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A Variable Impact of the COVID-19 Pandemic on the Mortality of Individuals at Risk of Disability: The Cases of Spinal Cord Injuries, Severe and Persistent Mental Illnesses, and Multiple Sclerosis

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The COVID-19 pandemic and the measures implemented to limit its effects had a major impact on the health status and mortality of the population. People living with a chronic illness that exposed them to a risk of disability are likely to have been particularly vulnerable. This study focuses on patients with spinal cord injuries (SCI), severe and persistent mental illnesses (SMI), and multiple sclerosis (MS). Large-scale evidence on mortality trends in these three populations before and during the pandemic is provided using data from the French National Health Data System (*Système National des Données de Santé,* SNDS). The results confirmed the pre-pandemic excess mortality of these populations and their increased mortality during the pandemic, which was higher than that of the general population. Moreover, the populations studied were not affected to the same extent or on the same time periods. The mortality rate of people with a SCI or a SMI increased in 2020 and remained above the expected rate until 2022. Mortality due to COVID-19, the principal factor associated with the increase in mortality in 2020, subsequently decreased but remained higher than COVID-19 related mortality in the general population. Conversely, for people with MS, mortality increased and exceeded the expected number of deaths only in 2022. This increase resulted from persisting mortality due to COVID-19 and an increase in mortality due to other causes.

The COVID-19 pandemic and the exceptional measures implemented to limit its effects, particularly via lockdowns and the reorganisation of the healthcare system, had major effects on the health and mortality of the population (Blanpain, 2023). This did not occur consistently, as certain people, particularly those living with chronic diseases, seemed to be particularly vulnerable. They were affected by the direct consequences of the pandemic when their health exposed them to an increased risk of severe forms of infection, with, in particular, excess mortality due to COVID-19 observed in

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certain populations (Leye et al., 2024; Poucineau et al., 2024). They were also affected by indirect consequences linked to the deterioration of their healthcare follow-up, notably due to the disorganisation of the healthcare system, the reallocation of resources, the closure of healthcare facilities, the postponement of non-urgent care, restrictions of movement, and the avoidance of contact, which may, in fact, have had a protective effect (Danhieux et al., 2020; Poucineau et al., 2025).

Among people who suffer from a chronic condition, some have a disorder which puts them at risk of disability, as it affects their ability to carry out everyday activities. This population was particularly exposed to the consequences of the pandemic, as it presented with factors of vulnerability, such as a poorer preexisting health than that of the general population, more frequent comorbidities and a strong need for regular and long-term follow-up, which is essential to limit their risk of health complications. Their care requires the involvement of various individuals from different sectors (including health, medicosocial, and informal caregivers). This increased the probability of disruptions in treatments and their coordination during the pandemic. These phenomena may have contributed to the deterioration of their health and led to excess mortality specific to these populations.

In this context, this study was carried out as part of the "Handicovid" project (see Context) to investigate trends in mortality among people living with conditions that exposed them to a risk of disability: spinal cord injuries (SCI), severe and persistent mental illnesses (SMI) and multiple sclerosis (MS) [see Inset]. It analysed trends mortality in each of these populations before (between 2016 and 2019) and during the pandemic (from 2020 to 2022). Excess mortality of these populations compared with that of the general population has already been documented (Coldefy and Gandré, 2018; Espagnacq et al., 2011; Rollot et al., 2021) but should be considered in the specific context of the COVID-19 pandemic to analyse its effects. However, this topic has not been addressed in recent longitudinal studies in France.

Populations with differing age- and sex- specific structures

Using the data from the National Health Data System (SNDS) (see Source), we identified 102,000 individuals with a SCI, 655,000 with a SMI, and 109,000 with MS who were alive in 2016 and at least 16 years old.

I

The diseases considered were spinal cord injuries, severe and persistent mental illnesses, and multiple sclerosis

This study focused on three diseases associated with a risk of disability: spinal cord injury, severe and persistent mental illnesses, and multiple sclerosis.

They were selected on the basis of their lasting nature, requiring long-term care and often medicosocial support, and because of the preoccupations expressed during the pandemic by the clinicians involved in treating these diseases (Context).

