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Rates of drug abuse among anesthesiologists versus surgeons

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Abstract

Addiction is a global problem impacting individuals, families, communities, and societies. It involves relapse, no definite cure, and continuous therapy. Anesthesiologists and surgeons are at higher risk of drug abuse due to various factors. More than 40% of anesthesiologists who participate in Physician Health Programs are there due to intravenous drug use. This prevalence of substance abuse is alarming, with 7 to 18% facing death or overdose due to factors including direct access to potent drugs, mental health issues, lack of control over drugs, peer influence, and risk of relapse post-treatment. The mortality rate for substance abuse in anesthesiologists is 26-38%. Substance abuse affects clinical judgments leading to errors, communication issues, adverse events, and impairment increases the risk of medical errors, which jeopardizes patient safety. Impaired practitioners may struggle to resume practice due to safety concerns related to their substance use history. Studies have reported varying prevalence rates of substance use disorders and burnout among physicians. Research has found a 13 to 14% lifetime prevalence and 1% 1-year prevalence of substance use disorders and burnouts among anesthesiologists and surgeons. Addressing these issues involves implementing comprehensive drug testing programs, monitoring programs, early intervention, and prevention strategies, promoting a supportive workplace culture for physicians, and confidential counseling and support services to report mental health concerns without fear. Stress management and well-being training programs can prevent substance abuse, encourage self-care, and maintain a healthy work-life balance.

Keywords: *Addiction, physicians, anesthesiologists, patient safety, substance abuse, surgeons*

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Evidence in Context

- Anesthesiologists have a 14% lifetime substance abuse rate, slightly above surgeons at 13%, linked to opioid access and drug exposure.
- Surgeons face stress from long hours and perfectionism, influencing abuse rates.
- Such abuses impair judgment and increase medical errors, impacting patient safety.
- Prevention strategies include drug testing, monitoring programs, and promoting supportive workplace cultures.

To view Article

Introduction

Addiction is an issue on a global scale, a complex phenomenon that affects individuals, families, communities, and societies at large. The consequences of addiction on physical, psychological, social, and economic impacts that can be far-reaching and long-lasting. Commencing with a brief review of the basic concepts of addiction in physicians, this article highlights the current thoughts regarding the factors contributing to drug abuse among physicians, the pathophysiologic basis of addiction, the significance of the issues that hinder the patient's safety and quality of care, the prevalence of the drug abuse, comparative analysis for drug abuse among

Anesthesiologists and surgeons, consequences and implications, prevention and intervention strategies.

Addiction is stated as a primary chronic illness that involves the brain as the defective organ causing disruptions in neurotransmitter balance [1]. Analogous to other enduring diseases, addiction is characterized by a tendency to recur, lacks a definitive cure, and demands continuous therapeutic interventions [2]. The issue of addictive disease frequently discussed in mainstream media, has often been overlooked by the general public when it comes to physician addiction. It has been indicated that physicians experience addiction at a rate that is equal to that of the broader population [3]. It is evident that physicians tend to reach an advanced stage of addiction before it is recognized and addressed through intervention. This delay in diagnosing physician addiction can be attributed to their inclination to uphold their professional performance and reputation long after their personal life has been lost.

Among the physicians anesthesiologists and surgeons are overrepresented in the case of drug abuse due to certain factors that have been suggested as their proximity to substantial quantities of highly addictive medications [4]. However, the situation for other medical specialists like psychiatrists, who treat severe psychological illnesses, appears to be different. Unlike anesthesiologists and surgeons, psychiatrists typically don't have the same immediate access to large quantities of highly addictive drugs. While they face unique occupational stressors, such as emotional burnout from treating severe mental illnesses, this doesn't necessarily translate to higher rates of substance abuse. Some studies have suggested that psychiatrists might have lower rates of substance abuse compared to certain other specialties, possibly due to their training in mental health awareness and coping strategies [5]. However, it's important to note that physician substance abuse is a complex issue influenced by many factors beyond just access to medications, and data can vary across studies. The relatively straightforward nature of diverting even minimal amounts of these substances for personal consumption, the unmanageable chronic work stress in these specialties, long working hours, bullying, the easy availability of tools like needles and syringes, a higher level of expertise in venous cannulation, and the possession of the highest level of precision in managing the effects of intravenous opioids and other substances prone to abuse all contribute to the problem.

