Trends in ‘deaths of despair’ in Europe during Covid-19 – not just an American phenomenon

Ronny Westerman[1], Michael Mühlichen[1]

[1] Federal Institute for Population Research (BiB), Wiesbaden, Germany

Short abstract

‘Deaths of despair’ as an important topic in public health research is almost exclusively described as a US phenomenon, although similar patterns were observed in many European countries before the Covid-19 pandemic. While massive restrictions imposed by public authorities may worsen mental health at the individual level, ‘deaths of despair’ may also have increased in Europe during the pandemic. For the data analysis, we used official mortality information from Eurostat and CDC Wonder. In contrast to the United States, ‘deaths of despair’ in all European countries were dominated by the increase in alcohol-related deaths. Drug-related deaths were less common in Europe than in the United States. Suicides also increased slightly in many European countries during the Covid-19 period. The level, composition and trend of ‘deaths of despair’ differ substantially between the United States and many European countries, thus highlighting the need for intensified public health surveillance of such deaths.

Introduction

The increase in suicide and drug- and alcohol-related deaths among young and middle-aged men in many Western countries since the late 1990s has received considerable attention in public health research over the past two decades (Case and Deaton, 2015; Erwin, 2017; Stein et al. 2017, Piñeiro et al. 2023). Some researchers define these specific causes of death as 'deaths of despair', which are closely linked to negative and rapid social and economic changes, such as the deterioration of labor market conditions (e.g. structural change, mass unemployment, economic recession) and the decreasing importance of stable social and societal structures (e.g. religious beliefs, the institution of family and marriage, trade unions). This can lead to a loss of meaning in life for many people, exacerbated by unhealthy behaviors and premature death. (Case and Deaton, 2015; Allik et al. 2020; Case and Deaton, 2020; Case and Deaton,2022).

The long-term upward trend in 'deaths of despair' has long been seen as a typical phenomenon unique to the United States (Sterling et al. 2022), but further research has shown that other countries, particularly in the Western Hemisphere, were similarly affected, and long before the Covid-19 pandemic (Case and Deaton, 2015; Becchetti and Conzo, 2021, Piñero et al., 2023).

As a natural experiment, the Covid-19 pandemic speaks to both societal challenges and individual lives. Stringent government control measures such as quarantines and other lockdowns, school closures, job losses in some industries affected by quarantines, and corresponding social isolation may increase the risk of mental health problems (Aknin et al. 2022). This may also correlate with increases in hazardous alcohol consumption (Dogan-Sander et al. 2021; Weerakoon et al. 2021) and illicit drug use. It is also true that initial studies have shown that illicit drug use may decrease during the Covid-19 pandemic (Been et al. 2021; Vo et al. 2022). However, this does not mean that harmful use or fatal overdoses will decrease in the same way.

Few studies have shown the impact of the Covid-19 pandemic on 'deaths of despair', and almost all have used data from the United States and the United Kingdom. A recent study (Angus et al. 2023) showed an increase in alcohol-related deaths in both countries. A notable dramatic upward trend in drug-related deaths was also found for the United States. Similar patterns of drug-related mortality were reported for England, Wales and Northern Ireland. Suicide deaths increased only slightly in the United Kingdom and the United States (Angus et al., 2013). Another study from Spain found long-term trends in the expansion of 'deaths of despair', but only analyzed the period before the Covid-19 pandemic (Pinero et al., 2023).

This raises the question of how 'deaths of despair' developed in other European countries, which suffered more from the Covid-19 pandemic and took much stronger measures to contain it. At the peak of the Covid-19 pandemic, there was an observable difference in the stringency of measures across European countries, which significantly reduced the life satisfaction of the population, depending on the level of stringency (Clark and Lepinteur, 2022). Consequently, a measurable deterioration in well-being may also have a negative impact on mental health. Therefore, it remains unclear whether stricter policies also have a negative impact on suicidal tendencies in the population (Aknin et al. 2022). Heterogeneous patterns of policy stringency associated with country-specific health system inefficiency during different Covid-19 waves, viral variants and their mutations (from alpha to omicron), and the deepest economic recession in 2020 may negatively affect well-being and mental health. A significant deterioration in mental health may also lead to an increase in harmful alcohol and drug use, which in turn may lead to a massive increase in mortality from these causes (Jacob et al., 2021, Roberts et al., 2021).

