The Most Challenging Healthcare Issue in the USA Currently: The Opioid Crisis

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Abstract

The opioid crisis stands as the most challenging healthcare issue in the United States today, marked by widespread misuse of both prescription and illicit opioids, resulting in significant morbidity and mortality. This review explores the multifaceted dimensions of the opioid crisis, examining its scope, underlying causes, and profound impact on public health and society. It also evaluates the comprehensive strategies required to address the crisis effectively. These strategies encompass regulatory reforms, enhanced healthcare interventions, public health initiatives, and community-based approaches. Despite ongoing efforts, the opioid crisis persists, highlighting the urgent need for coordinated and sustained responses across various sectors. By understanding the complexities of this issue and implementing robust, multifaceted strategies, we can work towards mitigating the devastating effects of opioid addiction and improving public health outcomes.

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I. Introduction

The opioid crisis has escalated into a public health emergency in the United States, resulting in a dramatic increase in opioid-related overdoses and deaths. This paper reviews the current state of the opioid crisis, explores its root causes, and discusses potential solutions to mitigate its impact. Understanding the complexity of this issue is crucial for developing effective interventions and policies (reference from CDC 2021).

The opioid crisis has had a devastating impact on public health in the United States. The increased rates of opioid addiction and overdose-related deaths have reached epidemic proportions, leading to a significant burden on healthcare resources and services. According to the National Institute on Drug Abuse, over 130 people die every day from opioid-related drug overdoses. The long-term consequences of opioid addiction extend beyond the individual, affecting their families and communities. Children are often left without proper care and support when their parents are struggling with addiction, leading to a cycle of trauma and instability.

Several factors have contributed to the widespread opioid crisis in the United States. One of the primary factors is the overprescription of opioid pain medications by healthcare providers. In the past, opioids were commonly prescribed for various types of pain, leading to a high likelihood of addiction among patients. Additionally, the lack of effective regulations and monitoring of opioid prescriptions has allowed for their misuse and diversion into the black market. Pharmaceutical companies have also played a role in the crisis by aggressively marketing opioids as safe and effective pain management solutions, downplaying their addictive nature.

Addressing the opioid crisis requires a multifaceted approach that involves various strategies. Enhancing access to substance abuse treatment and recovery programs is crucial in helping individuals overcome their addiction and prevent relapse. Implementing stricter regulations on opioid prescribing practices, such as limiting the duration and dosage of opioid prescriptions, can help curb the overprescription of these medications. Increasing public awareness and education on the risks of opioid misuse and addiction is also essential in preventing new cases of opioid addiction and reducing the stigma associated with seeking help for substance abuse issues.

The opioid crisis in the United States presents a complex and challenging healthcare issue that requires immediate attention and comprehensive solutions. By understanding the impact of the crisis on public health, identifying the contributing factors, and implementing effective strategies for prevention and treatment, we can work towards mitigating the devastating effects of opioid addiction on individuals, families, and communities (reference from Blanco C 2020).

II. Background

The opioid crisis has emerged as one of the most formidable public health challenges in the United States, representing a complex and multifaceted issue with devastating consequences for communities, individuals, and families. Originating in the late 1990s with the overprescription of opioid painkillers, the crisis has evolved to