The exposure in the workplace helps to sensitize the reward pathways in the brain, thereby fostering substance misuse. Gold [6] and McAuliffe [7] have recently postulated that anesthesiologists could potentially develop sensitivity to occupationally acquired opioids by inhaling minute amounts of these potent substances present in the air of the operating room. It has been observed that analyses of the air in operating rooms, particularly when samples are collected close to the point of lung-gas exhalation in patients under anesthesia, have revealed the presence of these substances [6-8]. Nonetheless, this hypothesis is based on the assumption that becoming sensitized plays a direct role in the development of addiction and that the concentrations of opioids present in the air are substantial enough to induce such effects.

This issue of physician addiction hampers patient safety and quality of care, as well as contributing to job loss, personal setbacks, and physical as well as mental conditions like vertigo, irritability, anger, and depression. The issue of patient safety has consistently held great significance for anaesthesiologists, with the recognition that anaesthesiology stands at the forefront of addressing patient safety concerns within the medical field [9]. Patient safety necessitates comprehensive patient management throughout the perioperative phase, encompassing pre-anesthetic evaluations, intraoperative care, and postoperative follow-up. Surgeons perform invasive procedures that require a high degree of precision, dexterity, and decision-making skills [10]. Since the addiction alters the state of mind, anesthesiologists and surgeons find it difficult to manage the decision and may not make the right choice. Thus they face severe consequences and legal actions like cancellation of the medical license.

Methods

The methodology for this opinion article involved a comprehensive literature search using databases such as PubMed, MEDLINE, and Google Scholar. Key search terms included variations of "physician addiction," "substance abuse in healthcare," and specialty-specific terms. The review focused on English-language articles published between 2000 and 2024, prioritizing peer-reviewed

Original research, systematic reviews, and meta-analyses. Studies were included if they addressed substance abuse among physicians, particularly anesthesiologists, and surgeons, providing data on prevalence, risk factors, consequences, or prevention strategies with a specific emphasis on comparing substance abuse patterns between anesthesiologists and surgeons. This approach allowed for a thorough examination of the current state of knowledge regarding substance abuse among physicians, while also identifying limitations and areas for future research

Prevalence of drug abuse

Previous research has indicated that more than 40% of anesthesiologists who participated in the Physician Health Programs are there due to intravenous drug use, while only 10% seek help for issues related to alcohol abuse [11]. The statistics reveal a significant prevalence of substance abuse among this group of medical professionals. Moreover, a troubling 7 to 18% of physicians grappling with substance abuse will eventually face death or a nearly fatal overdose, highlighting the severity of the situation. The mortality rate associated with substance abuse among anesthesia providers is reported to be between 26% and 38%, underscoring the critical need for interventions and support mechanisms within this community [12].

Oreskovich [9] identified several key factors that contribute to drug abuse among anesthesiologists. Firstly, the direct access that these professionals have to potent opioids and sedatives in their daily clinical practice makes them particularly vulnerable to substance misuse. The familiarity and continuous exposure to highly addictive drugs like fentanyl, sufentanil, alfentanil, and remifentanil can normalize their use and pave the way for potential abuse. Additionally, the demanding and stressful nature of healthcare professions, characterized by long work hours, high-pressure environments, and frequent encounters with life-threatening situations, can significantly contribute to job-related stress, prompting some individuals to turn to substances as a coping mechanism. Furthermore, healthcare professionals, including anesthesiologists, may grapple with mental health issues such as depression, burnout, and anxiety, leading some to self-medicate with substances as a means of alleviating symptoms, thus fostering a cycle of substance abuse within the profession [11].