Again, it is important to show how 'deaths of despair' quantified in other European countries before and during the pandemic have evolved and what conclusions can be drawn for the post-pandemic period. Cross-country comparisons remain problematic, while deaths from despair have different meanings in the context of the United States and Eastern Europe, and not only since the Covid-19 pandemic (King et al. 2022).

Data and methods

Data were available for all selected countries by International Classification of Diseases, 10th Revision (ICD-10) code, sex and in 5-year age groups. Deaths were classified as alcohol-, drug- or suicide-related according to the underlying cause of death. Age-standardized mortality rates per 100 000 population for each cause from 2011 to 2021 were calculated using the European Standard Population and population estimates from the Eurostat database. The data are derived from the medical certificate of death, which is mandatory in all 27 EU Member States. The information recorded on the death certificate follows the rules laid down by the WHO. For the United States, data on causes of death are provided by the Centers for Disease Control and Prevention's WONDER Underlying Cause of Death data (for 1999-2020) and Multiple Cause of Death data (preliminary) (for 2021). We estimate age-standardized death rates for suicide, alcohol- and drug-related deaths, separately and together as 'deaths of despair'. For cross-country comparisons between Europe and the United States, we have calculated annual changes in relative and absolute terms for the periods 2011-2019 and 2019-2020/2021 (causes of death are currently only available from Eurostat until 2020 and provisionally for 2021 for the United States). Estimates are extracted separately for men and women and for specific age groups. All standardized death rates (SDR) are calculated with the European Standard Population 2013. For the United States, we used population counts from the Human Mortality Database. Regarding the age structure, we used 5-year groups (0–14, 15–24, 25-29, …, 90-94, 95+). Countries are

classified annually into stringency classes to take account of the Oxford stringency index, but this should be treated with caution.

The classification of 'deaths of despair'

There are some notable terminological differences in the use of the term 'deaths of despair'. The most commonly used definition according to Case and Deaton includes suicide (ICD-10: X60-84, Y87.0), poisoning (X40-45, Y10-15, Y45, Y47, Y49) and alcoholic liver diseases and cirrhosis (K70, K73-74). For Case and Deaton, poisoning is a broad category that includes accidental and intentional deaths from alcohol poisoning and overdoses of prescription and illicit drugs (Case and Deaton, 2015). There are therefore some overlapping categories, which may inevitably lead to over- or underestimation of certain causes.

Alternatively, Angus et al. define 'deaths of despair' more specifically as suicide (U03, X60-84, Y87), alcohol-related (K70, K73-74, F10, X45, Y15) and drug-related (F11-16, F18-19, X40-44, X85, Y10-14) in order to place more emphasis on alcohol- and drug-related deaths (Angus et al. 2023). This terminology seems appropriate for comparisons between the United States and the United Kingdom.

To achieve a classification that is compatible with the Eurostat shortlist of causes of death, we use an adapted classification of 'deaths of despair' for all countries under study, which includes suicides (X60-X84, Y87.0) and event of undetermined intent (Y10-Y34, Y87.2); alcohol-related as mental and behavioral disorders due to alcohol use (F10) and chronic liver diseases (K70, K73-K74); drug-related deaths as drug dependence, toxicomania (F11-F16; F18-F19) and unintentional poisoning and exposure to harmful substances (X40-X49). A further differentiation of 'deaths of despair', especially alcohol-related deaths, as made by Allik et al. 2020 is not possible using the Eurostat database, as a coarser categorization of causes of death is used. Nevertheless, this distinction can be applied to the United States of America.

