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Scientific and Historical Reasons to Legalize Heroin for Medical Purposes in the USA

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Abstract

Scientific and historical evidence is presented that 1) the current legal system of dealing with the opioid crisis is not effective showing no success and too many unnecessary deaths and 2) that it must be replaced by the scientific/medical system which has been shown to be much more successful. In this case, new rehabilitation approaches can be offered which have already been successfully implemented in Switzerland and some European countries. One of them is the Heroin Assisted Therapy or HAT. Here, the opioid abuser receives professional help in special clinics and injects pure heroin. This program has been shown to be quite effective in preventing drug abuse related diseases and deaths and in returning many individuals again to a normal social and professional life. If introduced into the USA, it could help opioid dependent individuals more effectively and prevent many opioid overdose deaths. This new strategy requires that the government must legalize heroin for medical purposes.

Keywords: Heroin, Heroin abuse, Heroin related deaths, Legalization heroin, Heroin assisted therapy

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Introduction

The abuse of opioid drugs and substances like morphine and heroine was and still is a major health problem in the USA. Thus, major efforts have been made over the last hundred years to prevent or reduce this abuse and to find rehabilitation strategies to help the addicted person to return to a normal and successful life. These strategies fall mostly into two approaches: a legal and a scientific/medical approach. The first one is most widely believed by lay people and is mostly implemented by governments while the second is mostly accepted and promoted by scientists and clinicians and is rarely being used. This paper discusses the two different approaches and their disadvantages and advantages in preventing opioid drug abuse and rehabilitating addicted individuals. But most importantly, based on these considerations and their historical applications it is argued to make heroin legal to be used for medical purposes to help the heroin addict and to prevent further heroin related deaths [1].

Legal and Scientific/Medical concepts of addiction and their therapies

Strategies to prevent drug abuse and rehabilitate drug addicts can perhaps be classified into the legal and scientific/medical approaches. Both are quite oppositional and, thus, their practical applications are vastly different.

The legal concept considers the drug as the causative agent or drugs cause addiction in people. An individual uses a drug and likes its effects and then uses it more and more often until he or she becomes addicted. The legal solution to this problem is obviously two-fold: first, remove the drug and, second, punish the user with fines and imprisonment until he or she has learned to abstain from the use of the drug. In simple terms, it is viewed like a "bad" behavior which with some punishment can be corrected.

The scientific/medical concept considers the individual as the primary cause of addiction. Based on certain genetic and environmental factors, only some individuals are predisposed to try drugs for their euphoric effects until they lose control over their use leading to an addictive disorder. Here, addiction is considered a chronic disease or more specifically a brain disorder which psychiatry already has named a Substance Use Disorder. Removal of the drug will have no effect since these individuals will find other sources. Prevention and rehabilitation of drug abuse must involve psychological or medical therapies.

What seems to be more correct? Ample evidence, however, is available which can be used to decide which of these concepts is more credible.

The legal system considers the drug as the causative agent of addiction. First, this concept cannot explain the fact why not all

but only some individuals will become addicted when using a particular drug. For instance, millions of legitimate pain patients have received an infusion of morphine after surgery but did not use morphine after their release from the hospital except a very few. Similarly, millions of pain patients have taken opioid medications with the vast majority stopping the drug appropriately and not getting addicted. Only a very few (less than 2%) became addicted with many of these often already having a history of drug abuse or other mental health problems. Second, removal of the offending drug has been shown not to be helpful. For instance, addicts are often multiple drug abusers and removal of one illegal drug just makes the addict switch to another. For instance, as the availability of legal opioid drugs decreased from 2010 to 2020, drug users just switched to illegal preparations where the presence of unknown doses and adulterants like fentanyl killed an increasing number of them. Third, legal evidence has shown that imprisonment does not improve or cure addictions and addicts after release quickly relapse. For instance, it has been estimated that only 5% of released prisoners stay drug free for some time while about 95% relapse quickly with overdose deaths particularly high after release. In addition, studies have identified prison as a high-risk environment where a fair number of later drug users started their drug abuse problem [1-6].

