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

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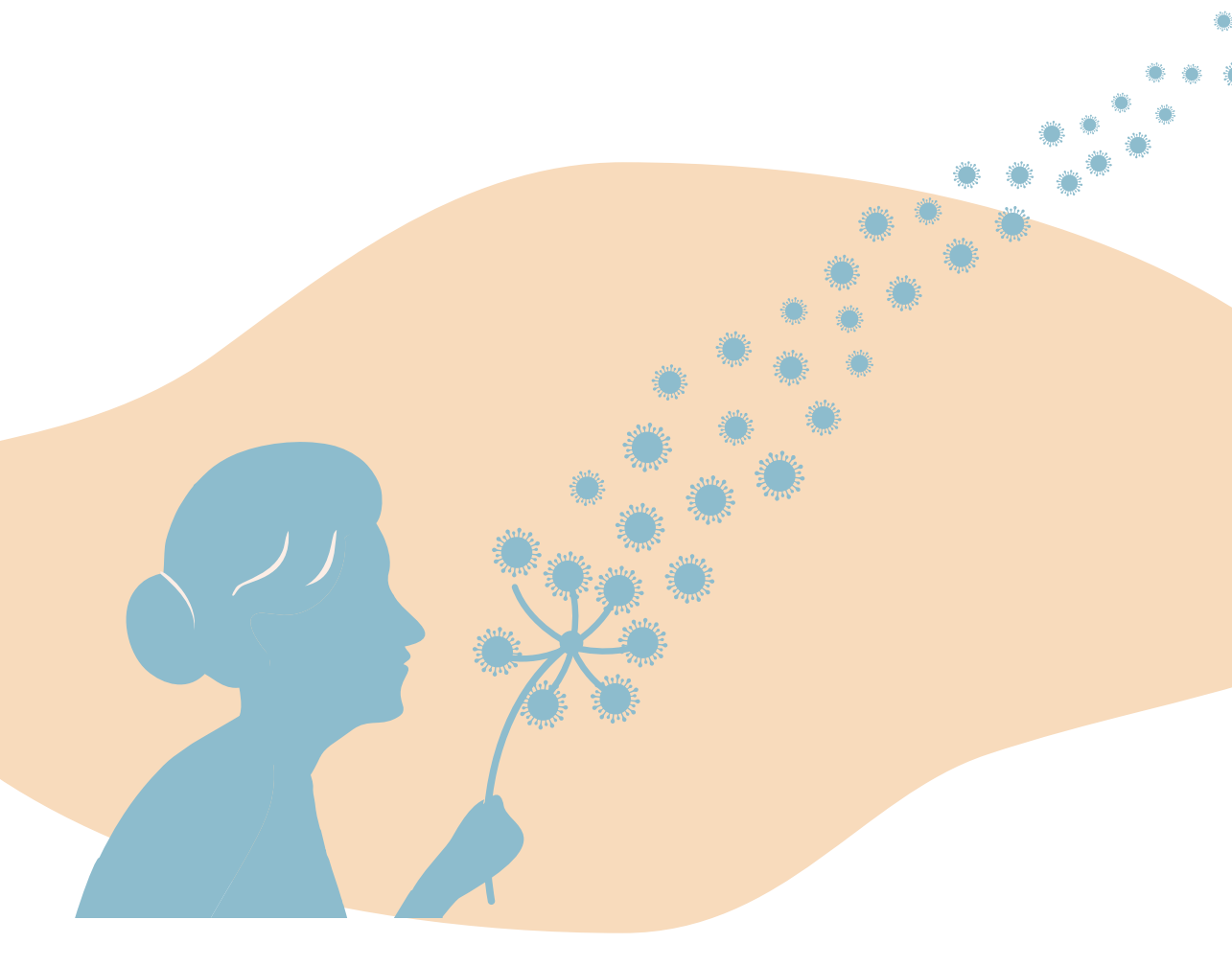
Final chapters



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General discussion

This chapter outlines the main findings of the studies in this thesis, reflects on the findings by placing them in a broader perspective, describes some methodological considerations, and presents recommendations for practice, policy, education, and future research.

