

Understanding Substance Abuse Across Generations: A Comparative Analysis of Adolescents and Older Adults in the U.S.

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Abstract:

Substance abuse remains a critical public health issue in the U.S., with rising overdose rates affecting both adolescents and older adults. Despite the growing impact on these age groups, there is a gap in research exploring the distinct factors that drive substance abuse across generations, particularly among older adults, who remain underrepresented in clinical studies. This essay aims to compare the current situation and psychological, social, and policy-related drivers of substance abuse between adolescents and older adults, while proposing age-specific interventions to address these issues. Using a literature review and data analysis from national health surveys and clinical research, key findings suggest that adolescents are increasingly vulnerable to synthetic opioids like fentanyl, while older adults face challenges related to polypharmacy, chronic pain, and inadequate healthcare access. Consequently, this essay emphasizes the need for distinct prevention and treatment methods, calling for more inclusive research on older adults through advancing public health policies, improved access to addiction treatment by expanding practitioner workforce, and the use of digital health tools to provide age-appropriate care in the future.

Keywords: Substance abuse; adolescent; older adults.

1. Introduction

As analgesics gradually transform from beneficial prescription medicine to underlying contributors of overdoses and substance use disorders, the public health crisis of substance abuse, especially opioids, has swept through the United States with mounting rates of related mortalities. On the one hand, according to the trend analysis using linear regression model by Nancy and colleagues, the fatality rates

among older ages and the use of prescription opioids followed a growing linear tendency [1]. Specifically, older adults with sustaining prescription opioid misuse tend to have the greatest damage, including reduced mental and physical health-related quality of life and high rates of emergency department use (42.7%) [2]. On the other hand, adolescence, marked as the period for the onset of multiple unhealthy behaviors, has been observed to be associated with

risks such as dependence, depression, and suicide when exposed to illicit drugs and cannabis. Furthermore, studies have revealed that substance misuse during teenage years is likely to augment susceptibility to dependence due to greater effects on certain areas of the brain, which may result in long-term impacts through interfering social transitions into adulthood [3].

Taken together, the alarming condition of the two age populations who stand on the two ends of the whole humanity necessitates the analysis of the potential factors that conduce to substance abuse and the recommendation of possible solution programs in an intercomparative lens, aiming to understand the distinct drivers of substance abuse in adolescence and late adulthood and emphasize how treatment programs should differ.

In this essay, with the current situation of both the adolescent and the elderly in terms of substance use illustrated in the first place, the socioeconomic, biological factors and policy gaps causing the pervasive phenomenon will be analyzed. Finally, this article highlights solutions which can help combat the substance abuse issue in the following years.

2. Problem Identification

2.1 Adolescent

The TV series “euphoria” featuring the Emmy winner Zendaya follows a group of high schoolers as they navigate love and friendships in a world of drugs, trauma, and social media. Essentially, the phenomenon, reflected by this HBO series, of teenagers in the States overdosing due to psychological illness and social anxieties and ending up dead is on the rise. From an evolutive perspective, there have been gradual, though inconsistent, decreases in the use of any illicit drug since the vertexes in the mid to late 1990s drug use relapse. However, these declines ceased in an unexpected fashion in the late 2000s, followed by increases between 2007 and 2011 [4]. During the pandemic, since the associated changes like school closures and social distancing, it marked a striking shift in illicit drugs misuse levels among teenagers, with the covered use for nearly all substances declined substantially between 2020 and 2021 [5]. In 2023, the ratio of adolescent reporting they took any illicit substance sustained to hold stable below the pre-pandemic levels compiled in 2020, with the percentage of adolescents reporting lifetime use of any illicit drug 40% for 12th graders, 33% for 10th graders, and 22% for 8th graders. Specifically, based on the Monitoring the Future Survey, alcohol, cannabis, and nicotine vaping were most commonly used by American teenagers.