Spinal cord injury (SCI) involves damage to the spinal cord, which results in a decrease, or even an interruption, in nerve transmission among the brain, limbs, and organs. They mostly arise from trauma (e.g., an accident, a fall or violence), an ageing body (acquired lesions), or, in a minority of cases, from the consequences of tumoral, infectious, congenital, or genetic diseases. Functional consequences of a SCI depend on the completeness of the lesion and its location on the spinal cord (the higher the location of the lesion, that is, near the neck, the more severe the impact, more strongly affecting a greater number of functions). While the most notable symptoms are a loss of motricity and sensitivity of the limbs, SCI also affect the digestive, urinary, cardiac, and respiratory systems.

The severe and persistent mental illnesses (SMI) considered in this study included psychotic and bipolar disorders. Psychotic disorders, including schizophrenic disorders, are characterised by altered perception and thinking, with symptoms that may include illogical behaviours or those unsuited to situations, hallucinations, and delusional thoughts. Bipolar disorders are characterised by long-term, recurring mood changes, which make individuals vulnerable to manic episodes (e.g., hyperactivity, racing thoughts, exaltation, talkativeness, irritability, agitation, insomnia without fatigue) and depressive episodes (e.g., persistent sadness, loss of interest and pleasure). These episodes are occasional but recurrent in nature. Although the mental disorders studied are persistent and most often have repercussions on everyday activities for the individuals in question, these consequences can be limited when a suiTable treatment is identified, particularly for bipolar disorders.

Multiple sclerosis (MS) is an autoimmune inflammatory disease of the central nervous system. It is characterised by an attack on the cells that produce myelin (the protective membrane wrapped around the nerve axon), leading to lesions, called "*plaques*", which disturb the transmission of information conveyed by nerve impulses. In 85% of the cases, MS begins in an intermittent remitting (or recurrent remitting) form, meaning there are more acute phases with significant but temporary symptoms, alternating with less active phases with complete (functional) resolution of the symptoms. Over time, recovery after an acute episode becomes less effective, and the phases of remission are shorter. The disease then shifts towards a progressive form, resulting in permanent consequences and lead to an increasing deterioration of the individual's health and functional capacity, without possible remission. In certain people, MS begins in a progressive form. The consequences of the disease may include great fatigue and loss of balance, as well as visual, urinary, motor, or cognitive disorders. Hence, the effects of MS on an individual's health are multiple and variable depending on the individual: in certain cases, MS can occur rapidly and accumulate, whereas in others, MS remains limited for many years.

The population identified to have a SCI, resulting from various disorders, was characterised by an over-representation of men (57%) [see Graph 1]. In younger people, the condition began after a lesion resulting from risky behaviours (e.g., road, sport, and work accidents) which are more frequent in males. At older ages, a second peak in the onset of the condition was observed, associated with an increased risk of falls that provoke traumatic lesions and a greater number of lesions acquired with ageing. These forms of SCI, typically occurring at older ages, were more frequent in women.

The population identified with a SMI was mainly male at younger ages and female at older ages (see Graph 1). The first symptoms generally emerge during adolescence or at the beginning of adulthood. Psychotic disorders are more often diagnosed among younger men, in part because of more marked and specific symptoms that facilitate their identification. Bipolar disorders are often diagnosed later because of the complexity of the diagnosis process that last approximately ten years on average, and they are sometimes better identified among women. In addition, previous studies have shown that the life expectancy of people with a psychotic disorder is lower than that of people with a bipolar disorder (Coldefy and Gandré, 2018).

Most people identified with MS were women, accounting for three-quarters of the cases (72%) [see Graph 1]. While the diagnosis is often made between the ages of 20 and 45 years, men have more progressive forms of the disease at an older age (around 40 years old), which are more aggressive and lead to death more rapidly. The structure of the population, in particular the low proportion of very elderly people and a significant number of people between the ages of 25 and 65 years (see Graph 1), is due to a selection effect linked to a better diagnosis over time (see Source).

