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The Opioid Epidemic: An Economic Catastrophe

The United States is currently experiencing a tragic opioid epidemic, and although most Americans are familiar with the social destruction and the rising death toll associated with this issue, there are some impacts that are often over looked. What many do not realize is that this health crisis has a significant influence on the nation's economy. Opioid abuse is impacting the unemployment rate, spending on health care, criminal justice, consumption, and the presence and quality of social capital; all of which ultimately impact the nation's economic growth. Considering the rapid growth of the issue, and the absence of a workable solution, an analysis of the associated economic implications is of vital importance.

The drug crisis known as the opioid epidemic in the United States began in the late 1990s and has been snowballing ever since. The main culprit throughout the course of this epidemic has been a semisynthetic opioid known as oxycodone. Although oxycodone was first synthesized in a German chemistry lab in the year 1916 (Newton, 2018), it was not until the turn of the millennium that the substance gained significant popularity in the United States. Troubles began in 1996 when the pharmaceutical giant Purdue Pharma received FDA approval to market their new pain medication, OxyContin. The new drug was praised for its ability to treat pain as well as any other opioid with a reduced risk of addiction and dependence. The drug was deemed to be non-addictive due to its time release components. Purdue's claims and incentives were so convincing within the medical community that OxyContin quickly became a power house in the field of pain medicine. Prescribers across the United States began to abandon other methods of treating pain, and instead opted to prescribe their patients OxyContin at an alarming rate (National Institute on Drug Abuse, 2019). Both the legal and drug markets soon became saturated with the wonder drug, and it was not long before abuse and misuse ensued. Purdue's prescription opioid remained on the market for several years before any problematic concerns rose to the surface.

In the early 2000s, numerous reports were released naming a laundry list of harmful side-effects associated with the use of OxyContin. Alleged side effects included sedation, euphoria, inconsistent improvements in functioning and/or quality of life, and, of course, an increased risk of addiction among other things (Newton, 2018, p. 72). Purdue wasted no time in combating such claims, arguing that there was no evidence suggesting that medical patients were prone to

develop addictions, and that the risk of addiction associated with their drug OxyContin was less than one percent (Meier, 2003, 173). However, negative reports continued to come out citing the addictive properties of OxyContin. In a second attempt at refuting these claims, suggesting that patients weren't experiencing true addiction, but rather *pseudoaddiction*, a condition mirroring that of actual addiction. They stated that pseudoaddiction resulted from inadequate treatment of pain, and that it could be resolved by prescribing higher doses of opioids such as OxyContin (Newton, 2018, p. 72). Although Purdue was the first to patent and market OxyContin, it did not take long for other pharmaceutical companies such as Johnson & Johnson, McKesson Corporation, and Cardinal Health to decide to cash in on the opioid market (Hoffman, 2019; Newton, 2018, p. 73). Two decades would pass between the FDA's approval of OxyContin and the first case of legal action against pharmaceutical companies involved in the opioid crisis. In those two decades, the prescription and non-prescription use of opioids skyrocketed, as did addiction and overdose rates. Today, overdoses are the leading cause of injury related death in the United States, with the majority being opioid related (Centers for Disease Control and Prevention, 2019). The severity of this epidemic has not been lost on the American people; in fact, it is considered to be one of the biggest threats to the American people due to the implications it poses to health and social factors.

Since the introduction of OxyContin in 1996, the negative factors associated with opioid abuse and misuse have done nothing but increase in both number and severity. Issues in the United States grew so significant that the Department of Health and Human Services declared the situation a public health emergency, officially transitioning the problem from a crisis to a full-blown epidemic in 2017 (HHS, 2019). Opioid use, abuse, or misuse can have a number of negative implications in an individual's health. In 1987 the American Medical Association officially categorized addiction as a disease (Leshner, 1997). The *Diagnostic and Statistical Manual of Mental Disorders Fifth Edition* classifies and diagnoses opioid use disorder (OUD) separately from other substances. OUD is diagnosed based on the observation of numerous factors including: recurrent use despite social, physical, psychological, or interpersonal problems; tolerance; withdrawal; and an extremely strong desire to use opioids (2013). Despite this classification, it is still common for individuals to view addiction as a moral failing, creating a stigma around those who are suffering and ultimately causing social rifts. In addition to mental health, the use of opioids, especially when intravenous, can increase risks of other health conditions such as Hepatitis C, HIV, and AIDS. Any one of these health problems could impact a person's ability to carry out daily functions, find employment, or maintain social relationships. Opioid addiction is well known as both a health and social issue, but its status as a significant economic issue is too frequently lost on the majority of individuals.

