

# Management of Older Outpatients during the COVID-19 Pandemic: The GeroCovid Ambulatory Study

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## Keywords

COVID-19 · Older patients · Outpatients · Home care patients · GeroCovid study

## Abstract

**Objectives:** The GeroCovid Study is a multi-setting, multinational, and multi-scope registry that includes the GeroCovid home and outpatients' care cohort. The present study aims to evaluate whether outpatient and home care services with remote monitoring and consultation could mitigate the impact of the COVID-19 pandemic on mental and affective status, perceived well-being, and personal capabilities of outpatients and home care patients with cognitive disorders.

**Methods:** Prospectively recorded patients in an electronic web registry provided by BlueCompanion Ltd. Up to October 31, 2020, the sample included 90 patients receiving regular care from the Center for Cognitive Disorders and Dementia

in Catanzaro Lido, Italy. It was made of 52 ambulatory outpatients and 38 home care patients, mean age  $83.3 \pm 7.54$  years. Participants underwent a multidimensional assessment at baseline (T0) and after 90 days (T1). For each patient, we administered the Mini-Mental State Examination (MMSE) for cognitive functions, the Activities of Daily Living (ADL) and Instrumental ADL (IADL) scales for functional capabilities, the Cumulative Illness Rating Scale (CIRS) for comorbidities and their impact on patients' health, the 5-items Geriatric Depression Scale (GDS) for mood, and the Euro Quality of Life (EuroQoL) for perceived quality of life. Contacts with

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both ambulatory and home care patients were managed in person or via telephone, preferably through video calls (WhatsApp or FaceTime). **Results:** Contacts with patients were kept at T0 through telephone. At T1, visits were made in person for over 95% out of the cases. The ADL, IADL, CIRS, GDS, MMSE, and EuroQoL changed slightly between T0 and T1. Most of the patients were clinically stable over time on the majority of the scales explored, but behavioral changes were found in 24.4% of patients and anxiety and insomnia in 17.7% of patients. **Conclusion:** Our study suggests that contacts through telephone and video consultations are likely associated with a health status preservation of the patients.

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## Introduction

Older people are frequently and hugely involved by the COVID-19 pandemic. The increasing mortality in advanced age and the worse disease course in men compared to women have been observed worldwide [1–3]. As suggested by several studies, the age-related differences in the COVID-19 course and prognosis may be partly explained by factors that are prevalent in the older population, such as comorbidities and frailty [4]. In order to explore the best strategies for facing the COVID-19 pandemic in older people, the Italian Society of Gerontology and Geriatrics planned the GeroCovid Study, a multi-setting, multinational (in collaboration with the Norwegian Society of Gerontology and Geriatrics), and multi-scope registry [5]. The GeroCovid home and outpatients' care is the cohort of this project involving outpatient and home care services for cognitive disorders with the double objective of assessing and smoothing the effects of the pandemic on the health status of home-dwelling older patients. The study started just after the World Health Organization declared a pandemic due to the coronavirus SARS-COV-2 in March 2020 and Italy planned a national quarantine in order to control the virus spread. In that context, nonurgent healthcare services were suspended [6], including medical visits for patients with cognitive disorders or other chronic conditions, which are the cornerstone for guaranteeing satisfactory disease control. The overall result was that quarantine induced a fast increase of Behavioral and Psychiatric Symptoms of Dementia (BPSD) in patients affected with dementia and stress-related symptoms in their caregivers [7].

The GeroCovid home and outpatients' care cohort allowed us to test the hypothesis that remote monitoring and consultation may prevent major changes in health

status and in its individual dimensions. The aim of this study was therefore to evaluate whether geriatric outpatient and home care services could mitigate the impact of the COVID-19 pandemic on the mental and affective status, perceived well-being, and personal capabilities of outpatients and home care patients with cognitive disorders. Given that we could not consider a control group for logistic reasons, we compared the observed changes in health status of older outpatients undergoing remote monitoring and consultation with those reported in similar populations in the literature.