Before the pandemic, excess mortality was observed in all three populations

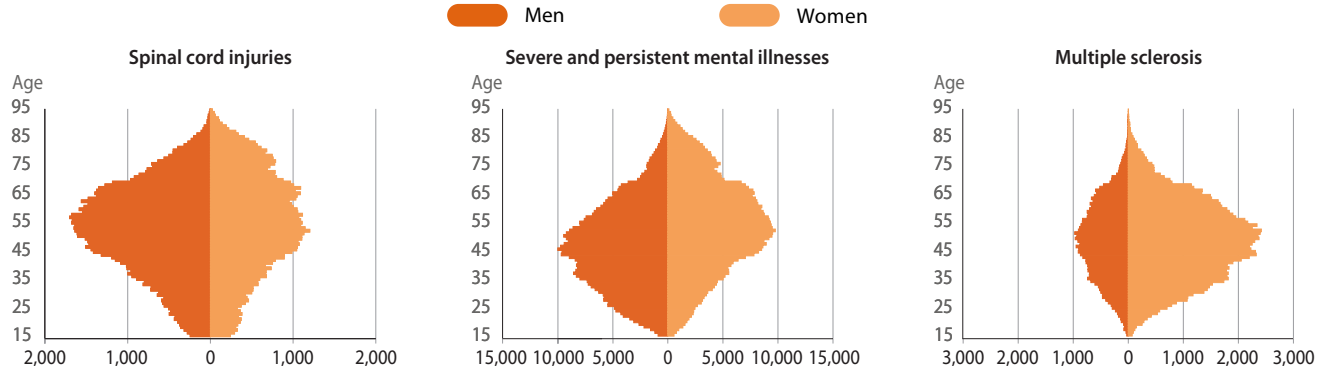
The standardized mortality ratio, which quantifies the excess mortality of a given population compared with a reference one by controlling for the age- and sex-specific structure, indicated a twofold increase in mortality over the pre-pandemic period for people suffering from a SCI, a SMI, or MS compared with the general population (see Table p.5). However, differences among the three populations were observed. While in all the populations, the mortality rate for each age was clearly higher than that in the general population, the differences were particularly pronounced among people with a SCI or a SMI and less marked for people with MS up to the age of 55 years. After this age, the mortality rates of the three populations were similar (see Table).

Context

In 2020, clinicians responsible for the healthcare follow-up of individuals with disabilities (physical rehabilitation professionals and psychiatrists), who were concerned about the deterioration of the health of their patients observed in the field, worked with researchers from IRDES to develop the "Handicovid" project, entitled "*Consequences des restrictions d'accès aux soins et à l'accompagnement habituels des personnes en situation de handicap pendant la pandémie de Covid-19*". It was funded as part of the 2021 and 2024 "*Autonomie*" programs of the Institute for Public Health Research (IReSP). As part of this project, a doctoral thesis on demography was conducted by Fanny Duchaine, which led to several peer-reviewed scientific publications (Duchaine et al., 2024a; Duchaine et al., 2024b). This longitudinal study of the mortality of three populations living with conditions that exposed them to a risk of disability was one of its components. This work is in continuity with previous studies conducted by IRDES on the identification of individuals with disabilities in medico-administrative databases (Espagnacq et al., 2023) and on differences in mortality observed in certain vulnerable populations (Coldefy and Gandré, 2018).

G1

Distribution according to sex and age of the study population in 2019



Scope: Individuals aged 16 years or over identified by the algorithms, alive in 2019 (see Source).

Source: National Health Data System (SNDS).

Download the data

Source

This study is based on data provided by the National Health Data System (SNDS), which includes the use of all healthcare reimbursed by the National Health Insurance Fund (*Caisse Nationale de l'Assurance maladie*, CNAM), as well as the dates and causes of death.

