said,

*“If I could have found a pill to kill my pain, I would have quit consuming opium... if my wife had understood me instead of nagging; I would not have tried opium”.*

#### *Storyline*

Factors such as false cultural beliefs, childhood experiences and memories of opium, and peer pressure predispose patients with CAD to begin to use opium to manage their chest pain and prevent disability. Primarily, they generally assume that they can quit opium whenever they will. However, after a while, they will find themselves addicted to opium. The adverse physical, mental, psychological, and financial problems and social stigma of opium consumption cause patients perceive opium consumption as a real threat to their health and to their personal and family life. Seeking information from lay and professional people is the consequence of such perceived threat. Factors such as the dominance of misconceptions about the positive effects of opium on CAD, healthcare providers’ indifference towards these patients’ concerns and needs, fear of developing withdrawal symptoms and life-threatening cardiac complications, fear of experiencing death, and loss of family, community, and healthcare providers’ support make patients unable to quit opium. Consequently, they are left with no choice but continuing to use opium. The ultimate fate is addiction.

Briefly we can say that the finding of this study shows that continuing the use of opi-

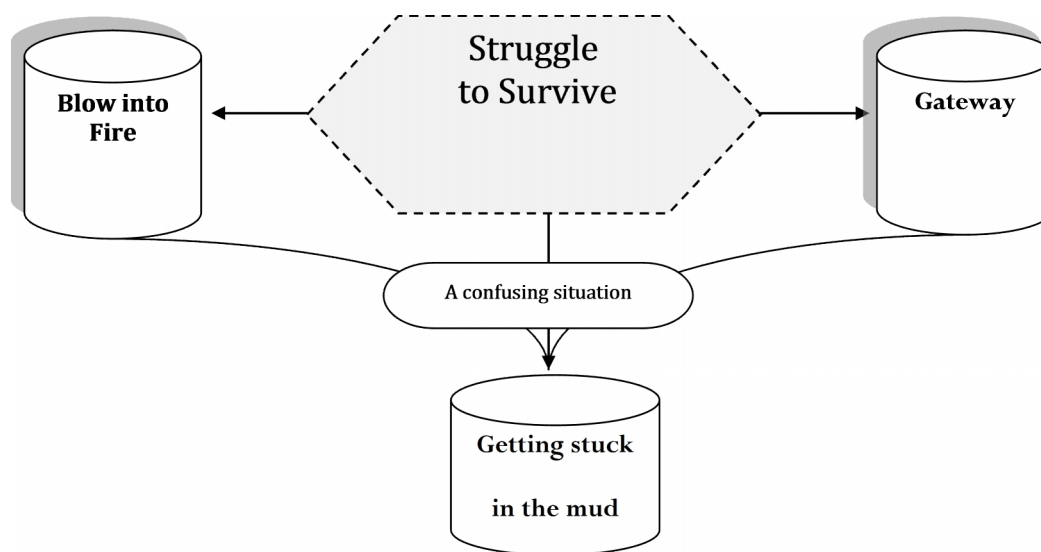


Fig. 1. The process of opium addiction in patients with CAD

oids is the only way they can save their lives. In the other hand, they tend to rehabilitate because of the personal, family and society problems. Because using drugs is against the society's norms, lack of information about its side effects, and the way they can find rehabilitation centers and receiving incomplete and bad advises from unsecure people frighten them from rehabilitation. Besides, health care providers accept this kind of behavior because of their fear from the side effects of artery disease, not paying enough attention to the patient's concerns and not providing a complete service like informing the patient about the rehabilitation and supporting centers. It is like blowing to the fire which is burning the patient. The patient will remain mixed up since he tends to rehabilitate but the need of his corpus never lets him do this and he cannot change his condition at the end (Fig. 1).

