## **COVID-19's Mortality for Elderly People**

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A prevalência da pandemia COVID-19 (SARS-CoV-2) na população idosa, principalmente institucionalizada, ocorre por ser este o cenário em que o isolamento social é difícil em uma situação como a de uma pandemia. A vulnerabilidade dessa população está ligada aos aspectos fisiológicos do envelhecimento, que impactam na eficácia do sistema imunológico, desencadeando morbimortalidade por doenças infecciosas.

SARS-CoV-2 COVID-19 non-communicable chronic diseases (NCCDs) clinical features

institutionalized or hospitalized elderly meta-analysis

## 1. Introduction

In this way, aging has become a global phenomenon in full exponential growth, showing the success of public health and socioeconomic development policies. However, there are new challenges for society that this presents. Our society needs to adapt to this new scenario, maximize the functional capacity and health of the elderly and promote their social inclusion and safe participation. <sup>[1]</sup>. In view of this, there are social consequences of the aging population and new public health issues arising that affect European countries, such as Italy, in particular <sup>[2]</sup>. In Italy, the profile of the elderly population is of a group with a high prevalence of non-communicable chronic diseases (NCCDs) and associated comorbidities <sup>[1]</sup>. In Italy, aging is a common and growing phenomenon. Italy is considered the country with the second largest number of elderly people <sup>[2]</sup>, along with a mortality rate that has decreased by more than 50% in the last 30 years, mainly due to the reduction in cardiovascular diseases <sup>[3]</sup>.

The COVID-19 pandemic (SARS-CoV-2) has caused considerable mortality in populations considered at risk, such as the elderly population, especially those who are institutionalized, a scenario in which social isolation is difficult in a situation such as a pandemic. The vulnerability of this population is linked with the physiological aspects of aging, which impact the effectiveness of the immune system, triggering morbidity and mortality from infectious diseases [4].

Thus, it is necessary to investigate the main factors that make institutionalized elderly people more vulnerable to death. Fragility is a condition that worsens with advancing age and with COVID-19 infection, especially for the hospitalized elderly, who tend to develop a more accentuated presentation of the classic symptoms of the disease [5].

The objective of this study was to synthesize the factors associated with the mortality of elderly Italian people diagnosed with coronavirus who lived in institutions or who were hospitalized because of the disease.

## 2. Current Findings

The main morbidities presented by the elderly in the studies were: dementia <sup>[6]</sup>, diabetes <sup>[I][8]</sup>, chronic kidney disease <sup>[I]</sup> and hypertension <sup>[8]</sup>, showing that NCCDs had a key role to play in these cases.

**Table 2** shows the descriptive analysis of the quantitative variables according to the survivors and non-survivors, and **Table 3** shows the effect size, in SDM and 95% CI, of the variables affecting mortality.

Table 2. Descriptive analysis of quantitative variables, according to groups of survivors and non-survivors.

Variables	1	Non-Surviv	ors	Survivors			
	Ν	Mean	SD	Ν	Mean	SD	
Age (years)							
lacarinno et al. (2020)	188	79.6	0.8	1304	64.7	0.4	
Stroppa et al. (2020)	9	74.44	7.21	16	68.38	10.16	
Bonetti et al. (2020)	70	75.4	14.99	74	62.63	14.97	
Charlson Index							
lacarinno et al. (2020)	188	4.37	0.14	1403	2.63	0.05	

N, sample size in each group; SD, standard deviation.

Table 3. Meta-analysis of factors (quantitative variables) associated with mortality.

Variables	SMD (95% CI)	l <sup>2</sup>	Z	p-Value
Age (years)	3.10 (2.79; 3.40)	99.9%	19.76	<0.001
Charlson Index	1.74 (1.56; 1.92)	-	19.33	<0.001

**Table 4** shows the descriptive analysis of qualitative variables according to the survivors and non-survivors, and SMD, standardized mean difference; Z, Z statistic of the meta-analysis; I<sup>2</sup>, I-square; 95% CI, 95% confidence **Table 5** shows the effect size, in RR and 95% CI, of the variables affecting mortality. interval.

The analysis of quantitative variables showed that the risk of mortality was higher in individuals with diabetes (RR, **Table 5.** Meta-analysis of factors associated (quantitative variables) with mortality. 1.90; 95% CI, 1.53; 2.37), COPD (RR, 2.19; 95% CI, 1.54; 3.10), chronic kidney disease (RR, 3.96; 95% CI, 2.65;

Variables	RR (95% CI)	<sup>2</sup>	Z	p-Value	3.67; 95%
Male	0.98 (0.67; 1.43)	89.3	0.10	0.919	
Chronic diseases	1.20 (0.94; 1.54)	-	1.48	0.139	
Cancer	1.60 (0.60; 4.23)	-	0.92	0.356	

Variables			RR (95% CI)	l <sup>2</sup>	Z	p-Value	orbidities
Diabetes			1.90 (1.53; 2.37)	62.7	5.73	< 0.001	the high
Cardiovascular diseases/coronary arte	ry disease	[ <u>9</u> ]	1.80 (0.85; 3.80)	92.0	1.53	0.125	
COPD <sup>1</sup>			2.19 (1.54; 3.10)	0.0	4.39	<0.001	VID-19 is
Immunodeficiencies			5.28 (0.26; 108.12)	-	1.08	0.280	occur in a
Chronic kidney disease	[ <u>7</u> ]		3.96 (2.65; 5.91)	0.0	6.73	<0.001	affect the
Metabolic disease			1.51 (0.60;3.75)	-	0.89	0.374	(including
Obesity			1.28 (0.78; 2.10)	60.8	0.99	0.322	of access
Hypertension	[ <u>10]</u>		1.37 (1.24; 1.51)	69.3	6.25	<0.001	no noulli
FH <sup>2</sup>			3.27 (2.49; 4.29)	-	8.55	<0.001	ovascular
[ <u>10]</u> Dementia			3.67 (2.43; 5.55)	-	6.17	<0.001	erly in the
Smoking	cotions tron	0.00	0.74 (0.32;1.71)	-	0.70	0.483	ovascular

eased risk of complications from COVID

On the other hand, the country has the highest prevalence rate, by age, for dementia. As aging progresses, the Chronic obstructive pulmonary disease (COPD). Familial hypercholesterolemia (FH). RR, relative risk of this diagnosis increases. It is a progressive neurodegenerative syndrome characterized by a cognitive decline statistic of meta-analysis; I<sup>2</sup>, I-square; 95% CI, 95% confidence interval. that limits social functions and activities of daily living <sup>[12]</sup>. In addition to having an important impact on the quality of

life of these people, dementia was also shown to be a risk factor for mortality in elderly people with COVID-19.

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