SUMMARY OF MAIN FINDINGS

Part 1 of this thesis aimed to describe the impact of, challenges presented by, and policy responses of Dutch nursing home organizations to the COVID-19 pandemic, particularly regarding infection prevention and maintaining the well-being of nursing home residents. **Chapter 2** describes that multidisciplinary COVID-19 outbreak teams of 41 Dutch nursing home organizations participated in the COVID-19 management in nursing homes by outbreak teams (MINUTES) study. These outbreak teams discussed eight recurring topics: 1. crisis management, including infection rates, frequency of outbreak team meetings, COVID-19 related finances, internal and external communication, and regional collaboration; 2. isolation and distancing measures for residents; 3. personal protective equipment (PPE) and hygiene; 4. staff, including distancing measures for staff, staff scheduling, and staff well-being; 5. resident well-being; 6. visitor policies; 7. testing; and 8. vaccination. **Chapter 3** showed that COVID-19 outbreak teams discussed and implemented a variety of distancing measures. The most frequently discussed were visitor bans and other visitor policies. Also discussed were different types of isolation measures, measures to distance staff and volunteers from residents, measures to distance among residents, and admission measures. Challenges with distancing measures persisted over time. These included, but were not limited to, unrest and conflicts between visitors and staff, visitors not complying with measures, resident non-adherence, and staffing issues. **Chapter 4** showed that outbreak teams discussed continuing and restarting activities for nursing home residents more often than stopping activities. Maintaining resident well-being was an important consideration for continuing or restarting activities. However, activities were often continued or restarted under certain conditions, such as being in accordance with governmental guidelines, limited group size, at assigned locations, for residents without COVID-19-related symptoms, or later only for vaccinated residents. In **Chapter 5**, Nominal Group Technique (NGT) panels were performed with multidisciplinary nursing home staff and resident representatives. The panels prioritized the most important measures to prevent SARS-CoV-2 infections among nursing home residents: cohort isolation, other isolation measures for residents who are cognitively unable to adhere to cohort isolation, basing isolation measures on test results, testing in case of symptoms, use of PPE around (suspected) infected residents, and preparing for outbreaks. Prioritized measures to maintain resident well-being were, again, cohort

isolation and basing isolation measures on test results, but also exceptions to visitor bans, and various visitor policies. In addition, this chapter describes how resident representatives and staff were dissatisfied with their limited involvement in local COVID-19 policy decisions during the first months of the pandemic. **Chapter 6** explains that two NGT panels found five of the strategies described in the outbreak teams' minutes for overcoming nursing home staff reluctance to be vaccinated against COVID-19 to be important: personal contact and opportunities to ask questions, for example during team meetings; sharing of stories among staff; logistical support, such as transportation to a vaccination location; role models who share their opinions; visual information, such as informative videos; and written information, for example through the intranet or newsletters. A sixth strategy, providing financial rewards such as gift cards, was not found to be stimulating.

In **part 2** of this thesis, the aim was to describe recovery of post-COVID-19 patients admitted to geriatric rehabilitation and the rehabilitation care they received, across Europe. **Chapter 7** showed that, on average, geriatric post-COVID-19 patients included in the European Cooperation in Geriatric Rehabilitation (EU-COGER) study recover substantially in terms of daily functioning and quality of life. This is the case for fit, as well as for pre-frail and frail patients. In **Chapter 8**, some differences were observed in the rates of recovery between patients included from various European countries. These differences may be partly explained by variation in selection criteria for referral to geriatric rehabilitation, in patient characteristics, and in provided care. Functional status, age, frailty, Comprehensive Geriatric Assessment, comorbidities, and cognitive impairments were part of the selection criteria in various countries, but in different combinations. Most patients received physiotherapy and occupational therapy. The median duration of geriatric rehabilitation care ranged from 13 to 45 days across countries.

MAIN FINDINGS IN A BROADER PERSPECTIVE

In March 2020, it was not anticipated that the pandemic would continue for much longer than a few weeks. The COVID-19 pandemic lasted for over three years, until May 2023 (1, 2). During this time, almost seven million deaths were recorded worldwide (1, 2). The nursing home sector was hit hard. It has been estimated that, almost half of the Dutch COVID-19 deaths occurred within nursing homes, while they represent less than one percent of the population (3). Constant shifts in infection rates, knowledge development, and availability of materials such as PPE, tests, and vaccines followed each other rapidly. This required continuous policy changes. **Figure 1** presents an overview

of important Dutch policy decisions and other important moments for vulnerable older persons during the period of the studies in this thesis, based on several sources (4-6).