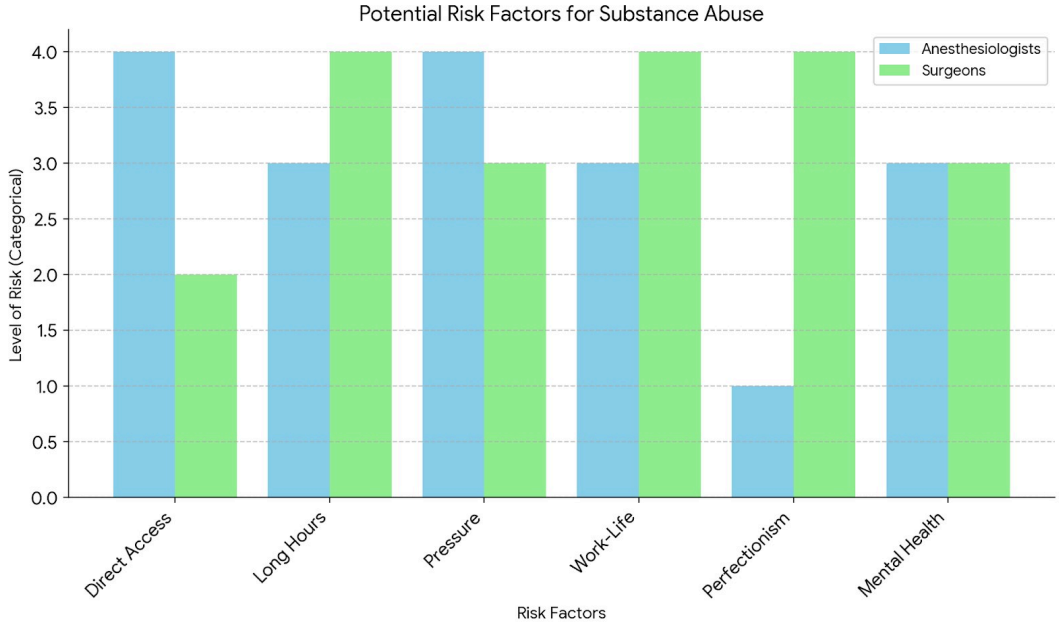

Figure 1: Risk factors for substance abuse: anesthesiologists vs. surgeons

Moreover, the lack of systematic control in certain healthcare institutions over drugs like propofol can further exacerbate the risk of abuse among anesthesiologists. Poor drug control systems within these settings may create loopholes that facilitate the misuse of medications, contributing to the overall problem of substance abuse. Additionally, the behavioral manifestations of addiction, such as intense cravings and loss of control, can also play a role in driving drug abuse among individuals in the field of anesthesiology. Furthermore, the influence of peers within the workplace can

Normalize substance abuse behaviors, potentially increasing the likelihood of drug misuse among anesthesiologists [13]. Moreover, there may be a selection bias at play, where medical students with a predisposition to substance abuse are more inclined to pursue residency programs in anesthesiology, leading to a higher prevalence of substance abuse within this specialty. Lastly, the risk of relapse looms large even after successful completion of a treatment program, especially when individuals are reintegrated into environments where drugs are easily accessible, posing a considerable challenge in maintaining sobriety and preventing further substance abuse issues [14].

Substance abuse significantly impacts clinical practice in several ways. It can impair anesthesiologists' clinical judgment, leading to inaccuracies in patient evaluation, treatment planning, and intervention execution. This impairment increases the risk of medical errors, such as mistakes in medication administration, dosage calculations, and procedural mishaps, jeopardizing patient safety. Moreover, substance abuse compromises patient monitoring by diminishing the anesthesiologist's vigilance and attention to critical changes in vital signs or anesthesia-related complications [13]. Communication breakdowns also occur, affecting interactions with patients, colleagues, and other healthcare professionals, which can result in misunderstandings and lapses in care. Additionally, substance abuse raises the likelihood of adverse events during procedures due to decreased performance levels, which may lead to complications and patient harm. Ethical and legal implications are also significant, as substance abuse challenges the ethical responsibilities of patient safety and professional conduct, potentially resulting in malpractice lawsuits and disciplinary actions [14]. The professional reputation of an anesthesiologist can suffer, causing a loss of trust from patients, peers, and healthcare organizations, thereby affecting career advancement. Personal health risks associated with substance abuse can further deteriorate an anesthesiologist's physical and mental health, impacting their ability to provide safe patient care. Lastly, substance abuse can negatively influence the work environment, harming teamwork, collaboration, and overall morale, which compromises the quality and safety of patient care [15].

