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### The epidemic of opioid usage in West Virginia

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## **THE EPIDEMIC OF OPIOID USAGE IN WEST VIRGINIA**

### **ABSTRACT**

The opioid epidemic in West Virginia is a complex interplay of factors, including poverty, low education, and high unemployment rates, which contribute to higher rates of substance use and opioid-related deaths. The number of people injecting drugs has risen from 36% in 2005 to 54% in 2015. WV recorded 871 overdose deaths from all drugs in 2019 with 76.8% involving at least one opioid. The purpose of this qualitative research study was to investigate and analyze the circumstances that contributed to West Virginia's opioid epidemic to determine if sociocultural factors, such as lifestyle, education, and demographics, influenced the epidemic as well as outside factors like COVID-19. These strategies were evaluated through a systematic literature review and semi-structured interview that displayed a broad array of tactics used in West Virginia to keep up with the rate of related opioid overdoses. The methodological approach for the qualitative study included a literature review of various sources such as peer-reviewed articles, studies, articles, and other proposals related to the opioid epidemic. This research included 47 articles and ranged from 2010 through 2023. However, limitations were not neglected and included search strategy and database quantity. An interview with conducted with an expert to analyze the current state of the opioid epidemic in West Virginia and its future prevention. The working hypothesis was that poverty, limited access to education, low unemployment, and over-prescription of opioids contributed to the epidemic and that the epidemic increased with the presence of COVID-19. With this hypothesis in mind, West Virginia requires funding and program establishment to encourage the decline of opioid usage further. This paper provides a perspective on potential causes of the opioid epidemic to be addressed in

future research to prevent opioid overdoses in the state of West Virginia and other surrounding areas that struggle with this issue.

**Keywords:** Education, Employment, Opioid epidemic, Opioid overdose, Poverty, West Virginia

## INTRODUCTION

The most misused prescription medications have been those with mind-altering properties such as stimulants, hypnotics, and most commonly, opioids. Opioids have been a large class of painkillers that reduce pain and have been often used to treat chronic pain (CDC, 2023). There has been an increase in the use of intravenous drugs such as heroin. The number of heroin overdose deaths increased to 15,482 in 2017, then began to decline, reaching 9,173 by 2021 (NIDA, 2023). The number of people injecting drugs has risen from 36% in 2005 to 54% in 2015 (Bowden et al., 2018). With the rise in the opioid epidemic nationally, the state of West Virginia (WV) has experienced a higher rate of substance use at 8.4% compared to the national average of 8.2% due to the constellation of several socio-demographic factors that negatively impact health behaviors (Umer et al., 2019).

West Virginia has been deemed the epicenter of the opioid epidemic as it has been ranked number one among the states with the highest levels of opioid overdoses (Druskin et al., 2022). According to the WV Office of Drug Control Policy, WV recorded 871 OD deaths from all drugs in 2019 with 76.8% involving at least one opioid (Davis et al., 2021). WV had the highest opioid-related overdose mortality rate in the nation with 49.6 deaths per 100,000 within the 2019 population, while this rate among the US was 32.4 deaths per 100,000 (Lander et al., 2020). WV also has one of the highest per capita rates of opioid prescriptions. In 2017, healthcare providers in the US wrote 58.7 opioid prescriptions per 100 persons, while in West Virginia the rate was

81.3 per 100 people (Sedney et al., 2021). WV also has high rates of poverty, low education, and high unemployment which independently contribute to the risk of illicit drug use and the development of substance use disorders (Meit et al., 2017).

Among all 50 states, West Virginia is ranked 4<sup>th</sup> place for the poorest states in the U.S. with a poverty rate of 15.8% as of 2023. The poverty rate for WV in 2016-2017 when the opioid epidemic was on the rise was 19.1% (Statista, 2023). According to the U.S. Bureau of Statistics, in the category of education, West Virginia ranks last with the poorest education quality. Also, West Virginia has the 4<sup>th</sup> lowest employment rate at 95% employed and 5% unemployed.

On August 15, 2016, a public health investigation and response conducted by the West Virginia Bureau for Public Health (BPH) and Cabell Huntington Health Department (CHHD) identified 20 opioid overdose cases within 53 hours in Cabell County; all cases included emergency department (ED) encounters. EMS personnel, other first responders, and ED providers administered the opioid antidote naloxone to 16 (80%) patients, six of whom were administered multiple doses, suggesting exposure to a highly potent opioid (Massey et al., 2017). In addition to the public health investigation, a public safety investigation was conducted; comprehensive opioid toxicology testing of clinical specimens identified the synthetic opioid fentanyl and novel fentanyl analogs, which had been used by patients who overdosed in Huntington (Massey et al., 2017).

