

Toronto's homeless death toll over the years shows the dangers of addiction's epidemic*

Data analysis of homeless deaths in Toronto from 2017 to 2023

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Homelessness is a well-known problem in Toronto, and this article takes an in-depth look at the tragic reality of homelessness in Toronto. Focuses on the devastating impact of drug addiction by analyzing homeless death toll data from 2017 to 2023. Our top findings reveal a worrying rise in addiction-related homeless deaths over the years. By examining causes of death, death year and ratio of drug caused death, we provide a comprehensive overview revealing the dangers faced by this vulnerable group.

1 Introduction

Toronto is currently experiencing a growing drug toxicity crisis, with challenges posed by the Covid-19 pandemic further exacerbating the public health dilemma. This article explores the details behind the crisis through a comprehensive analysis of homeless deaths from 2017 to 2023.

Drug addiction has a profound impact on the homeless community. Our results identify a rapid expansion of drug toxicity deaths in Toronto. This article takes an in-depth look at the proportion of deaths caused by drug toxicity and reveals the impact of the COVID-19 pandemic on the drug toxicity crisis.

Our article is divided into different sections: data, results, discussion and conclusion. The Data section clarifies the nature of the data-set obtained through the City of Toronto's Open-DataToronto (Toronto Public Health 2023) and the tables that contributed to our analytic work. In the results section, we show the clear growing trends that emerged during the analysis. The Discussion section assesses these trends and provides some insights into the underlying factors that led to the crisis and its exacerbation by the pandemic. Finally, the conclusion

*Code and data are available at: https://github.com/zero616/Homeless_Death_Analysis.

provides a concise summary based on the main findings, outlining the seriousness of the crisis and the need for targeted interventions.

The purpose of this article is to summarize the key challenges facing homeless people in Toronto. Through detailed analysis of the data, we deepen our understanding of this crisis and help inform data-based policies and interventions.

2 Data

The data set used in this analysis was obtained from the City of Toronto’s OpenDataToronto Library (Gelfand 2022), adhering to ethical guidelines and ensuring personal anonymity. It includes important information such as year of death, cause of death, age group, gender and number of people. For privacy and ethical reasons, the data does not include names, detailed time of death, and place of death. The data comes from data released by official coroner’s agencies and shelters, among others. To maintain transparency and reproducibility, all analyzes were performed using the R programming language and visualized with ggplot2 (Wickham 2016) and tables created with knit (Xie 2023).

Table 1 provides a summary of the data set outlining the key variables under consideration: time to death, cause of death, sex and age group. The time of death started in 2017 and ended in 2023, and the age groups were divided into <20, 20-39, 40-59, 60+.

Table 1: Toronto Homeless Death (2017-2023)

Table 1: Sample Table of Toronto Homeless Death (2017-2023)

Year of Death	Cause of Death	Age Group	Gender	Count
2017	Accident	40-59	Male	2
2017	Accident	60+	Male	3
2017	Cancer	60+	Female	1
2017	Cancer	40-59	Female	2
2017	Cancer	40-59	Male	2
2017	Cancer	60+	Male	4

Table 2 provides the total number of deaths summarized by age group and cause of death in the data set, outlining the key variables available for analysis: cause of death, age group and number of deaths.

Table 2: Toronto Homeless Death(by age) (2017-2023)

Table 2: Sample Table for total death number of causes of death by Age Group (2017-2023)

Age Group	Cause of Death	Total Count
20-39	Accident	11
20-39	Cancer	1
20-39	Cardiovascular Disease	4
20-39	Drug Toxicity	180
20-39	Homicide	5
20-39	Other	7

Table 3 provides the total number of deaths in the data set summarized by year of death and cause of death, outlining the key variables in the analysis of addiction harm to homeless people: cause of death, time of death, and number of deaths.