Identification of the study populations

The mapping of diseases and expenses (*Cartographie des pathologies et des dépenses*), available in the National Health Data System (SNDS), identifies individuals living with a chronic disease based on their use of healthcare provided by self-employed health professionals or facilities. It is based on algorithms that take into account the causes of hospitalisation, inclusion in the long-term illness scheme, and the delivery of drugs or medical acts that are

tracers because they are specific to the treatment of certain diseases, over a period that sometimes extends to up to five years (https://www.assurance-maladie.ameli.fr/etudes-et-donnees/par-theme/pathologies/cartographie-assurance-maladie). The logic of these algorithms was used and adapted to identify the three study populations between 2012 and 2022. Individuals under 16 years of age were excluded because of differences in treatment for the youngest patient and the rarity of disease diagnosis in the paediatric population.

The existing algorithm used for the mapping of diseases and expenses in the SNDS to identify people with paraplegia was not sufficient to identify all the people with a SCI and could include paraplegia unrelated to SCI. Hence, an algorithm was created as part of the "Handicovid" project in collaboration with clinicians specialising in this condition. It identified a group of codes corresponding to a SCI among the reasons for exoneration of out-of-pocket payments (e.g., long-term illness scheme, work accidents, chronic illness, hospitalisations in somatic departments, or follow-up and rehabilitation care between 2012 and the year considered. The second stage involved excluding individuals with diseases or conditions presenting with symptoms similar to those of a SCI, but which were not linked to this type of lesion. This algorithm is described in a scientific peer-reviewed publication (Duchaine et al., 2024a) and was integrated into the SNDS mapping of diseases and expenses in 2024.

In order to identify people with a SMI, marginal modifications were applied to the existing algorithms used for the mapping of diseases and expenses in the SNDS, which were based on the reasons for entering the long-term illness scheme, psychiatric hospitalisations, and the dispensation of psychotropic medications. These modifications included: (1) the exclusion of people identified solely via hospitalisation for a diagnosis of an acute and temporary psychotic disorder (code F23 of the International Classification of Diseases, tenth version (ICD-10)); and (2) a search for psychiatric hospitalisations up to ten years in retrospect (from 2012 to the year considered), rather than five. This allows for a more comprehensive approach to better identify this population, in particular for individuals with bipolar disorders, for which there are not always recurrent hospitalisations. These modifications were done in conjunction with the expertise of the psychiatrists involved in the project.

The mapping of diseases and expenses in the SNDS provided an algorithm to identify people with MS, but we adapted it for the purposes of the study in conjunction with the recommendations of the consortium's clinicians. The algorithm used was based on the identification of all the G35.x codes of the ICD-10, which corresponded to MS, among the reasons for the exoneration of out-of-pocket payments (e.g., long-term illness scheme, work accidents, chronic illness), hospitalisations in somatic departments, or follow-up and rehabilitation care, between 2012 and the year considered. This corresponds to a prolongation of the identification process compared with the algorithm used for the mapping, which only took into account the last five years. An exclusion parameter was added to avoid including people for whom hereditary spastic paraplegia was identified after MS, indicating that the initial diagnosis of MS was incorrect. Finally, tracer drugs to identify the presence of MS, as used in the mapping, were not retained because the clinicians considered it to be insufficiently specific for the disease.

Regardless of the study population, only people who used healthcare or who had a reason for exoneration with entitlement coverage for a specific disease over the period were identified by the algorithms. This may have resulted in selection bias. For example, foregone healthcare and diagnostic errors are frequent in individuals with mental illnesses. Regarding MS, advances in diagnosis and new care protocols, including novel treatments, have enabled increasingly early identification of individuals concerned over time, including those with less severe forms of the disease (Leray et al., 2023).

Mortality and causes of death

The SNDS also identifies the dates of death of individuals as well as the causes of death (initial and associated). These are coded according to ICD-10, via an indirect data-linkage method between the medical causes of death and healthcare utilisation data. The linkage rate reached 80 to 90% depending on the year and improved over time. Complementary research, drawing on the causes for hospitalisations and the database of beneficiaries of medico-social facilities, provided additional information on the date of death. Nevertheless, regardless of the source used, only deaths that occurred in France were identified.

