

Management of Substance Use Disorder in Military Services: A Comprehensive Approach

Abstract

Background: Historically, substance misuse has been a serious problem faced by worldwide military personnel. Some research showed that military personnel have higher rates of unhealthy substance use than their age peers in the general population. These problems have serious consequences and may lead to significant military difficulties in the field of readiness, discipline, and mental or physical health. In this review, we gathered various methods for prevention, diagnosis, and treatment of substance use disorders and suggested a comprehensive plan for Iran Armed Forces to improve existing services. **Materials and Methods:** This article is a narrative review study, which was carried out on 2016. A careful literature review was performed between January 1970 and April 2016 on several national and international databases. Articles were screened according to the following inclusion criteria: (1) review articles about prevention and treatment protocols, (2) executive guidance, (3) cohort articles about risk factors of addiction, and (4) randomized controlled trials about prevention or treatment of substance use disorders in army service members. After screening by title and abstract, 130 articles selected of 832 founded articles, and after quality assessment, finally, 63 articles included in the review. **Results:** There is a necessity to manage substance use disorder through prevention, screening, and then referral to proper services for diagnosis and treatment. Urinalysis programs for screening are cost-effective and should be considered as a main method. Effective treatment includes both behavioral and pharmacological methods. **Conclusions:** The ideal prevention program will include multiple and mutually reinforcing evidence-based universal, selective, and indicated attempts at both the individual and environmental levels. The implementation of screening and treatment strategies needs strict rules and national guideline for the comprehensive management of substance use disorders in army.

Keywords: Addiction, military, prevention, substance abuse, treatment

Introduction

Militaries try to have personnel with good competency in their duties, to have an effective, safe, and ready army. However, behavior choices according to lifestyle may affect service members competency.^[1] Historically, substance misuse had been a serious problem faced by worldwide military personnel.^[2,3] Some research showed that military personnel has higher rates of unhealthy substance use than their age peers in the general population.^[4,5] Substance misuse may be predisposing by the challenges of war, self-medication for somatic problems, such as pain, relieving mental health problems, and as a help in coping with traumatic or stressful events.^[6,7] Service members may engage in illicit drug use which means the use of illegal drugs such as opium, heroin, methamphetamine,

and marijuana and also the nonmedical use of prescription drugs.^[8-10]

Substances of abuse may cause bipolar, depressive, anxiety, psychotic, and some other psychiatric disorders, which need prompt diagnosis and treatment and negatively affects service members performance.^[11] Several studies have revealed a high rate of suicides, and some other deaths, which were associated with untreated substance use disorders. On the other hand, acute and chronic physical problems including infectious disease, cognitive performance deterioration, and organ failures are very common following substance abuse.^[11-14] These problems have serious consequences and may lead to significant military difficulties in the field of readiness, discipline, and mental or physical health. On the other hand, drug abuse may modify the relationship atmosphere in

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small groups such as in military, and it is troublesome to unit cohering, which is vital in maintaining the soldier in battle.^[15,16] Substance-related problems interfere with fitness to carry out job duties, particularly since identification of it may lead to separation from military.^[17]

Controlling substance misuse is even more problematic in Iran because this country is located in a geographic region that production and traffic of drugs had been a long time challenge.^[18] Some research estimated that there are about 1.8 million substance users in Iran country, and it is important since the service members are selected from these general population.^[19]

In this situation, long-term programs for a comprehensive approach to substance use-related disorders in military personnel are a high necessity. Several evidence-based interventions have been presented as effective treatments for substance use disorders, however, choosing the best for a given patient and effective delivery remains an issue.^[20] On the other hand, facing this disorder in the army needs specific considerations and even modified approaches according to military limitations and opportunities. Militaries throughout the world have different comprehensive plans for prevention, diagnosis, and treatment of substance use disorders which are established as a part of military health system.^[21-23]

In this review article, we gathered various methods for prevention, diagnosis, and treatment of substance use disorders and suggested a comprehensive plan for Iran Armed Forces to improve existing services.

