

The Scientific Validity of Adverse Events from Schedule of Controlled Substances: $C = 100 - 1/2^n$



Alen J Salerian*

Modern Psychiatry, Greece

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*Corresponding author: Alen J Salerian, Modern Psychiatry, Zaimi 8, Paleo Falero 17562, Greece

Abstract

This study provides biological, epidemiological, clinical and mathematical evidence to suggest with % 99.994 certainty that "Schedule of controlled substances" has adverse effects expressed as an equation $C = 100 - 1/2^n$ (with "C" representing certainty and "n" as the number of supporting evidence). This observation is consistent with mathematical principals and with the butterfly effect of sensitive dependence of complex systems on initial minor errors. SCS adverse effects include creation of barriers to appropriate treatment and research of chronic pain, addictions and psychiatric disorders, reducing the number of potential medical discoveries, contribution to inappropriate therapeutic interventions for people with chronic pain addictions and psychiatric disorders, contribution to premature death by barriers to appropriate treatment of chronic pain, addictions and psychiatric disorders.

Introduction

The controlled substances act of 1970 established a system by which substances with abuse potential are classified into 5 different schedules [1] (Table 1). Schedule one substances are considered to have no medicinal value. Substances listed under schedule two to five available for medical use with a prescription from a medical

professional registered with the Drug Enforcement Agency (DEA) and has a valid license to prescribe controlled substances [1]. Approximately 40% of the American population or Americans with chronic pain, addictions and psychiatric disorders depend on treatments strongly regulated by laws and regulations rooted in the validity of the schedule of controlled substances [1-5].

Table 1: Schedule of controlled substances.

Schedule	Description	Representative Substances
I.	Substances that have no Accepted medicals use in the U.S. and have high abuse potential	Heroin, LSD, mescaline, marijuana, THC, MDMA
II.	Substances that have high abuse potential with sever psychic or physical dependency liability	Opium, morphine, codeine, meperidine (Demerol), cocaine, amphetamine, methylphenidate (Ritalin), pentobarbital, phencyclidine (PCP)
III.	Substances that have an abuse potential less than those in schedules 1 and 2, including compounds containing limited quantities of certain narcotic and non-narcotic drugs	Paregoric, barbiturates other those listed in another schedule
IV.	Substances that have an abuse potential less than those in schedule 3.	Phenobarbital, chloral hydrate, diazepam (Valium), alprazolam (Xanax)
V.	Substances that have an abuse potential less than those in schedule 4, consisting of preparations containing limited amounts of certain narcotic drugs generally for antitussive (cough suppressant) and antidiarrheal purposes	

Although it has been recognized that SCS lacks scientific validity no studies have investigated potential adverse effects of SCS. SCS does not have a scientifically valid inclusion or exclusion criteria, does not indicate why alcohol and tobacco are excluded [1,2]. SCS is dismissive of pharmacodynamics, pharmacokinetics and biological markers such as half-life elimination time, latency, euphoric potency. Examples include Inclusion of marijuana and cocaine

in class one [1,2]. SCS is dismissive of route of administration (by mouth, skin, air, intramuscular or intravenous injection). For instance, methylphenidate oral tablets are fundamentally different than methylphenidate slow release tablets which have potentially no overuse or addictive potency [1,2]. Absence of consideration of risk versus benefits is transparent in the inclusion of marijuana in schedule 1 despite its documented therapeutic benefits [1,2].

Diverse biological epidemiological and clinical evidence suggest untreated chronic pain, treatment refractory depression, substance addictions are associated with premature death [1-8]. There's also compelling neuro imaging evidence of brain degeneration and atrophy caused by chronic pain [6]. Some studies suggest a strikingly high mortality associated with discontinuation of opiates among patients with heroin addiction [7-11]. This study investigated potential adverse effects of SCS on chronic pain.

Methods

We reviewed vital statistics from 2000-2014 we also reviewed relevant medical literature on medication treatment of chronic pain, substance addiction, treatment refractory depression. Inclusion criteria included studies with methadone, buprenorphine, oxycodone published between 2000 and 2017 in English.

Adverse influences of SCS are Creation of barriers to appropriate treatment of chronic pain, addictions and psychiatric disorders. Barriers, in this context, are defined as influences that delay, discourage or diminish the most effective delivery of appropriate medical care [1,2,11-13]. For instance, consumer friendly an efficient treatment of various psychiatric disorders, chronic pain and addictions have been adversely influenced by man-made barriers, such as a special rules and regulations governing controlled substances. The examples include, special requirements to receive or prescribe commonly used medications such as methadone, buprenorphine or methylphenidate [1,2].

- a) Creation of barriers to medical research and reducing the number of potential medical discoveries [1,2,12].
- b) Contribution to promotion of Inappropriate therapeutic interventions for people with chronic pain addictions and psychiatric disorders [1,2,4,12]. Indirectly or unintentionally, SCS contribute to irrational unscientific information about brain dysfunctions and therefore promotes several treatments such as alcoholics Anonymous and narcotics anonymous that strongly advocate against all biological interventions for people with chronic pain, psychiatric disorders or addictions [1,2,4,12].
- c) Contribution to premature death by barriers to appropriate treatment of chronic pain, addictions and psychiatric disorders. Cumulative evidence is consistent with the observation that less than optimal treatment of chronic pain addictions and psychiatric disorders contributed to higher mortality and morbidity [7-12].
- d) Contribution to premature brain degeneration by barriers to appropriate treatment of chronic pain, addictions and psychiatric disorders. There is considerable evidence consistent with the observation that chronic pain and various psychiatric disorders are associated with premature brain degeneration and atrophy demonstrable by neuroimaging [1-12].
- e) Contribution to irrational criminal prosecution of innocent patients with chronic pain, addictions and psychiatric disorders and their doctors [12-15].
- f) Contribution to restricting the number of health professionals treating chronic pain, addictions and psychiatric disorders and their doctors [1,2,12-15].
- g) Contribution to epidemics of deaths from suicide and heroin overdose [10-12]
- h) Promotion of prejudice against people in need of substances wrongly classified as addictive or harmful [12-15].
- i) Promotion of laws and regulations hostile to people with chronic pain, addiction and psychiatric disorders [12-15].
- j) Contribution to adverse influence on how vital data are registered.
- k) Collection of recorded - reported data of fatalities from overdose deaths misrepresent the number of deaths caused by controlled substances