A recent investigation into alcohol consumption patterns among practicing surgeons in the United States revealed alarmingly high levels of alcohol abuse and dependency. Notably, female surgeons were disproportionately affected, with 25.6% experiencing issues related to alcohol, compared to 13.9% of male surgeons. These rates are significantly higher than the 6.2% prevalence of alcohol use disorder in the general adult population [11]. This study highlights the need to better understand the challenges surgeons face, particularly regarding substance abuse.

Recent literature also emphasizes the significant burden of work-home conflicts experienced by female surgeons and physicians, which is linked to increased rates of depression, burnout, and alcohol abuse. Contributing factors include the high-stress levels inherent in their profession, characterized by long hours, critical decision-making, and the expectation of flawless surgical execution. This intense stress can lead some to maladaptive coping mechanisms like substance abuse. The demanding workload, complex cases, and patient expectations further contribute to burnout, prompting some surgeons to turn to drugs or alcohol as coping strategies. The culture of perfectionism and self-criticism in surgery fosters feelings of inadequacy, which can also drive substance abuse as a way to manage anxiety and self-doubt. Additionally, the ready access to prescription medications within surgical practice increases the risk of misuse among healthcare professionals [12]. Stigma and barriers to seeking help, such as fear of professional repercussions and judgment, often deter surgeons from addressing substance abuse. Furthermore, a lack of support and resources, along with individual factors like a personal or family history of substance abuse and underlying mental health conditions, also contribute to this issue. Addressing these challenges requires a comprehensive approach to support the mental health and well-being of surgeons [12].

Drug abuse in healthcare professionals can have a significant impact on patient safety and clinical practice. Impaired practitioners are more prone to making medical errors, displaying erratic behavior, having compromised clinical judgment, and delivering substandard care to patients. This can lead to adverse outcomes, medical errors, complications, and potential harm to patients. Drug abuse can have detrimental effects on cognitive function, impacting memory, attention, and decision-making abilities. This may cause challenges in processing information, making appropriate clinical judgments, and responding effectively to medical emergencies during surgical procedures [11]. Moreover, substance abuse can influence motor skills and coordination, which are vital for executing precise and delicate surgical maneuvers. Impaired motor skills can heighten the chances

Of surgical errors, complications, and unfavorable outcomes for patients. Additionally, drug abuse can lead to unpredictable and erratic behavior, affecting a surgeon's capacity to communicate efficiently with the surgical team, adhere to established protocols, and uphold a secure surgical atmosphere. This situation can jeopardize patient safety and the overall quality of care provided [12]. Healthcare providers grappling with drug abuse are at a heightened risk of committing medical errors, such as administering incorrect medication dosages, providing inaccurate diagnoses, and making surgical blunders. These errors can result in severe repercussions for patient safety, leading to complications, prolonged hospital stays, and potential harm to patients. Furthermore, Surgeons who have previously experienced substance use disorder (SUD) might encounter obstacles when attempting to resume their practice, as there are concerns regarding their safety and competency which could ultimately jeopardize patient safety. The stigma and intense scrutiny attached to a history of SUD within the medical field, particularly in the realm of surgery, could lead to hesitancy among surgeons to re-enter practice post-treatment, thereby potentially influencing their clinical effectiveness and consequently impacting the safety of patients [13].

