



Prevalence of Substance Abuse in Orthopedic Patients; A Cross-Sectional Study in a Referral Center

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Abstract

Introduction: To evaluate the prevalence of substance abuse in orthopedic patients referred to a specialized orthopedic surgery center in Iran. Substance abuse is a significant public health issue in many societies, leading to various physical, mental, and social problems. To address this concern, it is crucial to raise awareness and knowledge about the prevalence of substance and alcohol abuse, as well as to study the factors that contribute to its development. This issue is critical in Iran, which is one of the centers for opioid consumption globally. Previous studies have estimated that between 700,000 and 4,000,000 individuals are struggling with addiction in Iran, with a reported prevalence of substance abuse at approximately 2.7%.

Methods: After creating a checklist for data collection, we gathered information on patients' demographics, marital status, type of substance used, occupational status, type of surgical procedure, and length of hospitalization. Data related to substance use was collected privately in the operating room before anesthesia was administered, while the other information was collected in the orthopedic ward.

Results: Among the 292 patients surveyed, 74.3% were male, and 25.7% were female, with an average age of 41 (\pm 17.9 years). The assessment revealed that 42.1% of the patients were smokers, while 30.1% reported using hookah. Additionally, alcohol use was reported by 27.7% of the patients, and 24% were identified as substance abusers. The data indicated that males, individuals with higher education, and those who were employed were significantly more susceptible to substance abuse. Traumatic patients, especially those involved in motorcycle-related accidents or with fractures, exhibited a higher history of substance abuse compared to other groups. Furthermore, the duration of hospitalization was notably longer for substance abusers.

Conclusion: The rate of substance and alcohol abuse has increased in Iran recently. Opium remains the most commonly used drug, followed by cannabis. It is essential to implement preventive measures to reduce substance abuse in the country.

Keywords: Addiction; Substance abuse; Accident; Orthopedic surgery.

Introduction

Substance abuse is a critical public health issue in many societies and is linked to numerous physical, mental, and social problems. To address this issue, it is essential to raise awareness about the prevalence of substance and alcohol abuse, as well as to examine the factors that contribute to its development. This is particularly important in Iran, which is one of the leading countries in opioid consumption worldwide.

Previous studies on substance abuse in Iran estimate that between 700,000 and 4,000,000 individuals are struggling with addiction, with a reported prevalence rate of approximately 2.7% ¹⁻³.

Currently, there are a few studies that examine the prevalence of substance abuse among orthopedic patients ^{4, 5}. However, the existing data could be more extensive, particularly about sources from Iran or Asia.

Additionally, conducting a new study to evaluate the prevalence of substance abuse and its correlation with demographics, education, and occupation is essential for understanding the extent of this issue in Iran. Therefore, this study aims to assess the prevalence of substance abuse among orthopedic patients referred to a specialized orthopedic surgery center in Iran.

Methods

Study design

We conducted a prospective study on patients referred to the orthopedic surgery ward of Taleghani Hospital, one of the referral centers of orthopedic surgery in Iran, in 2021. Exclusion criteria were assumed as Age < 16, mental disorders and speech problems, severely ill patients, and those who did not cooperate. After designing a checklist for data collection, patients' demographics, marital status, type of substance, occupational status, type of surgical operation, and hospitalization period were collected. Substance-related data were collected privately in the operation room before the anesthesia, while other data were collected in the orthopedic ward.

Statistical analysis

Data was entered into version 25 of the SPSS software for data analysis. We reported Quantitative data as mean \pm standard deviation (SD) and qualitative data as number (percentage). Chi-square and Mann-Whitney-U tests were used for the statistical analysis.

Ethical consideration

This study has been registered in the ethical committee of Shahid Beheshti University of Medical Sciences with the registration number IR.SBMU.RETECH.REC.1399.322. We collected the data privately, and patients filled out informed consent forms before including the study.

