1. Health[1]

Health is an important dimension that underlies individual and collective well-being. The achievement, by all populations, of the highest possible level of health is one of the goals specified by the WHO, as well as by our Constitution, which defines health as a fundamental right of the individual and an interest of the community.
Our Country has been characterised by a continuous improvement in health conditions, with a progressive increase in longevity; over time, in the European context, Italy remains one of the countries with the highest life expectancy at birth. Continuous improvements have concerned all phases of life, from the reduction in infant mortality to the consistent progress in adulthood and old age, marked also by the positive evolution of avoidable mortality and increases in the quality of survival in old age. Finally, the diffusion of healthier lifestyles among citizens has widened, in particular with the reduction of sedentariness.
During the 2020s, however, the global spread of the SARS-CoV-2 coronavirus pandemic was, and still is, one of the most important health threats of recent decades. The pandemic has violently affected the elderly and the most fragile in particular, while exacerbating the social inequalities that afflict our Country, as evidenced by the social differentials found in the excess mortality caused by COVID-19. It is important to consider that, in order to limit contagions, exceptional measures were imposed and they most likely reduced the risk of excess mortality in 2020, which therefore could have been even higher of what unfortunately already recorded.

The territorial distribution of COVID-19 deaths changes between the first and second wave: predominantly in the North during the first wave, in most of the Country during the second wave

The scenario of the spread of the COVID-19 pandemic in our Country can be summarised in three phases[2]. The first, comprising the period from February to the end of May 2020 (first wave), was characterised by a very rapid spread of infections and deaths and a strong territorial concentration, mainly in the North of the Country. In the summer season, from June to mid-September (transition phase), the spread of new cases was initially very limited, but by the end of September an increasing number of outbreaks were identified throughout the Country. From the end of September (second wave), cases increased at an exponential rate in most of the Country and only from mid-November a decrease in the incidence of infection was observed; deaths followed a similar trend but delayed by about two weeks.
Between February and the end of November 2020, 1 million 651 thousand 229 positive cases of COVID-19 were diagnosed by Regional Reference Laboratories and reported to the National Integrated Surveillance System of the Italian National Institute of Health by the 20th

1 This chapter was edited by Emanuela Bologna, with contributions from: Silvia Bruzzone, Luisa Frova, Lidia Gargiulo, Anita Guelfi, Marilena Pappagallo, Sabrina Prati, Silvia Simeoni, Valentina Talucci, Alessandra Tinto.
2 Impact of the COVID-19 pandemic on total mortality in the resident population. https://www.istat.it/it/archivio/252168 (in Italian).

of December 2020. During the same period, 57 thousand 647 deaths were recorded among COVID-19 positive persons.
In both first and second waves, the rate of deaths under the age of fifty remained almost unchanged at around 1% for both genders. The over-80s age group had the highest percentage of deaths due to COVID-19 (60% of total deaths), the 70-79 age group accounted for a quarter of COVID-19 deaths, while the 60-69 age group accounted for 10%. Lombardia alone, with over 22,500 deaths, accounted for 40% of the total number of deaths due to COVID-19 (Table 1).

Table 1. Percentage incidence of COVID-19 deaths on total COVID-19 deaths in Italy, by region, geographic area and age groups. First and second wave

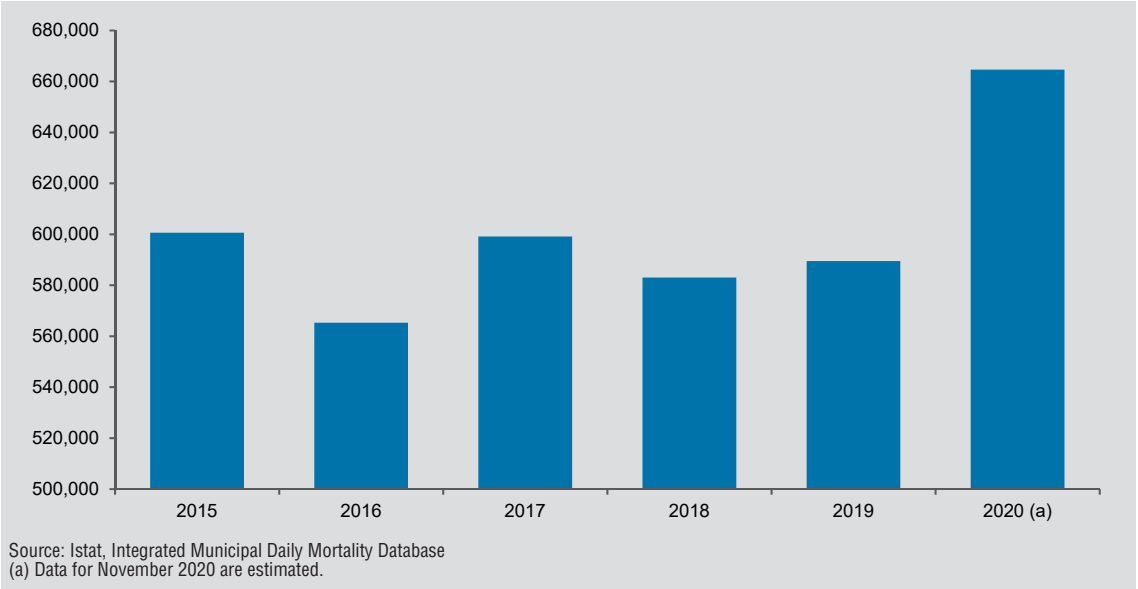
Regions and geographic areas	First wave					Second wave				
	<60	60-69	70-79	80+	Total	<60	60-69	70-79	80+	Total
Piemonte	4.2	8.3	23.5	64.0	**11.8**	3.5	7.1	24.2	65.2	**7.1**
Valle d'Aosta	3.5	7.0	24.6	64.8	**0.4**	1.2	5.3	17.5	76.0	**0.8**
Lombardia	4.6	11.3	29.3	54.7	**47.5**	3.3	6.6	22.2	67.9	**26.7**
P.a. Bolzano	2.1	7.3	17.8	72.7	**0.8**	1.8	4.0	19.9	74.3	**1.3**
P.a.Trento	2.7	6.0	20.6	70.6	**1.2**	2.1	3.3	17.6	77.0	**1.1**
Veneto	3.4	6.7	19.6	70.4	**5.7**	2.6	6.4	19.5	71.5	**8.6**
Friuli-Venezia Giulia	1.7	5.2	23.2	69.9	**1.0**	2.7	5.6	19.6	72.1	**2.4**
Liguria	3.2	8.7	24.2	63.9	**4.3**	2.9	7.8	22.5	66.8	**3.8**
Emilia-Romagna	3.5	9.1	25.2	62.2	**12.4**	2.5	6.0	17.5	74.0	**7.5**
Toscana	4.7	7.5	22.3	65.6	**3.1**	1.9	6.9	19.2	72.0	**6.4**
Umbria	6.6	11.8	28.9	52.6	**0.2**	2.1	6.5	27.1	64.3	**1.6**
Marche	4.8	9.8	24.0	61.4	**2.9**	4.1	4.1	28.7	63.1	**0.9**
Lazio	8.2	10.1	25.4	56.2	**2.3**	7.6	15.8	24.2	52.4	**6.8**
Abruzzo	5.4	15.4	23.1	56.1	**1.3**	2.8	8.3	25.3	63.6	**2.2**
Molise	3.7	18.5	7.4	70.4	**0.1**	1.9	11.7	14.6	71.8	**0.5**
Campania	14.7	17.9	30.1	37.3	**1.5**	10.4	17.7	35.0	36.9	**8.1**
Puglia	7.8	9.9	24.9	57.4	**1.6**	6.9	13.5	27.8	51.8	**5.0**
Basilicata	11.4	14.3	42.9	31.4	**0.1**	4.4	14.0	26.3	55.3	**0.5**
Calabria	6.3	16.4	23.4	53.9	**0.4**	4.4	18.9	26.4	50.3	**0.8**
Sicilia	8.8	10.9	27.8	52.6	**1.0**	7.0	14.1	28.8	50.0	**6.3**
Sardegna	5.6	10.5	18.9	65.0	**0.4**	7.0	15.3	25.5	52.2	**1.5**
North	4.2	9.9	26.7	59.2	**85.2**	3.0	6.4	21.2	69.4	**59.4**
Centre	5.7	9.1	23.9	61.2	**8.5**	4.5	10.5	22.8	62.2	**15.7**
South and Islands	8.9	13.7	25.8	51.7	**6.3**	7.5	14.8	29.7	48.0	**24.9**
Italy	**4.6**	**10.1**	**26.4**	**58.9**	**100.0**	**4.4**	**9.2**	**23.5**	**62.9**	**100.0**

Source: COVID-19 Integrated Surveillance Service, Iss

Between the first and second waves, the distribution of COVID-19 deaths in the territory changes considerably. In the months of February-May, COVID-19 deaths are mainly concentrated in the North of the Country (85%), falling to 8% in the Centre and 6% in the South and Islands. In the months of October and November, instead, the pandemic also affected the rest of Italy, with a significant increase in deaths in the central-southern regions (41% of the total number of COVID-19 deaths in Italy in the same period).
From the end of February to November, COVID-19 deaths accounted for 9.5% of total deaths in the period; during the first pandemic wave (February-May) this share was 13%, while in the second wave the overall contribution of COVID-19 deaths rose to 16% at the national level (with a considerable increase in November). Looking at the contributions of COVID-19 deaths to overall mortality by age group, at the national level, COVID-19 mortality

contributed 4% of overall mortality in the 0-49 age group, 8% in the 50-64 age group, 11% in the 65-79 age group, and 8% among those aged 80 years or older.
Excess mortality, compared with the previous 5 years, in Lombardia and Emilia-Romagna is lower in the second wave, while in Veneto, Valle d'Aosta and Piemonte it is higher. Excess mortality is an important indicator of the overall impact of the pandemic, not only taking into account deaths directly attributed to COVID-19, but also those that may have escaped the surveillance system because they were undiagnosed or deaths indirectly related to the pandemic, such as deaths caused by delayed or missed treatment due to an overburdened healthcare system.