include a surge in the use of illicit opioids such as heroin and other drugs. The rise in opioid use and misuse has significantly increased opioid-related overdose deaths, as a leading cause of injury-related mortality in the country. The opioid epidemic is not only a medical issue but also a social and economic one. It increases issues of socioeconomic disparity, mental health, and public policy. Its impact is felt across various sectors including social services, healthcare, and law enforcement. The economic burden of opioid misuse is stumbling, with costs exceeding \$78 billion annually due to healthcare expenses, addiction treatment, lost productivity, and criminal justice involvement. Efforts to combat the opioid crisis involve a wide range of strategies, including prevention, education, harm reduction, and treatment. Public health campaigns aim to raise awareness about the risks of opioid misuse, while prescription drug monitoring programs regulate and control the distribution of these medications. Treatment for opioid use disorder (OUD) encompasses medication-assisted therapies, behavioral counseling, and support services, which are essential for effective recovery. Harm reduction approaches, such as the distribution of naloxone and the establishment of supervised injection sites, are also crucial in reducing the immediate risks of opioid overdoses. This research paper seeks to explore the current state, impact, and origins of the opioid crisis in the United States. By examining epidemiological data, analyzing socioeconomic implications, and evaluating public health responses, this paper aims to provide a comprehensive understanding of the opioid epidemic. Furthermore, it will propose potential solutions to diminish the crisis and improve the health and well-being of affected populations. The opioid crisis is a daunting challenge, but with sustained and collaborative efforts, substantial progress can be achieved in tackling this public health emergency.

The opioid crisis, a profound and far-reaching public health catastrophe, has gripped the United States for over two decades, evolving into one of the most pressing and challenging healthcare issues of our time. Initially rooted in the medical community's well-intentioned but ultimately misguided efforts to manage chronic pain, the crisis has grown into a multifaceted epidemic, encompassing both the misuse of prescription opioids and the surge in illicit opioid use, including heroin and synthetic opioids like fentanyl. The consequences of this crisis are dire, with staggering increases in addiction, overdose deaths, and related social and economic burdens (reference from Kruk ME et al. 2018).

As opioid prescriptions increased, so did the instances of opioid misuse and addiction. Individuals who initially received opioids for legitimate medical reasons often found themselves trapped in a cycle of dependency. When prescriptions became unavailable or insufficient to satisfy their addiction, many turned to illicit sources. The transition from prescription opioids to more dangerous substances like heroin and fentanyl marked a deadly escalation in the crisis. Fentanyl, in particular, with its high potency and widespread availability, has been a significant driver of the recent surge in overdose deaths (reference from national academic sciences, engineering and medicine Committee on pain management 2017).

The impact of the opioid crisis extends beyond the immediate health consequences, permeating various aspects of American society. The healthcare system has been overwhelmed with the dual challenge of treating addiction and managing the health complications associated with opioid misuse. Emergency departments, addiction treatment centers, and mental health services are under unprecedented strain. The economic toll is substantial, encompassing healthcare costs, lost productivity, and the burden on social services(reference from USDA).

Families and communities bear the brunt of the crisis's social impact. The ripple effects of addiction can lead to family disintegration, child neglect, and a rise in crime rates. Communities, especially those already vulnerable due to economic disadvantage, face heightened instability and reduced quality of life.

Addressing the opioid crisis demands a comprehensive and coordinated approach, integrating efforts from healthcare, policy, law enforcement, and community organizations. Strategies must include stricter regulation and monitoring of opioid prescriptions, enhanced access to addiction treatment and recovery services, and robust public education campaigns to raise awareness about the risks of opioid misuse. Policymakers must also address the social determinants of health that contribute to substance abuse, such as poverty, lack of education, and inadequate mental health support(reference from Substance Abuse and Mental Health Services Administration (US); Office of the Surgeon General (US).).

Furthermore, innovative approaches to pain management that minimize reliance on opioids are essential. Research into alternative therapies and the development of non-addictive pain medications could play a crucial role in preventing future addiction.

