Aging & Mental Health

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/camh20

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To cite this article: Ruslan Leontjevas, Inge A. H. Knippenberg, Martin Smalbrugge, Annette O. A. Plouvier, Saskia Teunisse, Christian Bakker, Raymond T. C. M. Koopmans & Debby L. Gerritsen (2021) Challenging behavior of nursing home residents during COVID-19 measures in the Netherlands, Aging & Mental Health, 25:7, 1314-1319, DOI: 10.1080/13607863.2020.1857695

To link to this article: https://doi.org/10.1080/13607863.2020.1857695

Published online: 09 Dec 2020.

AGING & MENTAL HEALTH
2021, VOL. 25, NO. 7, 1314–1319
https://doi.org/10.1080/13607863.2020.1857695

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Challenging behavior of nursing home residents during COVID-19 measures in the Netherlands

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ABSTRACT

Objectives: From the perspective of the nursing home (NH) practitioners, to gain understanding of (1) whether challenging behavior in NH residents changed during the COVID-19 measures, (2) whether the practitioners' involvement in the treatment of challenging behavior changed, (3) what can be learned from the experience of NH staff.

Methods: A mixed methods study with a survey in 323 NH practitioners (psychologists, elderly care physicians, nurse practitioners) in the Netherlands, and in-depth interviews in 16 NH practitioners. Nonparametric analyses were used to compare estimated proportions of residents with increased and with decreased challenging behavior. Content analyses were conducted for open-ended questions and in-depth interviews.

Results: Participants reported changes in challenging behavior with slightly higher proportions for increased (Q1/Mdn/Q3: 12.5%, 21.7%, 30.8%) than for decreased (8.7%, 14.8%, 27.8%, $Z = -2.35$, $p = .019$) challenging behavior. Half of the participants reported that their work load increased and work satisfaction worsened during the measures. Different strategies were described to respond to the effects of COVID-19 measures, such as video calls, providing special areas for residents to meet their loved ones, adjusting activities, and reducing the exposure to negative news.

Conclusions: Because COVID-19 measures resulted in both increased and decreased challenging behavior in NH residents, it is important to monitor for their potential long lasting effects. Increased work load and worsened work satisfaction of the NH staff, together with the changes in type of challenging behavior, indicate that the harmful effects of the anti-pandemic measures should be taken seriously.

ARTICLE HISTORY
Received 4 August 2020
Accepted 24 November 2020

KEYWORDS
Nursing home; challenging behavior; COVID-19; pandemic; dementia

Introduction

Long term care institutions represent a high-risk environment for spreading the COVID-19 infections (Ayalon et al., 2020; Gardner, States, & Bagley, 2020) due to sharing of physical space and sanitary with others, daily procedures in residents like the use of catheters and incontinence material, and inability of residents to uphold the preventive measures because of cognitive impairment (Dichter, Sander, Seismann-Petersen, & Kopke, 2020). To prevent the spread of COVID-19 and to protect not only residents and their visitors but also staff in nursing homes, the Dutch government put nursing homes under quarantine on 19 March 2020 (Kruse, Abma, & Jeurissen, 2020). Because of a visit ban, and restrictions to go outside and to participate in numerous activities (Verbeek et al., 2020), it can be argued that social health dimensions like the ability to participate in social activities and to manage their own life with some degree of independence (Huber et al., 2011) were affected in nursing home residents.

Negative effects on social health may explain why a Dutch study showed that, six to ten weeks after the initial quarantine measures, care staff reported an increase in severity of agitation, depression, anxiety, and irritability in residents (Van der Roest et al., 2020). In general, Dutch nursing homes predominantly have two types of units, those for residents with somatic illnesses and those for residents with dementia and dementia-like disorders. The increase in challenging behavior was reported more often by care staff in somatic care units than in dementia special care units (Van der Roest et al., 2020). However, five out of six people with dementia develop, throughout the course of the condition, such challenging behavior that is disruptive for both themselves and their environment (Abraha et al., 2017). This makes it important to monitor challenging behavior in this group as well. Residents with cognitive impairment may not understand the necessity of quarantine measures and may need additional restrictions that can result in disruptive behavior, irritability, and aggression (Gerritsen & Oude Voshaar, 2020).