Comparative analysis

The problem of substance use among healthcare workers, especially those working in specialties with increased job-related stress, such as anesthesiology and surgery, has become a matter of concern because of possible risks to both patients and healthcare professionals. Several works have examined the prevalence rates, risk factors, and specific challenges faced by professionals in these fields, which can help to clarify the nature of this critical issue.

A survey revealed that among anesthesiologists, 14% met the criteria for Substance Use Disorders (SUDs) based on lifetime prevalence. The study also found a 1-year prevalence rate of 1% for SUDs in this group [16]. While Oreskovich et al. reported a lower lifetime prevalence of physician burnout at 13% and a 12-month prevalence of 1% among surgeons [6]. However, as Oreskovich and Caldeiro noted, these results should be discussed with some caution because of self-report bias, which might be underreported because of the fear of consequences, stigma, and possible loss of professional reputation [17].

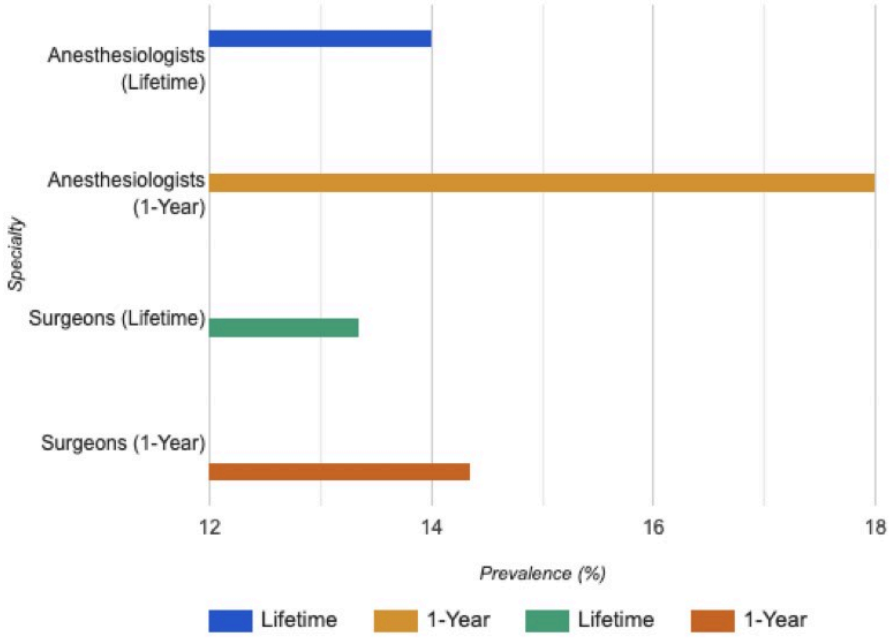

Figure 2: Prevalence of substance use among anesthesiologists and surgeons

Possible explanations for the differences in substance use between anesthesiologists and surgeons are as follows. Another factor that may explain the difference is that anesthesiologists have greater access to strong opioids and intravenous anesthetics, which can be abused [18]. On the other hand, the stressors that surgeons encounter are quite different, for instance, long hours of surgery,

Fatigue, and a medical culture that encourages the use of drugs, which may affect the rates of substance abuse among surgeons [10].

Understanding profession-related risk factors and susceptibility enhances the problem's comprehension. Anesthesiologists come in direct contact with opioids, either while prescribing or administering them to patients; this may make them vulnerable to opioid addiction. In contrast, surgeons can be considered more prone to alcohol abuse, because alcohol use is still a socially acceptable way of dealing with stress in many countries. Other reasons that may explain why surgeons use substances more than other professionals include perfectionism, perceived immunity to harm, and denial of the existence of any issues [3,10].

Reporting bias and underestimation of the rates are the issues that should be taken into account when comparing the two professions. According to Berge et al. and Oreskovich et al., substance use is often unreported because of punishment, stigma, and job implications. Self-report surveys are likely to underestimate the actual prevalence rates because participants may not be willing to report their experiences especially if they consider them socially undesirable [10,17]. In addition, the lack of willingness of other colleagues and healthcare organizations to report cases of suspected substance use may lead to an underestimation of rates especially in professions that have a code of silence in protecting peers [10].