In spite of the dwindling use rate of illicit substance, a

dramatic rise in overdose death rates among teens between 2010 to 2021 has been observed, and in the light of National Institution on Drug Abuse, this trend among teens aged 15-19 stayed elevated well into 2022. This rising tendency is largely attributed to illicitly manufactured fentanyl and other synthetic opioids, contaminating the drug supply of counterfeit pills. The research conducted by Friedman and team showed that the majority of the deaths implicating fentanyl was constituted of adolescent aged 14-18 (77.14%), compared with 13.26% for benzodiazepines, 9.77% for methamphetamine, 7.33% for cocaine, 5.76% for prescription opioids, and 2.27% for heroin [6]. A pattern of racial and ethnical inequity in overdose death also emerged in these adolescent trends. Consequently, the issue of substance abuse, if not more common, is becoming increasingly dangerous for teenagers.

2.2 Older Adults

While the fact that the prevalence of substance abuse in older citizens is lower than that in adolescents fabricated a misconception that seniors have little to do with psychoactive drugs abuse and development of substance use disorder, plentiful evidence has suggested that the substance abuse among seniors has been understudied with the older adults being underrepresented in chronic pain clinical trials. Unlike adolescent, adults aged 65 or older are particularly more vulnerable to chronic pain, prescription drug abuse, and addiction. According to the national institution of health (NIH), up to 30% of the elderly adults suffer from chronic pain. It was calculated that one quarter of the prescription drugs Sold in America are taken by seniors due to chronic pain and mental health-related problems. A national study conducted in 2008 found that a high percentage of individuals aged 57 to 85 are currently prescribed with 5 distinct medications, with 37.1% of men and 36.0% of women, pinpointing the existence of polypharmacy. In fact, as medications like Benzodiazepines, opiates, and other antibiotics stands a chance to develop physical dependence, that the prevalence of the prescription drug abuse among the elderly was closed to 11% was estimated in the cross-sectional study in 2008 [7]. Three years later as the baby boom generation turned 65 years old, the substance abuse urgency became more severe.

Data from 2018 national survey on drug use and health, an annual nationally representative study of U.S citizens aged 12 and older, showed that substance abuse in adults aged 65 and older ascended from 19.3 percent in 2012 to 31.2 percent in 2017. Among all the types of substance, alcohol, opioid including prescription opioids use were the most common, with 43 percent and 1.3 percent, respectively. Glancing at the U.S overdose death in senior

citizens, as calculated from the US Centres for Disease Control and Prevention Wide-ranging Online Data for Epidemiologic Research (WONDER) database, the rate of overdose mortalities quadrupled from 3.0 per 100 000 population (1060 deaths) in 2002 to 12.0 per 100 000 (6702 deaths) in 2021 [8].

While both the substance abuse rate of the elderly is indeed lower than that of the adolescent, both of their rate of substance overdose death increased in recent decades; Compared to the situation of the adolescent, in terms of which fentanyl was the main killer responsible for the mortality, alcohol and opioids remain a vital problem among U.S older adults. Thus, the common acceleration in overdose fatalities and the different physical and social condition of the two age populations render analyzing the potential causes of the substance abuse problem overall beyond necessary.

3. Analysis of the Causes

3.1 Psychological and Biological Factors

3.1.1 Adolescent

During adolescent, the brain undergoes enormous changes, which paves way for the neural pathway and behavior patterns that will persist into adulthood. It was the developing nature of the juniors that made them subject to mental health issues and risk-seeking behaviors. Results from the National Survey on Child and Adolescent Well-being (NSCAW II) manifested that 42.7% of the teens had at least one psychological disorder [9]. About 12% of the young aged 12-17 were diagnosed with at least one major depression episode in 2015. Correlational studies revealed that adolescents with depression are more likely to engage in substance abuse, including alcohol, prescription and illicit drugs as these relieve their pain. Moreover, taking youths with ADHD as an example, the survey of ADHD patients aged 12-18 showed that the majority of participants engaged in the use of marijuana, claiming that they “thought it would make ADHD symptoms milder”, which also demonstrate false perception of drugs as harmless is another driver [10]. Similarly, adolescents diagnosed with conduct disorders also display a positive association with cannabis abuse. Therefore, this condition corresponds with the positive but relatively weak correlation between mental health illness and substance abuse problems stated by the research from Walden University in 2018.

