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Australian Institute for Suicide Research and Prevention

World Health Organization Collaborating Centre

Late Life Suicide at the Time of the Pandemic

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Comprehensive Publications

De Leo D, Draper B, Krysinska K (2021). 'Suicidal older people in clinical and community settings', in *Oxford Textbook of Suicidology and Suicide Prevention*, Oxford University Press, pp. 621 – 642.

De Leo D, Viecelli Giannotti A (2021). Suicide in late life: A viewpoint, *Preventive Medicine*, 152: 106735, Sep 2021. doi: 10.1016/j.ypmed.2021.106735

Suicide in the World

- Suicide is a serious global public health issue. Globally, 703,000 people die by suicide every year.
- Suicide is among the leading causes of death worldwide, with more deaths due to suicide than to malaria, HIV/AIDS, breast cancer, or war and homicide. More than one in every 100 deaths (1.3%) in 2019 were the result of suicide.

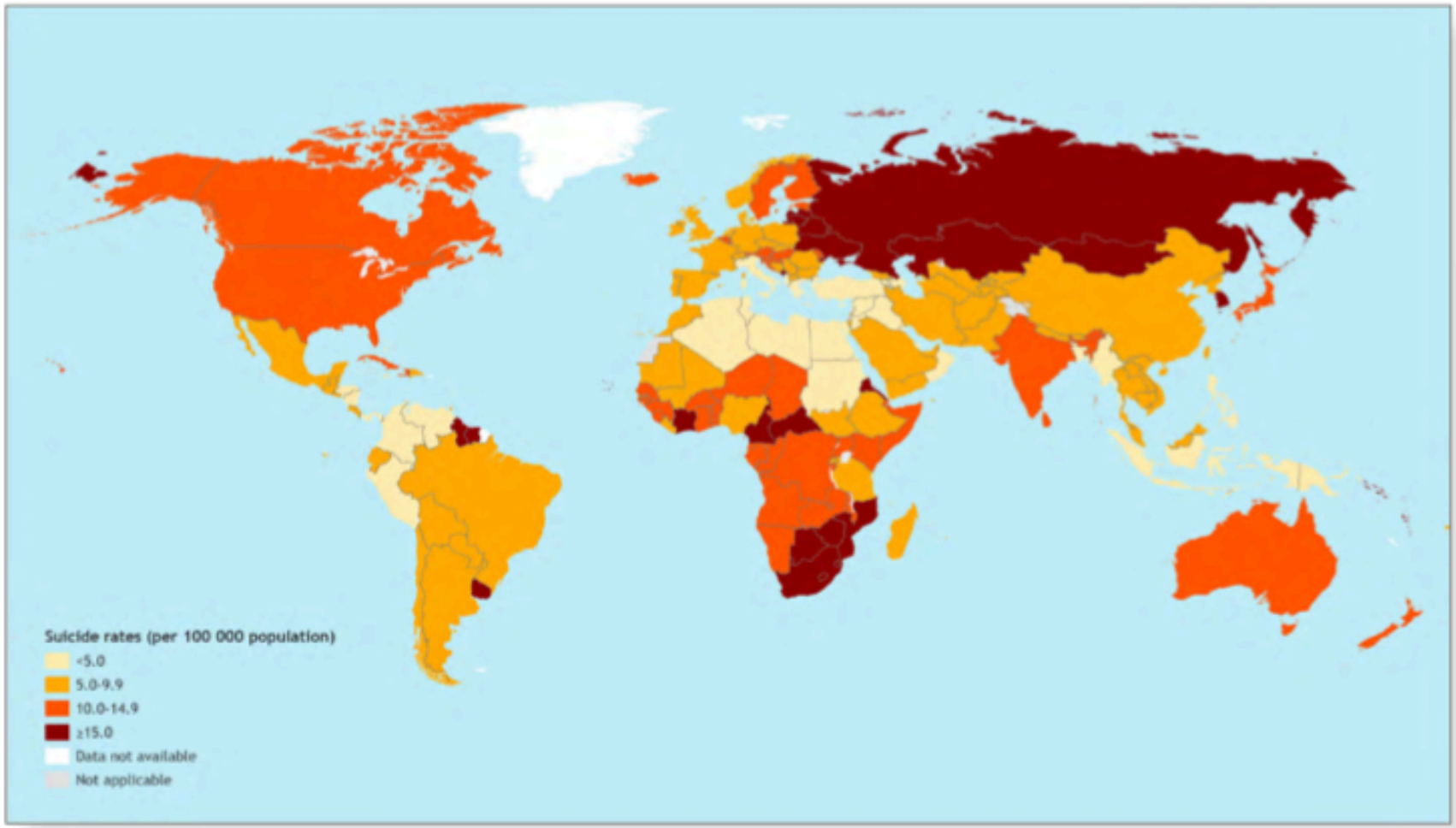
UN SDG Target 3.4.2

- By 2030, reduce by one third premature mortality from suicide through prevention and treatment and promote mental health and well-being

- The estimates represent WHO best estimates, based on data available **up to November 2020,** rather than official Member States estimates, and have not necessarily been approved by Member States.
- They have been calculated using standard methods to ensure cross-national comparability and may not match official national estimates. The process involved extracting the **X60 – X84 and Y870** codes for suicide from the WHO mortality database, redistribution of deaths of unknown sex/age and deaths assigned to poorly defined codes, interpolation/extrapolation of the number of deaths by years missing, downsizing of total deaths by age and sex for all causes of death by WHO for the period 2000-2019 and use of United Nations population estimates.