The table 1 below shows Key aspects of the opioid crisis, including its origins, prescription practices, transition to illicit opioids, socioeconomic factors, and strategies for addressing the crisis.

| Aspect | Description | Key References |
|---------------------------------|---|---|
| Origins of the Opioid Crisis | Aggressive marketing of opioid pain relievers by pharmaceutical companies in the late 1990s assured safety and minimized addiction risks, leading to widespread overprescription. | Van Zee (2009); Kolodny et al. (2015) |
| Prescription Practices | Liberal prescribing practices and inadequate regulatory oversight contributed to opioid misuse. | Katz et al. (2013); Manchikanti et al. (2012) |
| Transition to Illicit Opioids | Many individuals with opioid use disorder transitioned to heroin and fentanyl as prescription opioids became less available. | Cicero et al. (2014); O'Donnell et al. (2017) |
| Socioeconomic Factors | Economic stress and co-occurring mental health disorders correlate with higher rates of opioid misuse. | Case et al (2015) & Deaton et al (2015); Wu et al. (2011) |
| Regulatory Measures | Implementation of Prescription Monitoring Programs (PMPs) and regulation of pharmaceutical companies to reduce opioid prescriptions and misuse. | Patrick et al. (2016) |
| Healthcare Interventions | Enhancing access to Medication-Assisted Treatment (MAT) and educating healthcare providers on safe prescribing practices. | Volkow et al. (2014) |
| Public Health Strategies | Harm reduction measures such as syringe exchange programs and naloxone distribution to reduce immediate risks of opioid misuse. | Des Jarlais et al. (2015) |
| Community-Based Programs | Addressing social determinants of health and providing holistic care to support recovery and prevent relapse. | Wagner et al. (2014) |
| Research and Innovation | Developing non-addictive pain management alternatives and improving data surveillance to monitor and respond to the crisis effectively. | Volkow et al.(2014),Patrick et al.(2016),Des Jarlais et al.(2015) |

III. Literature Review

The opioid crisis in the United States has been extensively studied and documented, revealing a complex interplay of factors that have contributed to its escalation. This literature review examines the key elements of the crisis, including its origins, the role of prescription practices, the transition to illicit opioids, socioeconomic factors, and the various strategies proposed to mitigate its impact.

Origins of the Opioid Crisis

The origins of the opioid crisis can be traced back to the late 1990s when pharmaceutical companies aggressively marketed opioid pain relievers, assuring the medical community of their safety and minimal risk of addiction. Van Zee (2009) detailed how Purdue Pharma's marketing of OxyContin misled healthcare providers, resulting in widespread overprescription. This laid the groundwork for widespread opioid misuse as many patients became dependent on these medications (Kolodny et al., 2015).

Prescription Practices

One of the primary drivers of the opioid crisis has been the overprescription of opioid medications. Studies have shown that the liberal prescribing practices of healthcare providers, influenced by pharmaceutical companies' marketing efforts, significantly contributed to the crisis. Katz et al. (2013) highlighted the correlation between increased opioid prescriptions and rising rates of opioid addiction and overdose deaths. The lack of stringent regulations and monitoring further exacerbated the situation (Manchikanti et al., 2012).

Transition to Illicit Opioids

As the availability of prescription opioids tightened due to regulatory measures, many individuals with opioid use disorder transitioned to illicit opioids such as heroin and fentanyl. Cicero et al. (2014) found that nearly 75% of heroin users reported that their opioid use began with prescription medications. The rise of fentanyl, a

synthetic opioid significantly more potent than heroin, has been particularly alarming due to its high overdose potential and widespread availability (O'Donnell et al., 2017).

Socioeconomic Factors

Socioeconomic factors have also played a significant role in the opioid crisis. Studies by Case and Deaton (2015) showed that economic stress, including unemployment and poverty, is correlated with higher rates of opioid misuse. Additionally, co-occurring mental health disorders, such as depression and anxiety, are common among individuals with opioid use disorder, further complicating their treatment and recovery (Wu et al., 2011).

Strategies for Addressing the Crisis

Addressing the opioid crisis requires a multifaceted approach. Regulatory and policy measures, such as Prescription Monitoring Programs (PMPs), have been shown to reduce opioid prescriptions and misuse (Patrick et al., 2016). Enhancing access to Medication-Assisted Treatment (MAT) is crucial for effective management of opioid use disorder. Studies have demonstrated that MAT, including medications like methadone, buprenorphine, and naltrexone, significantly improves treatment outcomes (Volkow et al., 2014).