Weighing infection prevention and maintaining well-being among nursing home residents

Generic infection prevention measures were imposed top-down

During the first wave of the pandemic, the government imposed generic infection prevention measures, including a visitor ban for nursing homes (4, 7), and a national 'intelligent lockdown' (**Figure 1**). Nursing home organizations were obligated to implement (derivatives of) these measures locally. At this time it was expected that, if we acted quickly, these measures would only be needed for a few weeks (8). Policy decisions about these measures were therefore made more quickly and more top-down than usual. The Outbreak Management Team was established to advise the Dutch government about adequate national measures (9). Within nursing home organizations, outbreak teams implemented the generic infection prevention measures **(Chapter 5)** (10). The objective of these quickly imposed generic measures was to prevent the spread of the disease, illness and death.

Not enough weight was given to well-being

For nursing home residents, who have a relatively short remaining life expectancy, well-being is often considered more important than the prevention of illness and death. Social relationships play an important role in the perceived well-being of nursing home residents (11), but restrictions in social contacts and freedom of movement were inherent in infection prevention measures. A negative impact of these measures on the well-being of nursing home residents might therefore have been expected. However, at the start of the COVID-19 pandemic, literature on the effects of infection prevention measures on the well-being of vulnerable older persons was still scarce (12, 13).

After the measures were maintained for more than a few weeks, it became clear that the impact of these generic measures on the overall well-being of nursing home residents was indeed predominantly negative. Residents showed increased symptoms of depression, loneliness, anxiety (14-16), and decreased physical health (14, 17). An exception to these negative effects was sometimes seen in a reduction in challenging behaviour among nursing home residents with dementia (18).

early December, 2019	SARS-CoV-2 virus discovered in Wuhan, China
late January, 2020	first COVID-19 cases in Europe
January 30	WHO[1] declares the COVID-19 pandemic a public health emergency
February 27	first COVID-19 case detected in the Netherlands
early March, 2020	first large European COVID-19 outbreak in Lombardy, Italy
March 6	first recorded COVID-19-related death in the Netherlands
March 9	start of data collection MINUTES study
mid-March	Europe is epicentre of the pandemic
March 12	national infection prevention measures introduced, including. call to limit visits to older people
March 15	tightening of national infection prevention measures
March 18	national plan to manage shortage of PPE
March 20	national visitors ban in nursing homes
March 23	national 'intelligent lock down'
March 26	tightening of intelligent lock down, including keeping distance of 1.5 meters
April 6	testing available for nursing home staff and residents
May 11	start of pilot reopening nursing homes to visitors
May 26, 2020	reopening of all nursing homes free of COVID-19 for visitors
June 1	start of relaxation of national intelligent lock down measures
June 1	testing possible for all Dutch citizens
June 6	first NGT panel study panel conversation
September 29, 2020	tightening of national infection prevention measures
October 1	start of patient recruitment EU-COGER study
October 14	start of 'partial lockdown'
November 3	tightening of partial lockdown
late November	last panel conversations of NGT panel study about well-being and infection prevention
January 6, 2021	start of vaccination in the Netherlands with vaccination of nursing home staff
January 18	start of vaccination of nursing home residents
April 4	last panel conversation of NGT panel study about vaccination strategies
June 5	start of relaxation of partial lockdown
July 10, 2021	tightening of national infection prevention measures
September 25	relaxation of national infection prevention measures
October 31	end of patient recruitment EU-COGER study
October 31	end of data collection in the MINUTES study
November 2, 2021	tightening of national infection prevention measures
November 12	start of new 'partial lockdown'
November 26	tightening of lockdown measures i.e. with evening lockdown
December 19	tightening of 'partial lockdown' to 'hard lockdown'
January 10, 2022	first relaxations of the lockdown measures
February -May	further relaxation of lockdown measures
July 31	end of collection follow-up data EU-COGER study
	[..]
May 5, 2023	World Health Organization declares end of COVID-19 pandemic as international public health emergency

Figure 1. Timeline of policy decisions and other important moments regarding care for vulnerable older persons in the Netherlands during the studies of this thesis.

Lessons learned on finding a balance between infection prevention and well-being

An important insight resulting from the pandemic, is that the need to prevent infections should never overshadow the importance of the overall well-being of nursing home residents. Over time, a few lessons on how to prevent this in practice were learned.