### Discussion

The aim of this study was to explore the process of opium addiction and its contributing factors in patients with CAD. Our findings revealed that the complex nature of CAD as well as false cultural belief about the positive effects of opium on cardiovascular disease and sexual impotence were the most important factors contrib-

uting to opium consumption among patients with CAD. The false belief about the positive effects of opium on longevity and on the prevention of heart problems and heart attack played an important role in our patients' tendency towards opium consumption. The study findings also revealed that the sedating and pain-relieving effects of opium as well as its short-term positive effects on sexual impotence were the main reasons for use of opium. Previous studies also demonstrated that the most common reasons for experimenting with opium were diabetes mellitus, hypertension, sexual impotence, chronic pain (15) and cardiovascular diseases (16,17). Farahani et al (2008) believed that Iranians' misconceptions about pain-relieving, fatigue-reducing, and energizing effects of opium are the major barriers to patient and public education about addiction. The main sources of these misconceptions are childhood experiences. Peer pressure for consuming opium for the management of heart disease and sexual impotence is also derived from these misconceptions. Sediq-Sarvestani et al referred to common misconceptions as the main reason for use of opium in Iran. Consequently, identifying socio-contextual factors contributing to opium consumption is a fundamental prerequisite for planning addiction prevention and opium quitting pro-

grams (18).

It is noteworthy that narcotics have some short-term therapeutic effects; however, the therapeutic effects are gradually reduced and the consumer becomes increasingly dependent on them. Abdollahi et al reported that opium only can temporarily relieve problems such as chest pain and sexual impotence (19). According to Azimzade-Sarvar et al long-term use of opium can exert negative effects on sexual potency and chest pain perception. On the other hand, long-term and high-dose use of opium is potentially life-threatening and can result in death (6). However, despite the adverse effects of opium on cardiovascular system (7,8), our addicted participants and their family members were reluctant to quit opium because of the fear of developing withdrawal symptoms and life-threatening cardiac complications and the fear of experiencing death. Lack of information is an important factor contributing to such fears. Therefore, it seems quite essential to develop patient and public educational programs aiming at promoting public awareness about opium (20).

We also found that our participants began to use opium to treat their sexual impotence. Sexual impotence among patients with CAD is secondary to fear of experiencing heart attack during sexual activity. Most of the patients, out of modesty and embarrassment, are reluctant to consult healthcare professionals about their sexual problems. Instead, they prefer to overcome their sexual problems by taking over-the-counter remedies and by consulting with friends and lay people. Viagra (sildenafil citrate) and narcotics are two over-the-counter treatment options widely used by patients with CAD. However, the therapeutic effects of these treatments are gradually decreased and hence, patients need to progressively increase their daily consumption. This unsafe practice puts them at great risk for developing life-threatening complications. Again, developing patient and public education programs for increasing public awareness and correcting common miscon-

ceptions about opium seem clearly essential (16,20).

Among the other factors contributing to start opium use were personal and childhood experiences on the short-term positive effects of opium on alleviating physical and psychological problems. Childhood experiences can be a strong support for holding misconceptions later on in life. Jafari et al also reported that childhood good experiences and memories of narcotics can lead to accepting narcotic use as a social norm in adulthood.

Another finding of the study was that the addicted participants considered family members and healthcare providers' indifference towards their opium consumption as an important factor contributing to their reluctance to quit opium. This finding is in line with the findings of Jafari et al study (15). According to Kyngäs, education is a key component of providing care to patients with chronic conditions; accordingly, providing education and having a holistic approach to addicted patients' needs, expectations, and preferences are important to addiction prevention and management (21).

We also found that healthcare providers' recommendations about opium quitting or about changing the way of consuming opium were effective on patients' decision to continue to use it. Jafari et al reported that traditional beliefs as well as information provided by peers, family members, and healthcare providers are the key factors in patients' decision to quit opium (4). Our participants also frequently referred to the importance of healthcare providers' role in changing patients' high-risk behaviors. They believed that healthcare providers are the most competent authorities for providing drug-related educations. Moreover, they mentioned that during hospitalization, they are free from severe mental distress experienced when out of hospital. Consequently, they considered hospital as the best place for receiving educations about opium. Farahani et al also emphasized the healthcare providers' substantial role in providing education to addicted patients



and in changing their attitude towards opium (16).