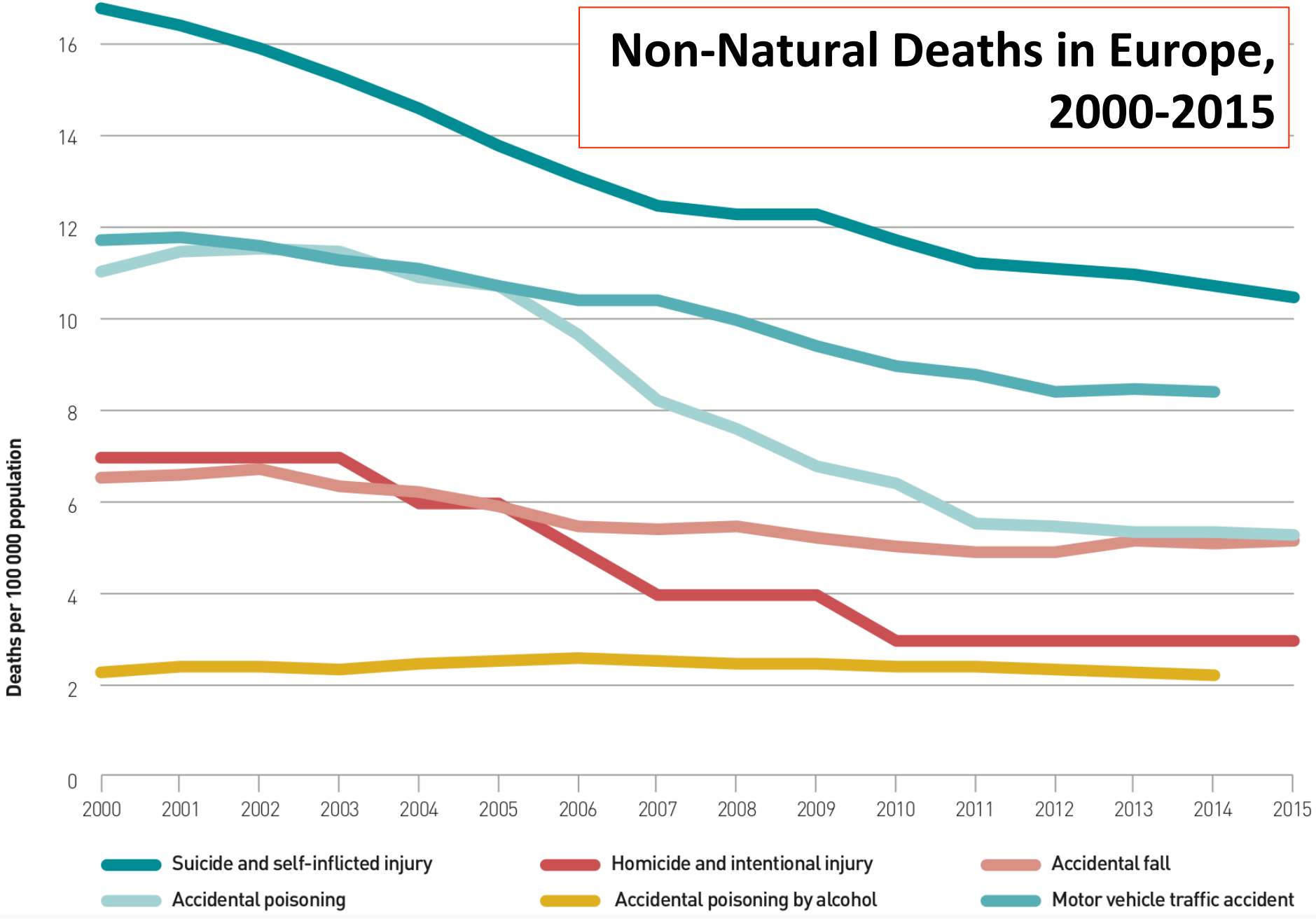
Epidemiology of Suicide

In 2019, approximately 703,000 people died from suicide. The global age-standardized suicide rate was 9.0 per 100,000 population for 2019. Rates ranged across countries from less than two suicide deaths per 100,000 to over 80 per 100,000.



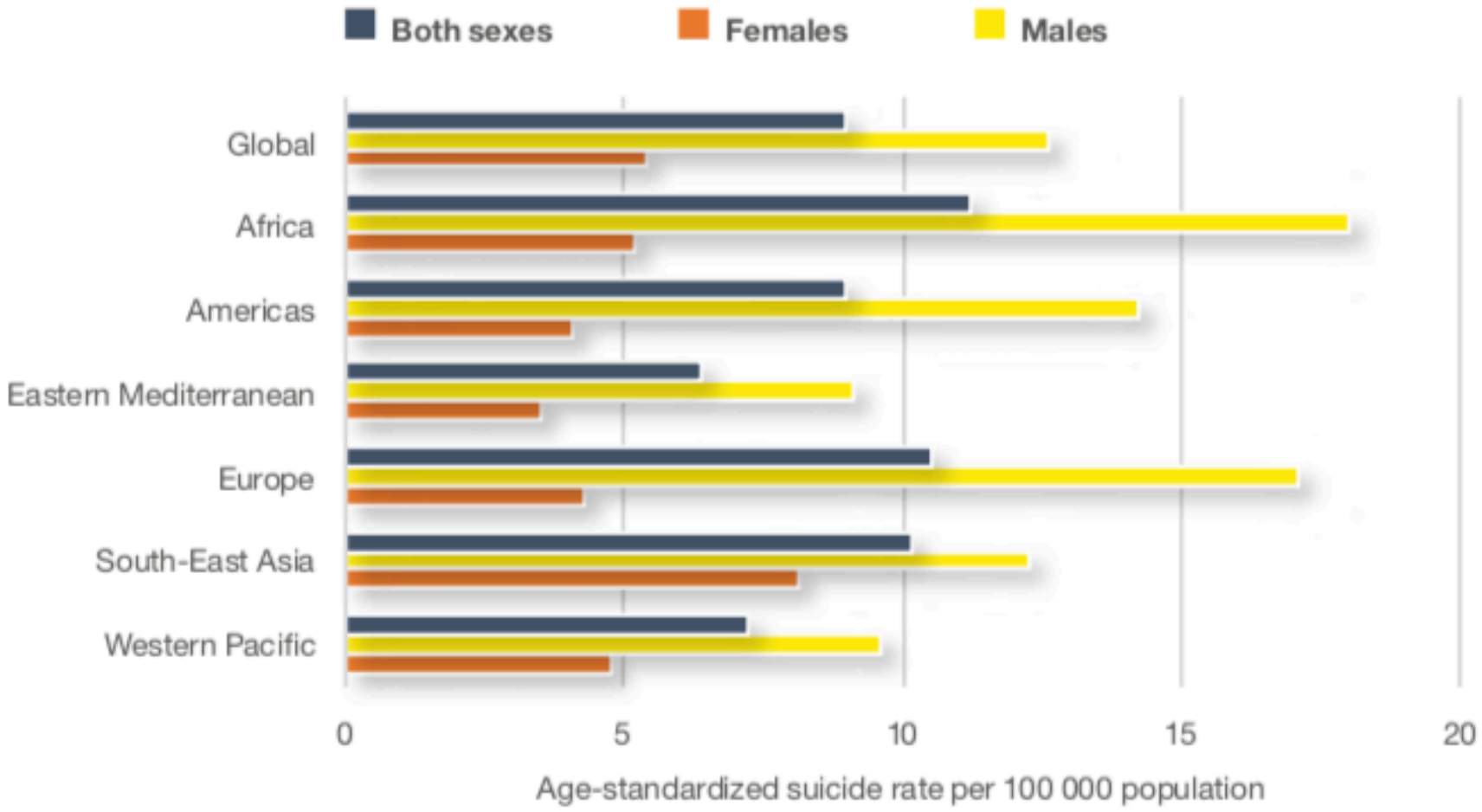
Source: WHO Global Health Estimates 2000-2019

Non-Natural Deaths in Europe, 2000-2015



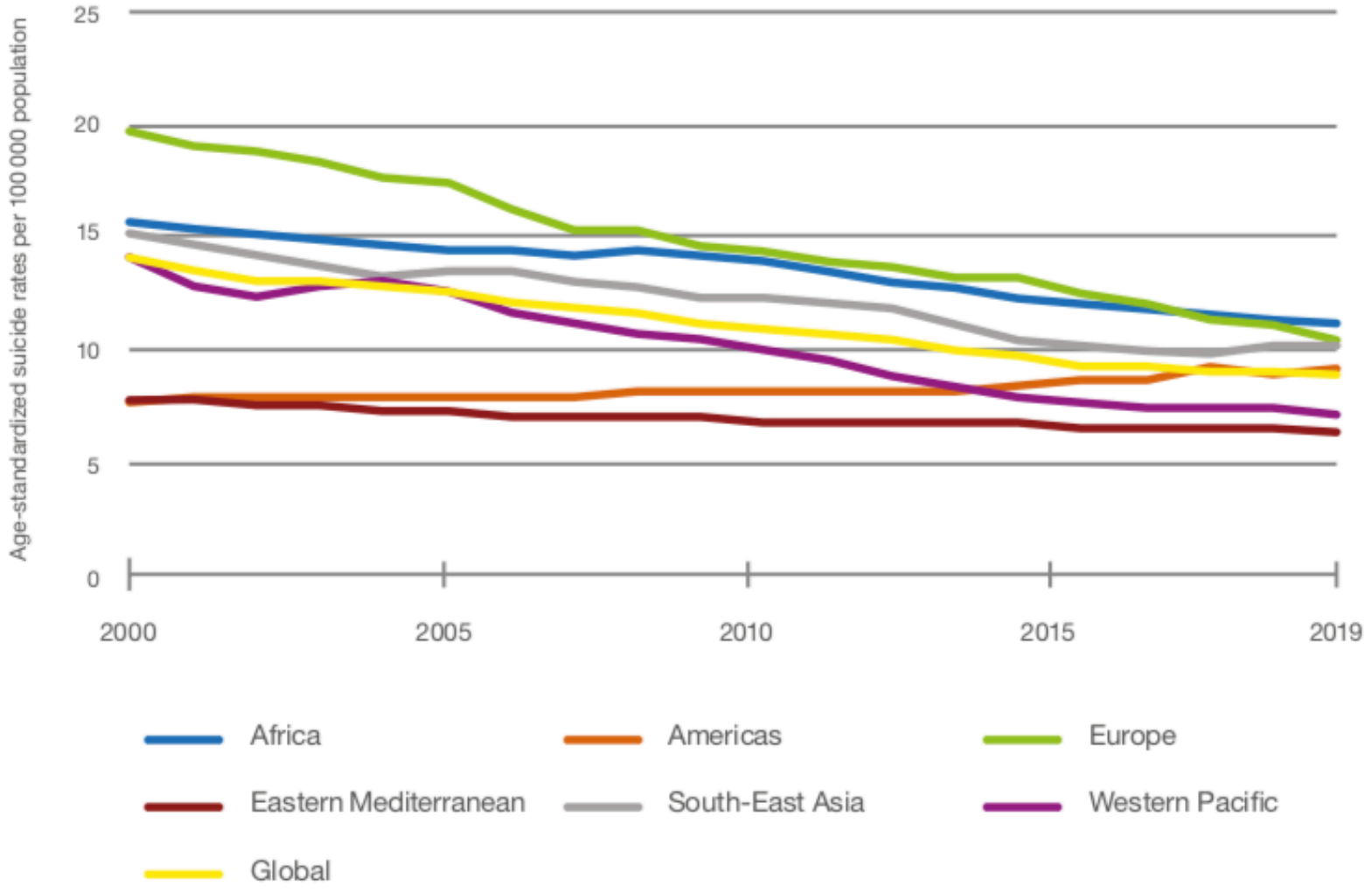
(WHO/EURO, 2018)