First, some measures with a large impact on resident well-being over time were replaced with - often milder - alternatives. Visitor bans strongly limited residents' social contact and therefore their well-being (**Chapter 5**) (19). As a result, the national visitors ban received negative media attention, based in part on the results of the MINUTES study (7, 20, 21). In May 2020, the Dutch government mandated reopening of nursing homes to visitors (**Figure 1**) (22). Nursing homes replaced visitor bans with other visitor policies, such as visits at assigned places, fixed times, instruction for visitors, and limited numbers

of visitors (**Chapter 5**). With regard to isolation measures, experience has shown that both transfer to an isolation unit and isolation in a single room could have a major impact, especially on residents with cognitive impairments. Cohort isolation was perceived as a better alternative, as this type of isolation allows residents to stay in their own environment and maintain some freedom of movement (**Chapters 3 and 5**). In addition, discontinuing activities was thought to be detrimental to the well-being of nursing home residents. Using creative solutions, outbreak teams were able to continue or restart activities while infection prevention measures were in force (**Chapter 4**). For a better balance between infection prevention and well-being during future outbreaks of infectious diseases that can cause severe illness among vulnerable older adults, visitor bans should be avoided, as well as transfer to isolation units and isolation in single rooms for residents with cognitive impairments. Other visitor policies and cohort isolation can be considered as suitable alternatives. In addition, activities should be continued, if necessary in a modified form.

Second, there did not appear to be a 'one size fits all'. Which distancing measures and other infection prevention measures best balance infection prevention and well-being was found to depend on the local context in nursing homes, including the physical structure of the building, infection rates, residents' cognitive abilities to understand and comply with the measures, residents' family adherence to the measures, and availability of staff (**Chapter 3**) (23). Cohort isolation, for example, could only be applied if the structure of the building allowed it, and if there was enough staff available and willing to be divided over cohorts (**Chapter 3**). Over time, the government gave nursing home organizations more room to tailor infection prevention measures such as visitor policies, and nursing home organizations increasingly gave to departments and healthcare professionals more freedom to tailor measures (**Chapters 3 and 5**). In future outbreaks, more responsibility for tailoring generic measures should therefore be given locally to, for example, team leaders or (nurse) practitioners.

The imbalance between infection prevention and well-being may have resulted in part from an imbalance in who made decisions, and who were left out of decision-making. Most nursing homes' outbreak teams initially included managers and physicians, but not nurses or resident representatives (**Chapter 2**). Moreover, client council meetings were hampered by the visitor ban, and pressure to act quickly (**Chapter 5**) (24). This was despite the legal obligation to consult with a client council on decisions that affect resident care (25, 26). Also at the national level, the Outbreak Management Team initially included, for example, virologists, epidemiologists and acute care physicians, but the nursing (home) sector and vulnerable older persons were not represented (9). It is important to involve all stakeholders in policymaking because they all have a unique

perspective on care. Traditionally, physicians are educated to rely on diagnoses and make decisions (27), nurses are trained to work from a more person-centred view (27), and resident representatives are more focussed on social and emotional aspects of care than on care tasks (28). In several nursing home organizations, following societal concerns about the impact of the national visitor ban on resident well-being, client councils and staff were involved again in the development of alternative visitor policies (24). This was an important step in restoring the balance between infection prevention and well-being. The NGT panels were experienced as a suitable method to include perspectives from different stakeholders (**Chapter 5**). Multidisciplinary decision-making should be better preserved in future pandemics or other situations that require adapted decision-making. Therefore, it may be useful to practice multidisciplinary collaboration and decision-making during the education of nurses, physicians, and other (future) nursing home staff, according to the principles of team-based learning (29). By doing so, they develop appreciation for teamwork for accomplishing difficult tasks or decisions (29).

Fourth, maintaining well-being became easier when materials such as PPE, clinical tests, and vaccines became available (**Figure 1**). PPE and tests made it possible to impose more targeted distancing measures. For example, when tests became available it was no longer needed to isolate and restrict the freedom of movement of all residents (in wards) with symptoms, but only of residents with confirmed tests (**Chapter 5**). As vaccines prevent illness and death, they reduce the need for other infection prevention measures and, for example, facilitate the restart of activities for residents (**Chapter 4**). With future emerging infectious diseases that can cause severe illness among vulnerable older adults, it is therefore important to invest in the development and availability of PPE, tests, and vaccines. In addition, especially when vaccines become available, it is important to stimulate willingness of (legal representatives of) residents and the people around them to be vaccinated. To stimulate staff, the five strategies that were found to be important to do so in **Chapter 6** should be used.