Our participants believed that addiction carries a social stigma. However, participants in Jafari's study considered opium consumption as a normal habit of daily life and opium as a recreational drug suitable for entertaining guests. Since opium, compared to heroin and opium residue, causes less serious problems, they also did not consider opium consumption as an illegal activity or as guilt (4). Considering addiction as a social stigma can result in social isolation, decreased self-confidence, disillusionment, and reluctance to follow drug-prevention and rehabilitation programs. Consequently, patient may develop the serious long-term problem of addiction (22,23). On the other hand, we found that the social stigma of addiction played an important role in the healthcare providers' indifference towards addicted patients' needs and concerns. Consequently, promoting healthcare providers' awareness of addiction treatment strategies as well as changing their attitude towards addiction and addicted patients can help remove the stigma of addiction. Correcting public impression about addiction in turn can change healthcare providers' attitude towards addiction (24).

We found that social stigma of addiction as well as patients' lack of information about complications and management of addiction had resulted in perceiving opium consumption as a real threat. However, strong cultural belief about the miracles of opium, peer pressure, and healthcare providers' indifference towards patients' needs and concerns had brought patients into a major conflict between craving for quitting and compulsion to continue consumption. Shaw (2002) also reported the same finding. This conflict is associated with feelings of depression, despair, and loneliness and finally puts patients at greater risk for addiction (25).

### Conclusion

Different mental and physical conditions

as well as psychosocial factors contribute to beginning and continuing to use opium among patients with CAD. Widespread misconception about the positive effects of opium on heart problems is among the most important factors. Consequently, patient and public education can help correct such misconceptions and hence, prevent adverse physical, mental, psychological, and financial problems associated with opium consumption.

Another important factor contributing to opium consumption and reluctance to quit is the fear of developing withdrawal symptoms and life-threatening cardiac complications. This fear originates mainly from patients and their family members' lack of knowledge about the adverse effects of opium on cardiovascular system. Consequently, patient and public education as well as referring patients to specialized addiction rehabilitation centers can help patients quit opium altogether. On the other hand, as addicted patients and their family members readily accept healthcare providers' recommendations and instructions, healthcare professionals should place a high priority on patients' education in providing care to these patients.

### Limitations

We diagnosed our participants' addiction only through asking them the following simple question, 'Do you consume opium?' Consequently, we were unable to confirm the validity of their responses. Another limitation of the study was that we had no access to addicted female patients.

### Acknowledgements

Authors would like to acknowledge all those who cooperated to the research project; also, our thanks go to Iran University of medical sciences and nursing care research center for their coordination and financial support.

### Conflict of interest

No conflict of interest has been declared by the authors.