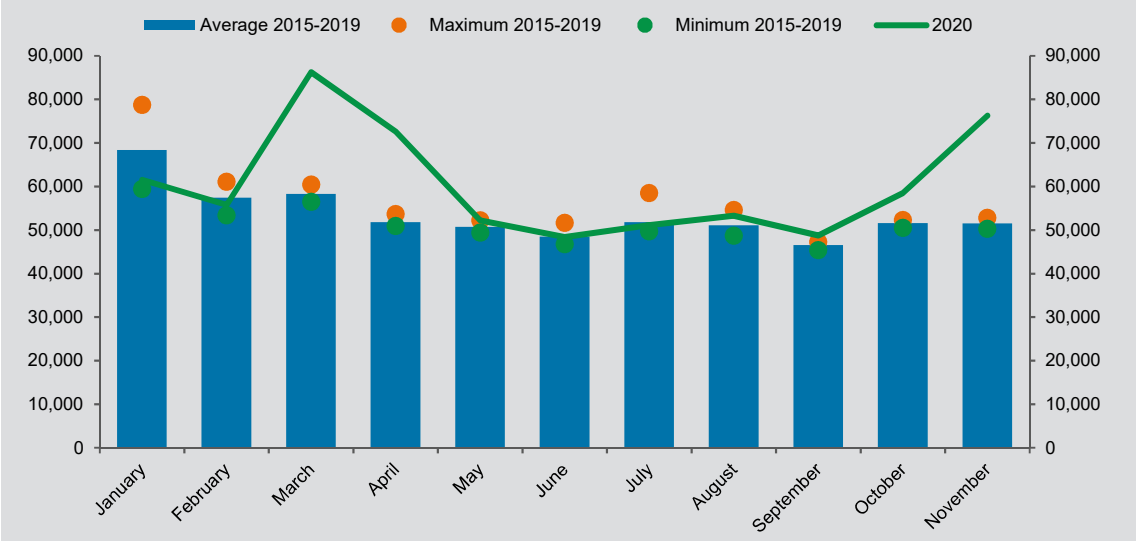
Figure 1. Number of deaths occurring between January 1 and November 30. Years 2015-2020 (a)



Source: Istat, Integrated Municipal Daily Mortality Database
(a) Data for November 2020 are estimated.

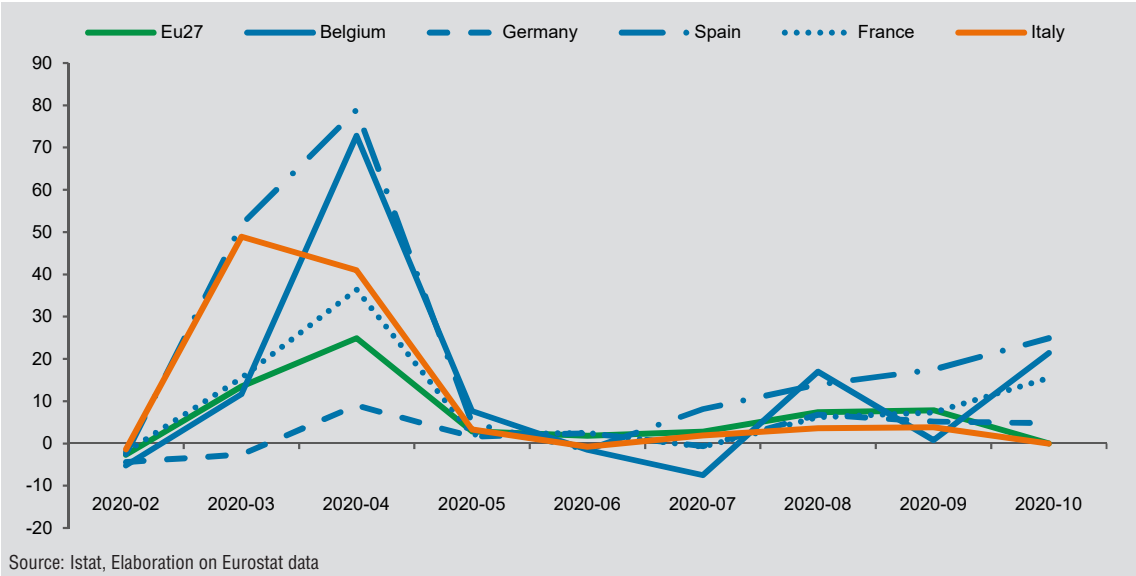
Excess mortality was estimated by comparing, for the same period, 2020 data with the average number of deaths in the previous five-year period (2015-2019). Nearly 84 thousand more deaths are estimated in February-November 2020 comparing to the February-November 2015-2019 average. Deaths of COVID-19 positive persons recorded by the Integrated Surveillance referring to the same period represent 69% of the total excess mortality.
Since the end of February 2020, a clear change was observed with respect to the favourable trend in mortality that had characterised the 2019-2020 winter season; in the first two months of the year, in fact, few deaths had been recorded compared with the average of the previous five years (Figure 2). In March and April, however, at the same time as the first wave of spread of the COVID-19 outbreak, there was a major increase in deaths from all causes compared to the expected level based on the 2015-2019 average, with COVID-19 deaths accounting for 61.5% of the excess mortality.
An excess of deaths from all causes, although with variable intensity and cadence, was highlighted in many other European countries at the time of the first pandemic wave (Figure 3). Italy is one of the countries that suffered most from the impact of the COVID-19 pandemic in terms of mortality. Among European countries, Spain and Belgium were also particularly affected.

Figure 2. Mortality by month and comparison with same month data over 2015-2019. Year 2020 (a)**. Absolute values**



Source: Istat, Integrated Municipal Daily Mortality Database
(a) Data for November 2020 are estimates.

Figure 3. Excess of mortality per month in some European countries and the Eu27 average compared with the monthly average of deaths. Years 2016-2019. Percentage values

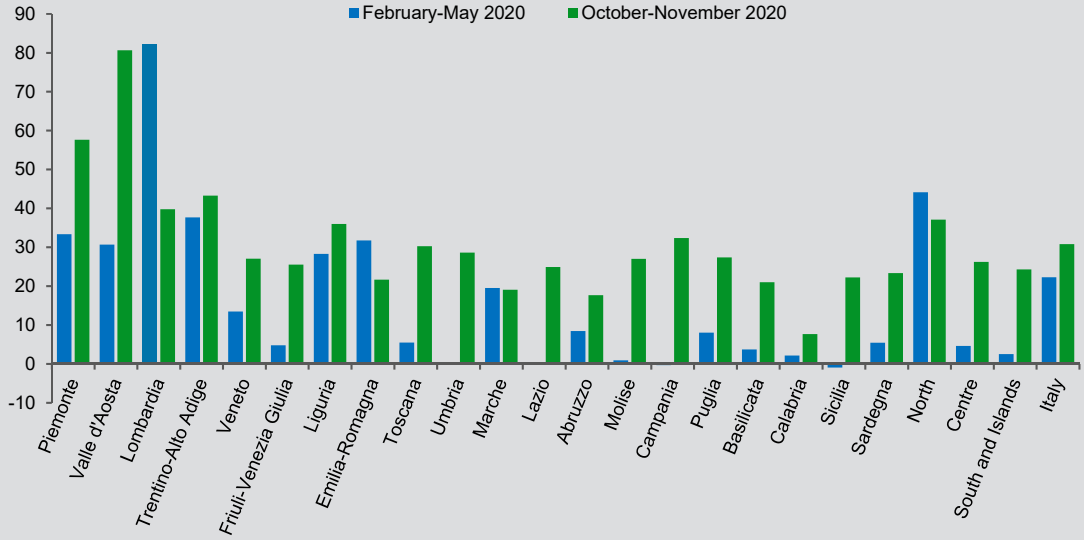


Source: Istat, Elaboration on Eurostat data

During the first phase of the pandemic, there were more than 211 thousand deaths (March to May 2020), 50 thousand more than the average for the same period in 2015-2019, of which more than 45 thousand related to residents in the North of the Country (Figure 4).
The increase in deaths in the Northern regions resulted in almost a doubling of deaths in March (+94.5% compared to the average for the same month in 2015- 2019) and a 75% increase in April.
In the June-September period, corresponding with the transitional phase of the spread of the pandemic, a reduction in total mortality was observed, bringing in all regions the number of deaths from all causes recorded in 2020 in line with the reference values of the 2015-2019 period. Conversely, beginning in mid-October 2020, the effects of the second wave of

the pandemic on all-cause mortality become gradually more apparent. In absolute terms, an increase in all-cause deaths of more than 31 thousand and 700 is estimated for October and November 2020 compared to the same months in the period 2015-2019, in the same period deaths of COVID-19 positive individuals are about 21 thousand and account for 67% of the excess mortality.