Public health strategies, including harm reduction measures, are essential components of a comprehensive response to the crisis. Programs such as syringe exchange services and the distribution of naloxone have been effective in reducing the immediate risks associated with opioid misuse (Des Jarlais et al., 2015). Community-based programs that address the social determinants of health and provide holistic care are also vital in supporting recovery and preventing relapse (Wagner et al., 2014).

Scope of the Opioid Crisis

1. Prevalence and Mortality:

- Statistics: According to the Centers for Disease Control and Prevention (CDC), over 90,000 drug overdose deaths occurred in the United States in 2020, with opioids involved in about 70% of these cases.
- Trends: The crisis has evolved through three waves: the rise of prescription opioid overdose deaths in the 1990s, increased heroin overdose deaths in 2010, and a surge in synthetic opioid (particularly fentanyl) deaths starting in 2013.

2. Impact on Public Health:

- Morbidity and Mortality: Opioid misuse leads to significant health complications, including dizziness, respiratory depression, and death.
- Economic Burden: The economic impact includes healthcare costs, lost productivity, addiction treatment, and criminal justice involvement, estimated to cost the U.S. over \$78 billion annually.

Causes of the Opioid Crisis

1. Prescription Practices:

- Overprescription: In the late 1990s, pharmaceutical companies reassured the medical community that patients would not become addicted to opioid pain relievers, leading to increased prescription rates.
- Lack of Regulation: Inadequate regulation and monitoring of prescription practices contributed to widespread availability and misuse.

2. Illicit Drug Market:

- Heroin and Fentanyl: The transition from prescription opioids to cheaper and more potent illicit opioids, such as heroin and fentanyl, has exacerbated the crisis. Fentanyl is particularly lethal due to its potency and prevalence in the drug supply.

3. Socioeconomic Factors:

- Economic Stress: Economic downturns, unemployment, and poverty are correlated with higher rates of opioid misuse.
- Mental Health: Co-occurring mental health disorders, such as depression and anxiety, are common among individuals with opioid use disorder (OUD).

Solutions and Strategies

1. Regulatory and Policy Measures:

- Prescription Monitoring Programs (PMPs): Implementing and enhancing PMPs can help track and regulate opioid prescriptions, reducing misuse.
- Regulation on Pharmaceutical Companies: Holding pharmaceutical companies accountable for misleading marketing practices and ensuring proper opioid distribution controls.

2. Healthcare Interventions:

- Education and Training: Educating healthcare providers on safe prescribing practices and recognizing signs of OUD.
- Medication-Assisted Treatment (MAT): Expanding access to MAT, including methadone, buprenorphine, and naltrexone, which are effective in treating OUD.

3. Public Health Approaches:

- Harm Reduction: Implementing harm reduction strategies such as syringe exchange programs, supervised injection sites, and widespread availability of naloxone to prevent overdoses.
- Community-Based Programs: Supporting community-based prevention and treatment programs that address the social determinants of health and provide holistic care.

4. Research and Innovation:

- Developing Non-Addictive Pain Management: Researching and promoting non-opioid pain management alternatives to reduce reliance on opioids.
- Data and Surveillance: Enhancing data collection and surveillance to monitor the crisis and evaluate the effectiveness of interventions.

IV. Conclusion

The opioid crisis continues to be the most pressing healthcare challenge in the United States, necessitating an urgent, multifaceted, and sustained response. This public health emergency, driven by widespread misuse of prescription and illicit opioids, has resulted in significant morbidity, mortality, and a profound societal impact. Addressing the crisis requires a coordinated approach that includes regulatory reforms to monitor and control opioid prescriptions, enhanced access to evidence-based treatments such as Medication-Assisted Treatment (MAT), and comprehensive public health strategies that incorporate harm reduction measures.