While the prevalence of substance use might differ between the two specialties, anesthesiologists and surgeons are not immune to factors that put them at risk for substance abuse. Solving these problems involves a comprehensive approach that includes prevention, early intervention, and creating a culture of workplace well-being where healthcare professionals can freely report their mental health concerns without worrying about negative consequences at work, as noted by Berge et al. and Oreskovich and Caldeiro [10,17,19].

The main priorities should remain in raising awareness and knowledge about risks and possible ways of reducing stress levels that are relevant to each profession. Since substance abuse, if left untreated, often leads to severe outcomes for patients and healthcare providers, as mentioned by Oreskovich and Caldeiro, it is critical to identify and address such issues in their early stages [10,18].

In addition, the substance abuse treatment programs that are tailored for the healthcare workers should encompass not only the substance abuse, but also any other factors that may have led to the abuse, including the mental health disorders, burnout, and other stressors at the workplace, as noted by Berge et al. and Oreskovich and Caldeiro [10,17,18]. These programs should include cognitive behavioral therapies, psychotherapy, and follow-up care as a way of ensuring that the patients do not go back to their old habits.

Safe returning to practice and continued supervision are crucial for healthcare professionals in recovery, thus, monitoring and support systems are vital. Physician health programs, which offer a framework for assessment, intervention, follow-up, and support, have been found to be highly beneficial in assisting healthcare professionals who have substance dependence disorders [18].

Therefore, despite the fact that the given data imply that anesthesiologists might use substances more frequently than surgeons, these results should be viewed with a certain degree of caution because of the above-mentioned reporting bias and underestimation of the rates in both professions, as pointed out by [18]. It is possible that differences or similarities in the prevalence of substance use and dependence, or in the specific substances used, are related to differences in access to these substances, job demands, cultural factors, or profession-specific risk factors, as described by Berge et al. and Oreskovich et al. [10,17]. Combating substance use in these high-risk occupations remains a complex process that needs to involve prevention, early detection, appropriate treatment, and follow-up care of the healthcare workers to promote their welfare and protect the lives of patients they attend to, as revealed by the findings of the reviewed studies.

Consequences and implications

There are drastic and potentially devastating effects of substance use disorders for anesthesiologists as well as surgeons equally at personal and community levels. Another major aspect that might be viewed problematic is that patient health is more readily placed at risk. Substance dependent staffs suffer from altered reasoning abilities, cognitive abilities and

Coordination of movement, whereby errors in medication, performing surgeries on wrong sites, procedural errors, delayed diagnosis, and compromising patient's safety are evident [20]. There are certain identifiable effects that have been linked to substance-abusing surgeons; these include adverse effects on surgical outcomes, longer time to recovery, and higher likelihood of being readmitted to the hospital.

Another consideration is the consequences of substance use, being ethically and legally unlawful in those fields. This has implications for the Code of Ethics and the professional practice of nursing in as much as it raises issues of professional boundaries and clients' trust, and the responsibility of nursing professionals to practice efficiently and ethically. Civil penalties are professional negligence claims, a loss of license or suspension of the license, and if more extreme, criminal charges of diversion or impaired practice [21].

Employment relations can also be affected by substance abuse, and respectively, the same repercussions can affect co-workers. It can worsen the team morale and productivity, and may cause others who are forced to accommodate the impaired employee regret in their career choices as well as result in job burnout and dissatisfaction among other health care workers who are forced to work with the impaired employee [22].

In regard to the individual and family, substance abuse has been observed to pose devastating effects at one point in their lives. This fight can possibly lead to problems in financial management, relationship, and mental issues. The stereotype regarding substance abuse disorders often results in the individuals suffering from them facing significant difficulties in getting the necessary assistance and becoming even more affected by such personal and professional repercussions as the ones described [23].