Age-standardised rates of suicide (/100.000) WHO regions, 2019



Source: WHO Global Health Estimates 2000-2019

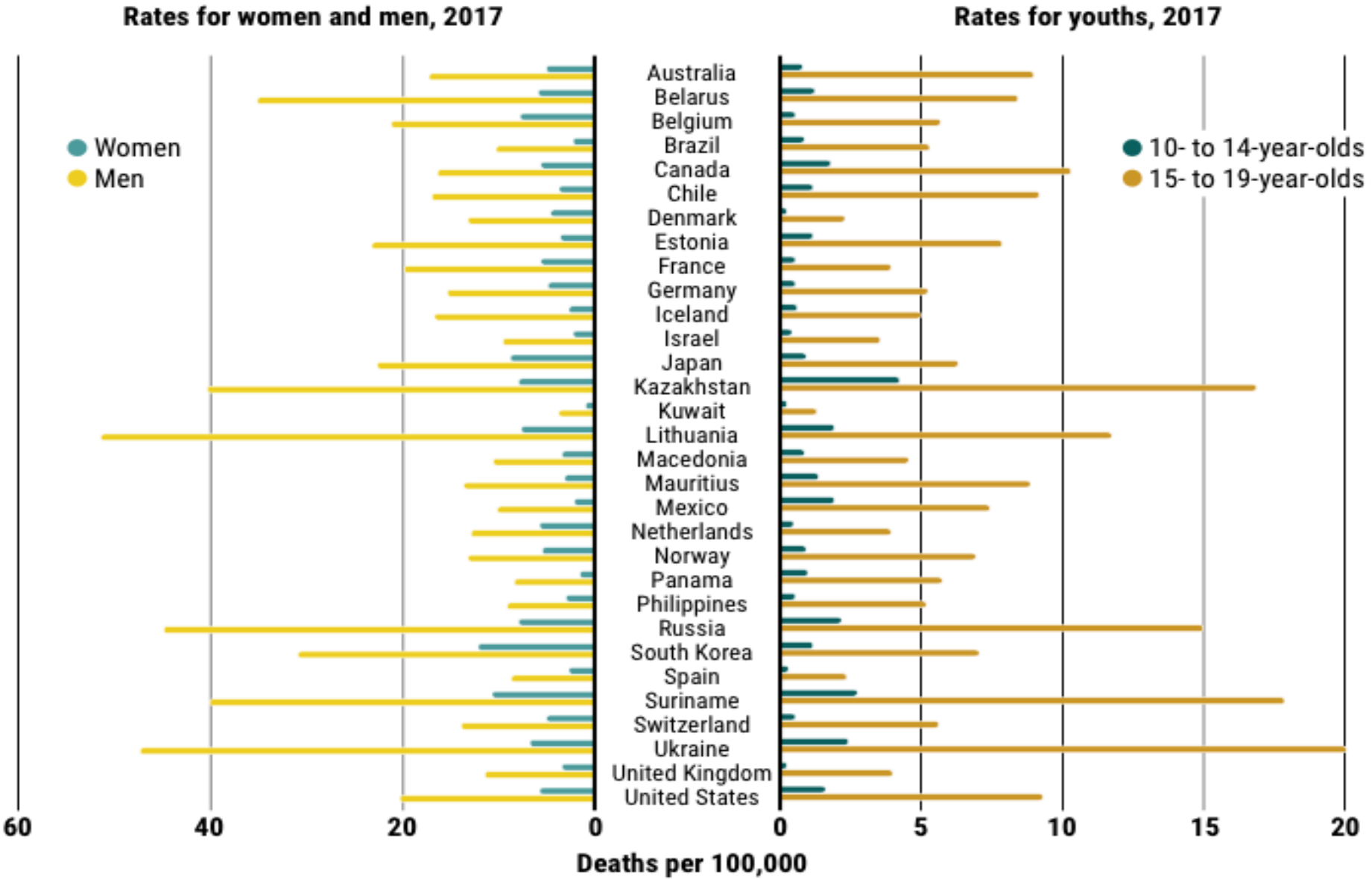
Trends in suicide rates (age-standardised, /100.000)



Source: WHO Global Health Estimates 2000-2019

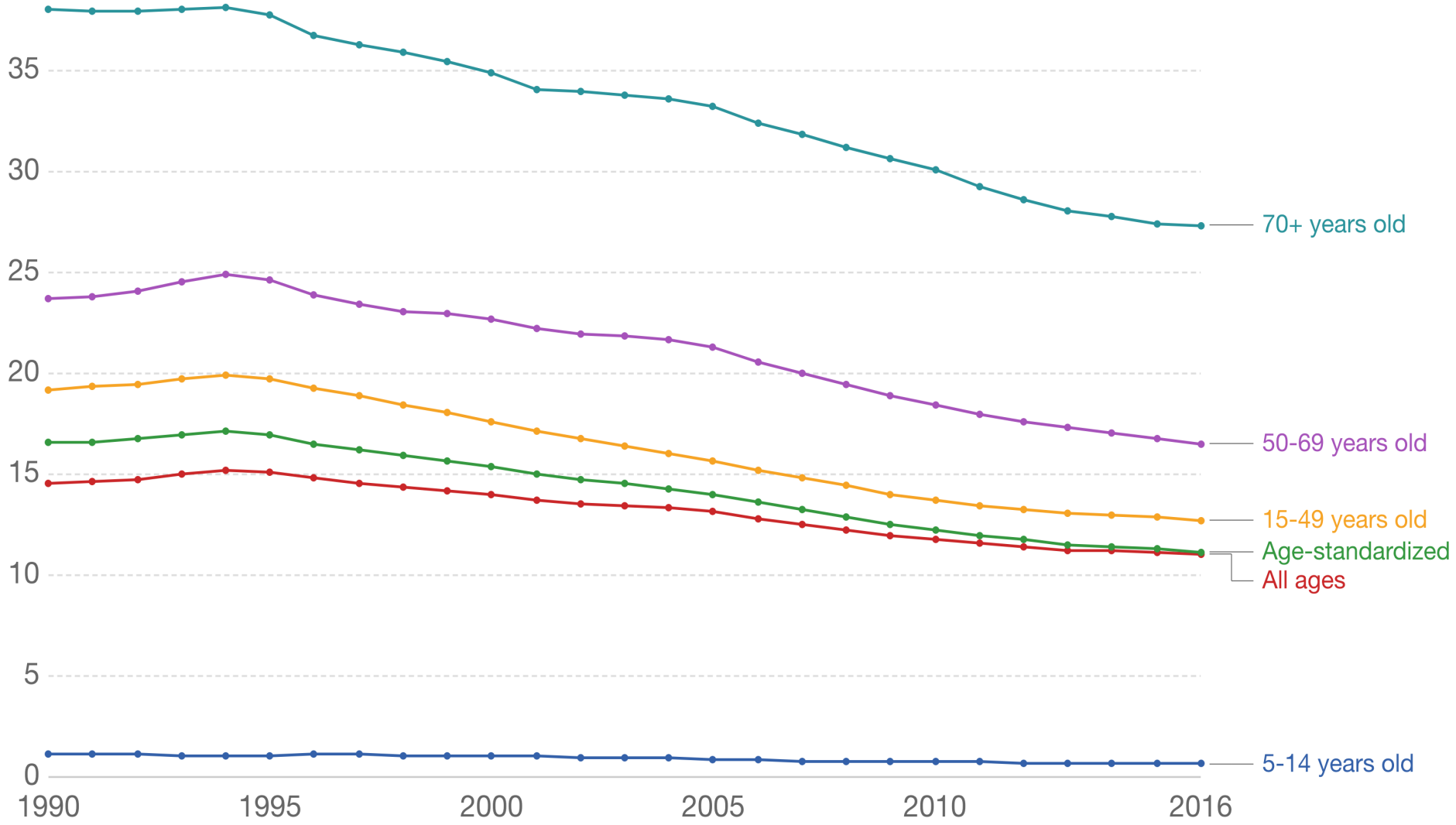
Global differences

Suicide rates are especially high in some Eastern European and African countries, and strikingly low in parts of the Middle East and Indonesia. Compared with other age groups, suicides among young people are rare. Globally, men are far more likely to die by suicide than women.



