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Dual epidemics of deaths by heroin overdose and suicide

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Abstract

Introduction: Dual epidemics of deaths by heroin overdose and suicide were recorded in US from 2000 to 2014.

Also from 2000 to 2014 an estimated 11.342 physicians -accused of overprescribing opiates and treating some estimated 8 million people with chronic pain, addiction or psychiatric disorders-were forced out of medical practice.

The aim of this study is to determine whether there is a correlation between the dual epidemics and possible adverse influences mediating access to opiate treatment.

Method: We have reviewed CDC vital statistics from 2000 to 2014. We also studied diverse influences on populations with increased risk of heroin addiction and suicide from 2000 to 2014.

Results: From 2000 to 2014 the US heroin deaths rate jumped from 0.7 to 3,4 and deaths by suicide from 10.1 to 13 per 100.000 population. There was a statistically strong correlation (r = 0.9) between the suicides and heroin deaths.

From 2000 to 2014 the accidental overdose deaths rose from 3 to 14 per 100.000 population. The percentage of deaths associated with prescription opiates declined from 38,1% to 28% while the percentage of heroin deaths jumped from 11% to 28%.

From 2000 to 2014 some estimated 11.342 accused of over prescribing opiates were forced out of practice with some estimated 6.8 million opiate dependent patients enduring disruption and or discontinuation of stable treatment.

Discussion: Reduction of access to prescription opiates by disrupting stable treatment of a population vulnerable to mood instability might have been an independent contributor to the dual epidemics of heroin overdose deaths and suicides from 2000 to 2014.

Introduction

US has been experiencing dual epidemics of deaths by heroin overdose and suicides from 2000 to 2014 (Table 1) [1].

Studies suggest significantly heightened suicidal deaths in depression [2-4], bipolar disorder [5,6], schizophrenia [7,8] substance use disorder [8,9], alcohol use disorder [10,11] and chronic pain [12,13].

Heroin addiction is a chronic relapsing disease with symptoms of compulsive drug seeking and use, tolerance and dependence. A complex genetic susceptibility to heroin addiction has been estimated to be 40 to 60% [14,15].

Several studies suggest a high co morbidity of depression or depressive symptomatology [16-18] bipolar disorder [17,19] and heroin addiction.

Endorphins mediate mood, pain and addiction and opiates represent essential psychopharmacological agents for chronic pain, addiction (methadone, heroin and buprenorphine) [20] and treatment refractory depression [21,22].

Opiates seem to have neuro protective properties against premature death for a large population with chronic pain, psychiatric disorders and addiction. This observation is consistent with studies of a strikingly high mortality associated with discontinuation of opiates (Table 2)

Table 1. 2009–2014 – US Deaths from Suicide and Heroine Per 100.000 Population.r=0.9. Source: CDC vital statistics.

Year	Heroine	Suicide
2000	0.7	10.5
2005	0.7	11
2008	0.9	11.6
2010	1.0	12.1
2011	1.3	12.3
2014	3.4	13.0

Table 2. Criminalization of Psychiatry and Pain Medicine.

Possible Mechanism of Adverse Action.
Deaths by suicide increased from 10.1 to 12.9
↑↑↑
Deaths by heroine overdose increased from 0.4 to 3
↑↑↑
Deaths by overdose increased from 3 to 14.7.
↓↓↓
% 0f deaths by prescription opiates relative to total overdose deaths declined from 46% to 38%.
↓↓↓
The rate of increase of deaths from prescription opiates(4 times) was less relative to the rate of increase of total overdose deaths (4.9 times).

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[16,17,23-25] and also with a crucial postmortem study indicating severe depletion of brain endorphins in patients with depression and successful suicide [26].

Kakko and colleagues [26] reported a 20% mortality rate among heroin addicts one year after discontinuing opiate treatment. Based upon 5 independent studies one year mortality rate of a large population with chronic pain and psychiatric disorders seems to be 16% without opiate treatment.

From 2000 to 2014, some estimated 11.342 physicians accused of overprescribing opiates were forced out of practice. Consequently, some estimated 8 million patients with chronic pain, addiction and treatment refractory depression endured disruption or discontinuation of stable opiate treatment (Table 3).