The relationship between the opioid crisis and the U.S. economy is a complicated one wrought with challenges, and lacking solutions. The burdens placed on the economy are plentiful. In fact, nearly every element of the nation's economic system is impacted by the health crisis in one way or another. Such implications can be clearly observed in the health care,

criminal justice, employment, and spending sectors. Both private and public spending on health care has risen sharply as a direct result of the opioid epidemic. Millions of dollars are being pumped into the health care system to provide care to those addicts who are unemployed or of low income, and to treat addiction and overdoses (Leslie, Djibril, Agbese, Xing, & Liu, 2019; Roberts, Salona, & Dusetzina, 2018; Ghertner, 2019). There is a strong relationship between labor force participation and opioid abuse as well. Numerous factors play a role in this relationship, including the stigmas and behaviors associated with drug abuse, and the correlation between unemployment and increased levels of depression; productivity falls further when the number of fatal overdoses is taken into consideration (Kreuger, 2017; Perlmutter, Connor, Savone, Kim, Segura, & Martins, 2017). Unemployment in the addiction community has further implications in the realm of consumer spending and income generation. For many addicts, any income that comes in is allocated to the purchase of opioids and/or private costs of treatment, all of which takes away from national consumption expenditures (Roddy & Greenwald, 2009; Zhou, Florence, & Dowell, 2016). Generation of income and employment status in this population is even further hindered when social capital is taken into account. Many of areas hit hardest by the epidemic claim that their communities are lacking in social capital (the concept of social capital will be discussed at length in a later section) which is exacerbating the drug problem (Sered, 2019; Zoorob & Salemi, 2017). Many of such areas are also experiencing higher rates of criminal activity, which only adds to the epidemic's economic burden. Resources allocated to the department of justice have significantly increased as more and more opioid users find themselves in legal trouble (Bipartisan Policy Center, 2019; Zajac, Nur, Kreager, & Sterner, 2019; National Institute on Drug Abuse, 2019). In total, the economic burden of the opioid epidemic is estimated at $78.5 billion annually, and until a workable solution is put into place that figure is not projected to fall (National Institute on Drug Abuse, 2019).

The present research is meant to provide an in-depth analysis of the economic costs associated with the United States' opioid epidemic. Before diving into the many different costs incurred, statistics relating to the prevalence of the problem will be briefly discussed. From there, the analysis of costs will be carried out, investigating the areas of the economy experiencing the most significant impacts. Specifically, research will look at the implications posed by the opioid epidemic in the areas of: social capital; employment; consumer spending; health care spending; and criminal justice expenditures.

Prevalence

In order to adequately understand the economic burden associated with the opioid epidemic, it is necessary to first understand just how momentous the problem is. Since the turn of the millennium opioid misuse and abuse has been on a constant and rapid increase. Between 2002 and 2013 the use of heroin alone increased 50% in the nation's males, while rates have doubled for females. In the same time frame, heroin usage has more than doubled in both the non-Hispanic white and the young adult populations (Green, 2017). From 1999 to 20017 nearly 700,000 people suffered fatal overdoses in the United States, and more than half of those

overdoses were due to prescription and non-prescription opioids (CDC, 2018). Today, in 2019, an estimated 130 people in the U.S. die from opioid related overdoses every day (NIH: Drug Abuse, 2019). Matters are routinely made worse in this situation as the nation's opioid problem is not only expected to grow, but to evolve. At present, the Centers for Disease Control and Prevention outline the opioid epidemic in three waves (2018). The initial wave began in the late 1990s with the over-prescription of opioids like OxyContin. About a decade later, in 2010, the second wave begins involving significant increases in heroin use and overdoses. Since 2013, the U.S. has been entwined in the third wave of the crisis, this time with a devastating increase in the use and overdose rates associated with illicitly-manufactured fentanyl. With each new wave comes a more lethal form of synthetic-opiates, resulting in harsher implications for the nation's economy.

Social Capital

The term social capital refers to the presence and magnitude of social trust, social networks, and social norms in a community. Social capital is a necessary factor in a strong economy. This form of capital can be described using five characteristics: the density of the community and its social networks; rates of civic engagement and community participation; a sense of belonging within the community; cooperation and reciprocity between community members; and levels of trust in the community (Zoorob & Salemi, 2017). An otherwise healthy economy is likely to suffer greatly if social capital is lacking. On the other end, economic problems often lead to the deterioration of social capital in communities. A similar relationship exists between social capital and the opioid epidemic. On one hand, low social capital can exacerbate problems like the current epidemic, but the behaviors and societal damages that typically come with high rates of addiction can serve to diminish a community's social capital.