Geriatric rehabilitation care for older persons with serious infections

Substantial recovery after COVID-19 despite differences in geriatric rehabilitation care

Throughout the pandemic, many patients were admitted to geriatric rehabilitation to recover from a SARS-CoV-2 infection. Before the pandemic, only a minority of geriatric rehabilitation admissions were due to infection (30, 31). Post-COVID-19 patients admitted to geriatric rehabilitation recovered well in terms of daily functioning and quality of life. Across countries, they showed recovery during geriatric rehabilitation (**Chapter 8**) and continued to recover after rehabilitation almost up to their premorbid status within

a few months (**Chapter 7**). In comparison, Dutch patients who underwent geriatric rehabilitation after traumatic injuries or stroke showed less increase in daily functioning (30). These findings suggest that the recovery capacity of vulnerable older patients with COVID-19, and perhaps other serious infections, is greater than expected, and that they should be offered geriatric rehabilitation care. In addition, COVID-19 patient who were frail at admission to geriatric rehabilitation have the potential to recover as well as more fit patients (**Chapter 7**). The same was observed for COVID-19 patients who did or did not experience delirium during or before geriatric rehabilitation (32). This suggests that caution is warranted in triaging and rejecting vulnerable older patients who have experienced a serious infection for geriatric rehabilitation, including those who are thought to have little rehabilitation potential.

Across countries, patients admitted to geriatric rehabilitation showed recovery, despite some differences in the organization of geriatric rehabilitation care (**Chapter 8**). Several of these differences reflect differences in healthcare systems and health policies, rather than differences between patients. For example, no Russian patients and only one German patients received oxygen therapy during geriatric rehabilitation, probably because they were not allowed to be transferred to a specialized rehabilitation facility (Germany) or to go home (Russia) with oxygen equipment (**Chapter 8**). In addition, at more than six weeks Malta had the longest average duration of geriatric rehabilitation, whereas in some other countries policies stipulated that rehabilitation trajectories should be shorter than this (**Chapter 8**). Besides some differences between countries across Europe in terms of organization of geriatric rehabilitation care, also many similarities were observed (**Chapter 8**).

Developing more homogeneity in measurement instruments used in geriatric rehabilitation across Europe

To gain insight into the recovery trajectories of patients admitted to geriatric rehabilitation across countries, recovery should be measured with instruments that are routinely used internationally. Currently, there still is great heterogeneity in the measurement instruments used in geriatric rehabilitation (33). Furthermore, recovery should be measured with instruments that are consistent with the international definition of geriatric rehabilitation developed by Grund et al. (34) and with the World Health Organization (WHO) International Classification of Functioning, Disability and Health (ICF) (35) on which the international definition is based. According to this definition, the purpose of geriatric rehabilitation is to optimise functional capacity, promote activity, and preserve functional reserve and social participation (34). The ICF model implies that functioning and disability are determined by physical functions, activities, and participation (35). In the EU-COGER study, recovery was measured with two of the few measurement instru-

ments that met these two requirements (33): the Barthel Index for daily functioning (36) and the EQ-5D-5L for quality of life (37) (**Chapters 7 and 8**).

International geriatric rehabilitation research would benefit from an international core set of measurement instruments (38). The EU-COGER study may stimulate the development of such a core set of instruments. The study demonstrated that at least the Barthel Index and EQ-5D-5L are suitable for generic use in international comparative research. In addition, the study established an international collaboration between geriatric rehabilitation care providers from ten countries. In addition to the Barthel Index and the EQ-5D-5L, a core set could also include, first, an instrument to measure social participation. According to the consensus definition of geriatric rehabilitation and the ICF model, as well as according to patients (39), participation in society and social relationships are important outcomes of geriatric rehabilitation. Existing measurement instruments for participation, such as the Participation scale (P-scale) (40), may need to be adapted and validated for vulnerable older persons, before they can be used in geriatric rehabilitation. Second, a core set of measurement instruments could develop more homogeneity in the measurement of cognition. At present, numerous instruments are used in different countries (33). Third, the Clinical Frailty Scale (CFS) for frailty (41), could be included in this core set. One of the first international guidelines for the care of adults with COVID-19 recommended taking CFS into account when making treatment decisions (42). As a result, the CFS was increasingly used in COVID-19-related care and research during the pandemic (43). Ultimately, more homogeneity in measurement instruments and international research will stimulate the optimization of geriatric rehabilitation care and recovery of vulnerable older patients after serious health events.

