The COVID-19 pandemic and vulnerable older persons: impact of a public health emergency on nursing homes and geriatric rehabilitation

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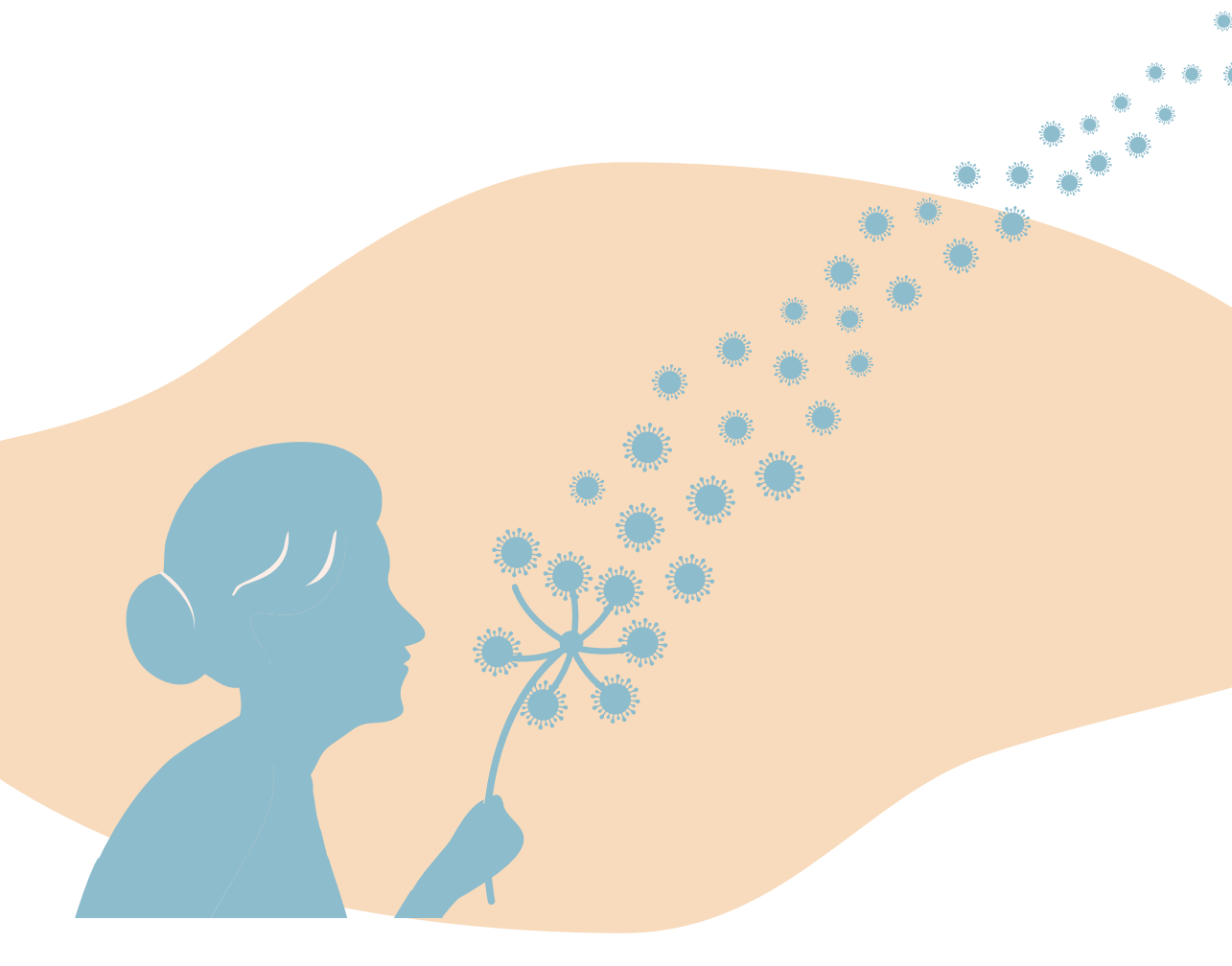

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Summary

In March and April 2020 Dutch news headlines read that "*Visits to nursing homes are no longer possible ...*", there is being a "*Silent disaster in the nursing home*", and that "*She is dying of loneliness*". The disease COVID-19, which is caused by the Coronavirus SARS-CoV-2, was discovered in Wuhan, China, in early December 2019. In January 2020, the virus started to spread rapidly across the world. By mid-March Europe had become the epicentre of the global Corona pandemic.

There was a great lack of knowledge about this new disease at the time: It was still unknown how quickly the virus would spread, how many people would die from it, and how long the pandemic would last. Diagnostic tests, a cure, and vaccines against the disease were lacking. People feared for their own health and for the illness and death of their loved ones. In addition, the large numbers of COVID-19 patients put high pressure on healthcare systems. It soon became clear that this new disease would pose a serious threat to global public health, especially to vulnerable populations such as vulnerable older persons.