The perceived social capital within a society or social group can say quite a bit about the people involved in that group, and rates of opioid use within that group say a lot about its social capital. The concept of social capital has not been extensively covered within the academic community, but those studies that have researched this topic have suggested that a strong positive relationship exists between social capital and quality of life (Zoorob & Salemi, 2017; Sered, 2019). Levels of social capital within communities have repeatedly correlated with self-reported measures of health and well-being. In many communities across the United States, social capital is used to explain the relationships between income inequality and drug overdose deaths. This relationship was investigated and observed in large metropolitan areas such as New York City (Galea, Ahern, Vlahov, Coffin, Fuller, Leon, & Tardiff, 2003), and in small suburban communities like Weymouth, MA (Sered, 2019). Furthermore, ecological temporal trends spanning from 1999-2014 have indicated a strong inverse relationship between social capital and overdose fatalities within communities (Zoorob & Salemi, 2017). Strong communities are more apt to maintain resources used to fight drug use and promote addiction treatment. Communities lacking in social capital may very well experience declines in the quality of education, availability of jobs, and trust in their community leaders. Each of these factors work to increase the

likelihood of negative emotions and outlooks, causing a sense of despair among the people. It is that sense of despair that is commonly observed in individuals with opioid use disorder (Sered, 2019).

The relationship between social capital and the opioid epidemic provides the broadest outline of the more intricate relationship between the epidemic and the economy as a whole. Social capital has implications on the other areas of the economy that will be discussed in the present research. Levels of employment, consumer spending, and criminal activity are directly impacted by the social capital that exists in a community. In addition, the levels of social capital that exist in a given community are subject to change as a result of changes in other areas of the economy. Having a solid understanding of what social capital is and how it is created and maintained is extremely helpful in understanding the relationship being examined in this research. It would be inaccurate to assume that the extent of the relationship is the impacts of the epidemic placed on the economic system. The two entities have profound implications on each other, and neither side is stronger than the other in this sense.

Employment and Consumer Spending

Of all the relationships that exist between the opioid crisis and the United States economy, one of the clearest and most frequently observed involves employment. This correlation is especially strong considering that a decline in employment and labor force participation rates further impact the economy in the area of consumer spending. According to a 2011 study, an estimated 46% of the total costs associated with the opioid epidemic are directly related to the workplace (Birnbaum, White, Schiller, Waldman, Cleveland, & Roland). Here, workplace costs are defined as those driven by earnings lost from fatal overdoses, about $11.2 billion, and those stemming from decreased wages and/or employment loss, totaling $7.9 billion. Decreased earnings necessarily lead to a decrease in the amount of resources allocated to consumer spending.

When looking solely at the association between opioid use and employment levels, one can observe the same mutualistic relationship present in the relationship with social capital. This complicated connection has been at the center of several research projects in recent years. A 2016 study conducted by Taeho Greg Rhee and Robert Rosenheck indicates that current or past cases of OUD are more often associated with unemployment than cases with no presence of OUD. This evidence is troubling because its suggests that, even successful recovery rates see a momentous increase, individuals in recovery would remain less likely to gain employment and the economy will continue to suffer residual damages. Similar results were found in another 2016 study, which looked specifically at the employment rate in association with *non-medical* use of prescription opioids (NMUPO) using a nationally representative sample (Perlmutter, et al). Evidence collected in this study indicates that unemployed individuals have the highest occurrence of NMUPO when compared to individuals employed full or part time, and those not in the work force. While it is clear that a significant correlation exists between employment status and opioid misuse, it is difficult to pinpoint which elements are driving this trend.

There are seemingly countless factors that might explain the relationship between employment and opioid use. As previously stated, individuals suffering from opioid addiction have an increased likelihood of experiencing other mental health challenges such as depression, anxiety, and low self-esteem, just to name a few. It is a widely accepted fact that job loss and inability to find employment can bring on such negative emotions and cause a decline in individuals' mental health, which can further increase their chances of developing a substance use disorder. However, a key piece of evidence found in the 2016 study on NMUPO points to a different explanation. Researchers observed that those participants who were not in the labor force were less likely to engage in NMUPO than those who were employed full time (Perlmutter, et al, 2016). While this may seem to oppose commonly held assumptions, it does make sense considering the financial burden of an opioid addiction. Individuals who are not counted in the labor force are those who have not looked for work in the last four weeks. Habitual opioid users are unlikely to fall into this category given the extremely high cost of maintaining their habit.