Suicide death rate by age (per 100,000), World

Death rates from suicide measured per 100,000 individuals across various age categories. Also shown is the total death rate across all ages (not age-standardized) and the age-standardized death rate. Age-standardization assumes a constant population age & structure to allow for comparisons between countries and with time without the effects of a changing age distribution within a population (e.g. aging).



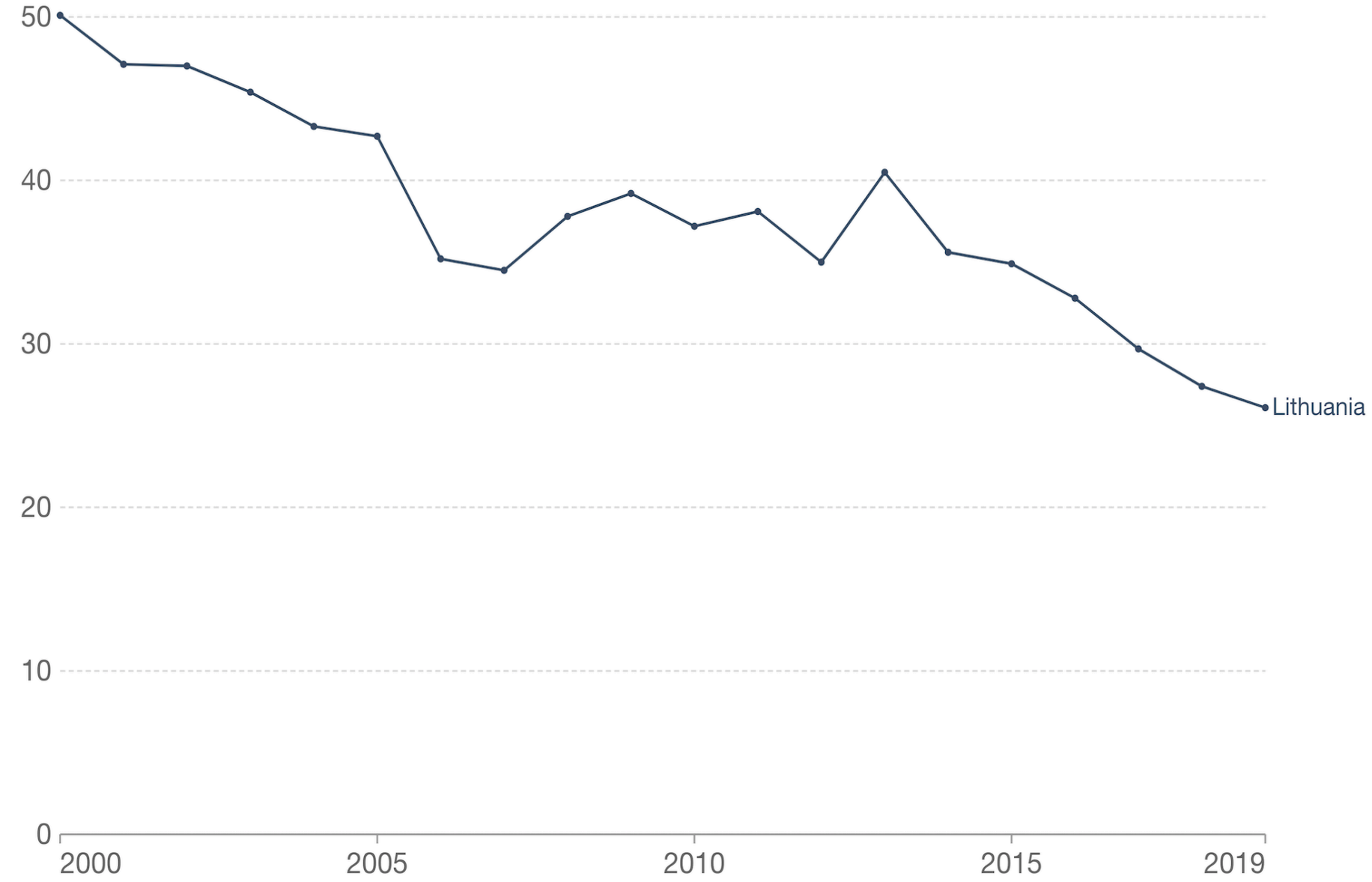
Source: IHME, Global Burden of Disease (GBD) 2018

OurWorldInData.org/suicide/ • CC BY-SA

Suicide death rates, 2000 to 2019

Suicide mortality rate is the number of suicide deaths in a year per 100,000 population.

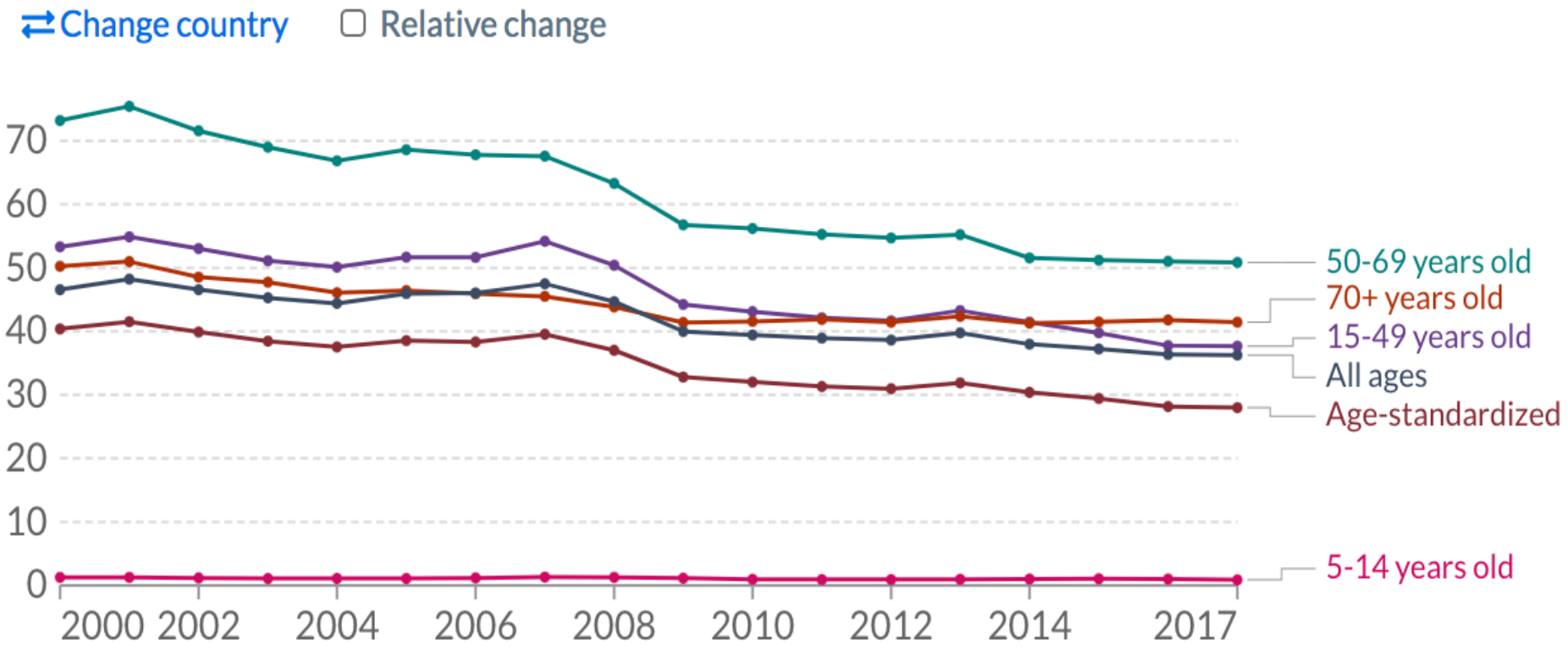
Our World in Data



Source: World Health Organization (via World Bank)