In response to address the community's needs considering the inefficient legislative demands, the CHHD created a sustainable harm reduction program using both grant money and donations. This program included needle exchange, referral to substance use disorder treatment, vaccinations (usually hepatitis B), sexually transmitted infection testing (mostly chlamydia,

gonorrhea, hepatitis C, and syphilis, but all sexually transmitted infections considered) injection site observation and training for safer injections of illicit and prescription drugs (meant to prevent injection site issues before they escalate) (Babcock et al., 2017). In addition to the needle exchange program, the Prescription Drug Monitoring Program (PDMP) is used heavily within West Virginia to gain control over opioid prescriptions. This program was implemented in 1995 but started to receive more federal funding at the start of 2002 (Al-Astal et al., 2022).

Following this discovery, in 2018 and 2019, there was an HIV outbreak in Cabell County, with 85 cases requiring CDC intervention in 2019. This occurred after the county-run needle exchange was reduced. Kanawha County also shut down its NEPs in 2018, followed by another HIV outbreak between 1 January 2019 and 13 March 2021, with 65 people testing positive for HIV linked to injection drug use, which required CDC intervention (Graves et al., 2023).

Changes in drug availability and social factors have played important roles in changes in drug use. Studies to date have demonstrated that overdose deaths have been correlated with prescription rates and with various socioeconomic measures (Heyman et al., 2019). States that had higher overdose death rates typically had higher opioid sales rates (Paulozzi, 2012). On the other hand, economic research within the United States revealed correlations between unemployment rates and overdose deaths at both the state and county levels. As a county's unemployment rate increased by one percentage point, the opioid death rate per 100,000 rose by 0.19 (3.6%), and the opioid overdose ED visit rate per 100,000 increased by 0.95 (7.0%). (Hollingsworth et al., 2017). Additionally, in a study that included 3079 U.S. counties, opioid drug overdoses are most prevalent in counties, like Cabell, that have a greater level of economic

disadvantages, such as poor access to education and housing conditions, and a higher level of service employment and blue-collar jobs (Monnat et al., 2019).

This research aimed to investigate and analyze the circumstances that contributed to West Virginia's opioid epidemic to determine if sociocultural factors, such as lifestyle, education, and demographics influenced the epidemic. The working hypothesis was that the opioid epidemic in West Virginia originated from a complex interplay of factors, including poverty (marked by low-income and substandard housing), limited access to education, and over-prescription of opioids. The opioid epidemic also increased with the presence of Covid-19.

### Methodology

The intended methodology approach for the qualitative research study was to review research, studies, and other proposals concerning the opioid epidemic in West Virginia.

### *Research Methods*

The methodological approach for this qualitative research study included a literature review of various sources such as peer-reviewed articles, studies, articles, and other proposals related to the opioid epidemic in West Virginia.

An interview was conducted with a physician regarding this cause. This interview took place face-to-face at the physician's place of work and was tape-recorded. This interview has been IRB-approved, and the participant signed an informed consent document with information on privacy and agreement to the interview. Only answers that pertinent were used to assist the information found in the literature review to provide an understanding and more complete

overview of the opioid epidemic in WV, the factors that influenced it, and how it has affected the healthcare system.

The conceptual framework (*Figure 1.*) used for this review was adapted from Yao, Chu, & Li (2010). This conceptual framework identifies a way for a researcher to understand the factors and/or variables that are involved in the study and their relationships to one another.

The PRIMA diagram was used for this research to improve the transparency and the scientific merit of systematic reviews used in this study. The PRISMA diagram visually summarizes the screening process for the articles used in this research. (*Figure 2*)

#### *Determining and Selecting Relevant Sources*

Research articles and other literature, such as peer-reviewed journals, were used in databases such as PubMed, Marshall University's EbscoHost, and Google Scholar. Search engines such as Google were utilized to locate relevant articles and other applicable information about the hypothesis and research purpose used for the analysis. Keywords used in the search include “Opioid epidemic,” or opioid overdose”, “West Virginia,” “education,” “employment,” AND “poverty”.47 articles were used in this research and ranged from 2010 through 2023. The information from these sources during the investigation was used as primary and secondary materials to conclude the study. This search was completed by KC and CH and validated by AC, who acted as the second reviewer and determined if the references met the inclusion criteria.