The pre-pandemic excess mortality observed in our study population is due to several factors. For people with a SCI, it results both from factors directly linked to the disease and external factors. When a SCI results from trauma, it may be accompanied by polytrauma, which can lead to significant mortality in the short term. Risky behaviours and lifestyles that negatively affect health (e.g., alcohol consumption, tobacco consumption), which are particularly prevalent among the younger people in this population, also affect the risk of death in the medium and long term, particularly due to cancer or cardiovascular diseases (Graupensperger et al., 2019). Finally, for all types of SCI, in the absence of medical follow-up, complications (e.g., respiratory, skin and urinary infections) may emerge and increase the risk of death. For people with a SMI, it is not the disease itself that affects their somatic health and leads to death. It is rather a set of factors linked to the consequences the SMI may have for the people concerned, such as the lack of access to care, the side effects of antipsychotic drugs taken over the long term, the risk of suicide, precarity and social isolation, or risky health behaviours (Gandré et al., 2022). For people with MS, it is mainly the disease itself that eventually leads to a deterioration of health and increases the risk of death, particularly due to infections (Scalfari et al., 2013).

T

Average annual age- and sex- specific mortality rate of the study population and the general population between 2016 and 2019

	Men				Women			
	Spinal cord injuries	Mental disorders	Multiple sclerosis	General population	Spinal cord injuries	Mental disorders	Multiple sclerosis	General population
Age groups (years)								
16 to 24	6.5	2.7	1.4	0.4	4.1	2.0	0.1	0.2
25 to 34	7.1	5.0	1.2	0.8	4.7	3.3	0.6	0.3
35 to 44	8.1	7.0	4.0	1.4	5.2	4.4	1.6	0.7
45 to 54	12.9	12.7	9.7	3.5	8.0	8.1	4.8	1.8
55 to 64	23.2	24.6	22.3	8.8	14.6	14.2	11.9	4.2
65 to 74	41.4	47.4	40.7	18.6	26.7	26.9	26.9	8.9
75 to 84	88.8	99.4	96.8	45.3	61.8	63.1	59.6	25.7
85 and over	204.4	251.3	218.8	173.3	152.1	178.8	145.1	133.6
Total	**32.0**	**23.1**	**20.4**	**11.9**	**30.9**	**27.5**	**13.0**	**11.0**
Comparative mortality index	2.0	2.5	2.2		1.8	2.0	2.2	

Scope: Individuals aged 16 years or over identified by the algorithms (see Source).

Reading: On average, between 2016 and 2019, for 1,000 men with a spinal cord injury between the ages of 16 and 24 years, 6.5 died. Over the same period, men with a spinal cord injury died at a rate twice that of men in the general population.

Source: National Health Data System (SNDS).

Download the data

Variable trends in mortality over time

Trends in mortality among the three study populations before the pandemic varied over time. For people with a SCI, the crude mortality rate (see Graph 2) and the excess mortality were decreasing compared with those of the general population, following a trend that had been observed over several decades, linked with an improvement in treatments. Hence, although the age-specific mortality rates were still higher than those of the general population, they decreased between 2016 and 2019 (see the electronic annex[1]).