COVID-19 Stringency Index

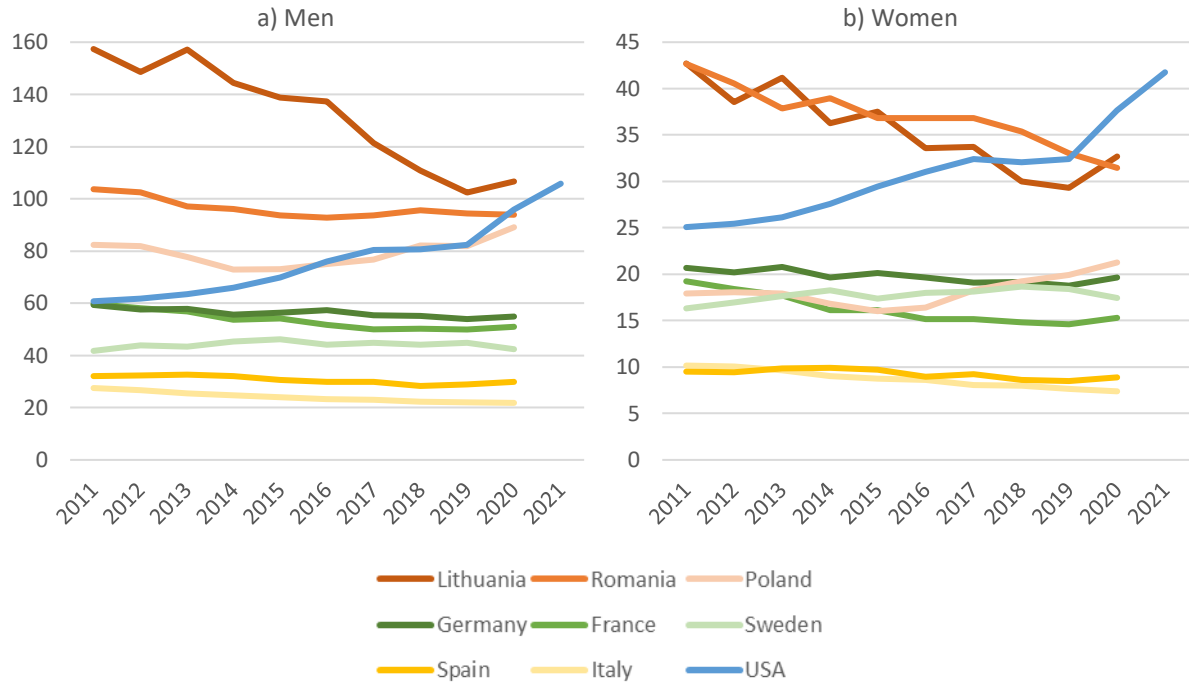
While countries vary in their level of stringency, we used data from the Oxford Coronavirus Government Response Tracker (OxCGRT) project. This tool tracks government policies related to closure and containment, health and economic policies for more than 180 countries, as well as sub-national jurisdictions in several countries. Policy responses are recorded on ordinal or continuous scales for 19 policy areas, capturing variation in the degree of response, which defines a composite measure of nine of the response metrics. The nine measures used to calculate the stringency index are: school closures, workplace closures, cancellation of public events, restrictions on public gatherings, public transport closures, stay-at-home orders, public information campaigns, restrictions on internal movement and controls on international travel. The index for a given day is calculated as the average of the nine measures, each of which ranges from 0 to 100. A full description of the calculation of this index can be found in Hale et al. 2021.

Results

Our preliminary results show the development of the SDR for deaths of despair in selected countries. Eastern European countries are shown in orange, Western European countries in green and Southern European countries in yellow colors; the United States is shown in blue. While most European countries showed a stagnating or decreasing trend over the last decade, the United States shows an enormous upward trend among both men and women. While there was stagnation in deaths of despair in the

United States between 2017 and 2019, the SDR began to increase again in 2020 with the onset of the COVID-19 pandemic. Many European countries also showed increases in 2020 but to considerably lesser extent. While the increasing trend in the United States continues in 2021, this is yet to be investigated for Europe, which will soon be possible when the data becomes available. The next step will be to provide monthly estimates of the stringency of health policy measures using the Covid-19 stringency index.

Figure 1: 'Deaths of despair' by sex in selected European countries and the United States of America, 2011–2021, standardized death rate (European Standard Population 2013) per 100,000



Discussion

The Covid-19 pandemic and the stringent government control measures to contain it had a massive impact on the individual lives of many people. Even in the early stages of the pandemic, there was controversy, particularly in the scientific community, about the negative effects of social isolation and other massive restrictions on mental health (Aknin et al. 2022, Salanti et al. 2022, Fernández et al. 2023). However, it was unclear whether this might also affect mortality from certain causes of death not directly related to Covid-19 infection.