The scientific/ medical approach places the cause of drug abuse on certain individuals. First, it proposes that certain individuals have a genetic make-up which predisposes such individuals to abuse drugs, in this case opioids. For instance, opioid abuse is known to run in families while twin studies, performed with other drugs, have found a 50% concordance for substance abuse vs. 8% for fraternal twins. Human genetic studies have already shown that certain gene variants and chromosomal regions are associated with opioid drug addiction. For instance, one of these studies looked at the so called CREM gene which in humans exists in two versions – A and G. It was found that the presence of the A or G variant alone did not increase the risk of drug abuse in an individual but that the presence of both did so markedly. Several other genes have also been identified in humans whose variants were strongly associated with opioid use disorder. Second, certain environmental factors have been identified which can trigger drug abuse in these genetically predisposed individuals. For instance, individuals abused and neglected as children were 1.5 times more likely to report illicit drug use later compared to non-abused controls. Unemployed and bored as compared to employed and active individuals showed a significantly higher prevalence of alcoholism and drug abuse which increased with the length of unemployment. Third, medical intervention and/ or psychotherapy have been found to be relative successful. For instance, a combined psychotherapy and pharmacotherapy approach has been found to show an average success rate of about 30% to 40% which is considerably better than the 5% after imprisonment and in most circumstances considerably cheaper [7-15].

Thus, evidence makes it clear that the scientific/medical model is vastly superior to the legal one. And yet, over the last 100 years, prevention and rehabilitation of drug abuse has relied almost exclusively on the legal concept which has shown no success times over but has caused immeasurable physical and emotional

harm to drug users and abusers culminating in tens of thousands of preventable deaths.

Lessons about drug abuse prevention and treatment learned from history

From the beginning of the 1900 century, drug abuse was treated exclusively with the legal approach involving making certain substances illegal, trying to remove them from the market and punishing the user with fines and imprisonment. As shown in case of the alcohol prohibition, this approach did not work but became a colossal failure with long lasting negative consequences. Nevertheless, governments continued this approach to other substances of abuse with equally disastrous results but never learned from its failures.

Marijuana: As an example, marijuana is a very much delayed success story and might serve as an example for the still unsolved problem of opioid drug and heroin abuse. Cannabis was brought by Spanish explorers to North America in 1545. By 1611, it was introduced in Jamestown and it quickly became a staple commercial crop called hemp. It was used in many ways one was the manufacturing of strong and lasting ropes. It was also used for medicinal purposes and even was listed in the United States Pharmacopeia from 1850 until 1942 where it was recommended for the treatment of labor pains, nausea, and rheumatism. Because of its increasing use as a recreational drug, in the 1930's, the U.S. Federal Bureau of Narcotics (now the Bureau of Narcotics and Dangerous Drugs) began to reframe marijuana as an irresistible, addicting substance that would lead straight into narcotics and heroin addiction. In 1970, the Controlled Substances Act designated marijuana as a Schedule I drug, meaning that it has the highest potential for abuse and no accepted medical use. The criminalization of marijuana promoted by the federal government and executed somewhat differently by the various states now followed the same path which in the past had not only be shown to be ineffective but to be extremely costly to society in general and harmful to the individual in particular. In Texas, possessing more than 4 ounces of marijuana was a felony, punishable by 180 days to up to 99 years in prison and fines of \$10,000 to \$50,000, depending on the amounts confiscated. Between 2001 and 2010, police made more than 8.2 million marijuana arrests across the USA. At that rate, police spent \$4,390 per arrest between 2001 and 2010 or \$73,170 per felony conviction. Our vice president Kamala Harris alone sent in California nearly 2,000 people for marijuana-related offenses to jail. It has been estimated that all these efforts cost about 50 billion dollars. And during this time, the life's of many otherwise law-abiding citizens were destroyed by sending them to prison and then settling them with a criminal record which later interfered with a successful professional career. Despite all these legal efforts, the number of marijuana smokers did not decrease but slowly increased. It was also quite difficult to help and treat these individuals psychologically or medically because they were either in jail or were afraid to seek professional help for fear of legal repercussions [16-19].