Figure 4. Excess of total deaths in the first and second pandemic waves by region and geographic area. Year 2020 (a)**. Percentage change in deaths from all causes** (b)



Source: Istat. Integrated municipal daily mortality database
(a) Data for November 2020 are estimates.
(b) For February-May and October-November 2020 compared to the average for the same period in 2015-2019.

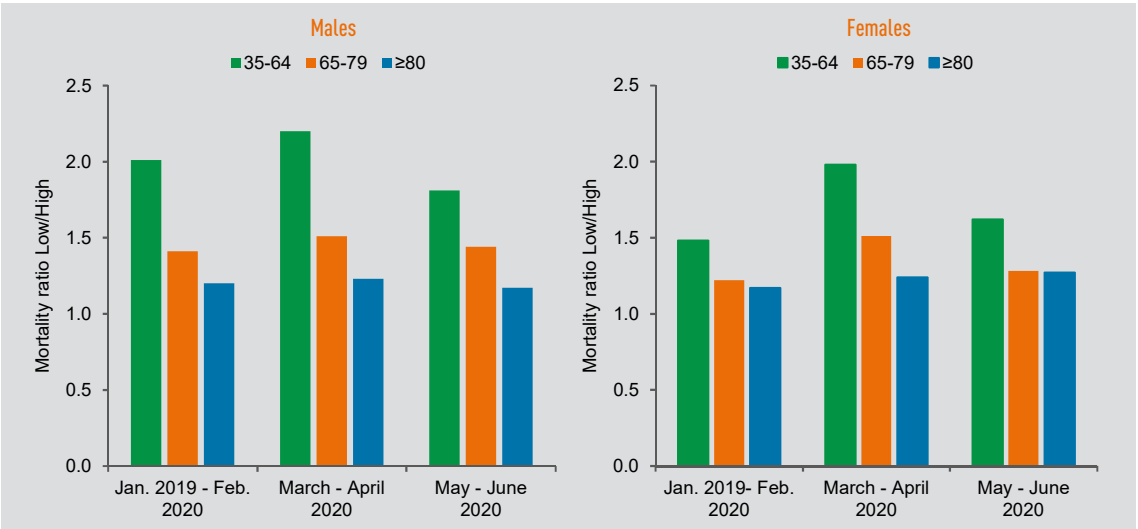
The second wave was characterised in October by an excess of total deaths of 13% found both in North and Centre-South, while in November there was again an excess of mortality higher in the North (+61.4%), compared with the Centre (+39.3) and the South and Islands (+34.7%). In many northern regions, moreover, the total excess of mortality in November exceeds that of the March-April peak: this occurs in Valle d'Aosta (+139% compared to +71% in April), in Piemonte (+98% compared to +77% in April), in Veneto (+42.8% compared to +30.8% in April) and in Friuli-Venezia Giulia (+46.9% compared to +21.1%). In other regions, the increase in deaths recorded in November was lower than in the first wave: these regions were Lombardia (+66% in November compared with +192% in March and +118% in April) and Emilia-Romagna (+34.5% compared with +69% in March).
The excess of about 50 thousand deaths from all causes found nationally for the period March-May 2020, compared to the average for the same period in the years 2015-2019, is due for 72% to the increase in deaths in the population aged 80 years and over (36 thousand and 400 deaths more). The increase in mortality in the 65-79 age group explains another 23% of the excess of deaths in correspondence with the first wave of the pandemic; in absolute terms, the increase compared to the average value of 2015-2019 is 11 thousand and 700 deaths (which in total, in this age group, amount to just under 53 thousand).
In the months of October and November, a similar pattern is observed: the overall increase in deaths exceeds 31 thousand and 700, including more than 23 thousand more deaths among those aged 80 years and over (which covers 74% of the increase in total deaths in the two-month period). Regarding the 0-49 age group, for almost the whole period

considered, monthly deaths in 2020 are lower than the 2015-2019 average, with the exception of the March and November data referring to men resident in the North, for which an increase of 11% and 4.9% is observed, respectively. The fact that the mortality of the younger population is in 2020 generally lower than the 2015-2019 average period can be explained by considering both, the lower lethality of the pandemic under the age of 50 and the reduction in mortality from some of the main causes affecting this segment of the population such as accidental ones, due to the lockdown and the consequent block of mobility and of many productive activities.

In the pandemic period, the mortality gap between the least and the most educated has widened further

In Italy, as well as in all European countries, those who are lower in skills and resources are more likely to fall ill and have, on average, a lower life expectancy. Overall, Italians show less social inequality in mortality than the rest of European countries, thanks to the protection of the Mediterranean diet, the family network and a universalistic healthcare system.
However, Istat mortality data by level of education show, in the pre-pandemic period, significant inequalities to the disadvantage of less educated people. The social inequalities in mortality are greater among men and in the central segments of life (where mortality can be defined as 'avoidable').
Analysing mortality by different levels of education, the mortality gap between the least and most educated, which was already observed in 2019, widened further in correspondence with the first wave of the pandemic; the mechanisms that expose people to the risk of death have, in fact, acted with greater virulence on population with low levels of education.

Figure 5. Social inequalities in mortality by level of education, age, gender, and period (pre-pandemic and pandemic). Areas of high prevalence during the first wave of the pandemic. Years 2019 and 2020. Ratio of mortality rates in low- and highly-educated populations (a)



Source: Istat, Basic Registry of Individuals (BRI) and follow-up mortality data from the Population Registry and Tax Registry, January 2019-June 2020
(a) Cohort includes individuals enrolled in the BRI at January 1, 2019, aged 35 or older, resident in municipalities with validated mortality data (7,357 out of 7,904 municipalities, representing 95% of Italian residents).

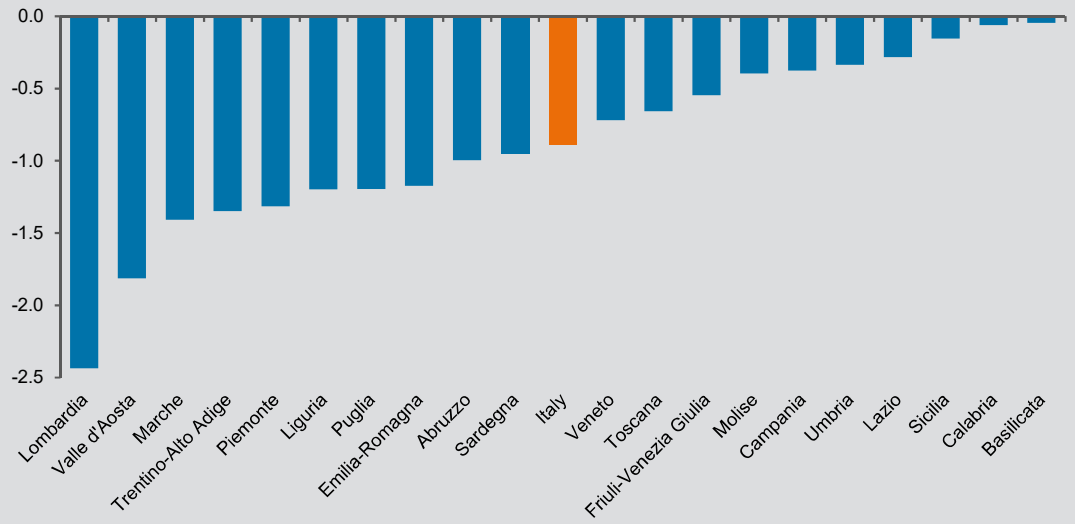
In particular, social inequalities for mortality are found to have increased especially in middle-age groups and among women. Analysis by age in high-pandemic areas shows greater inequality in working-age individuals than in older ones and an increase in the mortality ratio, in the first pandemic wave, among women aged 35-64 (from 1.5 to 2) and 65-79 (from 1.2 to 1.5) (Figure 5). On the contrary, no substantial changes are observed among men and women over 80 years of age. In May and June, social inequalities in mortality were at similar levels to the previous year.