Additional economic implications arise from this relationship with employment in the category of consumer spending. Whether an individual's habit involves prescription or non-prescription substances, maintenance costs are exorbitant. Such costs not only promote the need for income generation, but also divert resources that would otherwise be allocated to consumer spending. Black market opioids like heroin and fentanyl average about $5 to $20 per dose in the United States, and individuals in the throws of an addiction are likely to spend anywhere from $100-$200 daily to maintain and avoid withdrawal symptoms (Bezrutczyk, 2019). Costs of prescription opioid abuse are also on the rise as more and more health care costs are being shifted from insurers to patients. Even for those individuals looking to get treatment for their opioid use disorders are likely to experience declines in their consumption spending. In patient addiction treatment on average will incur an out of pocket cost of about $1,500 per person, methadone maintenance runs about $6,000 yearly (Bezrutczyk, 2019). This can compound the issue of consumer spending given the demanding schedule of such treatment regimens. Individuals undergoing addiction treatment have limited or no availability to work throughout the course of their treatment, and in many cases, treatment does little to provide them with the appropriate skills needed to re-enter society. The result is a snowball effect, placing people with OUD at a disadvantage in the work force thus limiting the availability of resources going to consumer spending and significantly hindering the United States' economy.

Health Care Expenditures

The economic burden of the opioid epidemic does not come solely from the private sector of the economy. In the area of national health care expenditures, the public sector is experiencing incredibly high costs. As rates of OUD increase, so do the costs of treatment for health insurance companies, both public and private. Public insurance is facing further increases due to the association between unemployment and OUD. To combat the epidemic, the health sector is investing more time and money into research and development of treatment styles,

programs, prevention, and potential solutions. When combined, the costs to the health care industry in the U.S. are concerning and impossible to ignore.

The most notable expenses imposed on the health care industry can be observed in government funded programs such as Medicare and Medicaid. An increasing rate of individuals involved in the opioid crisis are finding themselves unemployed and in need of publicly funded health care. There has been a rise in the amount of overall medical services and prescriptions provided within the U.S. as a direct result of this epidemic, totaling an estimated $23.7 billion in 2011 (Birnbaum, et al, 2011). More recent figures look directly as the additional costs to Medicaid services, suggesting that associated Medicaid costs went up by $2 billion between 1999 and 2013, for a total of $8 billion dollars at the time of publication (Leslie, et al, 2019). This study developed a conceptual framework to determine total Medicaid costs, which included the costs incurred via chronic pain conditions, prescribed opioid medication, diversion of prescriptions to others, heroin use, opioid use disorder, and various OUD treatment options. Any combination of these factors may be involved in the provision of services to each Medicaid recipient living with OUD, of which there were an estimated 190,000 in 2013 (Leslie et al, 2019). Of the estimated $23.7 billion dollar increase in health care services, 94.9% came directly from excessive increases related to prescription medications and medical care (hospital visits, ambulance rides, etc.), and 1/3 of those costs fall on Medicaid services (Birnbaum et al, 2011). Similar to the issue of consumer spending, these health care costs pose long-term threats as the resources meant for the nation's disabled, aging, and unemployed citizens are instead being used to deal with the repercussions of the opioid epidemic.

Although a very large portion of total health care costs stemming from sharp rises in OUD come from increases in the cost of care, only a small portion is allocated to addiction treatment and prevention services. A startling 0.6% of the total health care burden is used to fund both research and development of potential solutions and prevention programs (Birnbaum, et al, 2011). It will be extremely difficult to effectively combat the colossal problem known as the opioid crisis without allocating an appropriate amount of resources to the very areas that are meant to combat it. The associated costs of addiction treatment placed on the Economy's health sector accounted for a mere 4.6% of the total health care burden in 2011 (Birnbaum, et al). This could be influenced by the lack of successful treatment options on the market, which may serve as a deterrent for many individuals with OUD. Opioid users may also be apprehensive to go into treatment because, despite accounting for a small percentage of total costs, treatment programs typically cost patients and insurance companies quite a bit out of pocket. Data collected in 2013, and adjusted to 2017 dollars, indicates that the average Medicaid cost per person involved in inpatient treatment was $1912 annually, outpatient services were about $8830 (Leslie, et al, 2019). Given the extremely high costs associated with the treatment of one individual, it is difficult to understand how it is possible to allocate such a small percentage of resources to this area. What's more is that the new treatment methods that are hitting the market are aiming to further reduce the overall costs of treatment. One drug in particular is gaining popularity in the