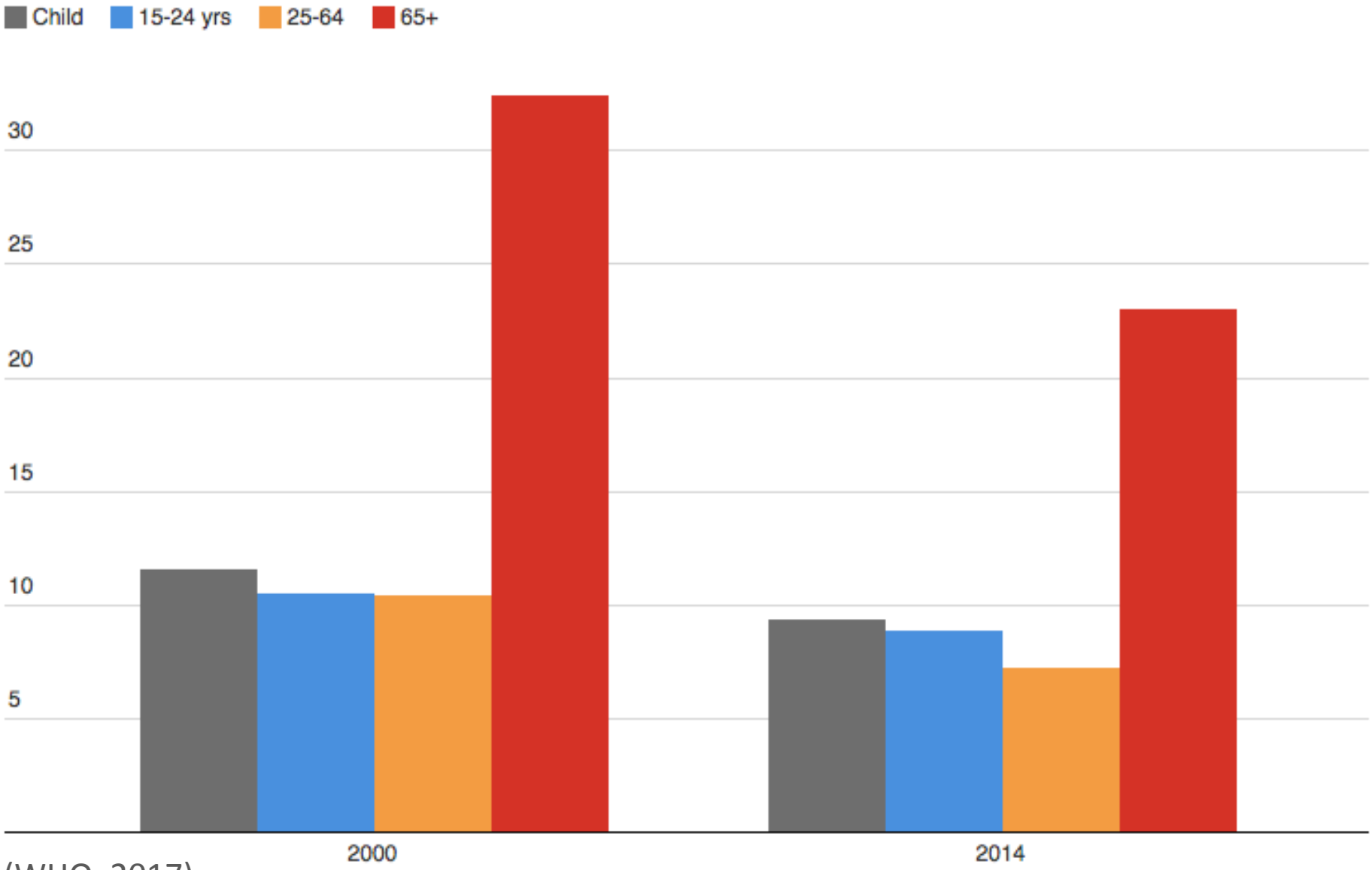
Suicide death rate by age, Lithuania, 2000 to 2017

Death rates from suicide measured per 100,000 individuals across various age categories. Also shown is the total death rate across all ages (not age-standardized) and the age-standardized death rate. Age-standardization assumes a constant population age & structure to allow for comparisons between countries and with time without the effects of a changing age distribution within a population (e.g. aging).



Source: IHME, Global Burden of Disease (GBD)

Incidence of poverty by age groups, 2000-2014 (%)

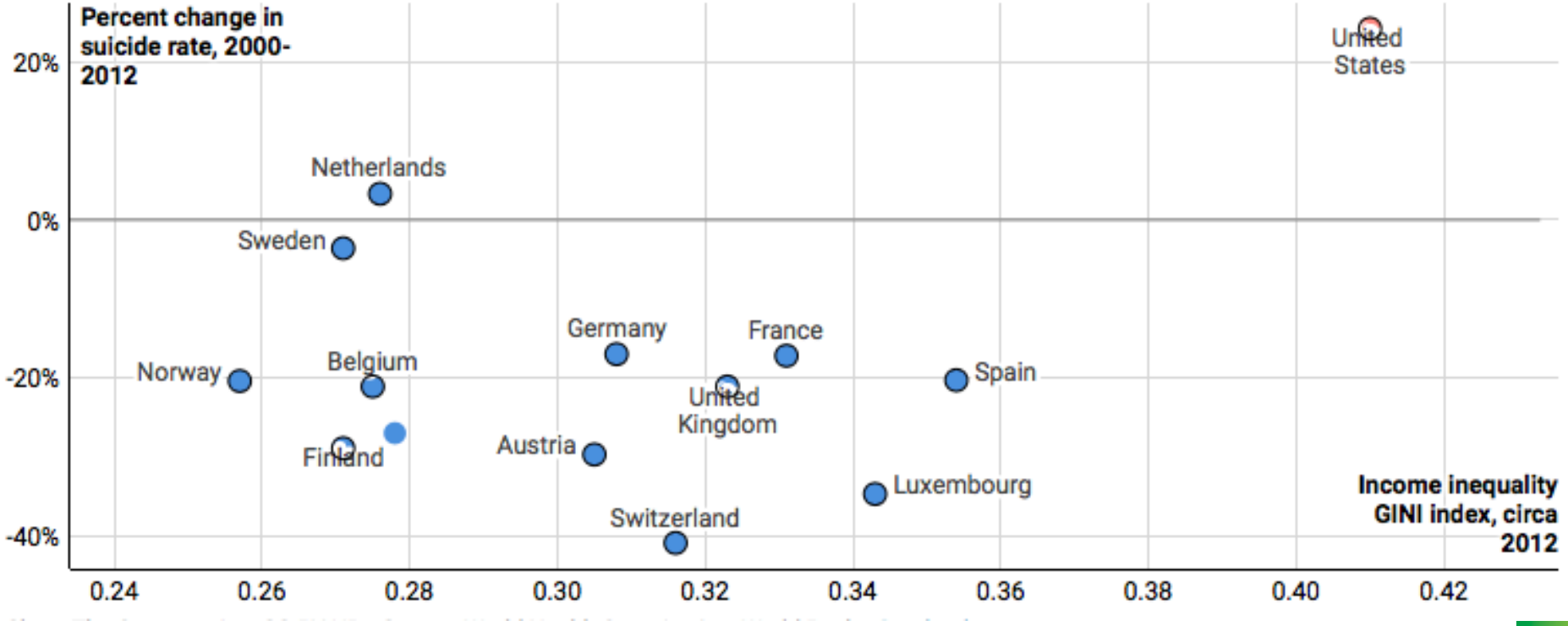


(WHO, 2017)

- The higher the level of income inequality, the higher the probability of death by suicide (Stack, 2018).

Suicide and income inequality by country

Some research suggests that the higher the level of income inequality, the higher the probability of death by suicide.