METHODOLOGICAL CONSIDERATIONS

Acute situations demand rapid and responsive research

Researchers have a responsibility to create knowledge that serves society and contributes to the greater good. This should mean that researchers adapt their usual ways of working when extraordinary circumstances in an ever-changing context call for extraordinary research. The studies in this thesis were carried out according to the principles of 'rapid and responsive' research methods. The aim of rapid and responsive research is to shorten the time-frame for conducting research and disseminating results when pressing contextual developments make it impossible to wait for more time-consuming research and scientific publications before taking action (44, 45). The results of rapid and responsive research often serve as input for policy (44, 45). Rapid and responsive research has been used more frequently in humanitarian crises, including wars, hurricanes

and other natural disasters, and in previous public health threats such as the spread of HIV/AIDS and the Ebola epidemic (44, 46-48). However, they may also be useful for answering other policy-related or context-dependent research questions (44, 46), or in rapidly developing fields of research. Several advantages and disadvantages of applied rapid and responsive research principles are described below.

Rapid recruitment: making use of existing research infrastructures

Using an existing research infrastructure enables rapid recruitment of participants and saves time that must be invested in building trust with new relationships (47). For the MINUTES study and the NGT panel study, a large number of Dutch nursing home organizations could be quickly approached thought the Dutch Collaborative Academic Networks for care for Older persons ('Samenwerkende Academische Netwerken Ouderenzorg', SANO). The EU-COGER study was initiated by the University Network for the Care sector Zuid-Holland (UNC-ZH) and members of the European Geriatric Medicine (EuGMS) special interest group for geriatric rehabilitation. Several members of the special interest group were willing to recruit and maintained contact with other participating geriatric rehabilitation care facilities in their country.

Rapid data collection: Making use of existing data

The MINUTES study and the EU-COGER study both collected existing information. In addition to saving time (38), another important reason for collecting existing data was that it limits the burden for healthcare staff at a time when they are under great pressure (47, 49). The MINUTES study collected minutes from the COVID-19 outbreak teams. Several other studies about care for vulnerable older persons have also analysed textual information to provide insight into current topics of discussion within the sector, such as Twitter data and newspapers (50), and questions asked in a closed WhatsApp group of care home managers and staff (51). A limitation of these textual data sources is that they often provide brief and undetailed descriptions of the situation (**Chapter 2**) (50). In the EU-COGER study, geriatric rehabilitation staff collected routine patient data from patient records (**Chapters 7 and 8**) (33). A disadvantage of only collecting data from patient records was that measurements that had not been documented resulted in missing data.

Responsive data collection and analysis: moving with changing circumstances and knowledge needs

Although research should always be conducted with a clear aim, in responsive research this aim does not include a pre-set endpoint (45). Responsiveness to context is especially important in crisis situations, when it is often unknown how the situation will progress and how long it will last (47). The MINUTES study and the NGT panel study are a good examples of this. The subtopics for the in-depth analyses were chosen in response to

changing circumstances in the sector and public debates. This was in line with our aim to provide insight into what was happening in the nursing home sector. **Chapter 2** provides an overview of topics and subtopics that were discussed by COVID-19 outbreak teams over time. Next, during the first wave of infections (52), vaccines were still lacking, and tests (53) and PPE (54) were often scarce (**Figure 1**). Therefore, distancing measures were considered important, and these are investigated in **Chapter 3**. Over time, concerns arose about the impact of distancing measures on the daily lives and well-being of nursing home residents and staff (18). The impact of distancing measures the on (dis) continuation of activities was therefore studied in **Chapter 4** (55), and priority measures to prevent infections and priority measures to maintain well-being were compared in **Chapter 5.** After almost a year, COVID-19 vaccines became available, first for nursing home staff in January 2021 (**Figure 1**) (56). This prompted an investigation into how to stimulate their vaccination willingness in **Chapter 6**.