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While Van der Roest et al. (2020) analysed the views of care staff, family and residents without cognitive problems, our study analyzed the views of practitioners. Dutch nursing homes employ multidisciplinary teams consisting of the care staff, and practitioners such as a psychologist, and an elderly care physician (Koopmans, Pellegrom, & van der Geer, 2017). The aims were to gain understanding, from the perspective of the practitioners, (1) whether challenging behavior in residents changed because of the COVID-19 quarantine measures, (2) whether the practitioners' involvement in the treatment of challenging behavior and their work load and satisfaction changed, and (3) what lessons can be learned from these experiences and the strategies that nursing home staff used to minimize potentially negative effects of the measures.

Methods

Design and procedure

An online survey was distributed among nursing home psychologists in the Netherlands. They were asked to complete the survey and to forward the link to their fellow elderly care physicians (Koopmans et al., 2017) and nurse practitioners. The psychologists were approached through the networks of LinkedIn, the Netherlands Institute for Psychologists, Amsterdam University Medical Center (Department of Medicine for Older People), and the Psychogeriatric Service, a network on expertise in elderly care (www.pgdexpertise.nl).

The online questionnaire was filled out between 25 April 2020 and 2 June 2020. A fact sheet with preliminary results of the survey was distributed online and through the involved networks (www.ukonnetwerk.nl/media/1498/probleemgedragcovidenquete-ukon.pdf). A subsample of practitioners was approached by email and interviewed between 19 June 2020 and 8 July 2020 using a platform for video meetings. Each interview was audiotaped and summarized using a predefined format.

Ethics

The study was undertaken in agreement with the Code of Conduct for Health Research (v. 2005; https://www.federa.org/federa-english), the declaration of Helsinki (www.wma.net//declaration-of-helsinki) and the applicable Dutch legislation. According to the guidelines of the Medical Ethics Review Committee at the Radboud university medical center Nijmegen, the Netherlands, the study did not fall under the national Act on Medical Research with People. Data were analyzed and stored anonymously.

Instruments

The online survey consisted of closed and open-ended questions regarding the period of COVID-19 measures in Dutch nursing homes compared to the situation before the pandemic. Participants were asked to provide information about changes in challenging behavior in residents and the extent to which specific COVID-19 measures (e.g. no visitors allowed) or consequences of such measures (e.g. no volunteers and rescheduled leisure activities) have influenced challenging behavior. They were asked to consider and describe the type of one of the nursing home units they were working at, and to provide the total number of residents, and numbers of residents with increased and with decreased challenging behavior ('*In how many residents did you see/appraise an increase [decrease] in challenging behavior*?). They were invited to describe changes in workload, social climate in a nursing home unit, and their involvement in the treatment of challenging behavior. Responses were not compulsory.

Based on the findings of the online survey, a semi-structured interview guide was developed for additional interviews to (a) discuss and explore the survey findings in-depth, and (b) identify lessons learned for daily practice.

Analyses

Closed questions were analyzed using descriptive statistics. A Wilcoxon Signed-rank test was used to compare the proportion of residents with increased and those with decreased challenging behavior. Mann–Whitney *U*-tests were used to compare these proportions between units with and units without suspected or confirmed cases of COVID-19 infection. Information on the type of the nursing home units (e.g. dementia special care versus somatic care) was not provided suitably for additional comparisons between the unit types. Answers on open-ended questions and interviews were interpreted by two researchers (RL, IK) using elements of a directed approach with predefined topics and hypothesized associations between them, and elements of a summative content analysis with the topics that stood out the most (Hsieh & Shannon, 2005). Interpretations were discussed by three researchers (RL, IK, DG) to achieve consensus. Citations were used to illustrate the findings.