## Materials and Methods

The GeroCovid home and outpatients' care cohort retrospectively and prospectively recorded patients' information in an electronic web registry provided by BlueCompanion Ltd [5]. For this study, we included a sample of 90 patients receiving regular care from the Center for Cognitive Disorders and Dementia (CDCD) in Catanzaro Lido, ASP Catanzaro, Italy. In particular, the sample involved 52 ambulatory outpatients (57.8%) and 38 home care patients (42.2%) who agreed to participate in the study and whose follow-up visits either were already planned for March-May 2020 or were made necessary due to difficulties in disease control. Participants underwent a multidimensional assessment at baseline (T0, from March 1 to the beginning of May 2020) and after 90 days (T1). The choice of this follow-up period was made, in line with the current literature [8, 9], to capture possible changes linked to the quarantine period before less restrictive measures would have been implemented. The study participants were already followed up by the center for the management of any type of cognitive disorder and its comorbidities.

In the routine practice, patients are usually visited at the outpatient clinic or at home every 3 months on average, and as needed for exacerbations of their disease and/or comorbidities. However, between March and May 2020, ambulatory and home visits have been performed only in case of urgency, mainly to prevent overload to the hospitals, while routine visits were maintained mostly via video call teleconsultation. To this purpose, we had written on the facility website our availability to help patients and their caregivers. This offered patients' caregivers a 7/7-day support for at least 12 h a day. Remote contacts with patients were managed via telephone, preferably through video call (WhatsApp or FaceTime) or, in selected cases, via Skype. The use of iPad or laptop was also possible. To compare the health services provided by the center before and during the lockdown, we collected data on the number of remote and in-person visits in the period from December 2019 to February 2020, and from March 2020 to May 2020, respectively.

For each patient, we collected data on the Mini-Mental State Examination (MMSE) [10] for cognitive functions, the Activities of Daily Living (ADL) [11] and Instrumental ADL (IADL) scales [12] for functional capabilities, the Cumulative Illness Rating Scale (CIRS) [13] for comorbidities and their impact on patients' health, the 5-items Geriatric Depression Scale for mood (GDS) [14], and the Euro Quality of Life (EuroQoL-5D) [15] for perceived quality

of life. EuroQoL-5D describes health-related quality of life by reporting 5 dimensions that include mobility, self-care, usual activities, pain/discomfort, and anxiety/depression. It also includes a Visual Analog Scale (VAS), reporting the perceived health status ranging from 0 to 100 (respectively, the worst and the best possible health status). All the previously reported questionnaires have been validated for remote administration through telephone [16, 17].

On the e-Registry, we reported personal data, the results of the multidimensional evaluation, the change in procedures in home care and the prescription of aids and treatment plans, the use of personal protective equipment, and the need for workers or patients to quarantine in the event of suspected/overt SARS-CoV-2 infection. We asked for further information on family unit composition, effects of social distancing, formal/informal caregiver presence, and methods of food purchasing. Also, we assessed the psychological reactions to isolation at baseline and after 3 months (anxiety, depression, acceptance, and denial), possible behavioral disorders (e.g., aggression and irritability), changes in sleep (rating sleep disturbances according to DSM-V criteria), dietary and bowel habits, and differences in social and dwelling situation. To approximately estimate patients' food intake, we asked caregivers whether the patient regularly consumed the whole, half, or less than half of any plate, obtaining a score of 1 (whole plate), 0.5 (half plate), and 0 (less than half plate). Concerning bowel habits, we generally asked patients or their caregivers if any change in bowel habits was noted.

All the participants (or their parents or guardians) gave their written informed consent. The study protocol was approved by the Campus Bio-Medico University Ethical Committee in April 2020 and Calabria Region Ethic Committee on May 21, 2020.

#### Statistical Analysis

Continuous variables were described as mean  $\pm$  standard deviation. Categorical variables were reported as count and percentages. Quantitative variables were compared with analysis of variance ANOVA. Paired Student's *t* test was used for assessing the differences between T0 and T1 in the sample as a whole and stratified by care setting and dementia type.