(Stack, 2018)

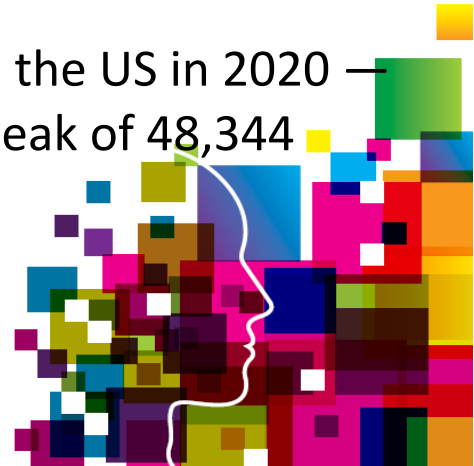
Latest Suicide Data, US

- The number of suicides in 2020 declined in comparison to 2019, despite an increase in some risk factors associated with suicidal behavior, including pandemic-related job loss, financial strain, and deteriorating mental health, according to new federal statistics.

- The number of annual suicides in the US increased steadily from 2003 through 2018, followed by a 2% decline between 2018 and 2019. There was concern that deaths due to suicide would increase in 2020, but this doesn't appear to be the case.

- The provisional numbers show 45,855 deaths by suicide in the US in 2020 — **3% lower than in 2019** (47,511), and 5% below the 2018 peak of 48,344 suicides.

National Vital Statistics System (NVSS), 3 November 2021



Latest Suicide Data, Australia

- Overall, last year Australia recorded 161,300 deaths – this is 6% less than in 2019. Australia is one of only a small number of countries including New Zealand and Denmark which recorded a lower death rate during the COVID-19 pandemic.

- Australia did not record an increase in suicide deaths as predicted by published modelling. The official statistics have now confirmed the number of suicide deaths in 2020 was 3,139, **5.4% lower than the number of suicide deaths in 2019** (3,318). This is an age-standardised rate of 12.1 deaths per 100,000 people, a 6.2% decrease from 2019 (12.9) and the lowest national figure since 2016 overall, and the lowest since 2013 for females.

Australian Bureau of Statistics, 30 September 2021

Pandemic and Crisis Centres, Europe

Despite media fanfare:

- No increase in suicide calls
- Decrease in attempts
- Increase in anxiety
- Increase in loneliness and isolation

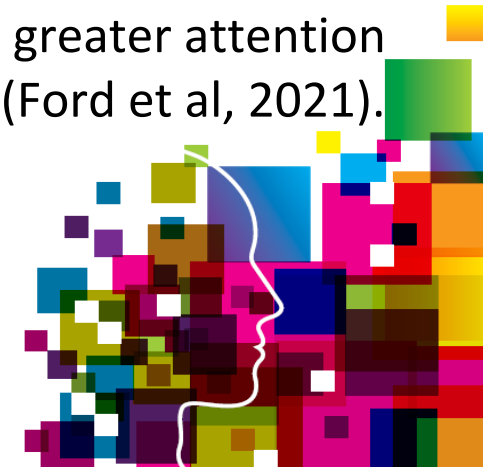
(O'Connor, 2021)

Older Adults and the Pandemic

- As demonstrated by Carstensen et al (2020) on a sample of 945 Americans between the ages of 18 and 76 during the spread of the pandemic, older adults showed relatively greater emotional well-being than younger subjects and this persisted even in the face of prolonged stress.

- Similar results were obtained from another survey conducted in March and April 2020 on a sample of 776 individuals aged between 18 and 91 years from Canada and the United States (Kleiber et al, 2021).

- A further study suggested that older age would have led to greater attention to the positive aspects of the early stages of the pandemic (Ford et al, 2021).



Underreporting of suicide in old age

- Based on an analysis of 20,379 cases in five Australian jurisdictions between 2000 and 2007, Walter et al. (2012) found significantly fewer investigations of death from suicide and any other cause among the elderly (65+) than deaths involving children and deaths resulting from medical complications and traffic accidents.

- According to Abercrombie (2006), deaths resulting from suicide are often not examined, but are reported as accidents or deaths of natural causes, just because the deceased was old.

Underreporting of suicide in old age

- Older adult's deaths that occur by overt methods (i.e. weapons, hanging, or exhaust fumes) are reported more frequently as suicides (Salib, 1997), while "less obvious" methods (involving old people starving themselves to death, do not take drugs, or do not take them properly) may not be analyzed in the same way (Abercrombie, 2006).

- Non-uniformity in the certification of deaths (De Leo et al, 2010) combined with the low inclination to pronounce the death of an older person as suicide are problems that contribute to the underestimation of suicide in this population.

Data quality:
Suicide is frequently under-reported

Ubiquitous causes of under-reporting

- Chronic Illness (old age)
- Missing persons (old age)
- Euthanasia/Assisted Suicide (old age)
- Particular Suicide Methods (e.g. Accidents)
- Dubious Circumstances of the Act (old age)
- Social Conditions (Insurance Policy)
- Social Position of Deceased
- Political Pressures
- Lack of Standardised Certification Procedures
- Remoteness of Reportable Deaths

De Leo et al, 2008

Suicide in Older Adults

- American Association for Marriage and Family Therapy reports that the rates of elderly suicide are estimated to be under reported by 40% or more due to “silent suicides”
  - Overdoses
  - Self-starvation
  - Self-dehydration
- More likely to die by suicide as Older Adults use more lethal means

Suicide in the Very Old

- Despite the global decline in rates of suicide and the general amelioration of quality of life and access to health care also for older adults, their rates of suicide **remain the highest virtually in every part of the world.**
- With the aging of the world population and the growing number of mononuclear families, the risk of an increase in isolation, loneliness and dependency does not appear ungrounded.
- The Covid-19 pandemic is claiming the life of many older persons and creating unprecedented conditions of distress, particularly for this segment of the population.

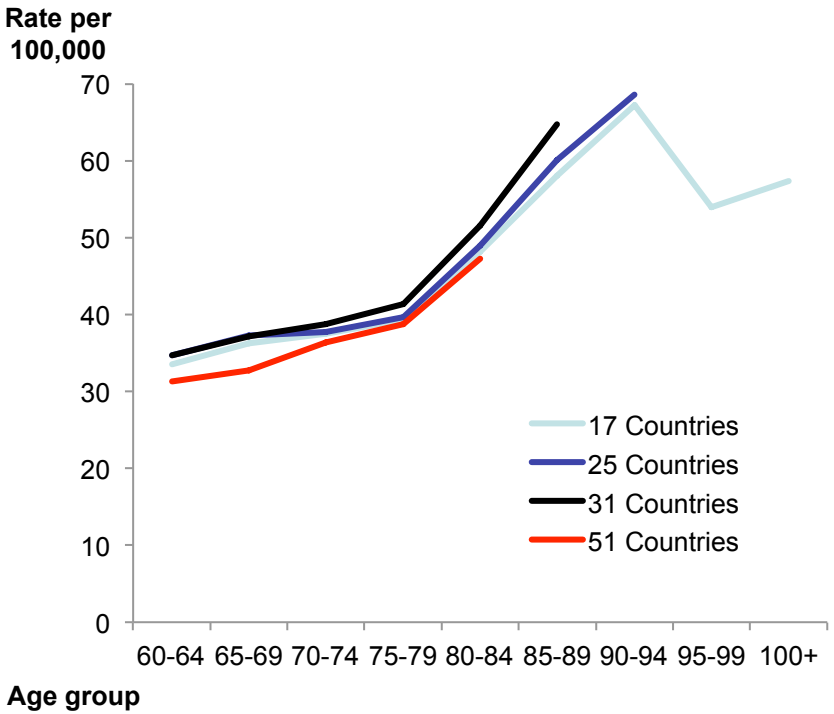
Suicide in Old People

- Globally, in 2008, life expectancy at birth was 68 years, ranging from 57 years in low-income countries to 80 years in high-income countries, with a ratio of 1.4 between the two income groups in terms of suicide mortality rates (WHO, 2020).
- Considering that in low and middle-income countries do happen about three quarters of all suicide cases, and that registration rate of deaths from suicide is much lower in low and middle-income countries than in high-income countries (WHO, 2014), these peculiarities need to be kept in mind when we examine suicide phenomena in a worldwide perspective.
- By 2050, the number of people aged 60 years and over would double, from 12% to 22% (WHO, 2018). This could be matter of concern also in terms of suicide prevention, if we consider that about 80% of the world population will live in low- and middle-income countries, where numerous risk factors for suicide often concentrate.