Results

Demographics

Among 292 patients, 217 (74.3%) were male, and 75 (25.7%) were female. The mean age of the patients was 41 ± 17.9 years (Range: 16-97). Thirty-three patients (11.3%) had no education, 110 (37.7%) had secondary education, 93 (31.8%) had a high school diploma, and 56 (19.2%) patients had graduated education. In addition, 189 (64.7%) patients were married, and 103

(35.3%) were single. Furthermore, 201 (68.8%) were occupied, while 91 patients (31.2%) were unemployed.

Habitual history

In the assessment of chronic history, the smoking rate was 42.1% (n = 123), hookah was 30.1% (n = 88), and alcohol was 27.7% (n = 81). Moreover, seventy patients (24%) were substance abusers. Opium product usage was reported in more than 90%, and industrial addictive substances or mixtures were reported in less than 10%.

Demographics and substance abuse

The characteristics of substance abusers based on the demographics are presented in Table 1. As seen, gender (P = 0.0001), education (P = 0.017), occupation (P = 0.0001), and resident area (P = 0.034) were significantly associated with substance abuse. Males, educated, and occupied patients were significantly susceptible to substance abuse.

Orthopedic surgery and substance abuse

The surgical-related data are demonstrated in Table 2. As seen, traumatic patients (P = 0.023) (especially motor cycle-related accidents) and patients with fractures (P = 0.0001) had a more substantial history of substance abuse in comparison to other groups. In addition, the hospitalization period was significantly higher in substance abusers (P = 0.006).

Table 1: patient characteristics

Variables		Substance abuser (n = 70)	Non-abuser (n = 222)	P value
Age (year)		38.7 ± 15	41.7 ± 18.7	0.427 ^a
Gender	Male	65 (92.9%)	152 (68.5%)	0.0001 ^b
	Female	5 (7.1%)	70 (31.5%)	
Marital Status	Married	25 (35.7%)	78 (35.1%)	0.903 ^b
	Single	45 (64.3%)	144 (64.9%)	
Education	Illiterate and Secondary	43 (61.4%)	100 (45%)	0.017 ^b
	Diploma and academic	27 (38.6%)	122 (55%)	
Occupation	Occupied	61 (87.1%)	140 (63.1%)	0.0001 ^b
	Non-occupied and housewives	9 (12.9%)	82 (36.9%)	
Resident	Tehran	23 (32.9%)	105 (47.3%)	0.034 ^b
	Other provinces	47 (67.1%)	117 (52.7%)	

a: Man-Whitney-U test, b: Chi-square test

Table 2: The relationship between substance use with trauma and treatment factors

Variables		Substance abuser (n = 70)	Non-abuser (n = 222)	P value
Hospitalization (day)		9.73 ± 9.21	7.32 ± 9	0.006 ^a
Trauma	Positive	65 (92.9%)	181 (81.5%)	0.023 ^b
	Negative	5 (7.1%)	41 (18.5%)	
Trauma Type	Falling Down	16 (24.6%)	93 (51.4%)	0.0001 ^b
	Motorcycle accident	38 (58.5%)	27 (14.9%)	
	Pedestrian accident	8 (12.3%)	17 (9.4%)	
	Car accident	3 (4.6%)	-	
	Sport Injury	-	23 (12.7%)	
Surgical type	Fracture and dislocation	61 (87.1%)	131 (59%)	0.0001 ^b
	Other surgeries	9 (12.9%)	91 (41%)	

a: Man-Whitney-U test, b: Chi-square test

Discussion

In this study, we evaluated the prevalence of substance abuse among orthopedic patients in Iran. Most previous studies conducted in Iran are conflicting due to legal or governmental limitations affecting individuals' answers. However, an increase in the prevalence of substance abuse has been observed in Iran in recent years. In addition, due to the changing pattern of substance use in recent years, conducting a new study was required. In addition to examining the prevalence of substance abuse, the relationship between substance abuse and demographics and surgical data was assessed in our study. We observed that 24% of patients were substance abusers, especially opium, and this prevalence was higher in males, low-educated individuals, and employed people. Furthermore, the rate of substance

abuse was higher in traumatic patients, particularly in motorcycle accidents. In addition, the length of hospitalization in patients who reported drug abuse was significantly longer than in other patients.