Survival and quality of years lived: the gains lost during the pandemic

Italy remains one of the countries with the highest life expectancy in the international context. With respect to the most recent Eurostat data on life expectancy at birth updated in 2019[3], our Country was once again confirmed in second place among the 27 European Union countries, with 83.6 years, after Spain (84 years) and with +2.3 years of advantage compared to the Eu27 average (81.3 years). Significant confirmation among males: in 2019, Italy, together with Sweden, was at the top of the ranking of countries for average life expectancy at birth (81.4 in Italy and 81.5 in Sweden, respectively), the highest levels ever recorded in Italy and the European Union.
Due to the COVID-19 pandemic, that has significantly affected Italy, characterised by a demographic structure that is much older than that of other countries, the estimates made[4] on life expectancy for 2020 suggest an abrupt interruption and a significant inversion of the trend in the process of constant improvement in longevity observed in recent years; especially in some areas of the Country that were particularly affected by the spread of the virus.
At the national level it is estimated that about 0.9 years of life expectancy at birth will be lost in only one year (from 83.2[5] to 82.3 years in 2020), but a strong heterogeneity emerges between the different territories, with a more marked loss, in terms of years lived, in the northern regions (from 83.6 to 82.1 expected years), compared to the Centre (from 83.6 to 83.1) and the South and Islands (from 82.5 to 82.2) (Figure 6).
In particular, looking at the specific regions, in 2020 the strongest drop in life expectancy at birth is recorded in Lombardia, where the mortality recorded during the year would cause a loss of approximately 2.4 years (from 83.7 to 81.2), followed, in decreasing order, by Valle d'Aosta (-1.8 years; from 82.7 to 80.9), Marche (-1.4 years; from 84 to 82.6), Piemonte (-1.3 years; from 82.9 to 81.6) and Trentino-Alto Adige (-1.3 years; from 84.1 to 82.8). Reductions of more than one year would also be recorded in Liguria (-1.2 years; from 83.1 to 81.9), Puglia (-1.2 years; from 83.3 to 82.1) and Emilia-Romagna (-1.2 years; from 83.6 to 82.4). Life expectancy at birth, instead, remains substantially unchanged in Basilicata and Calabria and decreases only slightly in most of the regions of the South and Islands, with the exception of Abruzzo and Sardegna, where it is estimated a decrease of around one year (from 83.4 to 82.4 and from 83.1 to 82.1, respectively).

3 Data extracted from the Eurostat database on 27/02/2021.
4 The estimates presented here are the result of updated scenario results published in recent months on the Istat website at https://www.istat.it/it/archivio/241844, to which reference should be made for more detailed methodological information.
5 It should be noted that in this case the figure refers to an estimate based on the calculation method used by Istat, which, differently from the method used by Eurostat, adopts a more detailed model for estimating survival in old age.

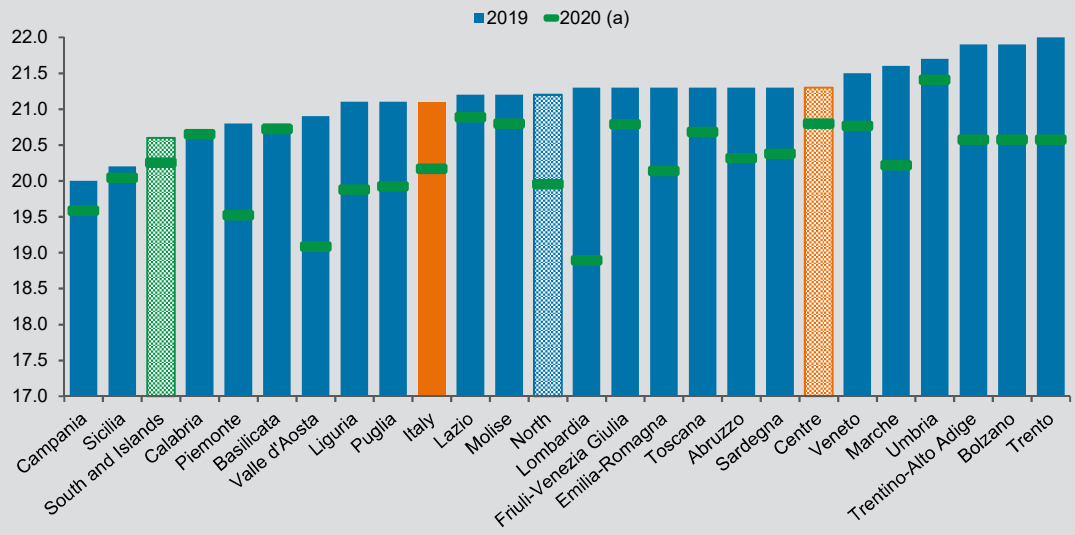
Figure 6. Change in life expectancy at birth, by region. Years 2019 and 2020 (a)**. In years**



Source: Istat, Mortality tables of the Italian population for 2019 data
(a) 2020 data is based on estimates.

The critical aspects appear even more evident if we restrict our attention to the estimates of life expectancy among the population aged over 65 (Figure 7).
Once again, Lombardia is the region in which the estimates for 2020 show the sharpest drop with respect to the previous year: if in 2019 a 65 year-old resident in Lombardia could hope to live an average of about 21 more years; in 2020, this expectancy will be reduced by more than 2 years. Valle d'Aosta (-1.8), Marche (-1.4), Trentino-Alto Adige and Piemonte (-1.3 years in both cases) are also at the top places in terms of loss of expected longevity. Basilicata and Calabria also stand out in this case for the substantial invariance of the indicator.

Figure 7. Life expectancy at 65 by region and geographic area. Years 2019 and 2020 (a)**. In years**

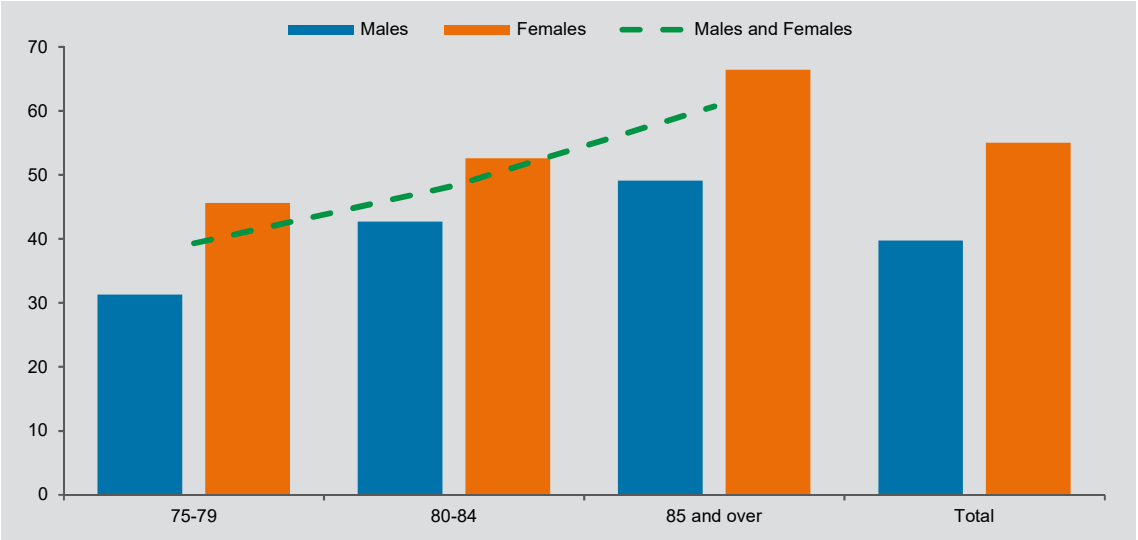


Source: Istat, Mortality tables of the Italian population for 2019 data
(a) 2020 data is based on estimates.

Almost half of the elderly are in poor health, a figure that has been declining in recent years

The increase in life expectancy of the population, together with the decrease in the birth rate, have strongly characterised our Country in recent decades, with a significant impact on the age structure of the population. As of 1 January 2020, Italian residents aged 75 and overare more than 7 million (they were about 5 million 900 thousand in 2010), corresponding to 11.8% of the total population. The current pandemic has had a strong impact on the elderly population, the most fragile segment in terms of health conditions. In particular, in 2020, 48.8% of the population aged 75 and over suffers from three or more chronic diseases or has severe limitations in carrying out the activities that people usually do. This percentage is higher for those living in the South and Islands (56.9% compared to 44.6% in the North and 47% in the Centre) and among women (55% compared to 39.7% among men) and reaches 60.7% among people aged 85 and over (compared to 39.3% among people aged 75-79) (Figure 8).
Since 2014, a reduction in the proportion of older people with severe limitations or in multi-chronic conditions has been observed (they were about 54% in 2013) due to the general improvement in the health conditions of the population, but the levels among the elderly population remain high. This reduction was higher among women (-5.8 percentage points) than among men (-3.2 percentage points).
The percentage of older people in poor health is lower among those with at least a high school degree (35.5% among men and 45.7% among women), while it increases among those with at most a primary school degree (44% among men and 59.5% among women).