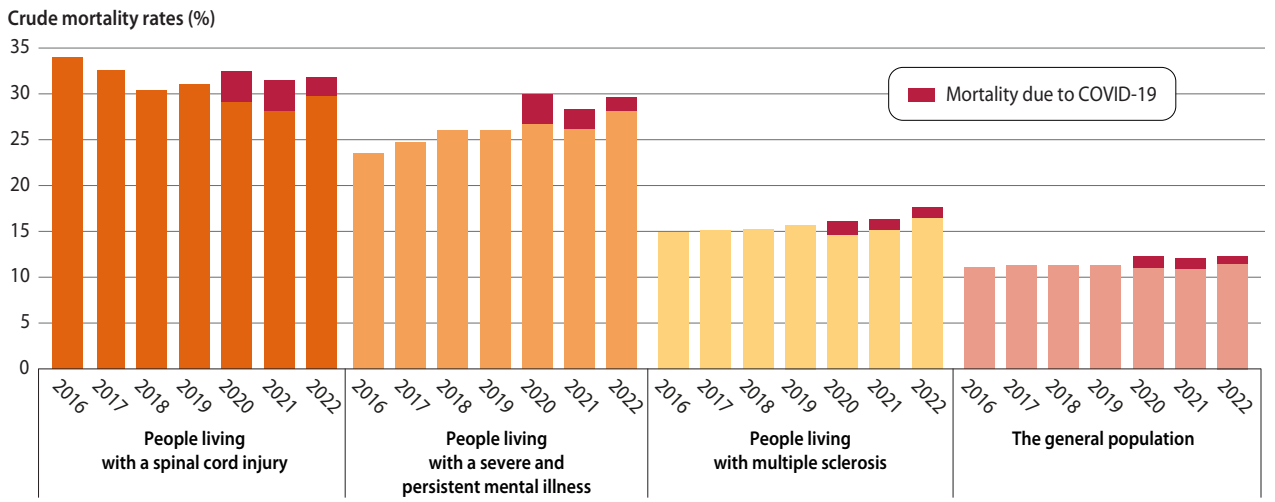
In contrast, the crude mortality rate of people with a SMI was increasing before the pandemic (see Graph 2). This was due to a rise in mortality rates, mainly after the age of 65 years. The excess mortality compared to the general population was also increasing (electronic annex). The international literature notably suggests that these individuals have benefited less from recent medical advances than the rest of the population (de Mooij et al., 2019).

Regarding people with MS, the excess mortality compared to the general

[1] See link "Download the data" under tables and figures which also directs towards the eletronic annex.

G2

Crude mortality rates between 2016 and 2022, including mortality due to COVID-19, of the study populations and the general population



Scope: Individuals aged 16 years or over identified by the algorithms, alive in 2019 (see Source).

Reading: In 2020, for every 1,000 people with a severe and persistent mental disorder, 29.7 died, including 3.2 from COVID-19 infection and 26.4 from another cause.

Source: National Health Data System (SNDS).

Download the data

population remained Table (electronic annex), while the crude mortality rate increased each year before the pandemic (see Graph 2). This result is partly explained by the ageing population: the number of elderly people, who have a greater risk of dying, is increasing, which necessarily leads to a rise in the crude mortality rate, even though age-specific rates remain stable. This ageing is faster than that of the general population, particularly because of better diagnoses of serious forms of MS over time.

At the height of the pandemic, a marked increase in mortality was observed among people with spinal cord injuries and severe and persistent mental illnesses

Different trends were observed in people with MS. Although the crude mortality rates slightly increased during the pandemic, the observed deaths remained very similar to or even lower than the expected deaths between 2020 and 2021 (calculated on the basis of the trends of the pre-pandemic period). However, in 2022, an increase in the crude mortality rate of this population was observed beyond the expected numbers (see Graph 3). While this rise was observed regardless of age, it was mainly the mortality rates of people over the age of 65 years that increased (electronic annex).

Trends that are not solely linked to deaths resulting from COVID-19

Mortality due to COVID-19 affected the three study populations to varying degrees (see Graph 2).

The proportion of deaths due to infection was particularly high among people with a SCI or a SMI. This may partly be explained by the structure of these populations – generally rather male and old – that could be risk factors for severe forms of infection. In the population with SCI, mortality due to COVID-19 partially replaced deaths due to other causes, which declined. The decrease in events that could lead to a SCI (e.g., road and sport accidents, accidents at work, violence) during the lockdowns, involving less trauma and hence less mortality in the short term, may have contributed to this. Studies have shown that restrictions in the movement of individuals intended to limit the spread of the epidemic reduced certain causes of death, including road death (Blanpain, 2023). In people with a SMI, mortality due to COVID-19 was added to deaths due to other causes, which did not decrease. Furthermore, mortality

Method

Several indicators were used to characterise the mortality of the three study populations, which were compared with that of the general population, and their trends were studied.