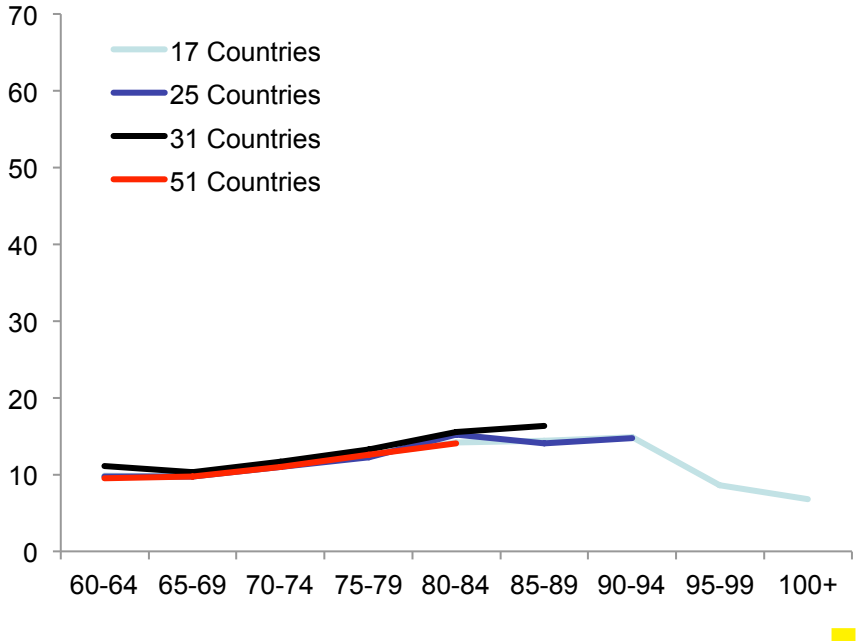
Suicide in the Very Old

- Data from the Global Burden of Disease (GBD) study show that despite age-standardized suicide mortality rates globally decreased by 32.7% from 1990 to 2016 (Naghavi et al, 2019), particularly among older adults, suicide rates among individuals aged 65 and over are still the highest among men and women in almost all regions of the world.
- Moreover, rates tend to increase with advancing age (WHO, 2018), continuing this trend even among centenarians (Shah et al., 2014).
- Globally, the male population evidences suicide mortality rates up to 7-8 times higher than the female one (Shah et al., 2014). In women, vulnerability to suicide appears relevant in the “young old age”, while in men in the “late old age” range (Koo et al, 2017). These peculiarities could possibly be explained by the greater female propensity to seek help, to obtain health care and to use less violent suicide methods (Schriivers et al., 2012).

Suicide rates in the very old



Males



Females

Shah et al, 2015

SUICIDE IN CENTENARIANS

Table 1. Estimates of suicide rates for centenarians

CATEGORY	SUICIDE NO	POPULATION SIZE	NO OF DATA SETS	RATE PER 100,000 PERSON YEARS	95% CI
Men X60–84 (N = 17)	90	157000	195	57	45–69
Women x60–64 (N = 17)	64	942000	194	6.8	5.1–8.5

Shah et al, 2014

Austria, Brazil, Bulgaria, Denmark, France, Finland, Iceland, Japan, Luxembourg, Norway, Portugal, Romania, Russia, Serbia, Slovakia, Sweden, Ukraine, United States

Risk factors

- Although understanding of risk factors is limited with regard to the effective predictive capacity and impact of different combinations (Conwell, 2014), it is possible to identify specific characteristics in old people that differentiate them from the general population.
- At the individual level, the most important risk factor is having previously made **one or more suicide attempts** (Yoshimasu et al., 2008). However, suicide attempts are less and less frequent with advancing age and in old age they closely approach the number of suicides.
- Deaths by suicide associated with alcohol and substance abuse are also less frequent among older people than among young people (De Leo et al., 2013). However, psychiatric illnesses remain often associated with suicide, even in old age (Vasiliadis et al., 2014), with a specific relevance for affective disorders (Troya et al., 2019), and more rarely for psychotic disorders (De Leo et al., 2013), personality disorders (Neulinger & De Leo, 2001) and dementia (Schneider et al., 2001).

Depression in old people and suicide

- Particular attention should be put on identifying and treating depression in late life, since the ageist models of aging tend to perpetrate a lax approach with respect to the possibilities of care for older people: from considering depression as a common change in mood in the elderly to a general reluctance to clinical interventions, given the frailty of patients of that age and feared interactions with drugs for somatic conditions (Rabheru, 2004).
- This attitude can lead to underestimating the real extent of the depressive disorder and at the same time minimizes the complexity of the problems of the old person, flattening the perspectives of understanding (De Leo, 2019).

Depression in old people and suicide

- Furthermore, affective disorder has a high co-morbidity with numerous medical conditions, which in themselves constitute another important risk category for this population group, if not the most important at very advanced age (Koo et al., 2017).
- **Physical disability and functional impairments** (Szanto et al., 2012), visual disturbances and malignant cancerous diseases (Waern et al., 2002), and chronic pain can significantly increase the possibility of suicidal behavior (Tang & Crane, 2006).
- Not surprisingly, numerous homicide-suicide cases involve older individuals (Mc Phedran et al., 2018), often engaged in caring for their spouse with a long-term disability or illness.

Physical impairment and suicide

- The general deterioration of the state of health can easily induce negative thoughts such as **lack of hope and motivation**, which are important predictors for suicide (O'Connor & Nock, 2014).
- Numerous studies show that, due to the greater vulnerability to one's psycho-physical condition, a **previous hospitalization** reported in the history of older people appears to be a risk factor of such relevance that can be compared to a previous suicide attempt (Ngamini Ngui et al., 2015).
- **Lack of social interactions, isolation and loneliness** are important risk factors for this age group (Wand et al., 2018).

Characteristics in the young-old, the old, and the very old

Table 2. Prevalence of different characteristics among young old, older adults and oldest old adults who died by suicide

	65+ years (A)		75-84 (B)		85+(C)		65-74 vs 75-84	85+ vs 75-84	
	N	%	N	%	N	%	OR (95% CI)[a]	OR (95% CI)[a]	Chi-square test
A diagnosed psychiatric disorder	205	42.2%	125	35.6%	43	30.5%	1.32 (0.99-1.75)	0.79 (0.52-1.21)	**X^2= 7.81, df=2, p=0.02**
Any type of psychiatric treatment	209	43.1%	120	34.2%	44	31.2%	**1.46 (1.10-1.94)**	0.87 (0.57-1.33)	**X^2=10.24, df=2, p=0.01**
An untreated mental health problems	107	22.1%	62	18.5%	25	17.7%	1.25(0.88-1.76)	0.95 (0.57-1.58)	X^2=2.24, df=2, p=0.33
Consultation with a mental health professional in last 3 months	111	22.9%	62	17.7%	24	17.0%	1.38 (0.98-1.96)	0.96 (0.57-1.60)	X^2=4.46, df=2, p=0.11
A physical condition	341	70.2%	289	82.3%	123	87.2%	**0.50 (0.36-0.71)**	1.47 (0.83-2.58)	**X^2=26.80, df=2, p<0.01**
Cancer	105	21.6%	81	23.1%	27	19.1%	0.92 (0.66-1.28)	0.79 (0.48-1.29)	X^2=0.928, df=2, p=0.63
Central nervous system disorder	25	5.1%	31	8.8%	11	7.8%	**0.56 (0.32-0.97)**	0.87 (0.43-1.79)	X^2=, 4.58, df=2, p=0.10
Circulatory system disorder	148	30.5%	152	43.3%	77	54.6%	**0.57 (0.43-0.76)**	**1.58 (1.06-2.33)**	**X^2= 32.15, df=2, p<0.01**
Digestive system disorder	41	8.4%	31	8.8%	15	10.6%	0.95 (0.58-1.55)	1.23 (0.64-2.35)	X^2= 0.66, df=2, p=0.72
Sensory disorder	17	3.5%	26	7.4%	22	15.6%	**0.45 (0.24-0.85)**	**2.31 (1.26-4.23)**	**X^2=26.32, df=2, p<0.01**
Infectious disease	6	1.2%	3	0.9%	4	2.8%	p=0.74	p=0.11	NA

Queensland Suicide Register

(Koo et al, 2017)

Social-environmental factors and suicide

- The **loss of a spouse** or a significant relationship, or a conflicting relationship can also increase the risk of suicide, especially among older men (Erlangsen et al., 2004).
- Although no studies are yet available to attest the impact of the COVID-19 epidemic on suicide mortality rates in old age, it is reasonable to hypothesize that the negative effects of the pandemic may significantly affect this phenomenon (Wand et al., 2020). Social distancing, quarantine, personal protective equipment, the **inability to get close to the loved ones** (even for the last goodbye) tend to exacerbate feelings of anxiety and depression, and cause post-traumatic stress disorder that often lead to episodes of self-harm and suicide (De Leo & Trabucchi, 2020).
- **Not possessing a house** or apartment can add to feelings of dependency and insecurity (Law et al., 2016). Being forced to relocate (Torresani et al., 2014) or to enter a nursing home or the anticipation of such an event (Loebel et al., 1991) is also a precipitating factor for suicidal behaviour among older adults.