Fortunately, due to the work of some activist groups and a better understanding of the problem by the public and some government officials, this legal approach started to change about 3 decades

ago. It began with the decriminalizing of the use of marijuana in 1973. In 1996 California allowed the medical use of cannabis. In 2012, Colorado and Washington allowed the recreational use of marijuana. Now most states have legalized its medical use and 17 states allow its recreational use while marijuana is still illegal in 14 States. The recreational marijuana legislation or RML which allowed the recreational use of marijuana for adults above age 21 was feared at the beginning that it would increase the number of users and abusers of marijuana and other substances as well, detrimentally affect the academic performances of pupils and students, increase crime, and cause a surge in traffic accidents and deaths. Two surveys by the author have found these fears to be unwarranted because RML had a minimal effect – if it had an effect at all - on all these concerns. In addition, states have saved billions of dollars on legal proceedings and have collected billions of dollars in tax revenues. Some of this money is now being used in the prevention of drug abuse in general and in the medical treatment of drug users and abusers. This is a story with a happy ending.

The question arises why did it take so long and why did our government officials refuse to learn from history? Why did we have to waste so much money on ineffective legal proceedings and why did we have to subject so many individuals to so many unnecessary personal, social, and financial hardships [20-24]?

Application of these considerations to improve the treatment of the Heroin abuser

Now the evidence of the scientific/medical model stating that drug abuse is a chronic illness and the lessons from the history of marijuana use where an ineffective legal approach was finally turned into a much more successful solution will be applied to heroin and its users and abusers. Heroin is still a major health and social problems in this country with about 1 000 000 individuals reporting to have used it last year with many having done so daily. Since heroin is still illegal albeit somewhat decriminalized, the user must buy it illegally with all its risks of getting unknown doses and the presence of dangerous adulterants like fentanyl and car fentanyl. The consequences of this are the large number of overdose deaths which have hovered around and above the 50 000 per year for the last decade.

Heroin was synthesized from morphine in 1874 by an English chemist and was later in 1898 manufactured and sold by the German company Bayer Pharmaceutical Company. In one year, this company produced a ton of heroin and sold it in 23 countries. While it turned out to be an excellent analgesic, heroin was also found to have an even higher abuse potential than morphine. The reason is that it crosses the blood brain barrier more efficiently because of the acetyl-groups. In the brain, it is deacetylated into 6-acetyl morphine and morphine. Both bind to opioid receptors in the limbic system to produce analgesia as well as an intense euphoria. This intense euphoria is the result of its rapid penetration into the brain aided by an intravenous injection. Soon heroin became the preferred substance by some drug users and the number of these increased slowly at first but rapidly thereafter to the high numbers of today. However, what should not be forgotten is that millions of legitimate pain

patients took the drug heroin medically as indicated and never became addicted during these times. Focusing on the minority of drug abusers, the government responded immediately by removing the drug for medical uses and making its recreational use a criminal offense in 1924. From now, using heroin became a legal matter meaning users could be prosecuted. Albeit penalties varied from state to state, even small amounts could, for instance, lead to no less than 5 yrs. and not more than 40 yrs. in jail. Fines could range up to \$ 2 million dollars. This approach-as expected – did not work and the number of heroin addicts did not decrease. Despite these penalties, they still bought their drugs on the illegal market. This not only made all illegal manufacturers billions of dollars while it cost the USA billions of dollars for legal proceedings. But worse, these illegal products placed the user at severe health risks with tens of thousands dying of overdoses [25, 26].