Moreover, the trait of impulsivity and rebellious spirit, which are most common among teens, can function as independent risk factors for drug addiction [11]. Results from a longitudinal study by Guttmanova et al. discov-

ered that rebellious traits are positively linked to marijuana use.

3.1.2 Older adults

Distinct from the ever-changing state of adolescent, older adults face chronic pain challenges like arthritis and osteoporosis due to altered metabolism and physiologically change in advanced age. When pain is not effectively managed, the elderly may become increasingly dependent on prescription medications and develop dependence. opioids bind to mu-opioid receptors densely located in brain regions responsible for pain perception, pain-induced emotional response and reward system, exerting both analgesic and euphoric effects [12]. According to the National Institution on Drug Abuse, older adults with chronic diseases and other comorbidities like depression and mood disorders tended to resort to alcohol and opioids, highlighting the need to device non-opioid treatment and better screening for addiction risks.

3.2 Social and Environmental Factors

3.2.1 Adolescents

Besides the psychological effects on teens, the environment where they live and socially interact with people on a daily basis plays a pivotal role in forming possible substance abuse and overdoses as well. Teens are prone to negative and misleading experiences, highlighting external factors might have the same influence on substance use development as genetic predisposition. In terms of family and home life, many adolescents reported experiencing emotional abuse (17%) from parents and neighborhood violence (15%). Evidence from a path analysis concentrating at foster care concluded that both physical and psychological maltreatment may lead to prevalence for the lifetime use of cannabis as high as 85.7% [13]. Adolescents who failed to live with both parents are more inclined to smoke, take marijuana and other illicit drugs, stressing the necessity of parental care.

As described in the concept of normative social influence, adolescents, with restricted self-reliance, tend to fall victim to peer pressure while they gain a sense of belonging by affiliating and developing friendships with peers who share common interest. For instance, according to research including 1969 teenagers, the cigarette smoking, alcohol drinking, and drug using activities of friends will largely predict an adolescent thrill-seeking activity [14]. In addition, total screen time is another factor contributing to an increase in the likelihood of cannabis use. Adolescents who spent more time on social media, based on a prospective cohort study from 2012 to 2021, were especially related to frequent cannabis use [15].

3.2.2 Older adults

Environmental drivers explain another important part of the substance-abuse plight faced by older adults. The Journal of Clinical Psychiatry discusses the correlation between loneliness and substance abuse, showing that socially isolated older adults, or older adults experiencing loss of loved ones and grief, had significantly higher rates of substance abuse and even ran the risk of suffering from addiction [16]. In terms of financial insecurity, the economic burden of fixed income combined with expensive healthcare costs gives rise to self-medicating, increasing the risk of tolerance and dependence, which will generate more healthcare expenses [17]. Access to healthcare is also a primary element in leading older adults to self-medicate: a limited healthcare and screening access in underserved communities, especially rural areas, results in older adults relying more on prescription drugs and alcohol.

3.3 Policy-and-healthcare Accessibility-related Factors

3.3.1 Adolescents

As previously discussed, fentanyl, which is frequently found in counterfeit oxycodone, benzodiazepines, and other prescription drugs, drives the overdose death rate for the adolescent to 5.2 per 100000, with an average of 22 U.S teenagers aged 14 to 18 died each week in 2022 from drug overdose. According to Joseph Friedman, it is impossible to tell the difference between a true prescription and a counterfeit pill that contains a deadly dose of fentanyl. The fact that educators, physicians, and mental health practitioners haven't provide effective guidance and school-based programs on substance abuse and counterfeit pills dangers is the primary concern resulting in teenagers without the accurate information to safeguard themselves and their peers. Policy makers also lack attention to hotspot counties, most in western states, with high overdose deaths [18].

Moreover, several problems centered around implementing robust quality measures on substance abuse, which are tools that help quantify healthcare procedures, outcomes, patient perceptions, and organizational structures, cannot be ignored. Specifically, the existing substance use measures depend heavily on assessing the number and timing of visits using administrative encounter data, rather than ascertaining whether evidence-based healthcare was actually delivered, which limits the ability to evaluate the quality of care provided. With no policy designating federal agency or private-sector companies to take the responsibility of financially support the research and development of behavioral health quality measures, the im-

provements in quality measures are accordingly hindered.