Suicide in the Very Old: Main Aspects

(De Leo & Arnatovska, 2016; De Leo, 2018; Koo et al, 2017)

- Highest rates **for males**
- **Highest rate ratio males : females**
- Lowest ratio non-fatal/fatal suicidal behavior
- High level of determination to die
- **Frequent use of plastic bags as suicide method**
- Poor rescue opportunities
- Highest prevalence of physical illness
- Highest isolation/**loneliness**
- Hopelessness
- **Social invisibility**
- Bereavement

Why do the very old self-harm? A qualitative study

Wand et al, *Am J Geriatr Psychiatry*, 2018

- Enough is enough
- Loneliness
- Disintegration of self
- Being a burden
- Cumulative adversity
- Hopelessness and endless suffering
- Helplessness with rejection
- Untenable situation.

Old People that Decide to Die Together

What we know

A condition of serious existential distress is represented by living with a seriously ill and / or disabled person.
In old age, this situation can degenerate into events that can be defined as **mercy killing**, often followed by the suicide of the individual who killed the person he cared for.
Although homicide-suicide cases are a rather rare phenomenon, older adults are disproportionately involved, both as perpetrators and victims (Bell and McBride, 2010; Malphurs and Cohen, 2005).

- The vast majority of homicide-suicide cases occur in the home and are carried out by men, most often against their partner, using above all a firearm (Bourget et al., 2010).

- In more than 40% of cases, perpetrators were providing long-term care to a partner with a serious illness or disability (Malphurs and Cohen, 2005).

- In more than 70% of homicide-suicide cases among old people, suicide would be the primary motive (Salari, 2007; McPhedran et al., 2015).

- The murder of the partner would represent the way not to create further difficulties for her, avoiding leaving her alive to suffer from the consequences of the suicidal act, the emotional loss caused by this and the inevitable sequelae in daily practice.

Alzheimer’s Disease and Homicide-Suicide

- Alzheimer's disease is often at the origin of homicide-suicide episodes, especially when it is the partner of a lifetime that is affected.

- The care burden, the emotional yearning, the precarious economic conditions, the lack of alternation in the caregiving of the sick, the distance of the children or their absence, are all conditions which, together with the approach of the natural end of life, are at the basis of the fatal decision (Bourget et al., 2010).

Alzheimer's Disease and Homicide-Suicide

- Beyond the murder-suicide picture, there is a large literature that demonstrates the severity of stress related to the caregiver condition of a patient with dementia.

- Suicidal thoughts often occur in the mind of the most direct assistant (O'Dwyer et al, 2015), be it the partner or a child or another relative.

- Longitudinal observations at two years confirm the presence of death wishes and homicidal fantasies in the caregiver (Joling et al, 2017).

Pandemic and Suicide

Australian Institute for Suicide Research and Prevention
WHO Collaborating Centre for Research and Training in Suicide Prevention
National Centre of Excellence in Suicide Prevention

Pandemic and Suicide

- The COVID-19 pandemic may also increase the risk of suicidal ideation and behavior, based on studies that found previous viral outbreaks were associated with increased rates of death from suicide [Gunnell et al, 2020], including suicides which have been reported as an adverse effect of quarantine [Barbisch et al, 2015].
- Among individuals 65 years of age and older, the 2003 outbreak of severe acute respiratory syndrome (SARS) was associated with a 30% increase in suicides [Yip et al, 2010].

An increase in suicide and suicide attempts during COVID-19?

- Based on early reports from countries with some form of real-time mortality data, the results are mixed, with countries showing a stabilization or decrease in suicide cases during March-May / June and some countries showing a small increase.
- Suicide rates are highly dependent on the lethality of the methods and the number of hidden cases. Lockdown measures can trigger a shift by reducing highly lethal methods such as drowning, rail suicides etc. towards less lethal methods, such as intoxication, which have a higher survival rate.
- Examining the narratives of real-time suicide data shows an increase in Covid-19-related suicides among people with pre-existing mental health conditions (Appleby, 2021).

Lockdown and ED presentations

- A study of 20 EDs in the Midwest of the United States compared the first month of "Stay at Home" with the same period of the previous year (Smalley et al, 2020) showed a:
- 44% reduction in ED presentations for all causes
- 15% reduction in alcohol-related presentations
- 60.6% reduction in presentations of patients with suicidal ideation
- _____
- In Ireland, Arensman et al. (2020) recorded a 10% reduction in March and a 25% reduction in April in presentations for suicide attempts.

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THE LANCET
Psychiatry

ARTICLES | VOLUME 8, ISSUE 1, P58-63, JANUARY 01, 2021

Real-time suicide mortality data from police reports in Queensland, Australia, during the COVID-19 pandemic: an interrupted time-series analysis

Stuart Leske, PhD • Kairi Kõlves, PhD • Prof David Crompton, FRANZCP • Prof Ella Arensman, PhD • Prof Diego de Leo, PhD

COVID-19: the implications for suicide in older adults

Anne Pamela Frances Wand (a1) (a2), Bao-Liang Zhong (a3), Helen Fung Kum Chiu (a4), Brian Draper (a2) and Diego De Leo (a5)

COVID-19 and Suicide

- Are people who have lost someone to COVID-19 at increased risk for suicide and suicidal behavior?

- Are older people particularly at risk? What are the impacts of bereavement in these particular circumstances?

- Does the organization of life (eg, living alone, living in aged care facilities) have an influence on risk?

Vulnerable Groups

- Researchers and clinicians should recognize the pandemic's ability to exacerbate health inequalities within populations, particularly affecting people with established mental health problems (including severe mental illness) and physical disabilities.

- Those with insecure or no job or housing, or other forms of social inequality, such as digital poverty, should also be considered (Holmes et al, 2020).

Caring for Older People

- Providing older people with a clear motivation as to why self-isolation is important, a general education about the virus to reduce stigma, and an emphasis on the altruistic decision to stay at home are important steps. Vaccination is of crucial importance. Broadcasting this information via television can be an effective approach that reaches many older people.

- A sense of belonging, connectedness and social support can be achieved through online technologies such as video conferencing, text messaging, phone calls and emails with friends and family instead of face-to-face meetings.

Conclusions

- Older people are more vulnerable to disadvantageous socio-economic conditions and inaccessibility to health care, and report greater risk of suicide in areas with high population density (Ngamini Ngui et al., 2015). Generally speaking, suicide in old age often seems to be the result of a well thought-out decision: the lower frequency of suicide attempts and the choice of lethal methods makes this phenomenon more fatal and less predictable. This seems particularly evident for men, who appear less able to adapt to the difficulties of aging and more prone to the aggregation of risk factors, especially if they live alone and have severe physical illness or a mental disorder (De Leo et al., 2020).
- Isolation and loneliness are among the main risk factors; given their individual and social nature, they would require multi-area intervention strategies, able to bring out the significant variations between different risk classes (Ngamini Ngui et al., 2015).

Conclusions

- The available literature indicates a growing effort in understanding the many facets of the suicide phenomenon, from the debate on the concept of aging to the exploration of new research areas such as that on protective factors, to the commitment to involve government authorities in an increasingly active way. Population growth, economic crises and catastrophic events such as the current pandemic present health planners and practitioners with numerous challenges, which need to be addressed with adequate preparation in order to safeguard the health of our parents and grandparents, and their precious presence in the world.