Results

In total, 323 professionals filled out the online questionnaire. Of them, 200 (62%) were psychologists, 76 (24%) elderly care physicians, 33 (10%) nurse practitioners, and 14 (4%) other professionals (e.g. occupational therapists, physiotherapists, an unidentified profession). Participants represented all Dutch provinces. Half of the professionals had been working in the current nursing home for longer than 3 years (quartiles: 1, 3, 8 years of employment). Eleven psychologists, three elderly care physicians, one nurse practitioner, and one senior manager were interviewed personally, their experiences are described below.

Changes in challenging behavior

Almost all participants noticed both increased and decreased challenging behavior in residents (Table 1). Most participants ($N = 249$, 77%) provided numbers of the residents on their units showing slightly higher proportions of residents with increased (Q1/Mdn/Q3: 12.5%, 21.7%, 30.8%) rather than decreased (8.7%, 14.8%, 27.8%) challenging behavior ($Z = -2.35$, $p = .019$). The units were described as a dementia special care unit ($N = 137$, 55%), a somatic care unit ($N = 20$, 8%), a unit providing care for residents with mixed or specific care needs ($N = 33$, 13%, e.g. care for residents with both somatic and dementia related care needs,

Table 1. Reported changes in challenging behavior in general, *N* participants (%).

	Noticed on my nursing home unit		
Changes in challenging behavior	Not at all	A bit	A lot
Increased, $N = 293$	11 (4)	187 (64)	95 (32)
Decreased, $N = 288$	26 (9)	153 (53)	109 (38)
Increasing followed by decreasing, $N = 276$	111 (40)	152 (55)	13 (5)
Decreasing followed by increasing, $N = 286$	82 (29)	162 (57)	42 (15)
Type of disturbances changed, $N = 281$	66 (23)	171 (61)	44 (16)

Note: Answering the questions was not compulsory and not all participants provided their answers to all items.

or residents with young-onset dementia, or acquired brain injury). The remaining 59 (24%) units were referred to as 'closed' (in Dutch used for both dementia special care and corona cohort care units) with 26 of them having at least one patient infected by the COVID-19 virus. No differences were found for the proportions of increased and decreased challenging behavior between 100 units with and 149 units without residents affected by the coronavirus (proportion increased challenging behavior, $Z = -1.42$, $p = .157$; decreased, $Z = -0.19$, $p = .852$), and between 112 units with and 134 units without staff members affected by COVID-19 (increased, $Z = -1.08$, $p = .249$; decreased, $Z = -0.17$, $p = .866$).

In open-ended questions and personal interviews, an increase was reported in depression, loneliness, boredom, sleeping problems, anxiety, apathy, withdrawal, attention-seeking behavior, negativity, suspicion, agitation, aggression, and disinhibition. In addition, a decline in physical and cognitive functioning, a decrease in appetite, and an increase in hallucinations and delusions were reported. Regarding positive outcomes in other residents, participants reported elevated mood, a decrease in agitation, aggression, sleeping problems, and attention-seeking behavior, and an increase in cohesion and social connectedness among residents and between healthcare providers and family.

> Before the crisis situation, social interaction between residents at somatic care units was limited. Now, we notice that they support and look out for each other. They appear to appreciate and enjoy this. Interviewee 10, Senior manager

Large proportions of participants thought that challenging behavior in residents both decreased (75%) and increased (79%) because of banning visits (Table 2). The most negative effects were attributed to the common ban to go outside (84%), the occasional prohibition to leave one's room (71%), and the frequently occurring changes in provided organized activities (74%).

Participants stated that residents with mild or moderate dementia were affected most by the measures. That was partially explained by limited understanding of the sutuation.

While residents with advanced dementia mostly expressed a decrease in agitation, aggression, and wandering, and an increase in apathy according to the interviewees, the impact of the measures on residents without dementia was characterized by negative psychological outcomes (e.g. depression and missing loved ones) and increased agitation, crying spells, suicide attempts, and attention-seeking behavior. However, increased cohesion and social connectedness (e.g. willingness to assist and support healthcare providers) were also reported.