3.3.2 Older adults

As mentioned earlier, the elderly are an underserved population both scientifically and practically, with racial/ethnic minority groups being unwilling to participate due to different world views caused by decades of poverty, discrimination, and segregation. In clinical trials, there is a disparate inclusion pattern for older adults: Department of Health and Human Services Office of Human Research Protections and Association for the Accreditation of Human Research Protection Programs (AAHRPP) lack practices and standardized informed consent process for those older adults with cognitive impairments [19].

In the realm of primary care, age-related changes in the metabolism of drugs and alcohol, the polypharmacy problems, and the cognitive and functional impairments elevate the professional requirements for home-and community-based caregivers. Insufficient reimbursement for mental health services also fuels the workforce issue. Consequently, the rate of which geriatric caregiving workforce expands is dwarfed by the pace of which the older adult population is growing, failing to satisfy the needs of the elderly [20]. For those older adults who have already received short-term nursing home stays, the research done based on the CHCPE demonstrated a high possibility of them making subsequent moves to permanent nursing residence, marking the gap in optimal care transition planning [21].

4. Recommendations

Having explored different root causes of substance abuse among adolescents and older adults lays the groundwork for devising targeted solutions, which will focus on age-appropriate and technology-based strategies to mitigate substance abuse problems.

4.1 Age-specific Interventions

4.1.1 Adolescents

Since adolescents suffer from all kinds of psychological disorders, school-based programs are highly needed to implement early screening, targeted therapies like CBT (cognitive behavioral therapy), and skills to detect or avoid engaging with counterfeit pills in partnerships with mental health organizations. Screening, differs from diagnosis, is a public health approach to detect conditions like substance abuse problems through filling out questionnaires or going over medical evaluations. According to the systematic review of interventions for adolescent substance abuse in 2016, school-based prevention programs

are effective in reducing drinking, smoking, and drug using among teens [22]. Moreover, programs with content including social competence and influences, drug refusal skills adopting interactive teaching are more potent than traditional ones [23].

In addition, due to a significant effect of family environment on adolescents' development, developing community-based programs like functional family therapy that educate parents to recognize early signs of substance abuse and offer opportunities for open conversations within family create supportive atmosphere. In a meta-analysis of various treatments for adolescent substance abuse, statistics have shown a 40% reduction of days of drug use among participants, highlighting the effect of family approaches [24].

4.1.2 Older adults

As for the elderly, in order to promote better pain management centered at substance abuse caused by chronic pain, non-opioid pain management strategies, which includes behavioral therapy, physical therapy, occupational therapy, and mindfulness-based interventions, are considered and have shown promising results in mitigating the reliance on opioids for pain relief [25]. In fact, even with pharmacological treatments, research would suggest using naltrexone instead of disulfiram, a medication that increases the risk of adverse side effects such as cerebrovascular complications [26].

Most importantly, tailored screening combined with brief interventions has shown effective in overcoming the understudied plight of older adults. With the background of workforce shortage, organizations like Substance Abuse and Mental Health Services Administration (SAMHSA) could encourage primary care providers to shoulder the role of screening. In light of the different tolerance and withdrawal mechanism the seniors have compared with adolescents, Screening tools like the AUDIT and CAGE questionnaires have been adapted for older populations [26]. Racial disparities and socioeconomic status should also be included in the process of screening.

Furthermore, standing in the digital era, both adolescents and older adults need to take advantage of the technology-based platforms. Since adolescents are digital natives, mobile apps and online platforms can be designed for teens that provide information on mental health and substance use, offer anonymous counselling, and connect them with peer support groups. When it comes to older adults, recent policy efforts, like telehealth expansions and increased funding through the American Rescue Plan Act, have already aimed to improve access to substance abuse disorder treatment, especially with telemedicine that provide more readily solutions for mobility issues.

Digital health tools like remote mental health therapy and tracking, virtual peer recovery programs, and digital support for cognitive behavioral therapy will expand care to underserved populations, which will also compensate for inadequate healthcare workforce for older adults [27].