Moreover, addressing the social determinants of health that contribute to substance abuse, such as economic stress and mental health disorders, is crucial. Community-based programs that offer holistic care and support for affected individuals and families are essential in fostering resilience and recovery.

Research and innovation are vital in developing non-addictive pain management alternatives and improving data surveillance to effectively monitor the crisis and evaluate intervention outcomes. By adopting these comprehensive and innovative approaches, we can mitigate the devastating effects of the opioid crisis and foster a healthier, more resilient society. The commitment to coordinated efforts across healthcare, policy, and community sectors is essential to overcoming this public health emergency and improving the well-being of countless Americans.

References

- [1]. Centers for Disease Control and Prevention (CDC). (2021). Drug Overdose Deaths in the U.S. Top 100,000 Annually. Retrieved from [CDC Website](https://www.cdc.gov).
- [2]. National Institute on Drug Abuse (NIDA). (2020). The Opioid Crisis. Retrieved from [NIDA Website](https://www.drugabuse.gov).
- [3]. Florence, C. S., Zhou, C., Luo, F., & Xu, L. (2016). The economic burden of prescription opioid overdose, abuse, and dependence in the United States, 2013. Medical Care, 54(10), 901-906.
- [4]. Volkow, N. D., & McLellan, A. T. (2016). Opioid abuse in chronic pain—misconceptions and mitigation strategies. New England Journal of Medicine, 374(13), 1253-1263.
- [5]. Jones, C. M., Einstein, E. B., & Compton, W. M. (2018). Changes in synthetic opioid involvement in drug overdose deaths in the United States, 2010-2016. JAMA, 319(17), 1819-1821.
- [6]. Case, A., & Deaton, A. (2015). Rising morbidity and mortality in midlife among white non-Hispanic Americans in the 21st century. Proceedings of the National Academy of Sciences, 112(49), 15078-15083.
- Cicero, T. J., Ellis, M. S., & Surratt, H. L. (2014). Effect of abuse-deterrent formulation of OxyContin. New England Journal of Medicine, 371(2), 187-189.
- [8]. Des Jarlais, D. C., Nugent, A., Solberg, A., Feelemyer, J., & Mermin, J. (2015). Syringe service programs for persons who inject drugs in urban, suburban, and rural areas—United States, 2013. MMWR Morbidity and Mortality Weekly Report, 64(48), 1337.
- [9]. Katz, N. P., Birnbaum, H. G., Castor, A., Volpe, A., & Leslie, R. S. (2013). Volume of prescription opioids used nonmedically in the United States. Journal of Pain & Palliative Care Pharmacotherapy, 27(1), 19-29.