Rapid dissemination of results: input for policy

The results of the studies in this thesis were shared from the start of data collection, in order to quickly provide policy input at national and local levels. Practical results of all studies in this thesis were openly shared in many factsheets (57, 58), and during online and physical presentations at (inter)national congresses, before scientific articles were published. In addition, during the MINUTES study, a total of thirty summary reports describing the situation in the sector were shared with the participating nursing home organizations, the Ministry of Health, Welfare, and Sport (Volksgezondheid, Welzijn en Sport), the Chief Nursing Officer who advices the government with regard to the position of the nursing profession, and with a few national associations of nursing home staff (**Chapter 2**). The participating organizations and the Ministry expressed that they valued and used these rapid results. For example, after the first few summary reports had revealed unrest among staff about when to use the scarce available PPE, the government changed the national sector-based distribution of PPE into distribution based on infection risks by mid-April (59). An additional advantage was that nursing home organizations were motivated to (continue to) participate in data collection. At the request of the Ministry and the participating organizations, data collection and the sharing of summary reports was extended from the initial six months to more than one and a half years. During the course of the EU-COGER study, practical lessons were frequently exchanged in online meetings between the research team and the geriatric rehabilitation care providers collecting the data. These healthcare providers included leaders in the field in their country or organization. The importance of rapid dissemination of results and grey literature in case of acute situations is becoming increasingly recognized (46).

Responsible research: checking data quality to ensure trustworthiness

In theory, the need to share results quickly can put pressure on the quality of research (44, 47). It is therefore a strength of the studies in this thesis that quality checks were carried out. In the MINUTES study, several efforts were made to ensure the quality of data coding and intercoder reliability among 21 researchers (**Chapter 2)**. In the EU-COGER study, data was checked each time preliminary results were shared. Whenever the data contained crucial missings, outliers, or discrepancies, local study coordinators were asked to check and, if necessary, correct them. A disadvantage of these quality checks is that they require effort and time, which is contrary to the nature of rapid and responsive research. It is debatable whether in acute situations such as a pandemic, it is more important to work rapidly to enable policy makers to make informed decisions than to strive for scientific perfection (44, 47). However, precisely because regular research procedures are adjusted in rapid and responsive research, it is important to be transparent about these procedures and about the efforts made to ensure their quality and therefore the trustworthiness of results (48).

Conducting panel conversations online

The studies in this thesis were conducted at a time when distancing measures forced research to take place completely digitally. Especially research methods for NGT panels had to be adapted to an online version. Adaptations that seemed to work well online, were providing participants with instructions on how to enter the digital platform, offering assistance with technical issues, maximum group sizes of four to seven participants per panel, and a short break after 45 to 60 minutes to maintain the participations' attention. One advantage of online panel conversations for staff, especially during demanding times, is that it saves travel time (47, 60). Similar considerations for organizing online focus groups are described in the literature (60, 61).

A limitation of this study may be that the participants did not include nursing home residents. All recruited client council members were family members of residents. Actually, participating in this online NGT study may have been too complex for residents, who often suffer from cognitive impairments. There are simpler methods for involving nursing home residents in research (62, 63), but little is known about how to do so digitally. Face-to-face conversations should still be preferred for vulnerable older adults, to prevent the exclusion of those who are not competent in using technology, and to be able to use other ways of communicating when cognitive impairments make it difficult for them to express themselves verbally (61).

RECOMMENDATIONS FOR PRACTICE, POLICY, AND EDUCATION

Prevent infections among nursing home residents without compromising their well-being

Before any infection prevention policy is implemented in nursing homes, it is always important to consider whether this policy is balanced with the importance of the overall well-being of nursing home residents. Infection prevention measures should be chosen that have the mildest possible negative effect on the overall well-being of residents. Visitor bans have a large impact on resident well-being and should not be imposed, but visitor policies can be considered (**Chapters 3 and 5**). Cohort isolation should be preferred over transfer of nursing home residents to isolation units and isolation in single rooms, especially for residents with cognitive impairments (**Chapters 3 and 5**). Activities for residents should be continued (**Chapter 4**).

A variety of distancing measures can be considered to prevent infections, including visitor policies, various types of isolation measures, measures to distance staff and volunteers from residents, measures to distance among residents; and admission measures (**Chapter 3**). However, there is no 'one size fits all'. Measures should be tailored to local circumstances, including the physical structure of the nursing home, infection rates, the ability of residents with cognitive impairments to adhere to measures, adherence of and unrest among the family of residents, and availability of staff (**Chapter 3**).

Representatives of residents and nursing staff should always be involved in policy decisions that affect resident care. Even when decisions have to be made quickly, they should at least have the opportunity to ask questions and provide advice about policy plans. The NGT panels were experienced as a suitable way to collect input from different stakeholders (**Chapter 5**), and can be used more often in making care policies.