Nursing homes were hit hard by the COVID-19 pandemic. Nursing home residents are susceptible to infections. Common characteristics of nursing home residents, including old age, vulnerability, and having multiple diseases, are also risk factors for many infectious diseases. Besides, they often have close contact with healthcare staff and other residents. In addition, many residents are unable to comply with general hygiene rules and infection prevention measures due to cognitive impairments. Nursing home organizations usually have an infection prevention and control committee and, during severe outbreaks of infectious diseases, an outbreak team. However, it was difficult for these outbreak teams to have to make quick decisions regarding COVID-19 in absence of COVID-19-specific knowledge and guidelines.

Older persons living at home were also at risk of becoming severely ill from COVID-19. They were more often than younger patients admitted to the hospital and intensive care units. To promote their recovery, there was a great demand for geriatric rehabilitation. Geriatric rehabilitation is a form of recovery care that is specifically aimed at older people and people with complex health problems, including having multiple diseases, cognitive impairments, and frailty. The main goals of geriatric rehabilitation are that someone learns to function independently again and can return home. However, at the beginning of the pandemic, it was still unclear what geriatric rehabilitation care could be provided to them during the pandemic and to what extent vulnerable older persons could recover from COVID-19.

PART 1. IMPACT OF, CHALLENGES PRESENTED BY, AND POLICY MEASURES OF DUTCH NURSING HOME ORGANIZATIONS DURING THE COVID-19 PANDEMIC

Part 1 of this thesis describes the impact, challenges, and policy measures of Dutch nursing home organizations during the COVID-19 pandemic. Dutch nursing home organisations and national policy makers requested insight into what was happening in the sector, in order to quickly learn from each other's experiences and make policy. That was the reason for quickly setting up the "COVID-19 management in nursing homes by outbreak teams" (MINUTES) study. In this study, minutes of COVID-19 outbreak teams were ultimately collected for more than a year and a half, providing many new insights.

Chapter 2 describes the design of the MINUTES study. In total 41 Dutch nursing home organizations participated in the study. These together represent more than 500 nursing home locations. Every week to three weeks, summary reports that included the most important points of attention were shared with participating nursing home organizations and national policy makers. The composition of participating COVID-19 outbreak teams is also described. Most outbreak teams included managers, medical staff, support services staff (such as facility management and human resources), policy advisors, and communication specialists. Nursing and care staff and resident representatives were usually not part of the outbreak teams. The minutes included eight large recurring topics

1. Crisis management, including infection rates, finances related to COVID-19, internal and external communication, etc.;
2. Isolation and distancing measures for residents;
3. Personal protective equipment and hygiene;
4. Staff, including staff scheduling, and staff well-being;
5. Resident well-being;
6. Visitor policies;
7. Testing; and
8. Vaccination.

Chapter 3 zooms in on the variety of isolation and distancing measures that outbreak teams took during the first wave (spring 2020), summer 2020, and second wave (fall 2020 – spring 2021). The minutes reveal that outbreak teams most frequently discussed visitor bans and other visitor policies (during all three periods). Also discussed were various types of isolation measures (especially during the first wave); measures to distance staff and volunteers from residents (especially during the summer period); and measures to distance among residents (especially during the summer period and second wave). Less often, measures upon admission to the nursing home were also discussed. Distancing

measures brought challenges, such as unrest and conflicts between visitors and staff, visitors and residents who did not comply with the measures, and staffing issues. The measures were continually adjusted, due to changing circumstances but also because lessons were learnt from challenges and gained experience.

Chapter 4 examined the impact of the COVID-19 pandemic and infection prevention measures on activities for nursing home residents. Continuing and restarting activities were discussed more often by outbreak teams than stopping activities. It was possible to continue organizing activities if infection prevention measures are in force. However, activities were often only organized under certain conditions or in an adapted manner, such as in smaller groups, in certain places (e.g., outside), or only for vaccinated residents or residents without COVID-19-related complaints. Important considerations for restarting, continuing, or stopping activities were maintaining the well-being and safety of residents.

In order to prioritize the most important measures among the many measures and decisions described in the minutes of outbreak teams, a panel study was conducted with nursing home staff and resident representatives.

Chapter 5 describes which measures were deemed most important by four panels to prevent corona infections. It is also described which measures are considered most important by four additional panels to maintain the well-being of residents. Each panel member selected an important measure. These selected measures were discussed during an online meeting. Each panel member then assessed the measures discussed. Each panel consisted of three to seven members. The most important measures to prevent infections are also found that applying isolation measures based on test results and cohort isolation are among the most important measures. In addition, they prioritize exceptions to the visitor ban in nursing homes and various (other) visitor regulations. The prioritized measures provide greater focus and a better balance between infection prevention and the maintaining well-being during future outbreaks of COVID-19. The panel members were dissatisfied with their limited involvement in decision-making during the first months of the pandemic.

Chapter 6 identifies strategies to increase the willingness of nursing home staff to become vaccinated against COVID-19. According to the minutes of outbreak teams, at least seven strategies were used to do so in participating nursing home organizations. Two panels of nursing home staff believe that six of these seven strategies are important:

1. personal contact and opportunities to ask questions, for example during team meetings;

2. sharing of stories among staff;
3. logistical support, such as transportation to a vaccination location;
4. role models who share their opinions;
5. visual information, such as informative videos; and
6. written information, for example through the intranet or newsletters.