Materials and Methods

This article is a narrative review study, which was carried out on 2016. A careful literature review was performed between January of 1970 and April of 2016. Several national and international databases including Iranmedex, Irandoc, Scientific Information Database, Iranian national center for addiction study, Scopus, Google Scholar, WHO/EMR/Index Medicus, Cochran, Directory of Open Access Journal, Elsevier, ProQuest, and Medline/PubMed were searched for following descriptors: addiction AND Military, Substance abuse AND Military, Drug abuse AND Military, Substance Protocol AND Military, Substance abuse AND protocol.

Inclusion criteria

After completion of the search, citations of the searched articles were downloaded and imported to EndNote Software to remove duplicates. Articles were screened in title and abstract by both of reviewers according to the eligibility criteria including (1) review articles about prevention and treatment protocols for substance use disorders in army service members; (2) executive guidance for approaching to substance use disorders in army service members; (3) cohort articles about risk factors of addiction

between army service members; and (4) randomized controlled trials about the evaluation of specific methods for prevention or treatment of substance use disorders in army service members. The main populations were army service members. After screening by title and abstract, 130 articles selected according to inclusion criteria of 832 founded articles [Figure 1].

Assessment of bias and quality

Two reviewers appraised the papers, for selection, performance, detection, attrition, and reporting bias by the National Institute for Health and Care Excellence methodology checklist for different types of studies.^[24] Assessment of article was rated by one and checked by another reviewer. The quality assessment was also performed using questions about the specificity of studies on army needs and limitations and about old data according to most recent guidelines and studies in the field; and finally, 63 articles included in the review [Figure 1].

We also investigated about current protocols and programs in Iran military services and interviewed with service members about present atmosphere in garrisons.

Results

Principles of approach to prevention of substance use disorders

The modern approach to substance use disorders starts with prevention that is a key strategy in controlling the onset and progression of misuse from experimental to regular use and dependence. Evidence-based prevention programs include universal, selective, and indicated strategies and should be adopted for individuals and their families. Universal efforts focus on population subgroups that currently are not at high risk for substance use disorders; selective efforts focus on subgroups at higher risk of developing substance use disorders and indicated prevention targets individual and groups who are in the early stages of problematic substance misuse.^[25,26]

Prevention strategies should intensify protective factors and reduce risk factors. Risk factors in community include individual, social, and environmental factors such as childhood maltreatment/abuse, genetic predisposition, poor decision-making skills, low self-efficacy, low self-confidence, intimate partner violence, peer pressure, permissive attitudes, low psychological resilience, negative peer influences, divorce, unemployment, and availability of low-cost accessible substances.^[27-29] Although developmental and early social risk factors are the same as the civilian community, there are also several risk factors associated with military service which are known to increase the risk of substance use disorders, there are cognitive, behavioral, societal, and exposure factors including service-related injuries, experiencing traumatic events in military unit, demands in active