Crude mortality rate and age-specific mortality rates

The trends in mortality over the entire period were studied based on annual crude mortality rates. The latter corresponds to the number of deaths observed in a given year (n) compared to the average population for the same year (the sum of the population at the beginning and end of the year divided by two), expressed per 1,000 individuals. The crude mortality rate of a population is explained by two elements: the risk of death for each age group and age-and-sex-specific population proportions. In Western countries, the risk of death increases with age and is higher among men. Hence, the older and more male a population is, the higher the mortality rate. Thus, the crude mortality rate for the entire population reflects its mortality, considering its structure, but cannot be directly compared with those of populations with different structures. However, the use of mortality rates according to sex and/or age makes it possible to avoid these structural effects and compare the mortality rates of different populations.

Standardized mortality ratio

To complement the analyses, the standardized mortality ratios were calculated for each year. The aim of this indicator was to estimate the excess mortality of each population compared with that of the general population. Therefore, the mortality rates according to sex and age in the general population were applied to the number, per sex and age, of individuals with one of the diseases studied. This calculation provided the number of theoretical deaths if the study population had the same mortality according to sex and age as the general population. Comparing the observed deaths to these theoretical deaths enabled an estimation of the excess mortality of the study population compared with the general population. If it is higher than 1 then mortality is greater in the study population. The reference population considered is the French general population, made available by the National Institute for Statistics and Economic Studies (*Institut National de la Statistique et des Etudes Economiques*, INSEE), using census data for the years concerned.

Hence, the standardized mortality ratio enabled a comparison of the level of excess mortality of each of the study populations compared with the French population, but it was not possible to compare the level of excess mortality of the study populations, given their very different structures in terms of sex and age

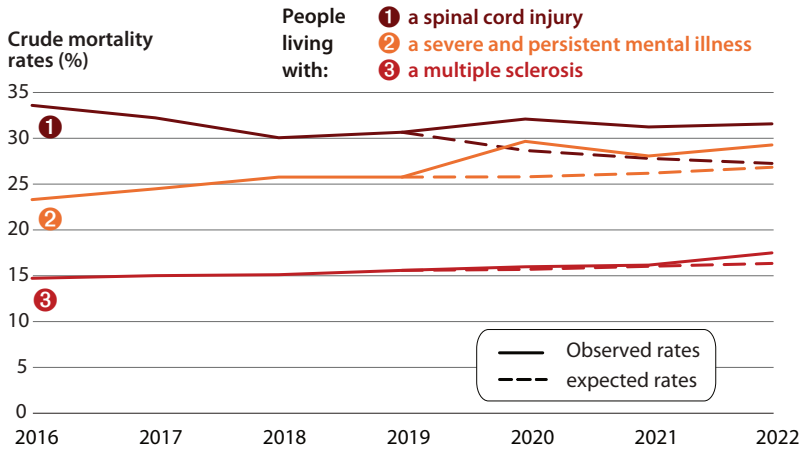
Projections of expected deaths

In order to assess the influence of the COVID-19 pandemic on mortality, it is important to establish a comparison with that which would have occurred if the pandemic had not occurred. Projections of expected deaths based on trends in the pre-pandemic period (2016–2019) were carried out based on mortality quotients (the probability of death for an individual aged x before reaching age (x+n)). Unlike mortality rates, they are calculated by comparing the number of deaths to the number of survivors rather than to the average population. The annual average variation rates of these mortality quotients, according to sex and age group, between 2016 and 2019 were calculated and then applied to the 2019 quotients to estimate those of 2020 to 2022. They were then used to calculate expected deaths if the pre-pandemic trends were maintained. Hence, they could be directly compared to the observed deaths and enabled the expected crude mortality rates in the absence of the pandemic.

Identification of deaths resulting from COVID-19

The COVID-19 pandemic was rapidly integrated into the coding of the causes of death available in the SNDS via the codes U07.1 (COVID-19, virus identified) and U07.2 (COVID-19, unidentified virus) of the International Classification of Diseases, tenth version (ICD-10). This information, as well as the data linkage of the causes of death with healthcare consumption data, enabled the identification of individuals in the populations for whom the initial cause of death was COVID-19 infection. All of these deaths, grouped according to sex and age, were used to calculate the mortality rates specific to this cause.