Combinations of these six strategies should be used more often. The seventh strategy, providing financial rewards such as gift cards, is believed not increase vaccination willingness.

A number of important insights emerge from the studies described in part 1 of this thesis. First, infection prevention measures should never overshadow the importance of the overall well-being of nursing home residents. Infection prevention measures should be chosen that have the least impact on the overall well-being of the residents. Second, there is no 'one size fits all' for the best balance between infection prevention and well-being. Measures should be tailored to local circumstances, including for example the building structure of the nursing home, the infection rate, the residents, their family members, and availability of staff. Third, besides managers and physicians, nurses and resident representatives should remain involved when quick decisions have to be made about measures to be taken. Fourth, it is important to invest in the development and availability of personal protective equipment, diagnostic tests, and vaccines. These can reduce the risk of infection and therefore possibly the need for far-reaching infection prevention measures.

PART 2. RECOVERY OF COVID-19 PATIENTS ADMITTED TO GERIATRIC REHABILITATION

Part 2 of this thesis describes the recovery of COVID-19 patients who received geriatric rehabilitation care. It is also described what geriatric rehabilitation care was provided in various European countries. In total 59 geriatric rehabilitation care facilities in ten countries (the Czech Republic, Germany, Ireland, Israel, Italy, Malta, Russia, Spain, the Netherlands, and the United Kingdom) participated in the European Cooperation in Geriatric Rehabilitation (EU-COGER) after the COVID-19 study. They collected routine care data of 723 post-acute COVID-19 patients that were admitted from October 2020 to October 2021. These patients were followed until six months after geriatric rehabilitation.

Chapter 7 shows that older COVID-19 patients who received geriatric rehabilitation after a coronavirus infection, on average, recover their daily functioning within a few

months, almost back to the level before they contracted COVID-19. Their quality of life also increases substantially during this period. Most patients are pre-frail to frail at admission to geriatric rehabilitation. This degree of frailty did not affect their recovery. Therefore, frailty should not be the main reason to deny COVID-19 patients access to geriatric rehabilitation.

Chapter 8 describes that recovery occurs in rehabilitation patients from all participating European countries, but that there is some variation in the speed of recovery. This variation in recovery speed was accompanied by differences between countries in the organization of geriatric rehabilitation care. Geriatric rehabilitation care was provided in different types of healthcare settings, such as nursing homes, specialised rehabilitation facilities, and ambulatory. These care facilities used different combinations of selection criteria to refer patients to geriatric rehabilitation, often including, for example, the patients' level of daily functioning, age, frailty, and cognitive impairments. In all countries the majority of patients received physiotherapy and in many countries also occupational therapy. There was substantial variance in the percentages of patients that received some other therapies. This variation in organizational aspects of geriatric rehabilitation makes it difficult to make statements about which organizational aspects promoted recovery, but it can contribute to developing expectations for further research.

An important insight arising from part 2 of this thesis is that older COVID-19 patients have the ability to recover well. This also applies to frail patients, who may be thought to have little recovery potential. Therefore, they should receive geriatric rehabilitation care and caution is warranted when selecting and rejecting older patients for geriatric rehabilitation. More international research is needed to optimize geriatric rehabilitation care throughout Europe. However, in addition to the measuring instruments for daily functioning (the Barthel Index) and quality of life (the EQ-5D-5L) using in this study, few measurement instruments are routinely used internationally in geriatric rehabilitation. The development of a set of more measurement instruments that can be used internationally would make further research easier.

RAPID AND RESPONSIVE RESEARCH METHODS

The studies in this thesis were conducted according to some principles of 'rapid and responsive' research methods. Existing research infrastructures for research were used, such as the University Network for the Care sector Zuid-Holland (UNC-ZH) and the European Geriatric Medicine Society (EuGMS) special interest group for geriatric rehabilitation. Furthermore, existing data was collected (minutes of nursing home organizations'

outbreak teams and routinely collected geriatric rehabilitation care data). In addition, data analysis was adjusted in response to changing circumstances of the pandemic. Results were also shared from the start of data collection in weekly to triweekly summary reports, factsheets, and presentations. In this way, the timeframe of conducting research was shortened, the burden of the study for the staff from participating healthcare facilities was limited, were they motivated to participate in studies, and it was possible to provide input for policy decisions that had to be made quickly. When conducting rapid and responsive research, in theory, the need to share results quickly can put pressure on the quality of research. Therefore, it is important to monitor the quality and reliability of the research and the results. Applying principles of rapid and responsive research should be considered more often in future pandemics, research in rapidly developing fields, or when answering policy-related or context-dependent research questions.

FINAL REMARKS

We can now look back on a turbulent time that for many people involved panic and sadness. Unfortunately, the question is not if there will be new pandemics, but when. The lessons learned from the COVID-19 pandemic can help to better prepare for future outbreaks of unknown infectious diseases that can cause severe illness among vulnerable older people. It is therefore strongly recommended to incorporate the lessons learned into nursing home care and geriatric rehabilitation, outbreak policies, education for (future) staff in the sector, and future research.