- [10]. Kolodny, A., Courtwright, D. T., Hwang, C. S., Kreiner, P., Eadie, J. L., Clark, T. W., & Alexander, G. C. (2015). The prescription opioid and heroin crisis: a public health approach to an epidemic of addiction. Annual Review of Public Health, 36, 559-574.
- [11]. Manchikanti, L., Helm, S., Fellows, B., Janata, J. W., Pampati, V., Grider, J. S., & Boswell, M. V. (2012). Opioid epidemic in the United States. Pain Physician, 15(3 Suppl), ES9-38.
- [12]. O'Donnell, J. K., Gladden, R. M., & Seth, P. (2017). Trends in deaths involving heroin and synthetic opioids excluding methadone, and law enforcement drug product reports, by census region—United States, 2006–2015. MMWR Morbidity and Mortality Weekly Report. 66(34), 897.
- [13]. Patrick, S. W., Fry, C. E., Jones, T. F., & Buntin, M. B. (2016). Implementation of prescription drug monitoring programs associated with reductions in opioid-related death rates. Health Affairs, 35(7), 1324-1332.
- [14]. Van Zee, A. (2009). The promotion and marketing of OxyContin: commercial triumph, public health tragedy. American Journal of Public Health, 99(2), 221-227.
- [15]. Volkow, N. D., Frieden, T. R., Hyde, P. S., & Cha, S. S. (2014). Medication-assisted therapies—tackling the opioid-overdose epidemic. New England Journal of Medicine, 370(22), 2063-2066.
- [16]. Wagner, K. D., Davidson, P. J., Iverson, E., Washburn, R., Burke, E., Kral, A. H., ... & Lankenau, S. E. (2014). Associations between syringe exchange use and practice of harm reduction strategies among newly initiated injection drug users. AIDS and Behavior, 18(2), 219-228.
- [17]. Wu, L. T., Woody, G. E., Yang, C., & Blazer, D. G. (2011). Subtypes of nonmedical opioid users: results from the National Epidemiologic Survey on Alcohol and Related Conditions. Drug and Alcohol Dependence, 112(1-2), 69-80.
- [18]. Van Zee, A. (2009): The promotion and marketing of OxyContin: commercial triumph, public health tragedy. American Journal of Public Health, 99(2), 221-227.
- [19] Kolodny, A., Courtwright, D. T., Hwang, C. S., Kreiner, P., Eadie, J. L., Clark, T. W., & Alexander, G. C. (2015): The prescription opioid and heroin crisis: a public health approach to an epidemic of addiction. Annual Review of Public Health, 36, 559-574
- [20]. Katz, N. P., Birnbaum, H. G., Castor, A., Volpe, A., & Leslie, R. S. (2013): Volume of prescription opioids used nonmedically in the United States. Journal of Pain & Palliative Care Pharmacotherapy, 27(1), 19-29.
- [21]. Manchikanti, L., Helm, S., Fellows, B., Janata, J. W., Pampati, V., Grider, J. S., & Boswell, M. V. (2012): Opioid epidemic in the United States. Pain Physician, 15(3 Suppl), ES9-38.
- [22]. Cicero, T. J., Ellis, M. S., & Surratt, H. L. (2014): Effect of abuse-deterrent formulation of OxyContin. New England Journal of Medicine, 371(2), 187-189.
- [23]. O'Donnell, J. K., Gladden, R. M., & Seth, P. (2017): Trends in deaths involving heroin and synthetic opioids excluding methadone, and law enforcement drug product reports, by census region—United States, 2006–2015. MMWR Morbidity and Mortality Weekly Report, 66(34), 897.
- [24]. Case, A., & Deaton, A. (2015): Rising morbidity and mortality in midlife among white non-Hispanic Americans in the 21st century. Proceedings of the National Academy of Sciences, 112(49), 15078-15083.
- [25]. Wu, L. T., Woody, G. E., Yang, C., & Blazer, D. G. (2011): Subtypes of nonmedical opioid users: results from the National Epidemiologic Survey on Alcohol and Related Conditions. Drug and Alcohol Dependence, 112(1-2), 69-80.
- [26]. Patrick, S. W., Fry, C. E., Jones, T. F., & Buntin, M. B. (2016): Implementation of prescription drug monitoring programs associated with reductions in opioid-related death rates. Health Affairs, 35(7), 1324-1332.