## Results

In our center, between March 2020 and May 2020, a total of 662 video calls, 64 frontal urgent visits, 400 telephonic psychological, and 420 social consultations were performed. Most of the contacts with patients at T0 were kept through telephone, Skype, FaceTime, or WhatsApp, and a substantial increase compared to the pre-lockdown period was observed, in particular, for the number of video calls (Table 1). At T1, after 90 days, visits were made in person for over 95% out of the cases.

As shown in Table 2, the mean age of our sample was  $83.3 \pm 7.54$  years and 57 (63.3%) were women. The most prevalent cognitive disorders were vascular dementia (33.3%) and Alzheimer's dementia (31.1%).

**Table 1.** Outpatient and home-based health services provided before and during the lockdown period

Health services provided	December 2019–February 2020	March 2020–May 2020	% change
Video calls	12	662	+5416.7
Urgent visits	20	64	+220
Ambulatory visits	167	18	–89.2
Home visits	175	46	–73.7
Total	374	790	+111.2

Data refer to all services provided by the center, not only to those addressed to the patients included in the study.

**Table 2.** Main characteristics of the GeroCovid home and outpatients' care cohort

Characteristics	All ( <i>n</i> = 90)
Age, years	83.3 $\pm$ 7.54
Sex (female), <i>n</i> (%)	56 (62.2)
Assistance needs, <i>n</i> (%)	
Living alone or with family, autonomous	3 (3.3)
Living alone, regularly assisted	22 (24.4)
Living at home with family, assisted	2 (2.2)
Living with informal caregiver, dependent	63 (70.0)
Care setting, <i>n</i> (%)	
Ambulatory	52 (57.8)
Home care	38 (42.2)
Cognitive disorders, <i>n</i> (%)	
Mild cognitive impairment	4 (4.4)
Vascular dementia	30 (33.3)
Alzheimer's dementia	28 (31.1)
Mixed dementia	19 (21.1)
Frontotemporal dementia	6 (6.6)
Parkinson's dementia	2 (2.2)
Lewy body dementia	1 (1.1)
Main neuropsychological comorbidities, <i>n</i> (%)	
Parkinsonism	12 (13.3)
Amyotrophic lateral sclerosis	2 (2.2)
Depression	12 (13.3)
Other	2 (2.2)

Numbers are counts (%) or means  $\pm$  standard deviations, as appropriate.

After an average 3-month observation period, we found slightly worsening in ADL, MMSE, and EuroQoL, while no significant changes were observed for IADL, GDS, and CIRS scales (Table 3). Behavioral changes were found in 24.4% out of patients, with new onset or worsening of anxiety and insomnia in 17.7% of patients. Conversely, we did not observe any difference between T0 and

**Table 3.** Changes in the evaluated scales after 3 months in the sample of geriatric outpatients ( $n = 90$ )

Scales	T0 (baseline)	T1 (90 days)	<i>p</i> value
ADL	2.27±1.65	1.98±1.72	0.001
IADL	1.71±2.19	1.61±2.31	0.083
MMSE	15.59±7.83	14.49±7.96	<0.001
GDS-5 items	1.64±1.40	1.76±1.50	0.101
CIRS	4.08±0.82	4.08±0.82	1.000
EuroQoL	42.22±11.88	40.0±12.45	0.005

*p* values refer to the comparison between T0 and T1 assessments. ADL, Activities of Daily Living; IADL, Instrumental ADL, MMSE, Mini-Mental State Examination; GDS, Geriatric Depression Scale; CIRS, Cumulative Illness Rating Scale; EuroQoL, Euro Quality of Life.

T1 in dietary and bowel habits (data not shown). After stratifying the sample by care setting, individuals followed up in the outpatient clinic showed more marked worsening in ADL, GDS, and EuroQoL than those receiving home-based care service (online suppl. Table 1; see [www.karger.com/doi/10.1159/000516969](http://www.karger.com/doi/10.1159/000516969) for all online suppl. material). Concerning differences between patients with different dementia types, we found that those with Alzheimer's dementia presented greater EuroQoL worsening, whereas those with vascular dementia demonstrated a significant loss in IADL (online suppl. Table 2).