Figure 8. Persons aged 75 and over with three or more chronic conditions and/or severe limitations that last for at least six months in carrying out the activities that people usually do, by gender and age group. Year 2020 (a)**. Percentage valuess**

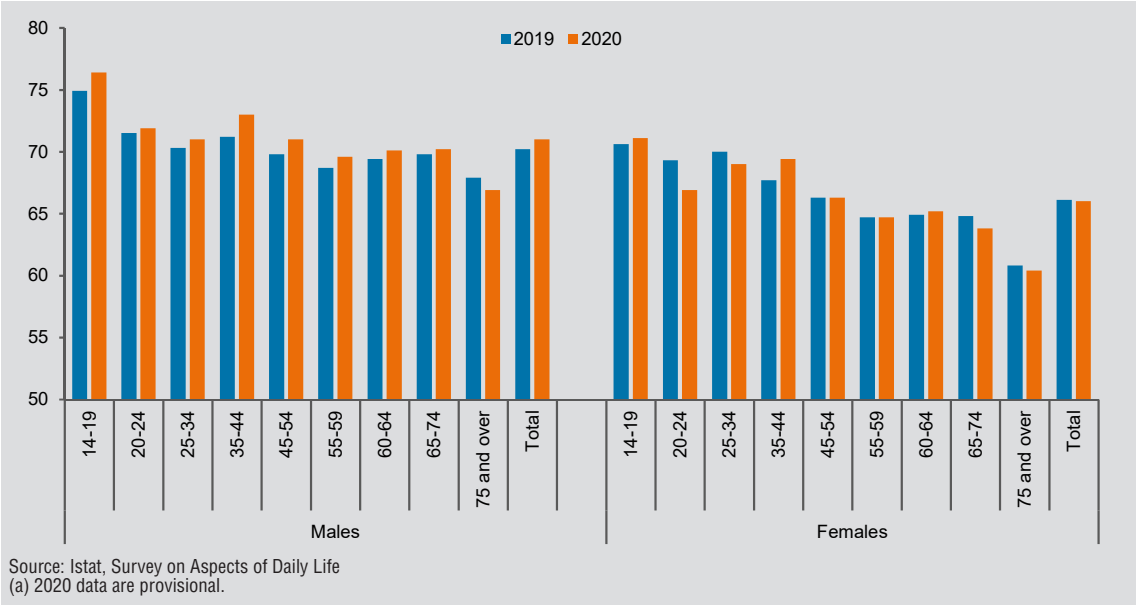


Source: Istat, Survey on Aspects of Daily Life
(a) 2020 data are provisional.

Mental well-being worsens among the elderly and residents in Lombardia, Piemonte and Campania

The analysis of the mental health index[6] is particularly important in the period of the pandemic. As the score increases, taking values between 0 and 100, the evaluation of mental health conditions improves. In 2020, the index in Italy had a value of 68.8 (Figure 9). For the total population there is no significant change compared to 2019.
In the first phases of the pandemic, the evaluation of one's own health conditions was probably influenced by the relativisation of one's own psycho-physical state in comparison with that of other people in worse situations. In addition, an important role was played by the family context, which made possible to maintain a climate of serenity in the majority of families[7]. However, different trends emerge in subgroups of the population. Men improve by almost 1 point while the score remains unchanged among women. The mental well-being of people aged 75 and over worsens both among men and women, dropping by 1 point among men of this age group (-2 points for residents in the North); among women the drop is also observed for those aged 65-74 (-1.7). The conditions of greater isolation experienced during 2020 affected above all the mental health of people in the 55-64 age group living alone, again especially in the North. Even among young women aged 20-24, however, the score drops by more than 2 points compared to the previous year. The mental health index worsens in Lombardia, Piemonte and Campania, which present the lowest values along with Molise. Gender differentials widen, with more unfavourable conditions for women (66 vs. 71.1).

Figure 9. Mental health index for persons aged 14 and over by gender and age groups. Years 2019 and 2020 (a)**. Average scores**



Source: Istat, Survey on Aspects of Daily Life
(a) 2020 data are provisional.

6 Among the psychometric instruments developed at international level, the mental health index (MH) from the SF-36 is included among the indicators of the BES and is based on the aggregation of the scores obtained by each individual when answering five specific questions. The index provides a measure of the psychological distress of individuals and includes states related to anxiety and depression (Keller, S.D., J.E. Ware, P.M. Bentler et al. 1998. Use of structural equation modelling to test the construct validity of the SF-36 Health Survey in ten countries: Results from the IQOLA Project. J Clin Epidemiol. 51: 1179-88).

7 https://www.istat.it/it/files//2020/06/Giornate_in_casa_durante_lockdown.pdf.

Mental well-being declines with age, with a difference of about 10 points between the scores of younger and older people.

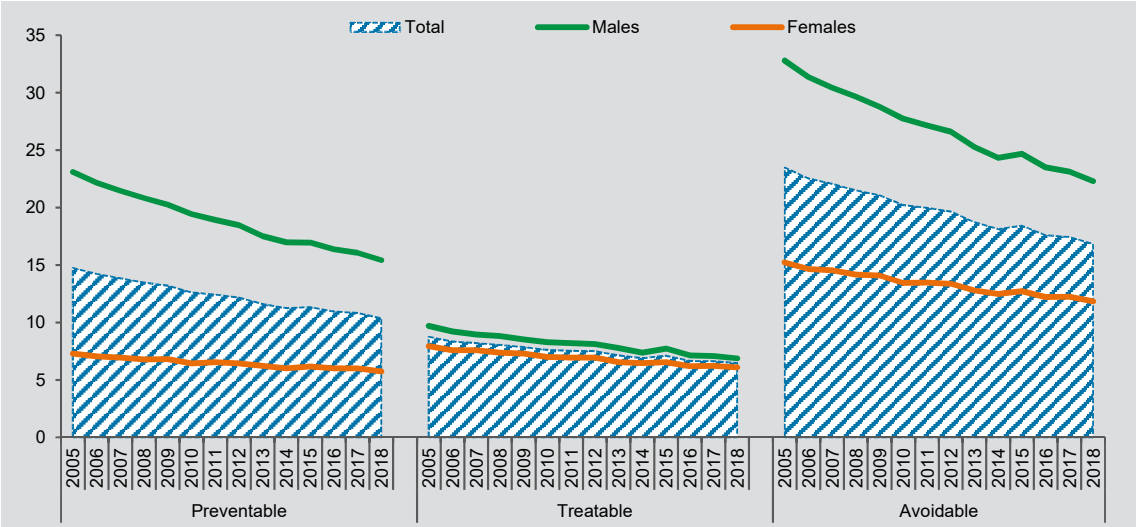
Avoidable mortality is reducing over time, especially among men

The avoidable mortality indicator refers to mortality of persons under 75 years of age that could be significantly reduced.
It consists of two components, treatable mortality and preventable mortality, and refers to those causes of death that can be reduced through adequate and accessible health care as well as through the diffusion of healthier lifestyles among the population and through the reduction of environmental risk factors. In particular, preventable mortality refers to mortality that can be avoided by effective primary prevention and public health interventions. Treatable mortality refers to those deaths that could be contained through timely and effective health care in terms of secondary prevention and appropriate health treatment[8]. In 2016, these types of causes accounted for the deaths of about 1 million people in Europe (equivalent to a rate of 25.4 per 10,000 inhabitants).
In 2018, Italy's standardised rate of preventable mortality was 16.8 per 10,000 residents, one of the most advantageous position in the European ranking. In particular, if preventable mortality is considered, the rate was 10.4 per 10,000 and if treatable mortality is taken into account, the rate is 6.5 per 10,000.
The gender differences are considerable, with higher values of avoidable mortality among men than among women (22.3 per 10,000 inhabitants against 11.8) (Figure 10). In particular, the male disadvantage is mainly explained by the 'preventable' component, which is more linked to lifestyles (e.g. alcohol abuse, greater propensity to smoke, inadequate diet) and to more risky behaviour (accidental events, work activity, etc.).
Among the main causes of avoidable mortality we find lung cancer, which in 2018 caused the death of 16 thousand 274 people under the age of 75, followed by ischemic heart disease (11 thousand 636 deaths) and colorectal cancer (7 thousand 100 deaths), all of which are more common causes of death among men. Among women, on the other hand, the leading cause of avoidable mortality is breast cancer, followed by lung cancer and colorectal cancer. Over time, a strong reduction in avoidable mortality has been observed (the standardised rate was 23.5 per 10,000 in 2005), especially in the preventable component (it was 14.8 per 10,000 in 2005). This is explained by the decrease in mortality from some of the main causes: for example, deaths from lung cancer have decreased (from 18,332 in 2005 to 16,274 in 2018) and deaths from ischaemic heart disease, which have declined considerably from 2005 to 2018 (from 18,826 to 11,636). The decline in these causes of death was observed especially among men, with a consequent reduction in the gender gap. The rate of avoidable mortality among women has decreased less over time (from 15.2 per 10,000 residents in 2005 to 11.8 per 10,000 residents in 2018); the time trend shows that among women, for some main causes such as ischaemic heart disease, cerebrovascular disease and diabetes mellitus, there has been a reduction, while for lung cancer (a cause

8 The definition of the lists of treatable and preventable causes is based on the joint OECD/Eurostat work, revised in November 2019. In this definition, the age up to which a death is considered preventable is set at 74 years to reflect current life expectancy. The list of diseases/conditions and the age limit reflect current health expectations, medical technology and knowledge, and developments in public health policy and, therefore, may be subject to change in the future.

of death considered preventable) and, to a lesser extent, uterine cancer (a cause of death considered treatable) there has been an increase.