Global statistics on alcohol, smoking, and substance use in 2017 reported the prevalence of alcohol consumption as 18.3%, smoking as 15.2%, and cannabis as 3.7%⁶. It has been reported that the tendency to use substances had been increased over the last 25 years⁷. However, these statistics are different due to cultural and economic differences between Iran and other countries. Numerous studies have been conducted in Iran to assess the prevalence of drug and alcohol abuse. In a survey by Alavi et al. in 2016, the overall prevalence of substance and alcohol use was 11.1%, and the most common substance was opium (and opium juice) (57.3%),

followed by alcohol (25.6%) and hookah (14.8%). In this study, the most common form of opium use was inhaled (55%) and then oral (49.5%)⁸. In another study conducted by Abdollahi et al. in 2006 on 1329 patients who were candidates for coronary artery bypass grafting, the prevalence of drug addiction according to DSM-IV criteria was reported to be 9.9%⁹. In two other studies by Ahmadi et al., the prevalence of addiction in hospitalized chronic kidney patients (CRF) and surgical ward patients was 31.3% and 30.2%, respectively^{10, 11}. Another study that was performed on 600 patients referred to the hospital resulted in 29% of smoking and 7.2% of opium¹². Two large-scale studies conducted in Fars and Tehran reported very different results. The prevalence of opium abuse in Fars province was 17.9%¹³, while it was 0.37% in Tehran¹⁴.

The higher prevalence of substance abuse in these studies can be attributed to assuming smoking, alcohol, and substance as distinct etiologies for addiction. However, we have separated substance abuse from tobacco. It should be noted that these studies have been performed on a specific group of society with a specific underlying disease and probably to investigate the causal relationship of a particular disease with substance abuse and cannot be generalized to the whole community. Our study was conducted on candidates for orthopedic surgery, and underlying disease factors and medical issues that could be the cause of substance abuse have been eliminated. In addition, researchers included patients in the operating room before induction of anesthesia and without the presence of other people, which is the utmost honesty in answering and accuracy in the results probably accompanied.

The results of our study have reported more prevalence of substance abuse than other studies conducted in Iran. This higher statistic can be due to two reasons: first, according to the sampling method, the rate of negative responses due to secrecy is minimized, and the accuracy of the information is higher. On the other hand, it can indicate that in recent years, the rate of drug and alcohol use has increased. The closest substance abuse prevalence to our results was reported in a study in 2016 on 1163 people in Isfahan. In the mentioned study, substance abuse and alcohol consumption rates were 25.1% and 13.8%, respectively. Although, Amphetamine (8.2%) was the most commonly used substance that was followed by opium¹⁵.

The results of our study show that, although the sale,

production, and consumption of alcoholic beverages in Iran are illegal, 27.7% of people mentioned its consumption. This point should be taken into account. On the other hand, this study should consider the prevalence of 42.1% of smoking and 30.1% of hookah use among patients. This prevalence is very dangerous due to the availability and cheapness of cigarettes and hookah, the lack of legal structures to control or set age limits for purchase or presentation, and irreparable damage.

This study is the second study in the context of orthopedic surgeries and substance abuse. In the first study conducted by Afshar et al., it has been shown that 2.5% of patients undergoing orthopedic surgeries are opioid users. Furthermore, the hospitalization rate among opioid users was significantly higher than other patients, which is in line with our study¹⁶.

This study had some limitations: first, we cannot generalize the results to the general population due to patients' demographic, geographical, and medical conditions. Moreover, the samples of this study were low, and further large-scale studies are needed to achieve more accurate and generalizable results.

Conclusion

The prevalence of substance and alcohol abuse has increased in Iran in recent years. Opium is the most used substance in Iran that was followed by cannabis. Preventive measures should be taken to reduce substance abuse in Iran.

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None.

Conflict of Interest Disclosures

The authors declare that they have no competing interests.

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Authors' Contributions

M.A.O conceived of the presented idea and participated in the treatment. M.M.S, and R.Z drafted the manuscript. Z.A and M.A collected the follow up data, and M.O carried out data analysis, M.K.E.M contributed

to critically revising the manuscript. All authors read and approved the final manuscript.

Ethical Statement

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