> An environment with less stimuli seemed positive for certain residents, especially those with an advanced stage of dementia and those with a rigid personality or an autism spectrum disorder. I noticed an increase in aggressive, depressive and anxious behavior in residents that were used to seeing their relatives on a regular basis. Interviewee 4, Psychologist

> One resident was colliding against other residents with her wheelchair. In a conversation with her about this, the resident said 'Yeah, but there is nothing we can do, now at least something is happening around here. Interviewee 1, Psychologist

Furthermore, residents that accepted the situation and were able to change their activities and connect with co-residents or healthcare providers, appeared to be less affected. Lastly, newly admitted residents seemed specifically impacted since their transition from community-based living to institutional living was affected by the measures, and they could not be adequately supported by their loved ones.

Involvement in the treatment

One third of the participants reported that their involvement in the treatment of challenging behavior neither increased nor decreased during the measures (Table 3).

Although, according to practitioners, their work satisfaction decreased and their own work load, and work load of nursing staff increased, the spirit between staff and the general atmosphere on the nursing home units improved (Table 4). However, half or almost half of the participants reported more problems with adherence to the management of challenging behavior (e.g. treatment plans or psychosocial interventions) and consultations of multidisciplinary teams.

Lessons learned

Psychologists reported that they provided more (individual) support to nursing staff members, which is thought to be important for the post-pandemic period as well.

> We became more involved in the well-being of health care providers. We provided individual support and gained a personal connection with them. [...]When they [caregivers] radiate happiness, this will be noticed by residents and influence them positively. Interviewee 2, Psychologist

Different useful strategies were described to manage effects of the visit ban such as video calls, providing special areas where residents could meet their loved ones, adjusted activities, and reduction of (negative) news supply. E-communication techniques were reported as both effective for some residents (even stimulating more contact with their far living family) as challenging for those with cognitive impairments. An increased attention from the outside world positively impacted the well-being of both residents and nursing staff.

> [postal] cards from relatives, drawings from school children, there were flowers everywhere here, music in the streets. This was very positive for people, it helped them flourish. Interviewee 3, Psychologist

Table 2. Aspects that increase or decrease challenging behavior, *N* participants (%).

	Increase in challenging behavior			Decrease in challenging behavior		
	Likely	Unlikely	N/A	Likely	Unlikely	N/A
Banning visits, *N* = 263/262	208 (79)	24 (9)	31 (12)	196 (75)	36 (14)	30 (11)
Restrictions for volunteers, *N* = 275/244	181 (66)	25 (9)	69 (25)	63 (26)	110 (45)	71 (29)
Banning going outside, *N* = 282/235	238 (84)	13 (5)	31 (11)	10 (4)	188 (80)	37 (16)
Not leaving the room, *N* = 281/239	199 (71)	14 (5)	68 (24)	13 (5)	160 (67)	66 (28)
The use of PPE by the staff, *N* = 282/238	119 (42)	45 (16)	118 (42)	5 (2)	146 (61)	87 (37)
Changes in organized activities, *N* = 275/247	203 (74)	30 (11)	42 (15)	95 (38)	97 (39)	55 (22)
changes in staff members, *N* = 278/246	112 (40)	41 (15)	125 (45)	39 (16)	101 (41)	106 (43)

N is presented for participants who answered the question about the increase/decrease of challenging behavior.
PPE: personal protective equipment.
Note: Answering the questions was not compulsory and not all participants provided their answers to all items.

Table 3. Changes in the involvement in the treatment of challenging behavior [compared to the 'normal' period before the measures] *N* participants (%).

	No change	*I*	*D*	*I* -> *D*	*D* -> *I*
Psychologist, *N* = 178	55 (31)	32 (18)	28 (16)	5 (3)	58 (33)
Elderly care specialist, *N* = 74	26 (35)	16 (22)	22 (30)	4 (5)	6 (8)
Nursing specialist, *N* = 30	12 (40)	10 (33)	4 (13)	1 (3)	3 (10)
Others, *N* = 12	4 (33)	4 (33)	1 (8)	2 (17)	1 (8)
Total, *N* = 294	97 (33)	62 (21)	55 (19)	12 (4)	68 (23)

I: increased; *D*: decreased; *I* -> *D*: increasing followed by decreasing; *D* -> *I*: decreasing followed by increasing.
Note: Answering the questions was not compulsory and not all participants provided their answers to all items.