Moreover, the use of substances at the workplace, especially in healthcare facilities, leads to large economic consequences directly affecting the bearings of societies and healthcare facilities. These costs could be attributable to lost productivity, higher utilization of healthcare services, liability costs, general medical mistakes, legal charges, and treatment, and other related matters involving substance abuse, misuse or addiction [23]

Prevention and intervention strategies

Implementing comprehensive drug testing programs, including random and for-cause testing, is a critical step in early detection and prevention of substance abuse among healthcare professionals. Regular drug testing can deter substance use and ensure that those affected receive timely intervention [18].

Monitoring programs, such as drug diversion monitoring and auditing of controlled substance handling, help in identifying unusual patterns that may indicate substance abuse. Regular audits can prevent drug diversion, a common issue in medical settings where controlled substances are readily accessible [24].

Providing confidential counselling, treatment referrals, and support services encourages healthcare professionals to seek help without fear of repercussions. Employee assistance programs (EAPs) offer a safe space for individuals to discuss their issues and receive the necessary support [10].

EAPs can offer a variety of services, including substance abuse assessment, counselling, and monitoring for individuals in recovery. These programs are designed to provide comprehensive support, facilitating both immediate intervention and long-term recovery [25].

Establishing peer support networks and mentorship programs provides a safe and supportive environment for healthcare professionals to discuss challenges and seek guidance. These networks can play a crucial role in early detection and intervention, offering emotional support and practical advice [17].

Peer support programs foster a culture of accountability, encouraging colleagues to look out for one another. Mentorship initiatives can guide less experienced professionals, helping them navigate the pressures of the medical field and promoting early intervention for substance abuse issues [26].

Implementing educational initiatives and awareness campaigns can help destigmatize substance abuse, promoting early recognition and intervention. These campaigns can educate healthcare professionals about the signs of substance abuse and the importance of seeking help [27].

Training programs focusing on stress management, coping strategies, and promoting a culture of well-being can prevent substance abuse. These programs equip healthcare professionals with the tools they need to manage stress effectively and maintain their mental health [28].

Fostering an environment where healthcare professionals feel safe to report concerns about colleagues without fear of retaliation or punitive measures is crucial. This openness encourages early reporting and intervention, which can prevent substance abuse from escalating [29].

Implementing non-punitive reporting policies and encouraging open discussions about substance abuse can facilitate early intervention and support. Such policies reassure healthcare professionals that seeking help will not result in punitive actions, thus promoting a culture of support and recovery [26].

Promoting and providing access to stress management techniques, such as mindfulness-based interventions, exercise programs, and counseling services, can significantly reduce burnout and improve well-being among healthcare professionals. Mindfulness-based interventions, in particular, have been shown to reduce stress and enhance mental health [30].

Implementing educational initiatives and awareness campaigns to destigmatize substance abuse and mental health issues among healthcare professionals encourages them to seek help. These initiatives highlight that seeking help is a sign of strength, not weakness [31].

Providing confidential and non-punitive channels for seeking help, such as employee assistance programs and peer support networks, ensures that healthcare professionals can access the support they need without fear of judgment or reprisal [32].

Encouraging healthcare professionals to prioritize self-care, maintain a healthy work-life balance, and develop positive coping mechanisms is vital for preventing substance abuse. Resources such as access to exercise facilities, nutrition counselling, and stress management programs can support these efforts [19].

Providing resources and support for developing healthy lifestyles, including exercise facilities and nutrition counselling, can help healthcare professionals manage stress more effectively and reduce the risk of substance abuse [16].

Offering opportunities for continuing education and professional development helps healthcare professionals stay current with best practices and maintain a sense of competence and fulfilment. These opportunities can also include training on stress management and resilience [14].

Professional development programs focused on topics such as stress management, resilience, and well-being can promote healthy coping strategies and prevent substance abuse. Continuous learning keeps healthcare professionals engaged and provides them with the tools to manage their mental health [33].