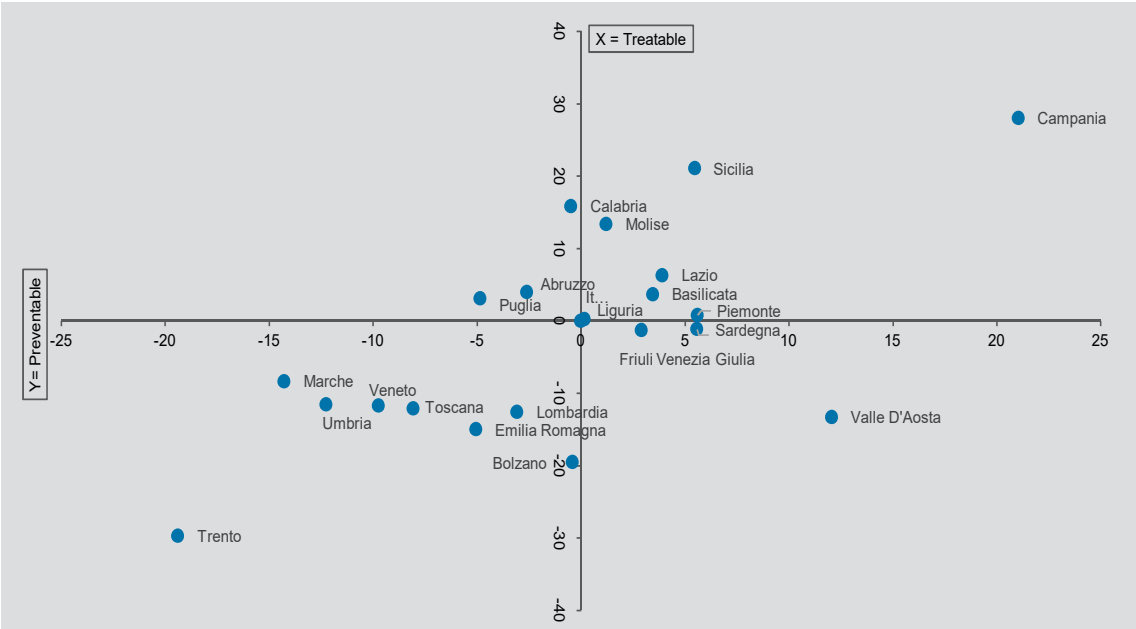
Figure 10. Standardised rates of avoidable mortality (preventable and treatable) of persons aged 0-74 years by gender. Years 2005-2018. Per 10,000 residents



Source: Istat, For deaths: Survey of deaths and causes of death. For population: Survey of municipal resident population by sex, year of birth and marital status

Different regional profiles are observed on the territory with respect to the two components of avoidable (preventable and treatable) mortality (Figure 11).

Figure 11. Standardised rates of avoidable mortality (preventable and treatable) of persons aged 0-74 years by region. Year 2018. Percentage changes compared to national average



Source: Istat, for deaths: Survey of deaths and causes of death. For population: Survey of municipal resident population by sex, year of birth and marital status

It is interesting to note that some regions present only one component higher than the national average and not both, indicating the need to adopt differentiated policies on the territory.
The most critical situations are observed in Campania, followed by Sicilia, Molise, Lazio, Basilicata and Piemonte, where both preventable and treatable mortality rates are higher than the average. Friuli-Venezia Giulia, Sardegna and especially Valle d'Aosta present rates of preventable mortality above the national average and, on the contrary, rates of treatable mortality below the observed average value.
Puglia, Abruzzo and Calabria present, treatable mortality rates above the national average and, on the contrary, preventable mortality rates below the average value.
A better picture is observed in the Autonomous Province of Trento, followed by Umbria, Veneto, Toscana, Marche, Lombardia, Emilia-Romagna and the Autonomous Province of Bolzano where, for both components of preventable mortality, the values are below the general average. Liguria, finally, presents values overlapping with the national average.

Slight increase in infant mortality, reduction in mortality from malignant tumours among adults and in mortality from dementia and diseases of the nervous system

The infant mortality rate in 2018 was 2.9 per 1,000 live births, with a slight increase in comparison to both 2016 and 2017 (2.8 per 1,000 live births). For boys, infant mortality values are higher than for girls (3.1 per 1,000 live births male, 2.6 if female). The Centre gives the greatest contribution to the increase, where the rate rises from 2.3 to 2.6 per 1,000 live births, and in the South and Islands, where the rate rises from 3.4 to 3.7 per 1,000 live births. In the North, however, the rate remains constant compared to 2017 (2.4 per 1,000).
In adulthood (20-64 years), mortality from malignant cancers, considered premature, is particularly relevant. In 2018, the mortality rate for these diseases was 8.4 per 10,000 residents, a value that has been progressively decreasing in recent years. The mortality rate for malignant cancers among women in 2018 stood at 7.6 per 10,000, while it rose among men to 9.2 per 10,000. At the territorial level, also in 2018, higher values of mortality from malignant tumours were confirmed in the South and Islands (8.9 per 10,000 inhabitants against 8.2 in the North and Centre). The highest value of the indicator, for both men and women, was registered in Campania (11 and 8.8 per 10,000 inhabitants respectively). In 2019, the death rate from road accidents among young people remained at the levels of previous years (0.7 deaths per 10,000 residents aged 15-34). A strong gender difference is observed, with a value of 1.1 per 10,000 among males and 0.2 among females. From the territorial point of view, the mortality rate for road accidents is similar in the North and the South and Islands (0.7 per 10,000 residents); while it is lower in the regions of Central Italy (0.6 per 10,000).
In a country like Italy, characterised by a very high life expectancy and therefore by a large proportion of elderly people, diseases such as dementia and diseases of the nervous system are widespread, and the mortality rate is 33 per 10,000 inhabitants. Women have a mortality rate of 31.8, men 34. After an almost constant increase since 2015, a slight decrease is observed in 2018 compared to the previous year. The highest mortality rates due to dementia and diseases of the nervous system are found mainly in the North (36.1 per 10,000) compared with 31.1 in the Centre and 29.4 in the South and Islands.

Sedentary lifestyles are reducing, but more people are overweight

Over the past year, the ongoing pandemic and the resulting restrictions have significantly affected people's lifestyles. The closure of shops and the limits imposed on travel, especially during the lockdown, have, for example, led to a decrease in the proportion of the population that has been able to engage in structured physical activity in gyms and sporting centres, and have reshaped the times and ways of eating meals, which, much more often than in the recent past, have taken place at home.

In 2020, 33.8% of people are sedentary. Women are more sedentary than men are, although the gender gap has been decreasing over time (it was 7.8 percentage points in 2010 and will decrease to 6.3 percentage points in 2020) (Figure 12). Sedentariness increases with age: it affects 2 out of 10 people among adolescents and young people up to 24 years of age and about 7 out of 10 people among the population aged 75 and over.

Compared to what was observed in 2019 (35.5%), the indicator shows a further improvement in line with the trend recorded over the last five years. A strong territorial gradient between North and South emerges but, compared to 2019, a significant decrease in sedentariness is observed in the central regions, which fall from 35.1% to 30.2%. The decrease also affected young adults aged 25-44 (-2.6 percentage points) and people aged 60-74 (-2.5 percentage points), with no gender differences. On the other hand, the data is also explained by what was observed in April 2020[9] when it emerged that, during the lockdown period of phase 1 of the COVID-19 pandemic, 22.7% of the population aged 18 years and over engaged in physical activity on an average day, although almost exclusively in their living spaces (indoors or outdoors). During the time of the strongest pandemic restrictions, the population tried to stay physically active, but the time spent at home in sedentary activities, either working or doing leisure activities, increased. This explains why, in parallel, a 45.5% share of overweight people among the adult population aged 18 years and over has been observed in 2020. Men have higher levels of excess weight than women do (54.7% vs 36.9%), but it is among the latter that the largest increases over time has been occurred.

Excess weight is higher with increasing of age (already in the 45-54 age group, it affects at least 5 out of 10 people) and in the regions of Southern Italy. Compared to 2019, there is an increase in the share of overweight/obese people in both the North and the South and Islands (from 42.1% to 43.4% and from 49.3% to 50.4% respectively), while there is a reduction in the regions of Central Italy (from 43.7% to 42.2%).