We argue that reasonable trends in 'deaths of despair' during Covid-19 are not just a typical American phenomenon, which can be confirmed for other European countries and not just for the UK. We estimated trends in suicides (alcohol, drugs, suicide) for selected European countries during the pandemic and compared them with trends before the pandemic. Our preliminary results show only a small increase in suicide deaths, although there are differences between countries.

The highest increase in deaths from despair was observed for alcohol-related mortality in all countries, although the picture is particularly heterogeneous. The increase in alcohol-related deaths was particularly high in Eastern European countries.

Most alcohol-related deaths are due to alcohol-related liver disease, which usually develops over many years. Alcohol poisoning is an acute condition and therefore accounts for only a small proportion of alcohol-related deaths. The sharp increase in alcohol-related deaths since 2020 suggest that the Covid-19 pandemic has led to additional harmful alcohol consumption in many countries (Calina et al., 2021, Kilian et al., 2022). The trend in drug-related mortality in Europe was relatively stable during the Covid-19 pandemic, with only small changes from pre-pandemic levels. However, the severe contact restrictions and lockdowns at the peak of the Covid-19 pandemic may have had an impact on reducing the supply of illicit drugs (Scherbaum et al., 2021, Gardner et al., 2022). People may have reduced their use of illicit drugs as a result of the reduced supply of illicit drugs, substituting it with increased harmful use of alcohol.

Overall, there has been an increase in the number of deaths of despair caused exclusively by alcohol in all European countries. Comparisons between European countries and the United States are problematic because of the coding of alcohol-related deaths, but also their weighting relative to suicides and drug-related deaths, varies according to the concept of 'deaths of despair'. In our study, we have focused more on alcohol-related deaths, as these are more relevant to the Eastern European context.

Conclusion

The 'deaths of despair' have increased in most European countries during the Covid-19 pandemic, but the picture is very heterogeneous. Drug-related deaths are not as pronounced as in the USA, and suicides have only increased slightly, albeit there are large differences between European countries. Alcohol-related deaths are much more pronounced, but are particularly prevalent in Eastern European countries.

References

Aknin LB, Andretti B, Goldszmidt R, Helliwell JF, Petherick A et al. (2022) Policy stringency and mental health during the COVID-19 pandemic: a longitudinal analysis of data from 15 countries. Lancet Public Health 7(5):e417-e426.

Allik M, Brown D, Dundas R, Leyland AH (2020) Deaths of despair: cause-specific mortality and socioeconomic inequalities in cause-specific mortality among young men in Scotland. Int J Equity Health 19(1):215.

Angus C, Buckley C , Tilstra AM, Dowd JB (2023) Increases in 'deaths of despair' during the COVID-19 pandemic in the United States and the United Kingdom. Public Health 218: 92-96.

Been F, Emke E, Matias J, Baz-Lomba JA, Boogaerts T, et al. (2021) Changes in drug use in European cities during early COVID-19 lockdowns - A snapshot from wastewater analysis. Environ Int. 153:106540.

Becchetti L, Conzo G (2021) Avoiding a "despair death crisis" in Europe: the drivers of human (un)sustainability. Int Rev Econ. 68: 485–526

Calina D, Hartung T, Mardare I, Mitroi M, Poulas K, et al. (2021) COVID-19 pandemic and alcohol consumption: Impacts and interconnections. Toxicol Rep. 8:529-535.

Case A, Deaton A (2015) Rising morbidity and mortality in midlife among white non-Hispanic Americans in the 21st century. Proc Natl Acad Sci U S A 8;112(49):15078-83.

Case A, Deaton A (2020) The epidemic of despair: Will America's mortality crisis spread over the world? Foreign Aff. 99(2):92-102

Case A, Deaton A (2022) The Great Divide: Education, Despair, and Death. Annu Rev Econom 14:1-21.