## RESULTS

### *Sociocultural Factors/ Social Determinants of Health*

Due to a dramatic rise in the number of Americans suffering from opioid use disorder (OUD), the opioid crisis continues to have a catastrophic effect on families and communities in the United States (HHS, 2018). In the past 20 years, this public health epidemic has claimed close to 500,000 lives (CDC, 2020). Accidental overdoses are now the biggest cause of mortality in the US for those under 50, contributing considerably to a drop in the country's average life expectancy over the past three years (Slavova, et al., 2020). According to preliminary statistics, the COVID-19 pandemic is causing a surge in opioid use, overdoses, and deaths from overdoses, with racial disparities in fatal and nonfatal overdoses in some metropolitan locations, such as West Virginia and surrounding states (Wainwright, et al., 2020). Access to in-person treatment and rehabilitation programs has been severely restricted by policies to stop viral transmission, and the social isolation brought on by the epidemic itself is a risk factor for substance abuse (Horigian, et al., 2020). OUD and fatal opioid overdoses cost society more than \$1 trillion in 2017, in addition to the lives lost (Florence, et al., 2020). The opioid crisis has increased the number of children in foster care, the number of inmates who are battling with OUD, and the number of grandparents raising grandkids (Florence, et al., 2020).

Social and cultural contexts influence both healthy and adaptive behavior and well-being as well as maladaptive conduct, the etiology of mental illness, and social pathology (APA, 2023). Positive sociocultural variables include having a strong sense of support and mentorship from family and the community, receiving a decent education and medical care, having access to recreational facilities, and being exposed to the arts. Slum living circumstances, poverty, intense or limiting work demands, lack of access to quality healthcare, and insufficient educational possibilities are a few examples of things of a negative nature (APA, 2023). Employment, housing, education, transportation, trauma, social support, stigma, involvement in the criminal



justice system, and access to technology are some characteristics that are particularly significant for persons with OUD (Artiga & Hinton, 2018). Drug addiction is a personal dilemma, and it is unacceptable to stigmatize or stereotype drug misuse as something that only affects particular groups of individuals under particular conditions. Even if every person's life narrative and personal battle is different, it has been noted that multiple people in the same geographic area may struggle with comparable life problems that could lead to drug usage. A prime example of this is West Virginia. Even while drug addiction can strike anyone at any socioeconomic level, difficult financial situations and unemployment frequently result in unpleasant living situations that drive people to use drugs as a coping method(Hawk BS, CADC-II, ICADC, 2022). Addiction to drugs may be exacerbated by the state's economic circumstances in West Virginia, which has the fourth highest poverty rate and the fourth worst employment rate(Hawk BS, CADC-II, ICADC, 2022). Substance misuse then aggravates already difficult financial circumstances, further deepening the poverty cycle(Hawk BS, CADC-II, ICADC, 2022).

### *Housing*

Evidence suggests that among persons seeking treatment for OUD, housing insecurity has been on the rise over time. This insecurity is a risk factor for both OUD and overdose death (Service Administration, 2018). In the state of West Virginia, for every 10,000 people, about 8% of people are unhoused (Statista, 2018). The analysis included 2,869,230 low-income housed people and 96,099 homeless people. Homeless individuals had a significantly higher risk of opioid overdose (adjusted risk, 1.8% for homeless vs. 0.3% for low-income housed individuals; adjusted risk difference and opioid-related ED visit/hospital admission compared to low-income housed individuals (Yamamoto et al., 2019). The number of homeless people in West Virginia was the sixth lowest in the nation (Post, 2022). Approximately 23 percent of West Virginians

were homeless, according to the United States Interagency Council on Homelessness (Post, 2022). But the state's homeless population was at an all-time high, with most of the growth occurring in cities like Morgantown, Huntington, and Charleston (Lawton, 2022). Supporters of the homeless in all three cities concur that the number of individuals living on the streets is rising, despite the difficulty in gathering accurate statistics because of the sporadic nature of the population. The yearly Point-In-Time count, which aims to count every homeless person in a given area in a single evening, indicates that the state's unsheltered population increased by 133% between 2016 and 2021(Lawton, 2022).