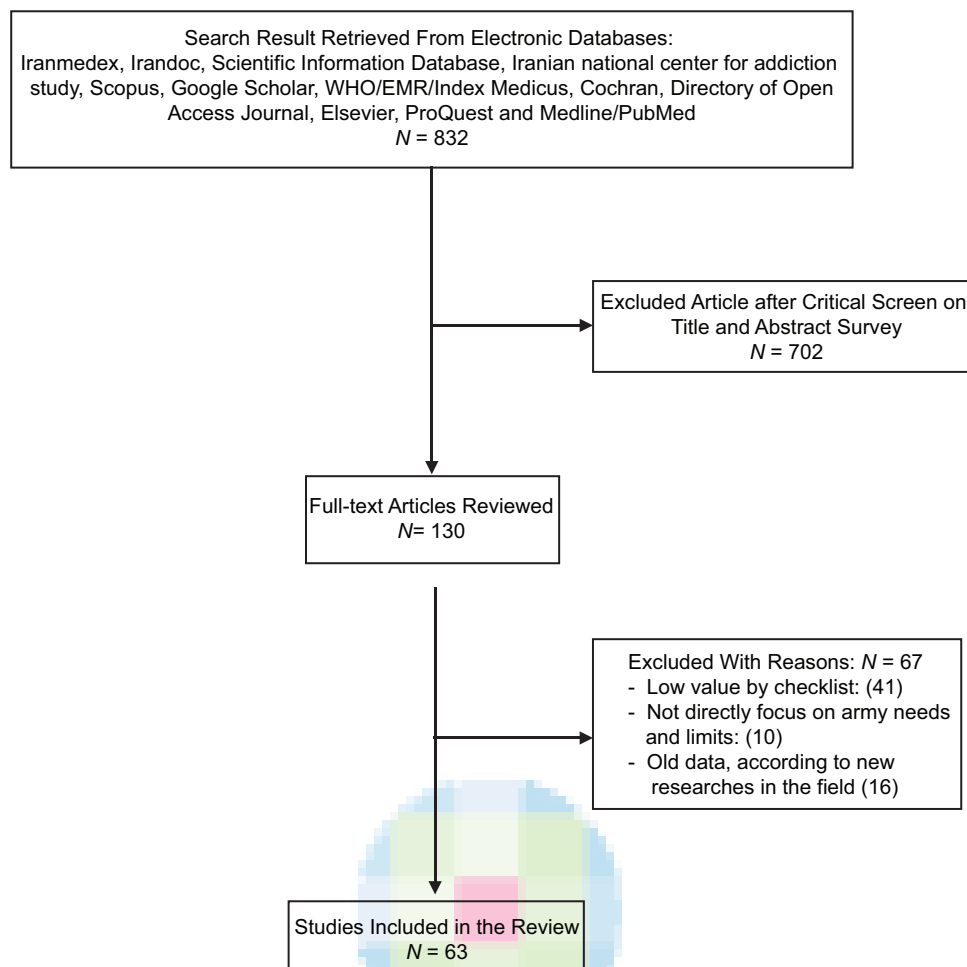


Figure 1: Flow chart of the study selection process

duty such as carrying heavy equipment, workplace culture, bad relationship with commanders, service place dissatisfaction, being separated from family members, experiencing boredom, and stress for working in isolated sites.^[30-33]

Protective factors are less well known and include strong family orientation and support, positive temperament, resiliency, involvement in organized school activities, and religiosity.^[34,35]

The prevention strategy targets both community-based programs and programs for military personnel.^[36] Community-based programs are activities which planned to influence individual attitudes, family attachment, peer group, and sociocultural environments. These programs can prevent the development of drug abuse. Community-based programs should (1) identify the more prevalent drugs in a community; (2) rely on current prevention programs; (3) develop short-term goals according to research-based prevention programs; (4) plan long-term goals so that resources will be prepared for the future; (5) include giving information and skills development, and (6) include ongoing assessments to check out the effectiveness of prevention programs.^[26]

On the other hand, militaries plan for population-based programs, which can be adapted to a specific service cultures. Military personnel should be educated about risks to military readiness and health which is associated with substance misuse. Clinicians and commanders should also receive continuous education on the identification and referral of service members with substance misuse. Educating of the service members to avoid of risky behaviors and compelling programs to discourage that is a very influential strategy. Service members and their families should participate in community awareness and education programs about drugs of abuse in schools and other community activities.^[37]

Approaches with demonstrated effectiveness for prevention include education of skills which are applicable to military members, such as avoiding high-risk situations, resisting peer pressure, engaging emotional management and impulse control and bonding with individuals who supply social support and are not substance users. Protective and risk factors should be considered to reduce modifiable risk factors and enforce possible protective factors.^[17,26] Programs should include long-term and repeated interventions with booster programs to enhance the original aims. Programs

also should consider all forms of drug abuse, including the use of illegal drugs (e.g., heroin or marijuana); the inappropriate use of legal substances (e.g., inhalants), prescription, and also over-the-counter medications.^[17,26,38]