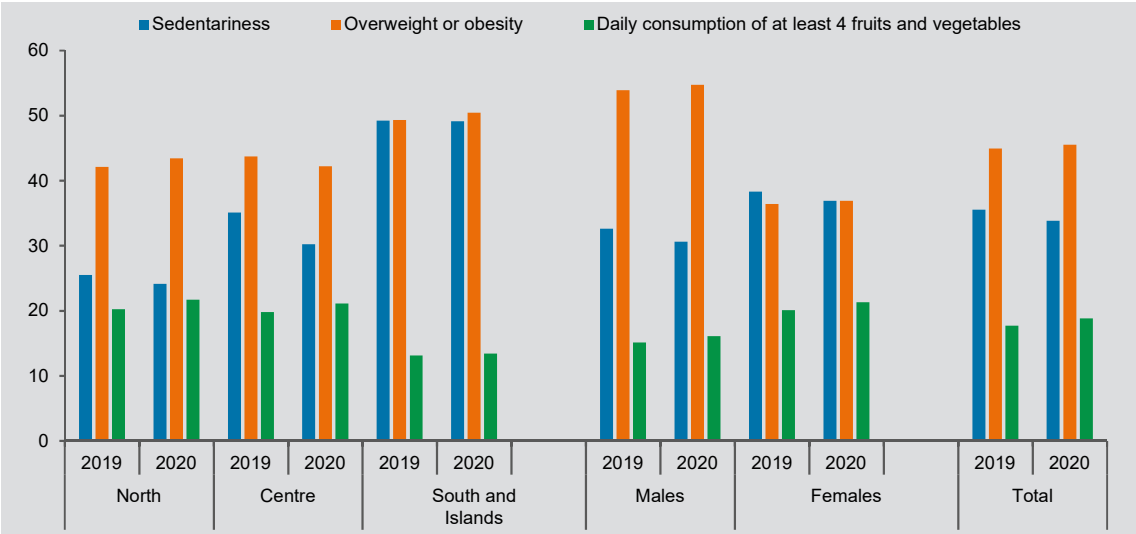
With regard to eating habits in 2020, due to the increased stay at home especially during the lockdown period, the share of those who declared that they usually eat lunch at home on non-holiday days increased (from 72.4% in 2019 to 74.9% in 2020). The largest increases were observed among children and young people up to the age of 14 (+8.8 percentage points) and among young adults aged 20-34 (+4.1 percentage points) who presumably in 2020, more than in the past, engaged in study, work or other activities from home. At the same time, data from the Phase 1 lockdown of the pandemic indicate that 1 out of 4 people during that period reported eating more food than before, and the youngest people did so the most (39.5%).

With regard to healthier eating styles, in 2020 the share of the population aged 3 years and over who consumed at least 4 portions of fruit and/or vegetables daily was 18.8%, a slight recovery with respect to the previous year, although levels remain lower than those recorded in 2015-2018.

9 https://www.istat.it/it/files//2020/06/Giornate_in_casa_durante_lockdown.pdf.

Higher levels of consumers of at least 4 portions of fruit and/or vegetables per day are observed in the North (21.7%) and the Centre (21.1%), compared with the South and Islands (13.4%).
Women are more virtuous (21.3% compared to 16.1% of men) and so is the population of both genders aged 60 and over (23.6%).

Figure 12. Standardised proportion of sedentary people aged 14 years and over, standardised proportion of people aged 18 years and over who are overweight/obese, and standardised proportion of people aged 3 years and over who consume at least 4 portions of fruit and/or vegetables daily by geographic area and gender. Years 2019 and 2020 (a)**. Percentage values**



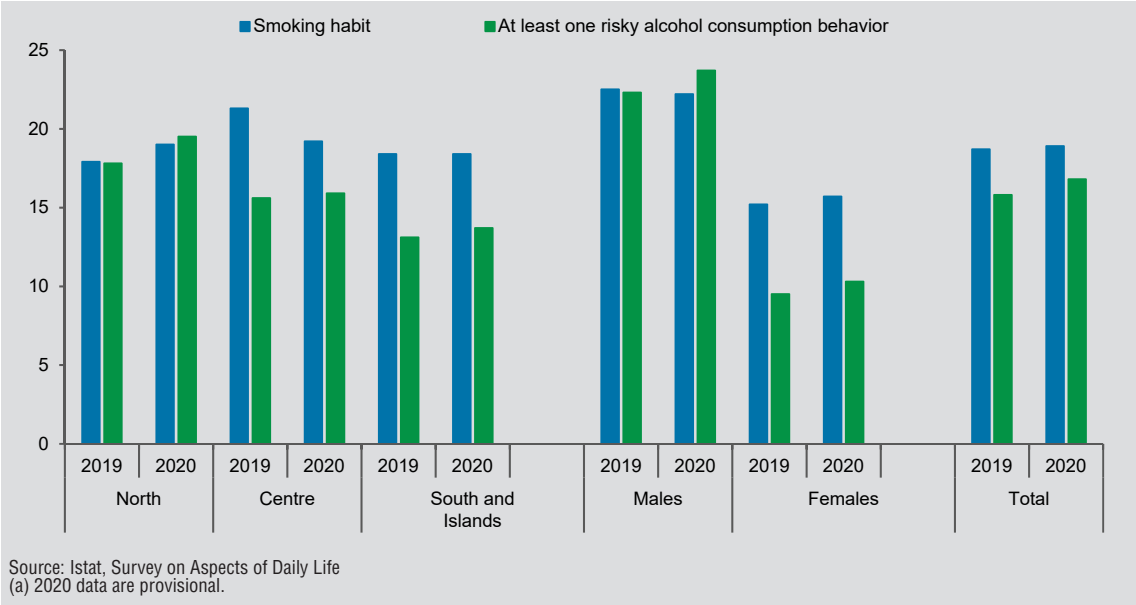
Source: Istat, Survey on Aspects of Daily Life
(a) 2020 data are provisional.

Stable smoking rates and slightly increasing risky alcohol consumption

In 2020, the percentage of smokers aged 14 years and over is 18.9%, stable compared to the previous year (Figure 13).
Smokers decrease in central Italian regions (from 21.3% to 19.2%) and, on the contrary, rise in northern Italian regions (from 17.9% to 19%), with an increase in territorial convergence.
Smoking is more prevalent among men (22.2% vs. 15.7%); however, this gap has reduced considerably over time due to a strong reduction in the number of smokers among men, while it has remained stable among women.
The smoking habit is higher among young people aged 20-24 and remains fairly stable until the age of 60-64, while it decreases in subsequent age groups. At-risk alcohol use affected 16.8 % of the population aged 14 years and over in 2020. After a significant decrease in 2019, in 2020 it is again at the levels recorded in 2015-2018.
The most risky alcohol consumption habits are confirmed to be more widespread in the Northern regions (19.5%) compared to the Centre (15.9%) and especially to the South and Islands (13.7%). With respect to 2019, a significant increase is observed especially in the northern regions (+1.7 percentage points).

The gender gap remains wide also in 2020, with a higher share of men with harmful drinking habits; over time, however, as already observed for other risk factors considered, the gender gap is reducing and the behaviour of women is becoming more similar to that of men.
The highest percentages of risk drinkers are found among adolescents (29.4%), followed by young people aged 18-24 (20%) and people aged 65 and over (18.8%). The risky consumption behaviour of the latter two population groups is quite different: the habit of the former is more related to overconsumption, especially at weekends, while the behaviour of the latter is of a non-moderate daily nature.

Figure 13. Standardised proportion of people aged 14 and over who report currently smoking and standardised proportion of people aged 14 and over who have at least one risk behaviour in alcohol consumption by geographic area and gender. Years 2019 and 2020 (a)**. Percentage values**



Source: Istat, Survey on Aspects of Daily Life
(a) 2020 data are provisional.

The protective role of the educational qualification is also confirmed for health risk factors, with a greater attention to healthier behaviour among people with higher educational qualifications. For example, there is a higher proportion of people with a low educational qualification who are overweight or obese (56.1%), compared with those who have a degree or a higher educational qualification (34.5%). An exception to this is the excessive alcohol consumption, (when considering binge-drinking episodes), for which there is an inverse relationship to educational qualifications.