Table 4. Work related aspects, *N* participants (%).

	No changes	Improvement	Worsening
Spirit between caregivers , *N* = 259	87 (34)	139 (54)	33 (13)
Atmosphere on the units, *N* = 255	91 (36)	109 (43)	55 (22)
Work load caregivers, *N* = 268	44 (16)	31 (12)	193 (72)
Adherence to treatment plans, *N* = 268	114 (43)	31 (12)	123 (45)
Consultations multidisciplinary teams, *N* = 272	86 (32)	38 (14)	148 (54)
Peer consultations caregivers, *N* = 233	90 (39)	40 (17)	103 (44)
(my own) Work satisfaction, *N* = 271	105 (39)	30 (11)	136 (50)
(my own) Work load, *N* = 273	92 (34)	39 (14)	142 (52)

Note: Answering the questions was not compulsory and not all participants provided their answers to all items.

According to practitioners, nursing staff had more time for personal contact with the residents since most professional meetings were cancelled and they did not have to reckon with visits of relatives and resident activities (e.g. going to hairdresser, physiotherapist, leisure activities).

> In general, most residents seemed calmer. Yes, residents did notice changes, however nursing staff had more time to support and reassure them, and to give them more personal attention. Interviewee 13, Psychologist

Interviewees stressed the tension between risk of infection and quality of life. They mentioned that many residents preferred to receive visits from loved ones, despite of the risk of infection.

> I think we should reconsider the consequences of closing institutions completely and banning visitors. Some residents are very frightened, though others say 'just allow me to have visitors, even when I become infected'. Interviewee 2, Elderly care physician

Practitioners suggested to reconsider the way to which stimuli are tailored to the residents. Suggestions were made to limit the number of visitors, volunteers, and professionals in shared living environments and, instead, use the private room of a resident more often for visits.

> A balance between providing engaging stimuli and eliminating disturbing stimuli is very important. Not 'we must stimulate them [residents]'. There should be a balance between under-stimulation and overstimulation. And person-centered, tailored to the individual. Interviewee 5, Elderly care physician.

Discussion

In this study, nursing home practitioners (mainly psychologists and elderly care physicians) reported that they noticed both increase and decrease in challenging behavior in residents, with slightly more often increase. Several COVID-19 measures, such as a visit ban or changes in organized activities, were both thought to have positive and negative results on behavior. Half of the professionals reported that their work load increased and work satisfaction worsened during the measures. About half of the participants reported that the atmosphere within the units and the spirit between professional caregivers improved.

Our study indicated a stronger negative effect of a visit ban in residents without dementia and residents with mild dementia compared to those with more advanced dementia. This is in accordance with the survey by Van der Roest et al. (2020) that revealed negative effects especially in residents without cognitive impairments. Our study showed that professionals seemed to undertake different strategies to minimize harmful effects of loneliness and social isolation in residents, including video-calls with relatives. It is argued that virtual contacts cannot replace face-to-face interactions (Vernooij-Dassen, Verhey, & Lapid, 2020) and are difficult to implement for residents with cognitive problems. However, examples in our data (with residents having more than usual contacts with their family) and examples in other countries (Chu, Donato-Woodger, & Dainton, 2020) advocate for the use of teleconferencing in the post pandemic era as well. From the perspective of social health, communication is an

important factor to support participation in society (Kales, Gitlin, & Lyketsos, 2015). Postal cards, written letters of strangers (Chu et al., 2020) and other increased attention from the outside world are other examples of communication strategies to combat social isolation of residents.