During these times, both psychological and medical rehabilitation strategies were developed with a certain degree of success. In case of the medical approach, methadone, buprenorphine, and naltrexone are now used to ease the withdrawal and to reduce the craving for heroin. Methadone seems of all three the preferred drug. While the first option to ease withdrawal works quite well, the second one to reduce the craving for heroin is only partially successful. A recent review found that out of 7 studies 4 studies reported that patients on methadone are still at risk of craving heroin, 1 study reported that methadone could increase heroin craving and 4 studies reported that methadone had a neutral effect on heroin craving. This lingering craving for heroin is further documented by the finding that a fair number of overdose deaths reports show the presence of both methadone and heroin (or its illegal substitutes) in the blood of the deceased. Thus, it is evident that many opioid addicts in therapy still experience the craving for heroin and this fact must be addressed when improving their medical rehabilitation [27-33].

At present, there are two new approaches to rehabilitate the heroin addict with the second to be the most successful. Both consider the ongoing craving for heroin and have already been tried and found to be somewhat successful in other countries but with no or little acceptance in the USA thus far.

The first approach is the establishment of Supervised Injection Facilities (SIFs), Sanitary Consumption Facilities (SCFs), and Drug Consumption Rooms (DCRs). These are facilities professionally supervised where drug users can use and inject drugs under safe conditions. Present professionals can then quickly interfere in case of an overdose and save the life of the addict. The American Medical Society expressed its opinion about such sites as: "Studies from other countries have shown that supervised injection facilities reduce the number of overdose deaths, reduce transmission rates of infectious disease, and increase the number of individuals initiating treatment for substance use disorders without increasing drug trafficking or crime in the areas where the facilities are located". Such programs have been in operation with good results in Canada and some European countries. Since this program opened in Canada in 2003, more than 75,000 people have used these facilities. No overdose deaths have been reported and the staff is referring a large numbers of addicts to associated

treatment programs. A recent survey of studies on supervised injectable heroin sites concluded that enrolled patients used less drugs, showed a gradual change in self-image and attitude, and a movement towards social reintegration and eventually stopped using heroin. This was followed by another major report which concluded that this approach does significantly reduce the risk of fatal overdoses, disease transmissions and other harms associated with unhygienic drug use practices. A cost-benefit analysis of opening such a facility in Baltimore found that a single facility would prevent six overdose deaths, 78 emergency room visits, and 108 ambulance calls annually. After accounting for the costs of the program, researchers estimated it would generate \$6 million in savings each year. Unfortunately, many government officials are against this approach and some have even closed some successful pilot programs. Government officials argue falsely that these facilities will only encourage more drug use. Only recently did a federal judge confirm and finalize a ruling that Philadelphia and the nonprofit group "Safe house" can open a safe injection facility (SIF). Here, participants can come without fear of reprisal, can inject their drugs and will be presented with rehabilitation options at multiple points during their visits. These services include physical and behavioral health assessments and a range of overdose prevention measures. This is a promising beginning but not enough – still more heroin users will die of an overdose before more facilities will be allowed by government officials to open [34-38].

The second and even better approach is the one which was originally tried and now officially is used in Switzerland. Beginning in the 1970s, Switzerland saw heroin abuse grow and considered it a legal problem using prosecution and imprisonment. However, the Swiss government quickly realized that this did not stem the tide of drug abuse and abuse related diseases and deaths. Thus, a new approach was initiated. The Zurich government created a zone in the city - Platzspitz Park- where people could use drugs. This project was partially successful by reducing some of the known drug related diseases like AIDS and some overdose deaths. However, it created some other problems. The Park became an ugly sight and citizens of Zurich complained about this situation. Thus, the government again looked for a new approach (in contrast to the USA where failures are repeated over and over again). This time, they did something which was extremely out of the ordinary and extremely courageous. It focused on the heroin user, its craving for heroin and offered some of them pure heroin in 1994 as a treatment option in a program called HAT (Heroin Assisted Therapy). All heroin users will first be treated conventionally with methadone with about 80- 90% responding. However, individuals who do not respond successfully to this approach (about 10-20%) will be admitted to this newly developed program. In special clinics, such individuals will receive heroin safely in the appropriate strength and purity. This approach has resulted in lower rates of crime, fewer diseases, and deaths. Many of these individuals showed improvement in their mental and physical health and quite a number returned into a more productive life. A recent relatively large study compared work performance of such individuals with heroin free individuals and found no difference. This program is now about 25 years old and still going strong and successful. One patient reported "I started