Principles of approach to screening of substance use disorders

The individuals with substance abuse are different from the usual patients. The usual patient is inspired by his discomfort to seek help; however, the drug abuser does not accept illness or undesirability of his behavior because of the sustained presence of denial. It is only when the service member experience intoxication, withdrawal, or other adverse effects that he is brought to attention and finally is referred by his commander. Second, this is noticeable that the treatment of the physical side effects of substance abuse is a medical responsibility; however, the rehabilitation and treatment of the substance use disorder is an army responsibility.^[39]

As the preclinical symptoms or behaviors of substance use disorders is prevalent and of long duration, it can be diagnosed by screening before the incidence of recognizable interpersonal, work-related, behavioral, and health-related problems. Therefore, treatment may be initiated at an early stage when it is more effective.^[40] A comprehensive program must include evidence-based screening strategies to recognize existing and at-risk users.

Ideally, sensitivity and specificity of the test should be as high as possible with above 90 percent for each one. However, false-negative and false-positive tests are usually an important limitation and may lead to not desirable consequences such as missed opportunities for intervention with false-negative results and even unnecessary anxiety or stigma with false-positive results; so any effort must be made to reduce error as much as possible.^[41]

Cultural and social acceptance are very important for successful screening because substance-related problems may be seen as moral fault rather than a health problem and questions about illicit drugs can be perceived as invasive. Characteristics of procedures are very important for acceptance. Some of these characteristics are being socially, psychologically, or physiologically invasive and the getting not much time.^[42,43] On the other hand, screening can be expensive, difficult, and not always reliable, so militaries should identify situations and substances, in which screening is beneficial and will protect and promote health. Screening programs should be safe and with acceptable procedures, be brief and link to diagnosis, and treatment (i.e., effective subsequent interventions), be inexpensive, carry no legal or negative consequences, and be a sustained activity.^[44]

Screening by self-disclosure of substance use is not helpful because subjects usually deny using any substance. In this situation, although has some limitations, screening can be

performed easily through urinalysis. It is noticeable that, a positive result gives no information about frequency, chronicity and quantity of use, so the presence of dependency could not be diagnosed accurately. In addition, a negative result does not show that drug use is absent; it can be because the drug dosage has been small enough to be undetected, the drug had already been eliminated from the body, or the screening method has not been sensitive enough to recognize the drug.^[23,45]

Sometimes, physical conditions such as recurrent Monday "flu" syndromes, gastritis hepatitis, recurrent injuries, and any nonspecific medical symptoms may be helpful in screening. In this situations, substance abuse should always be considered.

Principles of approach to diagnosis and treatment of substance use disorders

Diagnostic standards with good reliability and validity are necessary for correct diagnoses, and using of effective treatments. Diagnosis of substance use disorders is guided by the fifth version of Diagnostic and Statistical Manual of Mental Disorders (DSM-V), of the American Psychiatric Association (APA) (2013).^[46] By DSM, diagnosis of substance use disorder is based on substance use in a problematic pattern and a pathological pattern of behaviors which leads to a clinically significant distress or impairment. However, abuse is defined as a level of substance use that leads to adverse physical or psychological consequences. At this level, substance use is not necessarily related with any specific frequency, however, the use is in quantities enough to result in some toxicity, and generally, have some features of psychopathological behavior.^[47]

Substance use disorder is a chronic illness, therefore, continuous and feasible system of delivery of care and also long-term monitoring for maintenance of recovery should be prepared for an efficacious treatment outcome.^[48,49] Militaries must use evidence-based therapies for substance use related disorders. It could be a challenge for treatment providers and also policy makers because although researches demonstrates the effectiveness of evidence-based treatments, many practitioners do not use these treatments routinely or select eclectic approaches.^[50,51]

On the other hand, specific environmental factors and limitations in military services influence on selecting of treatment methods and so, research-based practice guidelines may not be applied to service members completely. In this situation, militaries should select the effective elements of evidence-based therapies while matching therapies for service members.^[52] Several factors which influence treatment outcome include general therapist experience and skills, measurement of treatment effects and therapeutic alliance during treatment, standardize training for clinicians, and reducing competency drift in provider skills by supervising and educational booster sessions.^[53]