### *Employment*

There is strong evidence that unemployment and its effects have had a negative impact on overdose and OUD mortality. According to one study, an increase in the unemployment rate of 1% was linked to an increase in the county-level opioid-related emergency department utilization rate of 7% and the death rate of opioids by 3.6% (Hollingsworth, et al., 2017). According to other studies, economic downturns are linked to greater opioid overdose fatality rates, rising prescription opioid use, and increased rates of OUD (Venkataramani, et al., 2020). According to the National Survey on Drug Use and Health, people who make under \$20,000 annually are more than three times as likely as people who make over \$50,000 annually to have used heroin in the previous year (Substance Abuse and Mental Health Services Administration, 2018). In West Virginia, a state with the 15th highest unemployment rate and the fourth highest poverty rate, poor economic conditions may create the conditions for drug abuse. Then drug abuse further exacerbates harsh economic conditions, thus creating a vicious cycle of poverty (Bureau of Labor Statistics, 2022). In October 2023, the seasonally adjusted unemployment rate in West Virginia increased by two-tenths of a percentage point to 4.0 percent. The state's unemployment

rate increased from 1,700 to 32,000 people. The entire month saw a 300% decline in employment (Malinoski, 2023). The seasonally adjusted national unemployment rate increased by a tenth of a percentage point to 3.9 percent (Malinoski, 2023).

### *Education*

A person's socioeconomic status (SES), which is determined by their level of education, income, and employment, greatly affects their access to resources and, consequently, their ability to maintain good health. Low SES is associated with incarceration, homelessness, and the risk for adverse health outcomes (Case & Deaton, 2017). The opioid epidemic is sometimes referred to as an "equal opportunity" issue, however, this ignores the fact that people from poorer socioeconomic backgrounds are disproportionately susceptible to OUD and its aftereffects (Volkow, 2017). The path to jobs with higher SES is through education. Education has also been demonstrated to be a preventative measure in drug overdose deaths, with the highest prevalence among those who did not complete high school and the lowest among those who did (Ho, 2017). With a total score of 23.15, West Virginia ranks as the least educated state in the United States. West Virginia has the lowest proportions of residents with associate degrees, some college experience, and bachelor's degrees (20.6%), placing it last in terms of educational attainment. The fourth-lowest average university quality is found in West Virginia (*World Population Review*, 2023).

### *Prescription/ Dispensing of Opioids in West Virginia*

With the highest rate of fatal opioid overdoses employing prescription opioids in the nation, West Virginia (WV) has been at the forefront of the opioid crisis in the United States (Haggerty et al., 2023). One of the highest rates of opioid prescriptions per capita was seen in

West Virginia. In West Virginia, the rate was 81.3 per 100 people, compared to 58.7 prescriptions for opioids written by healthcare professionals in the US in 2017 (CDC, 2019). Even at this high per capita rate, West Virginia dropped in the distribution of prescribed opioids, with little over 31 million fewer doses of restricted substances distributed in 2017 than in 2016, with around half of these being opioids (CDC, 2017). West Virginia was the lead prescriber of opioids, at a prescribing rate of 129.5 prescriptions for every 100 people (*Figure 3*). To combat the epidemic, the state government passed Senate Bill 273 (SB273), a stringent opioid prescribing law, in March 2018. However, significant adjustments to the opioid policy may have an impact on other parties, including pharmacists. In West Virginia, the Opioid Reduction Act (SB 273) became law in June 2018. This legislation set a 30-day supply limit on ongoing, chronic opioid prescriptions and a 7-day supply and 3-day limit on initial opioid prescriptions for surgeons and emergency rooms, respectively (Sedney, et al., 2021).

With 51.5 deaths per 100,000 people, West Virginia is among the top 10 states with the highest age-adjusted drug overdose death rates (Hadehaard, et al., 2020). Prescription drug monitoring programs (PDMP) have been implemented statewide to limit the dispensing of prescription medicines and the addiction that follows (Delcher, et al., 2020). The information that PDMPs normally gather and store about the quantity and type of prescription drugs that are given to patients can then be used by hospitals, pharmacies, other prescribers, and law enforcement organizations to control their usage (Delcher, et al., 2020). The usage of PDMP can potentially reduce the daily rise in overdose incidents. Even though 49 states have started using the PDMP model, prescribers are still only using it to a limited extent (Finley, et al., 2017). In addition, the number of deaths in West Virginia related to prescription opioids increased from 31.5 per 100,000 to 77.2 per 100,000 from 2011 to 2019. Prescription-related death rates remain

high when compared to the rest of the country being at 24.7 per 100,000, despite the gradual drop in opioid prescriptions (National Institute on Drug Abuse, 2019).