The aim of this study is to determine whether reduction of access to prescription opiates has been an independent contributory influence in the epidemics of deaths by heroin overdose and suicide from 2000 to 2014.

Method

We have reviewed CDC vital statistics from 2000 to 2014. We also studied adverse influences on patient populations with heightened risk of suicide by search engines Google scholar, Cochran library and Medline. We use the keywords, criminalization of psychiatry, prescription opiates, opiate withdrawal, suicide in psychiatric disorders, bipolar disorder and suicide, suicide in depression, schizophrenia and suicide, PTSD and suicide.

Results

From 2000 to 2014 suicidal deaths increased from 10.1 to 13 per 100.000 population, heroin overdose deaths jumped from 0.7 to 3.5 per hundred thousand population.

From 2000 to 2014 the accidental overdose deaths rose, the percentage of deaths associated with prescription opiates declined from 38,1% to 28% while the percentage of heroin deaths jumped from 11% to 28 %. Heroin deaths rose from 0.7 per 100.000 population in 2000 to 3.4 per 100.000 population in 2014. There was a statistically strong correlation (r = 0.9) between the suicides and heroin deaths (Tables 1 and 4). From 2000 to 2014 some estimated 11.340 criminally prosecuted physicians for over prescribing opiates were forced out of practice with some estimated 8 million opiate dependent patients enduring disruption and or discontinuation of stable treatment.

Discussion

From 2000 to 2014, the US deaths by suicide and heroin overdose- consistent with stable economic conditions, psychiatric advances and public education on suicide and declining crime and deaths by homicide- were expected to decline but they did not. The above findings are consistent with a unique "x" influence counteracting inhibitory influences upon deaths by suicide and heroin.

The statistically significant correlation (r = 0.9) between the annual suicide rates and the annual death rates from heroin overdose is consistent with both epidemics sharing a sensitive dependence on prescription opiates which are essential therapeutic agents for heroin addiction, pain and psychiatric disorders. Prescription opiates also reduce mortality associated with heroin addiction pain and psychiatric disorders (Figure 1).

All of the above collectively indicate that reduction of prescription opiates for a large population dependent on prescription opiates and vulnerable to mood instability, might have been an independent crucial "X" factor in the US epidemics of suicide and heroin deaths (Table 5 and 6).

Also, noteworthy are, deaths by accidental overdoses increased by 400 percent yet the percentage of prescription opiate overdose fatalities decreased from 46% in 2000 to 38% in 2014. This finding suggests, the man-made barriers have had some impact and have decreased overdose deaths from prescription opiates.

Furthermore, crime in general including violent crimes and homicides also declined in contrast to the rising deaths from suicide and illicit drugs. This observation further supports a positive correlation between criminalization of medicine, reduction of access to prescription opiates and the selective rise in use of illicit opiates and deaths by heroin overdose and suicide.

Limitations of this study include the following

A. Recording and registration errors might have contaminated vital statistics.

B. Lack of precise mortality and suicide data associated with practice closures.

C. Lack of precise data about the number of patients with discontinued or disrupted treatment.

At present, we do not know why the adverse effects of criminalization of medicine did not begin to emerge until 2000, some 25 years after the US Congress authorized new legislation about prescription opiates. It is possible that this is consistent with a delayed butterfly effect of initial errors observed in complex systems [40]. It is also possible that yet unknown environmental factors might have also contributed to the suicide epidemic.

Despite its limitations, this study offers evidence to suggest that disruption of opiate treatment might have- independent of any another possible influence- contributed to the current dual epidemics [41-46].

Our observations demand further scientific scrutiny and validation. Further studies to investigate independent and possibly yet unknown or unidentified influences in suicide are necessary [47-52].

Table 3. A Causal Association Between the US Suicide Epidemic and the Criminalization of Psychiatry and Pain Medicine.