Although there is not a complete cure, different psychological and pharmacological therapies have been used for the treatment of substance use disorders. Abstinence is the first goal, and then, recovery is a lifelong task. The more strength recovery program, the less risk of slips, and relapses. Effective treatment needs a comprehensive approach. All areas of the service member functioning including psychological disturbances, behavioral difficulties, social-interpersonal impairments, and cognitive or physical dysfunctions should be addressed.^[54] In addition, the adverse effects on job duties need specific attention and approach. Finally, the outcome is dependent on the individual's motivation to remain in the military service by giving up the substances abuse; they must obey with the treatment plan and demonstrate a real change in attitude, abstinence from drug abuse, and a good duty performance.^[55] The structured environment of the military services can potentiate compliance with treatment and combination of medication and psychosocial therapy may enhance treatment outcomes.^[56]

Discussion

Management of substance use disorders in an army needs specific and national programs according to local low, culture, risk factors, and also the most prevalent abused substances. These programs should be adopted with general principles in this field. We considered major policies in a comprehensive plan for substance use, and the following recommendations may be useful for establishing a national comprehensive plane in Iran Armed Forces.

Prevention

The best programs for army are population-based prevention programs, which are compatible with local service cultures. Evidence-based prevention programs include (1) screening and identifying drug abuse and substance use disorders by urine and blood drug tests and psychiatric interview before taking individuals into service; (2) hiring service members with substance use disorders who show no compliance for treatment programs or frequent relapses after successful treatment.^[57] These two policies cause the military personnel to understand the consequences of not adhering to armed forces laws. Aggressive random drug testing and vehicle inspections also are the main action to dissuade service members from abusing substances. (3) Controlling prescription of drugs with the potential for abuse including pain relievers, stimulants, and central nervous system depressants.^[58] There should be educational programs and guidelines, especially on effective pain management for army physicians who prescribe these medications. Recommendations include assessing the risk of prescribing by identify any current or prior drug abuse, monitoring, urine screening for high-risk patients, counseling with pain management specialty services for difficult patients, and reducing the prescriptions amount for controlled drugs to 30 days, especially short-acting opioids, which

have not been found to be effective for treating chronic pain conditions;^[59,60] (4) education for general military members and their families to increase knowledge, skills, and experience, which focuses on healthy alternatives to drug abuse, responsible behavior, negative consequences of substance abuse, incompatibility of drug abuse with mental and physical fitness, battle readiness, and national and army values, and coping skills including skills for dealing with peer acceptance; education for health-care professionals who provide direct care for service members in substance use identification and treatment; and education for officers who are being trained for leadership roles, in identification and referral of drug abusers, delivering prevention, counseling, and education skills and supporting substitute entertainment activities, including coaching sports, training in the community and volunteering for fire and rescue services.^[61-64]

Screening and diagnosis

The primary policy for identification of substance use is random urinalysis screening which has relatively low cost and is carried out by urine drug test kits. The breath test may also be used for alcohol abuse. However, commanders may command a urine or breath test when they are suspected to drug or alcohol use in a service member. These kits can identify the most common substances and drugs including morphine, methadone, buprenorphine, tramadol, alcohol, methylenedioxymethamphetamine (Ecstasy), methamphetamine, amphetamine, cocaine, tetrahydrocannabinol (Cannabis), barbiturates, benzodiazepines, and tricyclic antidepressants. The drugs may be detected up to 2-4 days after abuse.^[65,66] The sample should be given by direct of observation the same gender person as the service member giving the sample. The test could be carried out monthly of up to 40% of all personnel and also with no early announcement. In addition, it is required to conduct at least one annual unit screening of all personnel. It is better to test smaller numbers but more frequently. The commanders are encouraged to ask all service members if they use tobacco products, assess the willingness to make an attempt to quit, and counsel them to quit.^[17,42,67]