Strategies that could be used to stimulate nursing home staff to get vaccinated against COVID-19 are personal contact and opportunities to ask questions, sharing of stories among staff, logistical support, role models who share their opinions, visual information, and written information (**chapter 6**). As high vaccination rates among staff, residents, and other people around the residents decrease the risk of illness and death, they reduce the need for infection prevention measures, that impact residents' well-being.

Recommendations for referral of post-COVID-19 patients to geriatric rehabilitation

Older persons who experience severe illness resulting from SARS-CoV-2 infection or perhaps some other infection should be referred to geriatric rehabilitation. They have the capacity to recover well (**Chapters 7 and 8**). Caution is warranted in triaging and rejecting for geriatric rehabilitation vulnerable older patients who have experienced a serious SARS-CoV-2 or other serious infection. Specifically, older persons should not be excluded from geriatric rehabilitation on the basis of their frailty status. COVID-19 patients who were frail at admission to geriatric rehabilitation have the potential to recover as well as more fit patients (**Chapter 7**).

Integration of recommendations in education

The above recommendations for infection prevention measures and referral to geriatric rehabilitation should be integrated in education for current and future nursing home and geriatric rehabilitation staff to prepare them for future outbreaks of infectious diseases that can cause severe illness among vulnerable older persons. To facilitate the involvement of all stakeholders in decision-making and to prevent a potential imbalance in who makes decisions, multidisciplinary decision-making and collaboration should be practiced in the education of nurses, physicians, and other (future) staff, according to principles of team-based learning (29).

RECOMMENDATIONS FOR FUTURE RESEARCH

Monitoring well-being over time

It would be interesting to monitor which, how and when infection prevention measures exactly impact the well-being of individual nursing home residents. In order to observe change, aspects of well-being should be measured with a simple instrument at least before, during, and after distancing measures or other infection prevention measures are in force. Well-being could be measured longitudinally during future research or on a regular basis as part of routine care. Regularly measuring well-being would also facilitate future research into other care interventions or policy changes, as the focus on well-being is an important part of care for vulnerable older people.

Development of more homogeneity in measurement instruments in geriatric rehabilitation

The development of an international core set of measurement instruments for use in geriatric rehabilitation across Europe would facilitate more international research and care optimization in the field. As a first step, in the EU-COGER study protocol (33) an in-

ventory was made of the instruments used in various countries. Following the example of the UNC-ZH for developing a Dutch core set of measurements instruments in geriatric rehabilitation, the next steps would be to assess advantages and disadvantages of existing instruments based on literature and experiences (64), and to reach consensus about measurement instruments for example via Delphi procedures. Some measurements that may be integrated in such a core set are described earlier in this discussion chapter.

More often performing rapid and responsive research

In future humanitarian crises, research in rapidly developing fields, or when answering policy-related or context-dependent research questions, the application of principles of rapid and responsive research should be considered. These principles include using existing research infrastructures to recruit participants, using existing data sources, adapting data collection or analysis in response to changing circumstances, and sharing results from the start of data collection. In order to do so during future crises, it is important to, in less turbulent times, invest in setting up and maintaining research networks and in routine data collection. These rapid and responsive procedures can shorten the timeframe of conducting research and disseminating results and provide input for policy decision that quickly have to be made, limit the burden of research for healthcare staff, and motivate them to participate in studies. When conducting rapid and responsive research, it is important that efforts are put into monitoring the quality of research procedures during data collection and analysis and that there is transparency about the trustworthiness of results.

CONCLUDING REMARKS

We can now look back on a turbulent time. Everyone has their own COVID-19 story, but many of these stories involve panic and later sadness. Unfortunately, the question is not if there will be new pandemics, but when. However, the COVID-19 pandemic provided an opportunity for the care sector for vulnerable older persons to show resilience and learn quickly from the situation. The lessons learned can help to better prepare for future outbreaks of unknown infectious diseases that can cause severe illness among vulnerable older persons. Therefore, it is strongly recommended that the lessons learned are incorporated in the practice of nursing home organizations and geriatric rehabilitation, outbreak policies, educational programs to prepare (future) staff, and future research. Hopefully, we can then look forward to a future in which headlines will never again read that "*Visits to nursing homes are no longer possible...",* there being a *"Silent disaster in the nursing home",* or a mother saying about her daughter that *"'She is dying of loneliness".*

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