Limitations and future directions

Firstly, underreporting, privacy issues, stigma and Health Insurance Portability and Accountability Act (HIPPA) compliance lead individuals to hide their substance use, skewing data in our study. This problem is compounded by concerns about tarnishing professional reputation which physicians are particularly prone to especially since securing a career as a physician is a long and arduous endeavour.

Secondly, methodological issues such as the absence of standardized diagnostic criteria and assessment tools tailored specifically for medical professionals may have caused prevalence rates in our study to be underestimated or overestimated.

We must also note that many studies suffer from small sample sizes and selection biases, which affect the generalizability of our findings. Reliance on cross-sectional study designs further restricts our ability to establish causality or explore long-term outcomes.

Thirdly, we have found a lack of detailed data regarding the specific substances abused, patterns of use, and recovery rates within each profession. This impedes the future development of more targeted interventions. Moreover, there were few published studies detailing and comparing the

Effectiveness of various prevention and intervention strategies. Longitudinal studies to track the long-term outcomes of substance abuse among healthcare professionals are lacking. Evaluating monitoring and support programs is crucial to determine their effectiveness. Factors influencing relapse and successful long-term recovery to refine interventions and support mechanisms should also be given more attention

Continued research is necessary to determine the repercussions of substance abuse on patient outcomes, including medical errors and adverse events due to how substance abuse affects judgment, cognitive function, and psychomotor skills. Moreover, assessing the economic and societal burdens stemming from substance abuse within the healthcare system is crucial for developing effective policies and interventions.

Cultural and systemic factors are poorly investigated despite playing a central role in promoting substance abuse among physicians especially in places where the physician is not respected by society or the employing institutions. Investigating the impact of workplace stress, burnout, and mental health on substance use disorders is vital for proactive intervention. Additionally, exploring methods to cultivate a supportive, non-punitive environment is vital as it encourages professionals to seek assistance without fear of retribution, promoting early intervention and recovery.

There is a vast gamut of intervention and prevention strategies such as implementation of workplace policies, drug testing programs, and employee assistance initiatives, in addition to educational and awareness campaigns. Furthermore, developing and testing innovative interventions tailored to the unique needs of anesthesiologists are all cheap and easily implemented strategies that can limit drug abuse ultimately fostering a safer and healthier work environment for all medical practitioners

In the future, a comprehensive study involving random urine testing should be conducted across a diverse sample of programs, specifically targeting anesthesiology residents who are at a high risk for substance use disorders [34]. Another unresolved issue that warrants future research is the equal genetic contribution from both males and females, despite a higher incidence of substance abuse in males. Investigating the different pharmacodynamic responses to chemical substances between sexes might help explain this phenomenon [33,34].

Conclusion

Comparatively anesthesiologists are more addicted to the substance abuse than surgeons. Anesthesiologists have greater access to strong opioids and intravenous anesthetics, exposure to highly addictive drugs like fentanyl, sufentanil, alfentanil, and remifentanil could normalize their use and potentially pave the way for abuse. On the other hand, surgeons encounter different stressors such as long hours, fatigue, and a medical culture that may encourage drug use and critical decision-making. The perfectionist culture in surgery can lead to feelings of inadequacy, potentially affecting substance abuse rates among surgeons. Anesthesiologists' direct contact with opioids, either while prescribing or administering them to patients; which make them vulnerable to addiction, while surgeons may be more susceptible to alcohol abuse due to its socially acceptable nature in many countries. Poor drug control systems within these settings may create loopholes that facilitate the misuse of medications, contributing to the overall problem of substance abuse. To resolve those loopholes, we need to have comprehensive drug testing programs, monitoring programs, early intervention and prevention strategies, promoting a supportive workplace culture for healthcare professionals, confidential counseling, treatment referrals. Training programs on stress management and well-being can also help to prevent substance abuse.

Abbreviations

HIPPA: Health Insurance Portability and Accountability Act

SUD: Substance use disorder

Supporting information: None

Ethical Considerations: Not applicable

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