For Two Independent Reasons

SCS is not scientifically valid and has an influence over how data are registered. The reported cause of death is often made without a causal link between death and toxic influence -validated by a Laboratory evidence-of a substance. Hey, hon and well documented practice is to declare any death associated with presence of any controlled substance regardless of its blood level-as caused by an overdose of the very substance found in the system. This means, any controlled substance would along half-life is a far greater chance of being declared as the final lethal cause.

- a) Contribution to inaccurate vital statistics of deaths associated with drugs.
- b) Contribution to promotion of irrational laws adversely influencing quality-of-life for people which chronic pain addictions and restrictions [12,13,14,15].
- c) Contribution to increased mortality and morbidity associated with alcohol and tobacco use.

$$\text{The probability of Adverse Influences of SCS to be valid } C = 100 - 1/2n = \%99.994$$

This equation is based upon the premise that each supporting evidence is a hypothesis. A logical inference from observing facts from which consequences may be deduced with a % 50 chance of being correct and therefore the outcome would be the same as the probability of random occurrence in flipping a coin. Hence it would be like " heads " coming up a consecutive number " n " of times. For instance , the probability of " heads " coming up 3 consecutive times is 1/8 or 11%, five consecutive times is 3%, 10 consecutive times is % 0.09 of crucial significance, consistent with the framework of flipping a coin, potential flaws of statistical analysis - randomness and bias- have no effect on the accuracy of final outcome. This equation is also based upon the presumption that each evidence is scientifically valid (Thus any evidence contrary to a supporting evidence would exponentially decrease the final outcome by the same number of errors) (Table 2).

Table 2: The probability of certainty in SCS induced adverse effects consistent with $C = 100 - 1/2^n = \%99.994$.

1.	Creation of barriers to appropriate treatment of chronic pain, addictions and psychiatric disorders.
2.	Creation of barriers to medical research and reducing the number of potential medical discoveries.
3.	Inappropriate therapeutic interventions for people with chronic pain addictions and psychiatric disorders.
4.	Contribution to premature death by barriers to appropriate treatment of chronic pain, addictions and psychiatric disorders.
5.	Contribution to premature brain degeneration by barriers to appropriate treatment of chronic pain, addictions and psychiatric disorders.
6.	Contribution to irrational criminal prosecution of innocent patients with chronic pain, addictions and psychiatric disorders and their doctors.
7.	
8.	Contribution to restricting the number of health professionals treating chronic pain, addictions and psychiatric disorders and their doctors.
9.	
10.	Contribution to epidemics of deaths from suicide and heroin overdose.
11.	Promotion of prejudice against people in need of substances wrongly classified as addictive or harmful.
12.	Promotion of laws and regulations hostile to people with chronic pain, addiction and psychiatric disorders.
13.	Contribution to adverse influence on how vital data are registered.
	Contribution to inaccurate vital statistics of deaths associated with drugs.
14.	Contribution to promotion of irrational laws adversely influencing quality-of-life for people which chronic pain addictions and restrictions.
	Contribution to increased mortality and morbidity associated with alcohol and tobacco use.

The following example illustrates the accuracy of the equation consistent with the mathematical principles that govern the probability of accurate Identification of a subject. The probability of accurate identification of a subject exponentially increases by each piece of information about the subject. For instance, we can assume that the probability of correctly identifying a person is one in 7.6 billion or a number representing the world population. However, the probability of correct identification becomes %100 with specific personal identity information such as passport or social security number ,finger prints or DNA data. In a hypothetical scenario, five pieces of data, such as, city of residence (Houston), first name John, age (52), occupation (physician) height (5'7"), make the probability of correctly identifying this person $C = 100 - 1/25 = 97\%$ or better.

To begin with, the probability of correct identification improves from 1 in 7.6 billion (the world population) to 1 in 7000 (the number of physicians in Houston). There are only 98 physicians whose first names are John. So, now the odds of correct identification are 1 in 98. There is only one-person age 52 and who meets the height criteria. Hence in this particular case the probability of correct identification is 100 % which is consistent with the general probability of certainty of 97% or better [16-20].

Using a different example and applying the same formula we can identify a vehicle with 7 pieces of data.

- Manufacturer Ford,
- Type mustang,
- Subtype convertible,
- Year 1952,
- Exterior color red,

- Interior color Black,
- Damage broken bumper right front $C = 99.97$.

Result and Conclusion

Mathematics and the butterfly effect phenomenon or sensitive dependence of complex systems on minor initial errors are consistent with the catastrophic adverse impact of SCS including its influence on the recent epidemics of deaths from suicide and heroin overdose. Furthermore, mathematically the probability of certainty of SCS induced adverse effects is 99.9%.

The schedule of controlled substances that has predominant governing influence on treatment of people with chronic pain psychiatric disorders and addictions is scientifically invalid and has major adverse effects.

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Alen J Salerian. Biomed J Sci & Tech Res



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