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Supplementary Materials for

A population-based cohort approach to assess excess mortality due to the spread of COVID-19 in Italy, January-May 2020

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Supplementary Figure 1

Flow-diagram of the cohort population-based study [both population and total deaths data from the Italian National Institute of Statistics (Istat)]; COVID-related-deaths data from the Integrated National COVID-19 Surveillance by Italian National Institute of Health [Istituto Superiore di Sanità (ISS)]. The population was extracted from the overall Italian population, i.e.,60,244,639 individuals, and relating to 94.9% of resident population (i.e., 94.9% = 57,204,501/60,244,639).

Supplementary Figure 2

COVID-19 related deaths over time (32,236 = number of COVID-19 related deaths during the study period).

Supplementary Figure 3

Temporal patterns in the excess number of deaths by sex and age; part A) males aged 0-79 years; part B) males aged 80-89 years; part C) males aged \geq 90 years; part D) females aged 0-79 years; part E) females aged 80-89 years; part F) females aged \geq 90 years.

Supplementary Table 1

Estimates of mortality (part A, cumulative incidences %) in Italy from January 1st to May 31 2020 and comparison with expected mortality (part B) during the same months.



Figure 1

Flow-diagram of the cohort population-based study (both population and total deaths data from the Italian National Institute of Statistics (Istat); COVID-related-deaths data from the Integrated National COVID-19 Surveillance by Italian National Institute of Health [Istituto Superiore di Sanità (ISS)] (3). The population was extracted from the overall Italian population, i.e. 60,244,639 individuals, and relating to 94.9% of resident population (i.e., 94.9% = 57,204,501/60,244,639).





Figure 2

COVID-19 related deaths over time (32,236 = number of COVID-19 related deaths during the study period).





Figure 3

Temporal patterns in the excess number of deaths by sex and age; part A) males aged 0-79 years; part B) males aged 80-89 years; part C) males aged \geq 90 years; part D) females aged 0-79 years; part E) females aged 80-89 years; part F) females aged \geq 90 years.

Supplementary Table 1 Estimates of mortality (part A, cumulative incidences %) in Italy from January 1st to May 31 2020 and comparison with expected mortality (part B) during the same months.

A. Mortality % year 2020		
Months	Cumulative Incidence %	95% Cl %
January	0.102	0.101-0.103
February	0.195	0.193-0.196
March	0.338	0.337-0.340
April	0.456	0.454-0.457
May	0.538	0.536-0.540
B. Expected mortality %		
B. Expected mortality % Months	Cumulative Incidence %	95% CI %
B. Expected mortality % Months January	Cumulative Incidence % 0.113	95% CI % 0.112-0.114
B. Expected mortality % Months January February	Cumulative Incidence % 0.113 0.208	95% CI % 0.112-0.114 0.207-0.209
B. Expected mortality % Months January February March	Cumulative Incidence % 0.113 0.208 0.304	95% CI % 0.112-0.114 0.207-0.209 0.303-0.305
B. Expected mortality % Months January February March April	Cumulative Incidence % 0.113 0.208 0.304 0.390	95% CI % 0.112-0.114 0.207-0.209 0.303-0.305 0.388-0.391