Center of Disease Control and Prevention (2023) National Center for Health Statistics Mortality Data on CDC WONDER. https://wonder.cdc.gov/Deaths-by-Underlying-Cause.html

Clark AE, Lepinteur A (2022) Pandemic Policy and Life Satisfaction in Europe. Rev Income Wealth. 68(2):393-408.

Dogan-Sander E, Kohls E, Baldofski S, Rummel-Kluge C. (2021) More Depressive Symptoms, Alcohol and Drug Consumption: Increase in Mental Health Symptoms Among University Students After One Year of the COVID-19 Pandemic. Front Psychiatry,12:790974.

Eurostat (2023) Cause of Death Data. https://ec.europa.eu/eurostat/databrowser/explore/all/popul?lang=en&subtheme=hlth.hlth_cdeath&display=list&sort=category

Erwin PC (2017) Despair in the American heartland? A focus on rural health. Am. J. Public Health 107(10):1533–34.

Fernández D, Giné-Vázquez I, Morena M, Koyanagi AI, Janko MM, et al. (2023) Government interventions and control policies to contain the first COVID-19 outbreak: An analysis of evidence. Scand J Public Health 51(5):682-691.

Gardner EA, McGrath SA, Dowling D, Bai D (2022) The Opioid Crisis: Prevalence and Markets of Opioids. Forensic Sci Rev. 34(1):43-70.

Hale T, Angrist N, Goldszmidt R, Kira B, Petherick A et al. (2021) A global panel database of pandemic policies (Oxford COVID-19 Government Response Tracker). Nat Hum Behav 5, 529–538.

Jacob L, Smith L, Armstrong NC, Yakkundi A, Barnett Y, et al. (2021) Alcohol use and mental health during COVID-19 lockdown: A cross-sectional study in a sample of UK adults. Drug Alcohol Depend. 10.1016/j.drugalcdep.2020.108488.

Kilian C, O'Donnell A, Potapova N, López-Pelayo H, Schulte B, et al. (2022) Changes in alcohol use during the COVID-19 pandemic in Europe: A meta-analysis of observational studies. Drug Alcohol Rev. 41(4):918-931.

King L, Scheiring G, Nosrati E (2022) Deaths of Despair in Comparative Perspective. An Rev Soc. 48:299-317

Piñeiro B, Spijker JJA, Trias-Llimós S, Blanes Llorens A, Permanyer I (2023) Trends in cause-specific mortality: deaths of despair in Spain, 1980-2019. J Public Health fdad133.

Roberts A, Rogers J, Mason R, Siriwardena AN, Hogue T, et al. (2021) Alcohol and other substance use during the COVID-19 pandemic: A systematic review. Drug Alcohol Depend. 229(Pt A):109150.

Salanti G, Peter N, Tonia T, Holloway A, White IR, Darwish L et al. (2022) The Impact of the COVID-19 Pandemic and Associated Control Measures on the Mental Health of the General Population : A Systematic Review and Dose-Response Meta-analysis. Ann Intern Med 175(11):1560-1571.

Scherbaum N, Bonnet U, Hafermann H, Schifano F, Bender S, et al.n J, Nyhuis P, Preuss UW, Reymann G, Schneider U, Shibata J, Specka M (2021) Availability of Illegal Drugs During the COVID-19 Pandemic in Western Germany. Front Psychiatry. 12:648273.

Stein EM, Gennuso KP, Ugboaja, Remington PL (2017) The epidemic of despair among white Americans: Trends in the leading causes of premature death. Am J Public Health 107(10):1541–47

Sterling P, Platt ML (2022) Why Deaths of Despair Are Increasing in the US and Not Other Industrial Nations—Insights From Neuroscience and Anthropology. JAMA Psychiatry. 79(4):368–374.

Vo AT, Patton T, Peacock A, Larney S, Borquez A. (2022) Illicit Substance Use and the COVID-19 Pandemic in the United States: A Scoping Review and Characterization of Research Evidence in Unprecedented Times. Int J Environ Res Public Health. 19(14):8883.

Weerakoon SM, Jetelina KK, Knell G, Messiah SE (2021) COVID-19 related employment change is associated with increased alcohol consumption during the pandemic Am J Drug Alcohol Abuse47(6):730-736.