5. Conclusion

While substance abuse affects both U.S. adolescents and older adults, the divers and health impacts differ between these age populations. Adolescents are primarily influenced by psychological factors, such as mental health issues, impulsivity, and peer pressure, while older adults often face chronic pain, social isolation, and prescription drug misuse though overlaps between contributors like limited healthcare access exist. By examining these differences and policy gaps, this essay highlights the need for tailored, age-specific interventions and telehealth treatments to reduce overdose deaths and substance misuse.

However, this essay is limited by the scarcity of research on older adult substance abuse, especially in clinical trials and community-based care. Future research should focus on expanding the scale of studies to include older adults and examining the effectiveness of digital tools in both populations. Furthermore, expanding the healthcare workforce, particularly in addiction treatment and mental health services, will be crucial in ensuring comprehensive care for both adolescents and older adults facing substance use challenges. These efforts are essential to mitigate the ongoing public health crisis and to create a more resilient, age-inclusive approach to substance abuse prevention and treatment, providing a prospective future of better development for both adolescents and older adults.

References

- [1] West, N. A., Severtson, S. G., Green, J. L., & Dart, R. C. Trends in abuse and misuse of prescription opioids among older adults. *Drug and Alcohol Dependence*, 2015,149: 117-121.
- [2] Schepis, T. S., McCabe, S. E. Prescription Opioid Misuse in US Older Adults: Associated Comorbidities and Reduced Quality of Life in the National Epidemiologic Survey of Alcohol and Related Conditions-III. *The Journal of Clinical Psychiatry*, 2019,80(6).
- [3] Hall, W. D., Patton, G., Stockings, E., Weier, M., Lynskey, M., Morley, K. I., & Degenhardt, L. Why young people's substance use matters for global health. *The Lancet Psychiatry*, 2016,3(3): 265-279.
- [4] Miech, R. A., Johnston, L. D., Patrick, M. E., O'Malley, P. M., & Bachman, J. G. Monitoring the Future national survey results on drug use, 1975-2023: Secondary school students. *Monitoring the Future Monograph Series*. Ann Arbor, MI: Institute for