Table 3: Toronto Homeless Death(by year) (2017-2023)

Table 3: Sample Table for total death number of causes of death by Year (2017-2023)

Year of Death	Cause of Death	Total Count
2017	Accident	5
2017	Cancer	9
2017	Cardiovascular Disease	14
2017	Drug Toxicity	32
2017	Homicide	1
2017	Other	8

3 Results

Figure 1 shows the distribution of causes of death among homeless people, stratified by age group. This figure provides an impact sketch of the leading causes of death among homeless people.

Figure 2 shows the number of homeless deaths (stratified by cause of death) starting in 2017 and ending in 2023. This graphic provides a visual representation of how the homeless drug intoxicating crisis is developing. From Figure 2 we can see that starting in 2020, the number of deaths began to increase rapidly and peaked in 2021.

Even though we can clearly see the huge proportion of deaths caused by drug toxicity and the worsening status quo from Figure 2, in order to understand the worsening of the crisis more

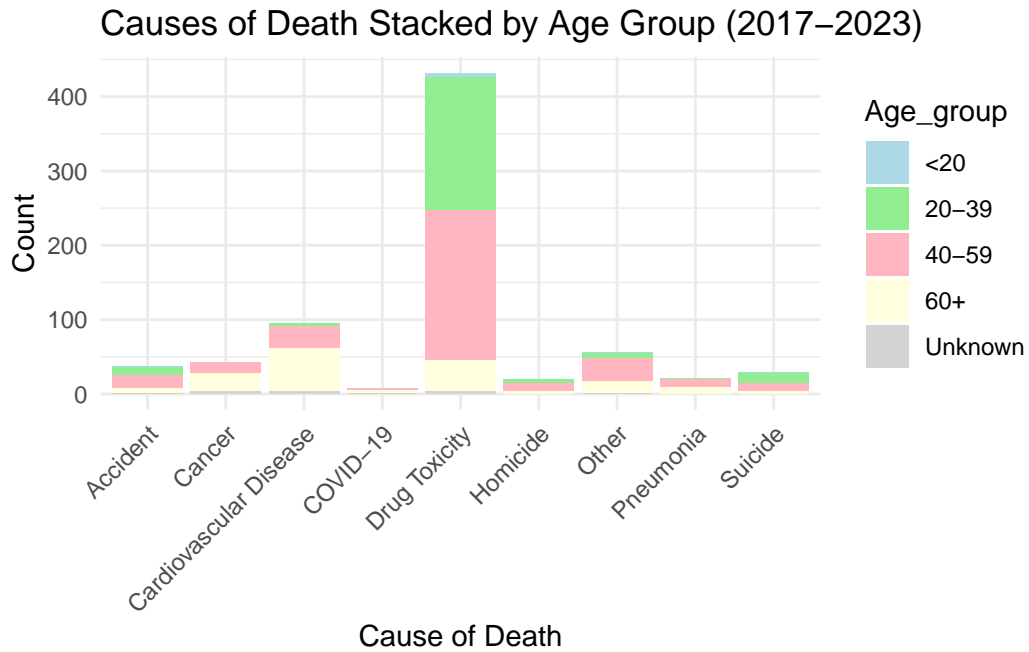


Figure 1: Causes of death analysis by age

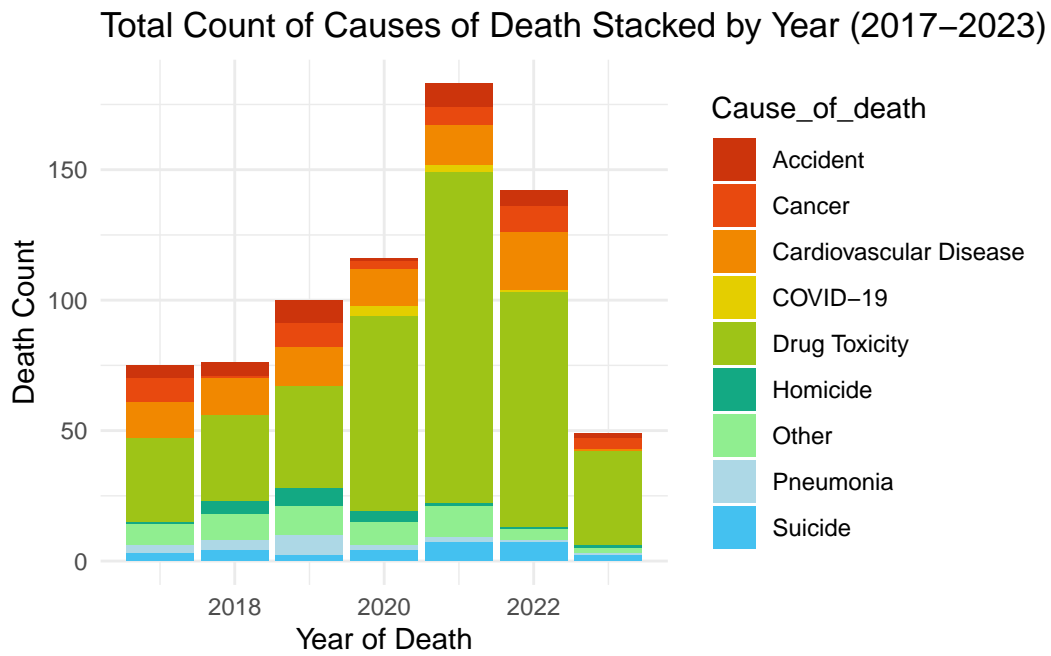


Figure 2: Causes of death analysis by year

intuitively from the data, I calculated and summarized the number of drug toxicity cause death as a proportion of the total deaths The ratio of the number of people has been compiled into the able and the figure, as well as Table 4 and Figure 3.

Table 4: ratio of Deaths Caused by Drug Toxicity (2017-2023)

Table 4: Sample Table for Ratio of Deaths Caused by Drug Toxicity Over Time (2017-2023)

Year of Death	Total Death	Drug Toxicity Death	Ratio
2017	75	32	42.67
2018	76	33	43.42
2019	100	39	39.00
2020	116	75	64.66
2021	183	127	69.40
2022	142	90	63.38
2023	49	36	73.47