## Discussion

Our study suggests that contacts through telephone and video consultations are likely associated with an overall health status preservation of geriatric outpatients. Indeed, in our study, 24.4% out of the assessed patients suffered from cognitive and BPSD worsening, and 17.7% out of them complained of anxiety and insomnia worsening, while other studies, lacking standardized contact procedures [7, 18, 19], found up to 60% incidence/worsening of BPSD in people affected with dementia following quarantine. This might partly reflect the fact that video calls in health care present an approximation of face-to-face interaction and are a “visual upgrade” of widely used telephone consultations [18–20]. Patients and their caregivers felt reassured from being able to get a prompt response through video consultation whenever things were going wrong. Although the observed slight worsening in some scales was probably unavoidable due to the pandemic and quarantine consequences, the extent of such

changes seems to be less remarkable than the previous literature findings [6]. Moreover, the decline was more marked among individuals attending the outpatient clinic than the home care service. One hypothesis under this result is that home care services may strengthen the relationship between patients and their doctor, the latter having the opportunity to know patients' habits and living environment better. A 2nd hypothesis is that since outpatients had better performance at most of the baseline scales, they had a higher probability of losing their residual functions.

The fact that, overall, patients were stable over the observation time suggests that the care management implemented during the lockdown, including maintenance of follow-up visits at least via teleconsultation and availability for urgent visits, may have played an important role in preserving the resilience of our older patients. Indeed, the remote monitoring allowed facing supervening needs, which are common in this kind of patients, timely and effectively. For instance, for patients reporting behavioral changes and/or anxiety and insomnia, video consultation allows timely pharmacologic, that is, introducing/changing sleep inducers or low-dose antipsychotics, and non-pharmacological/behavioral interventions. Overall, insomnia and anxiety were likely experienced during the close lockdown time, about 54 days, so that at the 90-day follow-up time, changes were mild.

The GeroCovid home and outpatients' care study provides a reassuring, though preliminary, experience of how maintenance of remote monitoring and consultation program could protect frail outpatients from the deleterious short-term effects of a pandemic, limiting the access to healthcare services. Studies with more extensive follow-up could clarify whether such an effect could also maintain in the longer term. Moreover, future investigations using historical data will compare the observed changes in health domains during versus before the lockdown period. Obviously, telehealth cannot substitute for a physical examination, when needed, or when patients have a strong preference to be seen in person [18]. Importantly, our data suggest that the adopted method allows to reliably identify the conditions for which in-person interventions are really needed.

## Conclusions and Implications

Our experience suggests that a well-designed remote contact program might buffer the negative consequences of the pandemic on the health of patients with cognitive disor-

ders. Although the size of the population and the lack of a control group make these results preliminary in nature, they offer interesting insights to be tested and validated in larger samples. If confirmed, our method could help minimize the impact of the pandemic or comparable social/health problems on the health status of the most vulnerable people.

### Brief Summary

The GeroCovid home and outpatients' care study suggests that contacts through telephone and video consultations are likely associated with a health status preservation of the patients.

### Acknowledgements

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### Statement of Ethics

All participants (or their parents or guardians) have given their written informed consent. The study protocol was approved by the Campus Bio-Medico University Ethical Committee in

April 2020 and Regione Calabria Ethic Committee on May 21, 2020.

### Conflict of Interest Statement

The authors have no conflicts of interest to declare.

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### Authors Contributions

Study concept and design: Pietro Gareri, Raffaele Antonelli Incalzi, and Gianluca Zia. Acquisition of data: Pietro Gareri and the GeroCovid Study Group. Analysis and interpretation of data: Pietro Gareri and Susanna Del Signore. Drafting of the manuscript: Pietro Gareri, Raffaele Antonelli Incalzi, and Caterina Trevisan. Critical revision of the manuscript for important intellectual content: Pietro Gareri, Stefano Fumagalli, Alba Malara, Enrico Mossello, Caterina Trevisan, Stefano Volpato, Alessandra Coin, Valeria Calsolaro, Giuseppe Bellelli, Susanna Del Signore, Gianluca Zia, Anette Huyen Ranhoff, Raffaele Antonelli Incalzi, and the GeroCovid Study Group.

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