G3 Observed and expected crude mortality rates for the study population



Scope: Individuals aged 16 years or over identified by the algorithms (see Source).

Reading: In 2020, among people with severe and persistent mental illnesses, if the mortality conditions for the period 2016–2019 had been maintained, 21,742 deaths would be expected. Ultimately, a total of 25,027 deaths were observed.

Source: National Health Data System (SNDS).

Downlaod the data

in this population was higher than that observed in the general population (see Graph 2). These results corroborate the findings of studies that have shown that people with a SMI hospitalised for COVID-19 had a greater risk of dying from the infection and a lower probability of being admitted to intensive care (Descamps et al., 2022; Schwarzinger et al., 2023). It is possible that these situations also concerned people with a SCI, given the significant mortality due to COVID-19 observed in this population (see Graph 2). In 2021, differences were observed between people with a SCI and a SMI. In the population with SCI, mortality due to COVID-19 remained the same, while mortality due to other causes decreased. In people with a SMI, a decrease in mortality compared with that in 2020 was observed for all causes of death, including COVID-19 (see Graph 2).

In people with MS, crude mortality rates due to COVID-19 were equivalent to those observed in the general population in 2020 and 2021. Indeed, compared with the general population, the population with MS was younger and more likely to be female; hence they were less at risk of developing severe forms of the disease and dying as a result of a COVID-19 infection. Nevertheless, mortality linked to the infection seems to have affected people who would have died from other diseases during the period. Indeed, mortality due to other causes decreased but tended to increase before the pandemic, and the observed number of deaths did not exceed the expected number (see Graph 3).

In 2022, compared with 2021, an increase in mortality was observed in the three study populations, as well as in the general population (Graph 2). Although the crude mortality rate due to COVID-19 in these populations remained higher than that of the general population, it decreased for people with a SCI or a SMI, which was not the case for people with MS. This may be a result of vaccination campaigns, which affected fewer people with MS, who are known to be reluctant to be vaccinated (Yap et al., 2021), and the acquisition of collective immunity. In the general population, the global rise in mortality was due to the increased mortality of people over the age of 85 years as a result of particularly significant episodes of heatwaves and flu observed during 2022 (Blanpain, 2023), which affected the risk of death in the three study populations.

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The results of this study confirm the significant excess mortality before the COVID-19 pandemic in the three populations at risk of disability studied compared with the general population. Although this excess mortality has already been reported in the literature (Coldefy and Gandré, 2018; Espagnacq et al., 2011; Rollot et al., 2021), further studies were required to update these observations using a homogenous methodology and a longitudinal approach. These results call for action on the multifactorial determinants of this excess mortality. Some of these, which are already known, such as difficulties in accessing care and therapeutic innovations, risky health behaviours, social isolation, and precarity, need to be addressed by dedicated policies.

This research also highlights an increase in mortality during the pandemic for the study populations, which was higher than in the general population. However, the magnitude of this increase varied, with different temporal patterns depending on the condition considered. In people with a SCI or a SMI, as in the general population, a spike in mortality was observed in 2020, whereas this occurred only in 2022 in the population with MS. While mortality due to COVID-19 was higher in the three study populations than in the general population, it was not the sole factor. A marked increase in mortality was observed in 2022 in all the study populations. As in the general population, flu epidemic and episodes of heatwaves that year may explain these results. However, difficulties in accessing healthcare during the pandemic may also have led to complications, leading to a deterioration in people's health and contributing to the increased mortality observed.

This research will continue with a study of the mortality of these populations at risk of disability, considering the trends in all the causes of death, and via an analysis of potential disruptions in care pathways and medico-social support linked with the pandemic. These analyses will help inform public policy to better consider the vulnerabilities of people living with diseases that expose them to a risk of disability in the context of a pandemic. The recommendations with regard to this issue indeed remain insufficient with no dedicated policy plan. ♦

We would like to thank the clinicians of the "Handicovid" project for their expertise in the study populations and all the members of the Covid-Hosp consortium for their feedback and discussions.

For further informations

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