The army should reduce stigma and motivate help seeking for mental health disorders. It also should consider selective case finding for hepatitis C and HIV positive. The commanders should encourage self-identification of substance use disorders and refer soldiers for more assessment to the army health-care system if there is suspicion that a problematic behavior is caused by substance abuse.^[39,68] Service members should be informed that a self-disclosure is not used against them as command involvement in screening can inhibit self-disclosure of substance use problems. In addition, command referral could be based on a change in duty performance or personal supervision of behavior. Health-care providers in

the army also may identify drug abuse and should notify commanders when a service member is identified or suspected to drug abuse.^[64,69]

In the military system of health care, medical officers which include clinical psychologists and physicians are qualified for diagnosis and treatment of substance use disorders. Standardized screening instruments could be used, but final diagnosis of substance-related disorders and psychiatric comorbidities is done through a structural interview which should be guided by the APAs DSM-V.^[46] In the assessment process, health-care providers should not be forced to notify a service member's commander when he/she obtains drug abuse education or mental health-care services, but not diagnosed with substance abuse. In this situation, brief and early interventions should be delivered before the development of disabling substance use disorders.^[23]

Treatment

With the diagnosis of substance use disorder, only one period of rehabilitation should be permitted and in exceptional cases, the second period of rehabilitation may be recommended. Any drug-related incidents after two rehabilitation periods require separation. These soldiers, generally, do not have potential for continued military service and should be hired.^[69] If severity of medical condition and co-occurring psychiatric problems require more intensive care, admission in a specialty unit is more appropriate, but usually an outpatient treatment plan is more successful. The principles of treatment such as treating a chronic and relapsing disorder potentiate the need for training, certification, and accreditation requirements for providers of health care and clinicians. They should be under the direct supervision of military health-care system to evaluate their performance.^[17] Comprehensive treatment needs biopsychosocial assessment, early intervention, and a treatment plan. Biopsychosocial assessment including a history of the substance use disorder, precipitating factors, and current symptoms and risks; additional interviews with subjects who can give more information into the soldier's drug use; tests for infectious diseases and side effects of substance use; mental status examination; identification of vulnerabilities and supports on current problems; and finally treatment goals and expectations. Successful treatment intend sobriety, stabilization, preventing relapse and return of substance use problems, and finally functionality. Functionality means return of service member to full duty status.^[17,67,69-71]

Service members who identified with high-risk drug abuse but do not meet the criterion for any substance use-related disorder diagnosis are indicated for secondary prevention and educational programs including drug counseling and educational sessions. Drug counseling is based on motivational interviewing techniques and include 45 min' sessions which are offered 1-4 times per week, depending on the individual's risk level. Educational sessions cover

assertive communication, anger management, sleep enhancement, changing self-talk, and other areas.^[69,72,73]

Service members with substance-use related disorder should be placed in the least restrictive treatment environment with variable durations of treatment depending on their therapeutic needs and psychiatric comorbidities. Final decision about treatment method is based on service member preference and the local expertise and resources for providing services. It is very important to facilitate engagement and retention in treatment. Clinical interactions should be empathic, nonjudgmental, and patient-centered.^[71,74]

Treatment steps include as follows:

1. Detoxification and medically supervised withdrawal managing
2. Intensive treatment to establish early remission because early achievement of abstinence is associated with long-term outcomes.^[75] Individuals are recommended to receive evidenced-based psychological and pharmacological interventions, which may be in short-term outpatient, partial hospitalization, or an inpatient residential treatment. Short-term outpatient program requires 1-12 months of participation.^[69]

Psychological interventions include, drug counseling, education, cognitive-behavioral coping skills training, community reinforcement and family training, motivational enhancement therapy, twelve-step facilitation, and contingency management/motivational incentives therapy. At least, two empirically supported psychological interventions should be used.^[17,23,63,67,76-79]