COVID-19 measures made it impossible to provide many interventions such as group activities. This may explain why almost half of the practitioners reported a reduction in the adherence to the management of challenging behavior. Nonpharmacological interventions with proven effects often include meaningful or pleasant activities (Abraha et al., 2017) that may contribute to social health (Knippenberg, Reijnders, Gerritsen, & Leontjevas, 2019). For some residents, a reduction in activities and a visit ban could result in understimulation, and consequently more challenging behavior (Kales et al., 2015) and loss of social health (Dröes et al., 2017; Huber et al., 2011). For other residents, the COVID-19 measures resulted in a reduction of overstimulation and in a decrease of challenging behavior, because noise and clutter in the house reduced. It seemed that for this group, stimuli were better suited to their needs and characteristics than before the pandemic. A person-centered approach that underscores tailoring the care and stimuli to the needs of the person has been advocated for a long time in nursing homes (Brownie & Nancarrow, 2013), and multiple guidelines for multifaceted interventions on mood (e.g. Leontjevas et al., 2013) and behavioral disturbances (e.g. Zwijsen et al., 2015) incorporate this approach. However, the crisis further emphasized the need to tailor organized and daily activities.

Another explanation of improvements in some residents may be the reported calmer atmosphere and extra time of nursing staff for personal contact. Empathetic interaction with care staff improves mood in residents (Anderson & Blair, 2020), and it is remarkable that nursing home staff was very creative to overcome, negative effects of COVID-19 measures, for example by distraction, one-on-one social contacts and activities, and reducing the influence of negative news. Reported strategies can be considered as fitting to recommended policies in times of crisis, such as avoiding 'collective panic', allowing for the continuity of social ties, letting spontaneous solidarity express itself (Elcheroth & Drury, 2020). In residents, there were examples of social cohesion, while the results suggest that there was a sense of collective efficacy and solidarity in nursing staff.

It is not clear what the long lasting detrimental effects of COVID-19 measures will be in nursing home residents. A recent rapid review showed that the psychological impact of quarantine measures is wide-ranging and can be long lasting. Considering that a psychiatric history can be associated with long lasting anxiety and anger after the lifting of the quarantine (Brooks et al., 2020), and considering that a substantial part of residents – especially those with dementia – have challenging behavior (Selbaek, Engedal, & Bergh, 2013; Zuidema, Derksen, Verhey, & Koopmans, 2007), it is important to keep monitoring changes in challenging behavior. Although the participants provided information on types of challenging behavior (e.g. worsened and elevated mood, increased and decreased agitation), more research is needed to understand which specific behavior is affected by which measures and which strategies are undertaken by the staff.

Strengths and limitations

This study uses a mixed method approach with both quantitative and qualitative methods, allowing us to both give insight into the numbers and the thoughts behind the results. We limited our study to the perspective of the practitioners (mainly psychologists and physicians). Although they may have an idea about cause–effect relationships, their reports on causes of changes in challenging behavior should be interpreted with caution.

Challenging behavior often occurs in people with dementia (Selbaek et al., 2013; Zuidema et al., 2007). This may explain why participants more often chose dementia special care units than other types of nursing home units when they reported numbers of challenging behavior. Although the total number of units was large and all Dutch provinces were represented by the participants in our study, it is not clear to which extent the findings can be generalized to the whole range of nursing home units and organizations in the Netherlands and other countries. Additionally, because the nursing home psychologists were actively approached by the research team, there is an overrepresentation of psychologists. Further research with other practitioners would provide the opportunity to compare the views of different disciplines.

Conclusions and implications

Healthcare workers including nursing home staff face enormous challenges during a crisis such as the COVID-19 pandemic. As our study suggests, it is possible that the proportion of nursing home residents with increased challenging behavior is not much different from the proportion of those with decreased challenging behavior. Reported changes in challenging behavior, increased work load and worsened work satisfaction in nursing home staff indicate that the harmful effects of the anti-pandemic measures should be taken seriously. It is important to learn from the successful strategies undertaken by the nursing staff during the pandemic and be prepared for future crisis situations.

Disclosure statement

No potential conflict of interest was reported by the authors.

Authors' contribution

Study concept and design: DG, RL, ST, MS, RK; Acquisition of data: RL, DG, AP, IK; Analysis and interpretation of data: RL, DG, IK; Drafting of the manuscript: RL, IK, DG; Critical revision of the manuscript for important intellectual content: all authors.

Funding

None

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