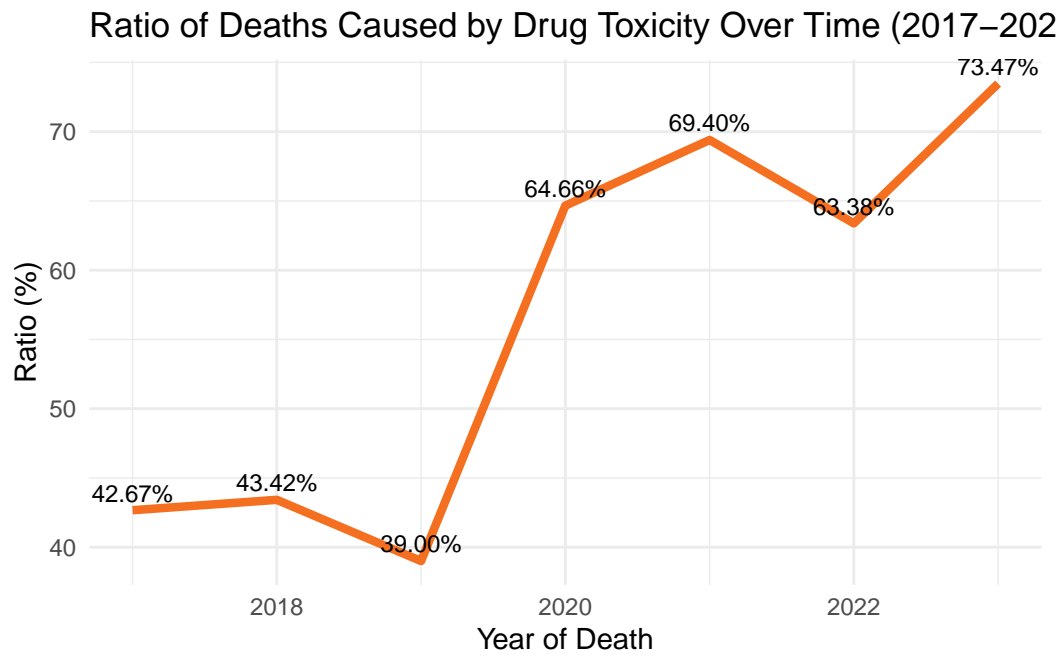


Figure 3: ratio of death Caused by Drug Toxicity Over Time

4 Discussion

4.1 Cause of death:

Our analysis takes a closer look at the causes of death among homeless people, focusing specifically on deaths related to drug addiction. Using data visualization, the paper identifies drug toxicity as the leading cause of death among homeless people. Figure 1 provides a breakdown of causes of death, highlighting the proportion attributable to addiction-related problems. These deaths are an example of the negative health impacts of the ongoing drug toxicity crisis. This section discusses the implications of these findings for public health initiatives and recommendations for addressing addiction within the homeless community. Over the past several years, Toronto Public Health, the City of Toronto and community partners have used ongoing funding for harm reduction services and supports and affordable housing. These policies can really help help homeless people with drug addictions and other homeless people get safer housing and adequate medical support. From a medical safety perspective, these policies may even help homeless drug addicts gain access to safer and more stable places to use drugs. These policies help reduce the number of deaths among drug addicts.

4.2 The rising number of homeless deaths caused by drugs:

The data analysis also revealed a disturbing trend of rising ratios of drug toxicity deaths among homeless people in Toronto. This section discusses the reasons for this upward trajectory, emphasizing the urgency for targeted interventions. By studying the annual distribution of deaths, we reveal patterns and potential influencing factors that may inform policy changes and resource allocation. Figure 3 shows, drug Toxicity has become the main cause of death among homeless people since 2017. Before the COVID-19 pandemic, the death ratio among homeless people due to drug toxicity remained at around 40%. And after the pandemic began in 2020, the ratio of homeless deaths caused by drug toxicity quickly increased to 65%, a 26% increase in one year. And it maintained this ratio in the following years, and jumped again to 73% in 2023, an increase of 10%. The ratio of drug toxicity deaths among homeless people in Toronto continues to rise since 2020. This was also the time of year when the Covid 19 pandemic began. Dr. Stephen Hwang, a physician and researcher at the MAP Center for Urban Health Solutions at Allied Health in Toronto, said the disruption caused by lock-downs and a lack of services has led people to change where they spend their time, and therefore where they use drugs (CityNews Toronto, 2023). Due to the impact of the pandemic, Toronto Public Health and the City of Toronto have had to significantly increase their funding expenditures in response to the pandemic, thereby reducing some support services for the homeless population. The impact of lock-downs and work suspensions has also led to a crisis in the lives and health of homeless people.

5 Result

Our analysis presents a portrayal of the escalating impact of drug-related deaths within Toronto's homeless population. The confluence of drug addiction and the COVID-19 pandemic has resulted in a profound surge. Effectively addressing this challenge demands not only sustained funding for harm reduction services but also responses tailored to the challenges posed by the pandemic. A comprehensive understanding of the dynamics of causes and patterns of death becomes paramount as we confront these complex issues. This knowledge is instrumental in shaping policies that can genuinely save lives within the vulnerable homeless communities. The findings underscore the critical importance of drug safety outreach specifically tailored to homeless drug users. It becomes imperative to extend harm reduction and treatment options directly to those on the streets or within the community, rather than relying solely on clinic or hospital-based approaches. Waiting for individuals to seek help within traditional healthcare settings may prove inadequate in addressing the urgent needs of this vulnerable population. Proactive and accessible interventions are essential to mitigating the devastating impact of drug-related deaths among the homeless. This shift towards community-based outreach aligns with the recognition that meeting individuals where they are can significantly enhance the effectiveness of harm reduction and treatment initiatives.

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