## References

1. World Drug Report, 2011. Available at: <https://www.unodc.org/unodc/en/data-and-analysis/WDR-2011.html>.
2. Ray R, Kattimani S, Sharma H. Opium Abuse and Its Management: Global Scenario. World Health Organization Department of Mental Health and Substance Abuse Management of Substance Abuse. National Drug Dependence Treatment Centre All India Institute of Medical Sciences New Delhi, India 2006:1-13.
3. Karam GA, Reisi M, Kaseb AA, Khaksari M, Mohammadi A, Mahmoodi M. Effects of opium addiction on some serum factors in addicts with non-insulin-dependent diabetes mellitus. *Addict Biol* 2004;9(1):53-58.
4. Jafari S, Rahimi-Movaghar A, Craib K, Baharlou S, Mathias R. Socio-cultural factors associated with the initiation of opium use in Darab, Iran. *Int J of Ment Health and Addiction* 2009;7(2):376-388.
5. Marmor M, Penn A, Widmer K, Levin RI, Maslansky R. Coronary artery disease and opioid use. *Am J Cardiol* 2004;93(10):1295-1297.
6. Azimzade-Sarwar B, Yousefzade G, Narooey Sh. A case-control study of effect of opium addiction on myocardial infarction. *American Journal of Applied Sciences* 2005; 2(7): 1134-1135.
7. Bolte C, Newman G, Schultz Jel J. Kappa and delta opioid receptor signaling is augmented in the failing heart. *J Mol Cell Cardiol* 2009; 47(4): 493-503.
8. Shirani S, Shakiba M, Soleymanzadeh M, Esfandbod M. Can opium abuse be a risk factor for carotid stenosis in patients who are candidates for coronary artery bypass grafting. *Cardiol J* 2010; 17: 254-258.
9. Bjornaas MA, Bekken AS, Ojlert A, Halvorsen T, Jacobsen D, Rostrup M, et al. A 20-year prospective study of mortality and causes of death among hospitalized opioid addicts in Oslo. *BMC psychiatry* 2008; 8(1): 8.
10. Masoomi M, Ramezani MA, Karimzadeh H. The relationship of opium addiction with coronary artery disease. *Int J Prev Med* 2010; 1(3): 182-186.
11. Feldstein SW, Miller WR. Substance use and risk-taking among adolescents. *Journal of Mental Health* 2006;15(6):633-643.
12. Aliverdinia A, Pridemore WA. A First Glimpse at Narcotics Offenders in an Islamic Republic A Test of an Integrated Model of Drug Involvement Among a Sample of Men Incarcerated for Drug Offenses in Iran. *International Criminal Justice Review* 2007; 17(1): 27-44.
13. Strauss A, Corbin J. Basics of qualitative research: Procedures and techniques for developing grounded theory. Thousand Oaks, CA: Sage. 1998.
14. Polit DF. Essentials of nursing research: Appraising evidence for nursing practice. Lippincott Williams & Wilkins. 2013.
15. Jafari, S, Movaghar A, Baharlou S, Spittal P, Craib K. Trends of Substance Use in Southern Iran: a qualitative study. *The Internet Journal of Epidemiology*. 2008; 6(1). Available at: <https://ispub.com/IJE/6/1/7802>.
16. Farahani MA, Mohammadi E, Ahmadi F, Maleki M, Hajizadeh E. Cultural barriers in the education of cardiovascular disease patients in Iran. *Int Nurs Rev* 2008; 55(3): 360-6.
17. Sadr Bafghi SM, Rafiei M, Bahadorzadeh L, Namayandeh SM, Soltani MH, Motafaker M, et al. Is Opium Addiction a Risk Factor for Acute Myocardial Infarction? *Acta Medica Iranica* 2005; 43(3): 218-222.
18. Sediq Sarvestani R, Qaderi S. Norms that facilitate taking drugs (opium and drugs like it) in ethnic subcultures. *Military Science* 2009;2:81-109.
19. Abdoli S, Abazari P and Mardanian L. Exploring diabetes type 1-related stigma. *Iran J Nurs Midwifery Res*. 2013; 18(1): 65-70.
20. Abdollahi M, Forouzan S, Zahreh S. Demographic characteristics of opioid addiction in patients undergoing Coronary Artery Bypass Graft. *Tehran University Medical Journal* 2007;64(10): 54-59.
21. Kyngäs H. Patient education: perspective of adolescents with a chronic disease. *J Clin Nurs* 2003;12(5):744-751.
22. Livingston JD, Milne T, Fang ML, Amari E. The effectiveness of interventions for reducing stigma related to substance use disorders: a systematic review. *Addiction* 2012;107(1):39-50.
23. Room R. Stigma, social inequality and alcohol and drug use. *Drug Alcohol Rev* 2005;24(2): 143-155.
24. McKeown A, Matheson C, Bond C. A qualitative study of GPs' attitudes to drug misusers and drug misuse services in primary care. *Fam Pract* 2003;20(2):120-125.
25. Victor N. Shaw. Substance use and abuse: Sociological perspectives. Praeger Publishers. 2002.