- [27]. Volkow, N. D., Frieden, T. Ř., Hyde, P. S., & Cha, S. S. (2014): Medication-assisted therapies—tackling the opioid-overdose epidemic. New England Journal of Medicine, 370(22), 2063-2066.
- [28]. Des Jarlais, D. C., Nugent, A., Solberg, A., Feelemyer, J., & Mermin, J. (2015): Syringe service programs for persons who inject drugs in urban, suburban, and rural areas—United States, 2013. MMWR Morbidity and Mortality Weekly Report, 64(48), 1337.
- [29] Wagner, K. D., Davidson, P. J., Iverson, E., Washburn, R., Burke, E., Kral, A. H., ... & Lankenau, S. E. (2014): Associations between syringe exchange use and practice of harm reduction strategies among newly initiated injection drug users. AIDS and Behavior, 18(2), 219-228.
- [30]. Volkow, N. D., Frieden, T. R., Hyde, P. S., & Cha, S. S. (2014): Medication-assisted therapies—tackling the opioid-overdose epidemic. New England Journal of Medicine, 370(22), 2063-2066.
- [31]. Patrick, S. W., Fry, C. E., Jones, T. F., & Buntin, M. B. (2016): Implementation of prescription drug monitoring programs associated with reductions in opioid-related death rates. Health Affairs, 35(7), 1324-1332.
- [32]. **Des Jarlais, D. C., Nugent, A., Solberg, A., Feelemyer, J., & Mermin, J. (2015)**: Syringe service programs for persons who inject drugs in urban, suburban, and rural areas—United States, 2013. MMWR Morbidity and Mortality Weekly Report, 64(48), 1337.
- [33]. Blanco C, Wiley TRA, Lloyd JJ, Lopez MF, Volkow ND. America's opioid crisis: the need for an integrated public health approach. Transl Psychiatry. 2020 May 28;10(1):167. doi: 10.1038/s41398-020-0847-1. PMID: 32522999; PMCID: PMC7286889
- [34]. Kruk ME, Gage AD, Arsenault C, Jordan K, Leslie HH, Roder-DeWan S, Adeyi O, Barker P, Daelmans B, Doubova SV, English M, García-Elorrio E, Guanais F, Gureje O, Hirschhorn LR, Jiang L, Kelley E, Lemango ET, Liljestrand J, Malata A, Marchant T, Matsoso MP, Meara JG, Mohanan M, Ndiaye Y, Norheim OF, Reddy KS, Rowe AK, Salomon JA, Thapa G, Twum-Danso NAY, Pate M. High-quality health systems in the Sustainable Development Goals era: time for a revolution. Lancet Glob Health. 2018 Nov;6(11):e1196-e1252. doi: 10.1016/S2214-109X(18)30386-3. Epub 2018 Sep 5. Erratum in: Lancet Glob Health. 2018 Nov;6(11):e1162. doi: 10.1016/S2214-109X(18)30438-8. Erratum in: Lancet Glob Health. 2018 Nov;6(11):e1162. doi: 10.1016/S2214-109X(18)30456-X. Erratum in: Lancet Glob Health. 2021 Aug;9(8):e1067. doi: 10.1016/S2214-109X(21)00250-3. PMID: 30196093; PMCID: PMC7734391.
- [35]. Academies of Sciences, Engineering, and Medicine; Health and Medicine Division; Board on Health Sciences Policy; Committee on Pain Management and Regulatory Strategies to Address Prescription Opioid Abuse; Phillips JK, Ford MA, Bonnie RJ, editors. Pain Management and the Opioid Epidemic: Balancing Societal and Individual Benefits and Risks of Prescription Opioid Use. Washington (DC): National Academies Press (US); 2017 Jul 13. 5, Evidence on Strategies for AddNational ressing the Opioid Epidemic. Available from: https://www.ncbi.nlm.nih.gov/books/NBK458653/
- [36]. https://www.usda.gov/topics/opioids
- [37]. Substance Abuse and Mental Health Services Administration (US); Office of the Surgeon General (US). Facing Addiction in America: The Surgeon General's Report on Alcohol, Drugs, and Health [Internet]. Washington (DC): US Department of Health and Human Services; 2016 Nov. CHAPTER 7, VISION FOR THE FUTURE: A PUBLIC HEALTH APPROACH. Available from: https://www.ncbi.nlm.nih.gov/books/NBK424861/
- [38]. Dasgupta N, Beletsky L, Čiccarone D. Opioid Crisis: No Easy Fix to Its Social and Economic Determinants. Am J Public Health. 2018 Feb;108(2):182-186. doi: 10.2105/AJPH.2017.304187. Epub 2017 Dec 21. PMID: 29267060; PMCID: PMC5846593.