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### **The survival of oldest old people in the face of the COVID 19 pandemic**

The COVID-19 pandemic is undoubtedly the deadliest epidemic in Europe since the Spanish flu in the early 20th century. This pandemic has hit some countries particularly hard, including Belgium, whose data we had the opportunity to analyze. Belgium was ranked at the top of the countries with the highest infection rates in the world since the beginning of the pandemic. In 2020, more than 20,000 deaths were attributed to COVID-19 infection, and in total, according to the official statistics, 20% more deaths were registered during the year than in 2009–2018 on average. In terms of the number of elderly people, Belgium is also very suitable for assessing the impact of a pandemic on the elderly, in particular those over a hundred years old.

The virus was detected in Belgium at the end of February 2020 and the first death from COVID-19 infection was recorded on 10 March. In 2020, the pandemic had two waves of similar intensity, culminating in April and November. In the twelve months of the pandemic until March 2021, a total of 25,000 deaths were associated with COVID-19 infection. By June 2021, the third wave appears to have been averted, but the virus and its variants are still very active, and epidemiologists and policymakers are focusing on vaccinating the vast majority of the population, hoping to get the pandemic under control before winter.

Given that the determination of COVID-19 infection as a direct cause of death is uncertain, our analysis, like most mortality analyzes, focuses not on the number of COVID-19 victims but on mortality data in general, analyzing excess mortality during a pandemic period. Our results show that although more women died than men, the excess mortality was relatively similar. By age, the pandemic affected the survival of people over the age of 85 the most, accounting for a third of male deaths and more than half of women. Mortality was higher among the elderly compared to all other age groups, slightly higher in men than in women. However, if we look at the age distribution in more detail, we see that over-mortality was significantly lower among those over one hundred years of age compared with younger elderly people, and non-existent for men. This finding seems to be a paradox, as most hundred-year-olds lived in a care home where excess mortality reached the highest level. The reason for the better survival of the centenarians is unknown and several hypotheses are presented and discussed.

### **Kõrges eas vanurite suremus COVID-19 olukorras**

COVID-19 pandeemia on kahtlemata surmavaim epideemia Euroopas pärast Hispaania grippi 20. sajandi alguses. Seekordne pandeemia on osasid riike puudutanud eriti

tugevalt ja nende hulgas ka Belgiat, mille andmeid meil oli võimalus analüüsida. Belgia paigutus kohe pandeemia alguses maailma kõrgeima nakatumismääraga riikide tippu. 2020. aastal arvestati rohkem kui 20 000 surmajuhtumi põhjuseks COVID-19-sse nakatumist ning kokku registreeriti riigi statistikaameti andmetel aasta jooksul 20% rohkem surmajuhtumeid kui aastatel 2009–2018 keskmiselt. Eakate arvu poolest on Belgia ka väga sobiv, et hinnata pandeemia mõju kõrges eas vanuritele, täpsemalt üle saja aasta vanustele inimestele.

Viirus tuvastati Belgias 2020. aasta veebruari lõpus ja esimene COVID-19 nakkusega seotud surm registreeriti 10. märtsil. Pandeemial oli 2020. aastal kaks sarnase tugevusega lainet, mille tipud olid aprillis ja novembris. Kaheteiskümne pandeemia kuu jooksul kuni märtsini 2021 seostati COVID-19 nakatumisega kokku 25 000 surma. 2021. aasta juuniks näib olevat kolmas laine ära hoitud, kuid viirus ja selle variandid on endiselt väga aktiivsed ning epidemioloogid ja poliitikakujundajad keskendavad tähelepanu elanikkonna valdava enamuse vaktsineerimisele, lootuses enne talve pandeemia kontrolli alla saada.

Arvestades, et otsese surmapõhjusena COVID-19 nakatumise määramine on ebakindel, keskendub meie analüüs sarnaselt enamikele suremuse analüüsidele mitte COVID-19 ohvrite arvule, vaid suremuse andmetele üldiselt, analüüsides liigsuremust pandeemia perioodil. Meie tulemused näitavad, et kuigi rohkem suri naisi kui mehi, oli liigsuremus sooti suhteliselt sarnane. Vanuseti mõjutas pandeemia kõige enam üle 85-aastaste suremust, mis moodustas kolmandiku meeste surmadest ja naiste seas üle poole. Liigsuremus oli eakate hulgas kõigi teiste vanuserühmadega võrreldes kõrgem, meestel veidi kõrgem kui naistel. Kui aga vaadata suremuse vanusejaotust üksikasjalikumale, näeme, üle saja aasta vanuste seas oli liigsuremus märkimisväärselt väiksem kui nooremate vanurite hulgas ja meeste puhul olematu. See leid näib olevat paradoks, kuna enamik saja-aastaseid elas hooldekodus, kus liigsuremus saavutas kõrgeima taseme. Üle saja aastaste parema ellujäämise põhjus on teadmata; esitatakse ja arutatakse mitmeid hüpoteese.