## DISCUSSION

The purpose of the research was to assess the opioid epidemic in West Virginia and the factors that led to the severity of the epidemic. This was evaluated based on factors like lifestyle, education, poverty, and outside factors like Covid-19. This paper hypothesized that the opioid epidemic in West Virginia originated from a complex interplay of factors, including poverty (marked by low-income and substandard housing), limited access to education, and over-prescription of opioids, and that the opioid epidemic increased with the presence of COVID-19. This hypothesis was accepted based on the results that West Virginia is ranked in the lowest spots in education, poverty, and the highest dispensing rates of opioids which led to high vulnerability in opioid addiction. The COVID-19 pandemic has caused a surge in opioid use, overdoses, and deaths from overdoses, with racial disparities in fatal and nonfatal overdoses. To limit exposure to COVID-19, in-person treatment and rehabilitation programs has been severely restricted and the social isolation brought on by the epidemic itself is a risk factor for substance abuse.

The interview with the expert revealed that the responses to the opioid epidemic are headed in a positive direction, change takes time. The expert supported their opinions with experience as a physician and with addiction. It has been identified that the main contributing factors to the opioid epidemic have been education on addictive potential, labor-intensive occupations and/or unemployment, and the over-prescription of opioids by professionals (Appendix). The response to the issue of high prescribed opioid rates with physicians was that

they were trained to acknowledge pain as “undertreated” and needed to be addressed before the knowledge of the addictive potential they possess. Some patients need these pain medications and it is appropriate in some cases, but the educational aspect of these drugs were lacking. According to the expert, the educational aspect surrounding the opioid epidemic is improving. In 2018, The Opioid Reduction Act took effect to limit the supply of opioid prescriptions to 30-day-only prescriptions for chronic users, first-time users and surgery get a seven-day prescription, and dental work a 3-day supply all with no refills on the bottles. This act was based on the addictive nature of opioids and how to limit this. The expert also stated that continued focus on education is crucial to addressing the epidemic.

#### *Limitations of Study*

The search strategy is another limitation of this article. The search strategy used the following keywords: Opioid epidemic, West Virginia, poverty, education, and COVID-19. While these keywords gave rise to the collection of accurate data and results for this article, this could have set limitations of the study due to narrowing results to retrieve the most relevant data, causing a limited variety of research.

The number of databases used is a limitation of this study. While databases gather statistical data and background information, database use can cause inconsistent results and a shallow search pool. A shallow search pool can limit the number of databases used due to the limit of full-text articles available. When conducting research, using the full-text article is an essential factor in selecting articles, which can limit the number of databases because not all pieces are fully available to the reader. The opioid epidemic in West Virginia was fairly recent and continuing therefore data on this topic can be reduced.

*Practical Implications*

According to the Substance Abuse and Mental Health Services Administration (SAMHSA), As of December 20, 2019, West Virginia has received \$147,356,427 in federal funds to address the opioid crisis. An additional \$58,908,723 in state funds have also been allocated since July 2016 to support the state's response to this crisis. West Virginia DHHR has been responsible for the distribution of the funds to areas of need. The distribution has required careful consideration, of the needs of the population. This funding has assisted; however, grant funding has historically initiated services with the notion that they will sustain themselves by other means such as health insurance reimbursement. The threat to repeal the Affordable Care Act has drastically impacted the success of the implementation of services and treatment options to assist in the decline of the opioid crisis. Funding is a barrier to implementation and is needed to focus on future research and education surrounding the opioid epidemic and its future decline. It was the lack of research and resources that tampered with many of the past existing programs and prevented their success/longevity.

*Conclusion*

While the opioid epidemic devastated West Virginia, it can be a valuable tool for future research to prevent opioid overdoses in the state and surrounding areas. Opioid usage is dangerous and those who experience social factors such as poverty, unemployment, and poor education are more susceptible to opioid addiction. Future research should focus on programs and funding to put a stop to the overuse of opioids. Many factors affect those who are susceptible and these programs should primarily pay attention to those needs. The opioid epidemic in West Virginia is influenced by various socio-demographic factors such as poverty, low education, and

high unemployment rates, which contribute to higher rates of substance use and opioid-related deaths. The state has been heavily impacted by the opioid crisis, with high rates of opioid prescriptions and overdose deaths. Additionally, social and cultural contexts play a significant role in shaping behavior and well-being, with positive factors such as support and access to education and healthcare, and negative factors such as poverty and limited opportunities contributing to the epidemic. Housing insecurity is also a risk factor for opioid use disorder and overdose death.