Indicators

1. **Life expectancy at birth:** Life expectancy expresses the average number of years that a child born in a given calendar year can expect to live if exposed during his whole life to the risks of death observed in the same year at different ages.
   Source: Istat, Life tables of Italian population.
2. **Healthy life expectancy at birth:** It expresses the average number of years that a child born in a given calendar year can expect to live in good health on the assumption that the risks of death and perceived health conditions remain constant. It is built using the prevalence of individuals who respond positively ("good" or "very good") to the question on perceived health.
   Source: Istat, Life tables of Italian population and Survey on Aspects of daily life.
3. **Mental health index (SF36):** The mental health index is a measure of psychological distress obtained from the synthesis of the scores obtained by each individual of 14 years and over to 5 questions from the SF36 questionnaire (36-Item Short Form Survey). It includes one or more items from each of the four major mental health dimensions (anxiety, depression, loss of behavioral or emotional control, and psychological well-being). The final score varies from 0 to 100, with better psychological well-being corresponding to higher scores.
   Source: Istat, Survey on Aspects of daily life.
4. **Avoidable mortality (age 0-74):** Deaths of persons aged 0-74, due to causes identified as treatable (in the light of medical knowledge and technology at the time of death, most deaths from that cause could be avoided through optimal quality health care) or preventable (in the light of understanding of the determinants of health at the time of death, most deaths from that cause could be avoided by public health interventions in the broadest sense). The definition of the lists of treatable and preventable causes of mortality is based on a joint OECD/Eurostat work, revised in November 2019. Standardized rates with European 2013 population aged 0-74, per 10,000 residents.
   Source: Istat, Vital register on deaths and causes of death.
5. **Multimorbidity and severe limitations (75 years and over):** Percentage of people aged 75 and over who declare to be affected by 3 or more chronic conditions and/or to be severely limited, for at least the past 6 months, because of a health problem in activities people usually do.
   Source: Istat, Survey on Aspects of daily life.
6. **Infant mortality rate:** Deaths during the first year of life per 10.000 born alive.
   Source: Istat, For deaths: Vital register on deaths and causes of death. For live births: Migration and calculation of yearly resident population.
7. **Road accidents mortality rate (15-34 years old):** Mortality rate in road accidents by five year age groups for people aged 15-34 years, standardized by the European 2013 population of the same age groups.
   Source: Istat, For deaths: Survey on road accidents resulting in death or injury. For population: Survey on the municipal resident population by sex, year of birth and marital status.
8. **Age-standardised cancer mortality rate (20-64 years old):** Mortality rate for cancer (initial cause) by five year age groups for people aged 20-64 years, standardized by the European 2013 population in the same age groups.
   Source: Istat, For deaths: Istat, Survey on deaths and causes of death. For population: Survey on the municipal resident population.
9. **Age-standardised mortality rate for dementia and nervous system diseases (65 years and over):** Mortality rate for nervous system diseases and psychical and behavioral disorders (initial cause) by five year age groups for people aged 65 years and over, standardized by the European 2013 population in the same age groups.
   Source: Istat, For deaths: Istat, Vital register on deaths and causes of death. For population: Survey on the municipal resident population.
10. **Life expectancy without activity limitations at 65 years of age:** It expresses the average number of years that a person aged 65 can expect to live without suffering limitations in activities due to health problems. It is based on the prevalence of individuals who answer to be limited, for at least the past 6 months, because of a health problem in activities people usually do.
    Source: Istat, Life tables of Italian population and Survey on Aspects of daily life.
11. **Overweight or obesity (standardized rates):** The indicator refers to the Body Mass Index (BMI), which classifies people as overweight (25 <= BMI <30) or obese (BMI> 30) as classified by the World Health Organization (WHO). The indicator is standardized using the 2013 European standard population.
    Source: Istat, Survey on Aspects of daily life.
12. **Smoking (standardized rates):** Proportion of people aged 14 and over who report current smoking. The indicator is standardized using the 2013 european standard population.
    Source: Istat, Survey on Aspects of daily life.
13. **Alcohol consumption (standardized rates):** Proportion of people aged 14 and over who are at-risk consumers of alcohol. Taking into account the definitions adopted by the WHO and the recommendations from INRAN, in agreement with the National Institute of Health, are identified as "at-risk consumers" all those individuals who have at least one risk behaviour, exceeding the daily consumption of alcohol (according to specific thresholds for sex and age) or concentrating on a single occasion of consumption the intake of 6 or more units of any alcoholic drink (binge drinking). The indicator is standardized using the 2013 European standard population.
    Source: Istat, Survey on Aspects of daily life.
14. **Sedentariness (standardized rates):** Proportion of people aged 14 and over referring not to play sports neither continuously nor intermittently during their spare time, and people aged 14 and over referring not to perform any physical activity, such as walking at least 2 km, cycling, swimming, etc. The indicator is standardized using the 2013 European standard population.
    Source: Istat, Survey on Aspects of daily life.
15. **Adequate nutrition (standardized rates):** Percentage of people aged 3 years and over who say they take every day at least 4 portions of fruit and vegetables. The indicator is standardized using the 2013 European standard population.
    Source: Istat, Survey on Aspects of daily life.

Indicators by region and geographic area

REGIONS AND GEOGRAPHIC AREAS	Life expectancy at birth (a)	Healthy life expectancy at birth (a)	Mental health index (SF36) (b)	Avoidable mortality (age 0-74) (c)	Multimorbidity and severe limitations (75 years and over) (d)	Infant mortality rate (e)	Road accidents mortality rate (15-34 years old) (f)
	2020 (*)	2019	2020 (**)	2018	2020 (**)	2018	2019
Piemonte	81.6	58.9	67.7	17.5	46.4	2.0	0.7
Valle d'Aosta/Vallée d'Aoste	80.9	60.7	70.3	17.2	29.9	2.2	0.0
Liguria	81.9	59.2	69.3	16.9	45.3	2.5	0.7
Lombardia	81.2	60.0	68.0	15.7	46.5	2.6	0.5
Trentino-Alto Adige/Südtirol	82.8	65.8	71.9	14.1	33.6	3.3	0.7
Bolzano/Bozen	*82.8*	*69.1*	*71.4*	*15.5*	*29.3*	*3.2*	*1.2*
Trento	*82.8*	*62.7*	*72.4*	*12.9*	*37.8*	*3.4*	*0.3*
Veneto	83.1	60.3	69.4	15.1	39.6	2.1	1.0
Friuli-Venezia Giulia	83.0	61.8	71.1	17.0	47.6	2.2	0.7
Emilia-Romagna	82.4	59.6	69.9	15.3	45.5	2.3	0.7
Toscana	83.0	59.8	68.4	15.2	43.6	2.2	0.6
Umbria	83.8	60.0	68.1	14.8	56.1	3.1	0.6
Marche	82.6	58.8	68.1	14.8	44.2	1.7	0.5
Lazio	83.1	58.6	69.3	17.6	49.1	3.0	0.6
Abruzzo	82.4	57.3	68.6	16.8	54.0	3.0	0.5
Molise	82.6	55.5	67.6	17.8	37.6	2.1	0.6
Campania	81.4	58.0	67.6	20.8	62.1	3.8	0.6
Puglia	82.1	57.8	69.0	16.5	47.8	3.3	0.8
Basilicata	82.4	54.3	68.9	17.4	53.3	4.0	0.3
Calabria	82.5	49.7	68.6	17.8	56.7	4.0	0.8
Sicilia	82.0	55.9	68.9	18.8	60.6	4.0	0.8
Sardegna	82.1	54.4	70.0	17.3	62.0	2.5	0.7
North	82.0	60.1	68.9	15.9	44.6	2.4	0.7
Centre	83.1	59.1	68.9	16.3	47.0	2.6	0.6
South and Islands	82.2	56.2	68.6	18.5	56.9	3.7	0.7
Italy	**82.3**	**58.6**	**68.8**	**16.8**	**48.8**	**2.9**	**0.7**

(a) Average number of years;
(b) Standardised mean values;
(c) Standardised rates per 10,000 residents;
(d) Per 100 persons aged 75 years and over;
(e) Standardised rates per 1,000 resident live births;
(f) Standardised rates per 10,000 residents aged 15-34;
(g) Standardised rates per 10,000 residents aged 20-64;
(h) Standardised rates per 10,000 residents aged 65 and over;
(i) Standardised rates per 100 persons aged 18 and over;
(l) Standardised rates per 100 persons aged 14 and over;
(m) Standardised rates per 100 persons aged 3 and over.
(*) Estimated data;
(**) Provisional data.

Age-standardised cancer mortality rate (20-64 years old) (g)	Age-standardised mortality rate for dementia and nervous system diseases (65 years and over) (h)	Life expectancy without activity limitations at 65 years of age (a)	Overweight or obesity (i)	Smoking (l)	Alcohol consumption (l)	Sedentariness (l)	Adequate nutrition (m)
2018	2018	2019	2020 (**)	2020 (**)	2020 (**)	2020 (**)	2020 (**)
8.8	35.9	10.9	41.9	19.7	17.8	28.9	26.7
6.9	54.9	11.9	43.5	17.2	23.0	25.8	21.0
8.6	35.2	10.6	42.6	18.4	17.1	22.2	20.6
8.1	36.1	10.8	43.3	19.8	18.4	25.0	19.7
6.8	36.9	11.4	40.7	18.0	23.4	15.0	21.1
6.9	*39.6*	*10.4*	*41.3*	*18.0*	*25.0*	*13.6*	*15.6*
6.7	*34.6*	*12.2*	*40.1*	*18.0*	*21.9*	*16.4*	*26.5*
8.0	39.6	10.4	43.9	16.5	20.7	19.8	20.4
8.5	28.9	10.9	44.3	15.7	22.4	22.3	21.8
7.9	34.4	10.5	45.4	20.5	21.4	25.2	23.2
8.0	32.3	10.6	40.4	20.4	18.5	26.1	22.8
7.9	29.4	10.2	43.9	20.4	16.2	33.4	22.1
8.0	36.5	10.8	43.5	18.7	16.2	28.9	21.9
8.5	28.7	9.7	43.0	18.7	14.2	32.7	19.7
8.1	31.7	9.7	46.5	17.9	15.9	34.6	14.3
8.6	21.8	10.1	49.3	19.3	22.6	41.0	16.8
9.8	24.9	8.8	55.3	18.8	11.6	56.2	10.7
8.4	31.0	9.2	48.0	16.4	16.3	42.2	12.9
8.4	27.3	8.9	50.0	19.4	17.8	46.4	12.6
8.1	25.0	8.5	48.4	17.0	16.1	49.6	12.6
8.7	30.5	7.8	51.2	20.3	9.6	56.6	14.0
9.1	39.9	9.2	42.5	19.3	19.6	31.0	22.3
8.2	36.1	10.7	43.4	19.0	19.5	24.1	21.7
8.2	31.1	10.2	42.2	19.2	15.9	30.2	21.1
8.9	29.4	8.7	50.4	18.4	13.7	49.1	13.4
8.4	**33.0**	**10.0**	**45.5**	**18.9**	**16.8**	**33.8**	**18.8**