Biological treatment is influent on craving reduction, abstinence, withdrawal prevention, improvements in treatment retention, and psychosocial functioning. Medications with Food and Drug Administration approve include acamprosate, disulfiram, naltrexone, and extended-release naltrexone for relapse prevention of alcohol dependency;^[80] buprenorphine, methadone, naltrexone, and extended-release naltrexone for maintenance treatment, and relapse prevention of opioids dependency;^[81] bupropion, nicotine, and varenicline for relapse prevention of nicotine dependency.^[82] The main recommendations are short-time opioid agonist treatment such as buprenorphine or methadone for opioid addiction; naltrexone for alcohol and opioid addiction; bupropion SR and nicotine replacement treatments for nicotine dependency. Opioid agonist treatment should not be used as a maintenance treatment for opioid dependency. This limitation is because of behavioral, mental, and environmental problems with longstanding use of opioid agonists in army.^[63,83]

3. Programming a rehabilitation plan, which include an appropriate number of psychotherapy sessions per week. The therapist should plan to achieve the remaining goals and develop an aftercare plan.

Biopsychosocial problems may affect improvement in substance use disorders outcomes and may inhibit access or engagement with treatment which increase the risk of relapse. These problems include pending disciplinary problems, relationship difficulties with family and friends, and not engagement in a supportive environment. Some problems may persist even after early recovery and interventions that address specific problems should be considered. Supportive recovery environment may be addressed with patient participation in community self-help groups.^[67,84]

4. Co-occurring psychiatric and medical disorders are common with substance use disorders. Comorbid mental health disorders such as depressive disorders, bipolar related disorders, and posttraumatic stress disorder should be treated properly. Symptomatic relief and treatment of other mental health disorders are also very important.^[85]
5. Investigating response to treatment. Periodic clinical measurement should be done using validated tools for assessment of treatment progress such as laboratory measures and self-report. Assessments are needed daily in inpatient settings, weekly in the initial weeks of a new treatment episode, and monthly in outpatient settings. Results of assessments should be used to inform changes to care.^[67]

For service members who do not respond favorably to outpatient treatment, hospitalization or inpatient residential services are used which include treatment programs of varying lengths; and after that a 1-year period of mandatory nonresidential follow-up should be prepared.^[63]

Conclusions

In the army, all of the strategies are based on this fact that drug use is harmful to service members and reduce their ability for military jobs. It is very important to prevent drug abuse and maintain readiness for duty among soldiers. There is a necessity to manage substance use disorder through prevention, screening, and then referral to proper services for diagnosis and treatment. Access to screening, confidential education, counseling, and interventions without stigma may reduce the high rates of drug misuse. Access includes availability of services and the use of appropriate methods at the appropriate times. Main barriers to access care for drug abuse are structural, environmental, social, and cultural factors. Culture changes would require strong prevention strategies. The comprehensive prevention program will include multiple evidence-based universal, selective, and indicated efforts at the individual and environmental levels. Urinalysis for screening is cost-effective program and may be regarded as a main method. Effective treatment includes both behavioral and pharmacological methods, however, usually utilization of evidence-based pharmacological therapies are limited. The implementation of these strategies needs strict rules

and national guideline for comprehensive management of substance use disorders in army. Lack of standardization is a subject of concern for diagnosis and treatment; and current policies do not specify screening instruments or the professions authorized to diagnose and treatment. Psychiatric interview also is not identified as a diagnostic assessment and we need an integrated service for mental health and substance use disorders.

Managing substance use disorders and accompanying physical and mental health problems can reinforce the military health system and increase the quality of the careers and lives of service members, which leads to more readiness of active duty members.

There are also some limitations for treatment of substance use disorder in army, including no tolerance on the misuse of drugs; confidentiality of service members because army requires that a commanding officer be notified when a service member voluntarily receives treatment and difficulty to obtaining time off from duties to attend treatment. This study has focused on evidence-based comprehensive management of substance use disorders in militaries and suggests specific recommendations for Iranian army.

Limitations

The most important limitation of this study was limited access to army documents even in health protocols in most of the great countries like United Kingdom, Russia, Germany, and China.

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Conflicts of interest

There are no conflicts of interest.

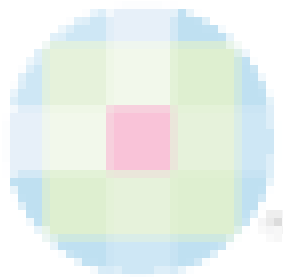
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