treatment of OUD; buprenorphine, sold under the names Subutex and Suboxone. Since hitting the market in 2003, this prescription drug has been up and down in terms of out-of-pocket and insurer costs. However, since 2013 costs have been on the decline, making it more affordable and accessible to those seeking treatment (Roberts, Saloner, & Dusetzina, 2018). The trouble with this particular treatment regimen is that buprenorphine is itself an opioid with high risks of dependence, which decreases its odds of success in treating opioid addiction. Furthermore, addiction treatment is not one size fits all. So, although the decreased costs are increasing the availability of this particular drug, it can not be considered a significant step in the direction of a solution.

Within the health care sector, the opioid epidemic poses a unique threat. Not only are there extreme costs placed on this area of the economy, but it is here that that nation must work toward a solution. As stated, that solution is likely to involve many moving parts, a blanket solution will not work in this case. While it is true that all associated health care costs are burdening the industry, it may be more beneficial in the long run to allocate more resources to the research and development of treatment and prevention programs. Otherwise, the costs incurred via emergency medical care, prescription medications, ambulance rides, and other direct care services are going to continue threatening the economy well into the future. Funding research and development is the best chance the economy has in finding an optimal solution.

Criminal Justice

The public sector of the United States economy is also bearing the costs of the opioid crisis in the criminal justice system. Terms like addict, opioid abuse, and drug use are frequently associated with criminal activity, and until very recently, nearly all individuals who were caught using or possessing drugs were treated as criminals. In recent years there have been some changes made in the way that drug addiction is handled, no doubt a result of the increasing severity of the opioid crisis. As the issue grows in prevalence, the notion that addiction is merely a moral failing is diminishing. However, participation in the purchase and sale of illicit drugs like heroin, fentanyl, and black market oxycontin is still an unlawful act, meaning it will continue to burden the Department of Justice as long as the crisis remains.

Since the start of the infamous War on Drugs in the 1970s, drug related arrests have been on a sharp and constant incline. In 2016, the number of people who were arrested for drug law violations totaled 1,654,282, and of them a shocking 1,429,299 were charged only with possession (Drug Policy Alliance, 2019). Roughly one third of the individuals arrested for drug law violations went on to be incarcerated that year. For the 2016 fiscal year, a single inmate was estimated to cost the government about $95 per day (Hyle, 2018), meaning that in 2016, the public sector spent nearly $47 million per day jailing individuals who were caught with illicit drugs. While one cannot attribute each of those incarcerations to opioids alone, a high percentage of those possession charges were likely attributable to the current crisis. What can be stated for certain is the overall increase in opioid appropriations made by the Department of Justice. In fiscal year 2017 $194 million were spent by the department on opioid appropriations.

By the end of fiscal year 2018, that figure more than doubled, totaling $515,839,484 (Bipartisan Policy Center, 2019). Fortunately, those allocations were not solely put toward housing inmates. Records released in 2019 indicate that the Department of Justice funds and administers 11 grant programs to combat the opioid crisis. These grant programs perform a number of functions including: connecting arrestees with treatment options; assisting children and youth impacted by opioid abuse; funding partnerships between first responders and treatment centers; and supporting reentry programs for those who are or were incarcerated on drug related charges. It appears as though the Department of Justice is making progress in terms of how they handle drug addiction and opioid abuse, the economic burden is not made any lighter.

Conclusion

When discussing the opioid crisis, the impact it has on the economy is not likely to be the first topic that comes to mind. Yet, as present and past research has indicated, the economic burden associated with the epidemic is not something to be ignored. Nearly every nook and cranny of the United States' economy is currently experiencing significant damages due to this problem. Whether it be lost productivity due to lowered labor force participation, reductions in consumer spending, lost social capital, or rising public expenditures, the economy is and will continue to suffer as long as this problem wages on. In order to alleviate this burden, a workable and effective solution to the opioid crisis must be determined and put into place immediately. It is no longer an option to simply deal with the repercussions of the problem as they come, which has been the strategy until recently. Instead, something must be done to combat active addiction in those who have already been affected and prevent the problem from persisting into the future.

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