taking heroin as a way of coping with my psychological problems. It destroyed me. I lost my job as a watchmaker. I borrowed' money from my girlfriend, and my friends. I ended up on the street. To fund my habit, I became a user-dealer. The program has allowed me to rebuild my life and pay my friends back."

Since this time, similar programs have been developed in several European countries like Germany, Denmark, Holland, Belgium, England, Spain, and Norway. All of them report similar beneficial results. It still is not used in the USA albeit more and more voices plead for its acceptance like, for instance, the Rand Corporation, a policy think tank, which concluded recently "it's time to pilot an approach from outside the U.S.: offering pharmaceutical-grade heroin — yes, heroin — as a form of treatment for longtime heroin users who haven't had success with other treatments". Here, the emphasis is placed not on the individual being heroin free but to live and be able to have a better social life and even a professional career and future. The common belief that this is not possible under the influence of heroin is wrong. History has shown that some individuals when timing their injections properly and having access to pure morphine can function relatively well as known from opioid addicted physicians and other health professionals who performed their duties faultlessly under the influence of morphine. The prime example in the USA was the surgeon William Stewart Halsted (1852-1922) who was professor of surgery at John Hopkins. He developed the scientific approach to surgery, introduced a new educational program for medical student and surgical resident, developed the radical mastectomy, introduced gloves into surgery and often is referred to as "the father of modern surgery". What was only known to a very few was that he was a morphine addict throughout his entire surgical career. And currently, the above-mentioned HAT program has amply shown that individuals receiving heroin can function well in a variety of professions.

Conclusion

To offer the same substance which is the origin of an addiction as a therapy is not new. The heavy smoker is compelled to smoke because of the rewarding effects of nicotine. At the same time, tar is inhaled which causes lung cancer in most smokers. Thus, nicotine is now offered in various forms to smokers to satisfy their craving for nicotine but in tar- free preparations. This approach has been found somewhat successful in stopping tobacco smoking and reducing the cancer risk markedly.

And to make matters even worse, government officials blatantly ignored a major review paper which was published recently in 2007 by scientists from Switzerland, Netherlands, Spain, and Germany. This paper describes that legalized heroin was immensely helpful for some heroin users and prevented drug abuse diseases, overdose deaths and with many of the so treated addicts even starting a normal social and professional life. For instance, the Netherlands reported in 2016 235 opioid overdose deaths while Ohio reported 4050 of such deaths. If this approach had been followed at this time, tens of thousands of overdose deaths in the USA could have been prevented.

Let this paragraph finish with the experiences of a Swiss and an American heroin addict:

One Swiss heroin dependent individual: Sarah is a well-dressed, middle-aged English woman living in Geneva with her friendly yellow lab, Maloo. By most accounts, Sarah lives a normal life. She has a couple of adult children, goes on vacations, works part-time with horses, and says she's lucky because her job never feels like work. Twice a day, Sarah also walks down the street from her apartment to a clinic where she receives treatment to stabilize her chronic disease. She has a substance use disorder, and her treatment includes injectable heroin, twice a day.

One American heroin dependent individual (reported by his mother because he is dead). His mother reported that he had a long-standing heroin abuse problem. Despite many treatment efforts, he always relapsed. When she entered one day his bedroom, she saw him lying in bed, motionless and pale. He had died from an injection of heroin which he had bought from a street drug dealer and which either contained too much heroin or it was more likely adulterated with the deadly drug fentanyl.

Two cases – two drug using individuals – one alive and productive and one dead and a grief-stricken mother – one government saved a life while one government took a Life [1, 39-49].

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