Independent Observations	
1	The US suicide epidemic (42,000 or 13 deaths per 100.000 population) has been worsening at a time when the suicide rates in Japan and Western Europe have been declining. Unlike Japan and Western Europe the US has been criminalizing psychiatry and pain medicine since mid-80s.
2	Multiple studies have established a link between discontinuation of opiates with strikingly high suicide rates in stable patient populations. The criminalization of psychiatry and pain medicine have prompted a significant number of practice closures and a large number of opiate dependent patients without adequate care**.**
3	Approximately 1/3 of the US population suffer from chronic pain, addiction and psychiatric problems associated with vulnerability to depression and suicide. Since antiquity the therapeutic benefits of opiates have been known. The criminalization of psychiatry and pain medicine seriously limited access to opiates and have created a hostile environment for millions of Americans with disabilities at a time of major epidemics of mental illness and chronic pain.
4	High unemployment and adverse economic conditions-often contributory to the worsening of suicide rates – have had no impact on the US suicide epidemic.

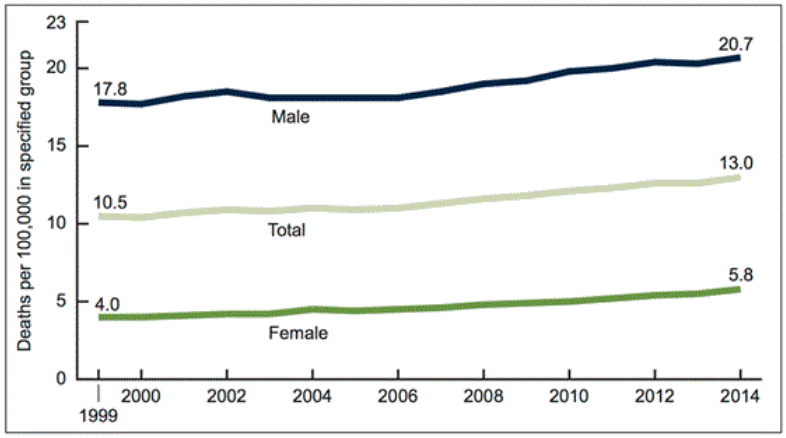

Figure 1. Age-adjusted suicide rates, by sex: United states, 1999-2014.Note. Suicides are identified with codes UO3, X60-X84, and Y87.0 from the international statistical classification of diseases and related health problems.

Table 4. Pain Physicians From 2000 To 2014*.*DEA does not provide specific data of the annual and total number of physicians investigated or prosecuted. The above numbers are the best educated estimates based upon available information from diverse sources [27-29].

Pain Physicians From 2000 To 2014.	
1	# People in need of pain treatment: 110 million.
2	# Physicians under investigation every year: 600.
3	% Pain physicians under investigation :12% 2000- 2014 # Pain physicians delicensed: 9000.

Table 5. Criminalization of Psychiatry and Pain Medicine.

Criminalization of Psychiatry and Pain Medicine	
1	The comprehensive forfeiture act of 1984: law enforcement agencies can seize physician's assets without any hearing or trial
2	The drug abuse prevention and control act of 1970: a physician may be prosecuted for failing to follow standard medical practice in prescribing controlled substances

Table 6. Endorphin (opiates) – Suicide Connection: Neurobiology.

Endorphin (opiates) – Suicide Connection: Neurobiology.	
1	Brains of suicide victims are endorphin depleted [30].
2	Endorphins are crucial for pain and mood regulation. Any adverse influence may contribute to diminished resilience against depression and suicide [31-33].
3	20% death rate in one year among heroin addicts who discontinued buprenorphine [34].
4	Alarmingly high suicide rates among patients with discontinued opiate treatment following practice closures [35-37].
5	MRI evidence of brain atrophy with chronic pain [38,39].

Conclusion

Criminalization of medicine associated reduction of access to prescription opiates or disrupting stable treatment of a vulnerable and opiate dependent population might have been an independent contributor to the epidemics of deaths by suicide and heroin overdose from 2000 to 2014.

Our findings may have serious implications for suicide prevention, treatment of addictive disorders and public policy. Healthcare professionals and policymakers must be warned of heightened risk of mortality and morbidity associated with disruption of stable opiate treatment.

Significance statement

Reduced access to prescription opiates–independent of any other factors -might have contributed to the epidemics of deaths by suicide and heroin overdose.

Without opiate treatment, a large population with pain and psychiatric disorders are at risk for premature death. Extreme caution must be exercised prior to discontinuing opiates of stable patients.

Conflict of interest statement

This is to confirm that I have no conflict of interest in the publication of this manuscript. I also confirm that I have not received any monies for the preparation of this manuscript.

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