- Social Research, University of Michigan. Available at <https://monitoringthefuture.org/results/annual-reports/>.
- [5] NIDA. Reported drug use among adolescents continued to hold below pre-pandemic levels in 2023. Retrieved from <https://nida.nih.gov/news-events/news-releases/2023/12/reported-drug-use-among-adolescents-continued-to-hold-below-pre-pandemic-levels-in-2023>.
- [6] Friedman, J., Godvin, M., Shover, C. L., Gone, J. P., Hansen, H., & Schriger, D. L. Trends in Drug Overdose Deaths Among US Adolescents, January 2010 to June 2021. *JAMA*, 2022,327(14): 1398.
- [7] Culbertson, J. W., & Ziska, M. Prescription drug misuse/abuse in the elderly. *Geriatrics*, 2008,63(9): 22-31.
- [8] Humphreys, K., & Shover, C. L. Twenty-Year Trends in Drug Overdose Fatalities Among Older Adults in the US. *JAMA Psychiatry*, 2023,80(5): 518.
- [9] Heneghan, A., Stein, R. E. K., Hurlburt, M. S., Zhang, J., Rolls-Reutz, J., Fisher, E., Landsverk, J., & Horwitz, S. M. Mental Health Problems in Teens Investigated by U.S. Child Welfare Agencies. *Journal of Adolescent Health*, 2013,52(5): 634-640.
- [10] Harstad, E., Wisk, L. E., Ziemnik, R., Huang, Q., Salimian, P., Weitzman, E. R., & Levy, S. Substance Use Among Adolescents with Attention-Deficit/Hyperactivity Disorder: Reasons for Use, Knowledge of Risks, and Provider Messaging/Education. *Journal of Developmental & Behavioral Pediatrics*, 2017,38(6): 417-423.
- [11] Chuang, C.-W. I., Sussman, S., Stone, M. D., Pang, R. D., Chou, C.-P., Leventhal, A. M., & Kirkpatrick, M. G. Impulsivity and history of behavioral addictions are associated with drug use in adolescents. *Addictive Behaviors*, 2017,74: 41-47.
- [12] Volkow, N. D., & McLellan, A. T. Opioid Abuse in Chronic Pain--Misconceptions and Mitigation Strategies. *New England Journal of Medicine*, 2016,374(13): 1253-1263.
- [13] Gabrielli, J., Jackson, Y., & Brown, S. Associations Between Maltreatment History and Severity of Substance Use Behavior in Youth in Foster Care. *Child Maltreatment*, 2016,21(4): 298-307.
- [14] Maxwell, K. A. Friends: The Role of Peer Influence Across Adolescent Risk Behaviors. *Journal of Youth and Adolescence*, 2002,31(4): 267-277.
- [15] Doggett, A., Qian, W., Godin, K., De Groh, M., & Leatherdale, S. T. Examining the association between exposure to various screen time sedentary behaviours and cannabis use among youth in the COMPASS study. *SSM - Population Health*, 2019,9: 100487.
- [16] Desai, R., Karim, S., Freeborn, J., Trivedi, C., Husain, K., & Jain, S. Contextualizing the Relationship Between Social Isolation and Substance Abuse. *The Primary Care Companion For CNS Disorders*, 2024,26(5).
- [17] Farmer, A. Y., Wang, Y., Peterson, N. A., Borys, S., & Hallcom, D. K. Social Isolation Profiles and Older Adult Substance Use: A Latent Profile Analysis. *The Journals of Gerontology: Series B*, 2022,77(5): 919-929.
- [18] Friedman, J., & Hadland, S. E. The Overdose Crisis among U.S. Adolescents. *New England Journal of Medicine*, 2024,390(2): 97-100.
- [19] Herrera, A. P., Snipes, S. A., King, D. W., Torres-Vigil, I., Goldberg, D. S., Weinberg, A. D. Disparate Inclusion of Older Adults in Clinical Trials: Priorities and Opportunities for Policy and Practice Change. *American Journal of Public Health*, 2010,100(S1): S105-S112.
- [20] The mental health and substance use workforce for older adults. (n.d.). Google Books. Retrieved from https://books.google.com/books?id=p6A7XtK_cEQC&1pg=PR1&ots=cSz_2a8BpM&dq=substance%20abuse%20policy%20gaps%20and%20healthcare%20deficiencies%20for%20older%20adults%20in%20the%20US&lr&pg=PR15#v=onepage&q&f=false.
- [21] Robison, J., Shugrue, N., Porter, M., Fortinsky, R. H., & Curry, L. A. Transition from Home Care to Nursing Home: Unmet Needs in a Home- and Community-Based Program for Older Adults. *Journal of Aging & Social Policy*, 2012,24(3): 251-270.
- [22] Das, J. K., Salam, R. A., Arshad, A., Finkelstein, Y., & Bhutta, Z. A. Interventions for Adolescent Substance Abuse: An Overview of Systematic Reviews. *Journal of Adolescent Health*, 2016,59(4): S61-S75.
- [23] Ennett, S. T., Ringwalt, C. L., Thorne, J., Rohrbach, L. A., Vincus, A., Simons-Rudolph, A., & Jones, S. A Comparison of Current Practice in School-Based Substance Use Prevention Programs with Meta-Analysis Findings. *Prevention Science*, 2003,4(1): 1-14.
- [24] Horigian, V. E., Anderson, A. R., & Szapocznik, J. Family-Based Treatments for Adolescent Substance Use. *Child and Adolescent Psychiatric Clinics of North America*, 2016,25(4): 603-628.
- [25] Merchant, R. C., & Beaudoin, F. L. Brief Interventions for Substance-Use Disorder in Older Patients. Oxford University Press, 2016.
- [26] Lin, J., Arnovitz, M., Kotbi, N., & Francois, D. Substance Use Disorders in the Geriatric Population: A Review and Synthesis of the Literature of a Growing Problem in a Growing Population. *Current Treatment Options in Psychiatry*, 2023,10(3): 313-332.
- [27] Miller-Rosales, C., Morden, N. E., Brunette, M. F., Busch, S. H., Torous, J. B., & Meara, E. R. Provision of Digital Health Technologies for Opioid Use Disorder Treatment by US Health Care Organizations. *JAMA Network Open*, 2023,6(7): e2323741.