

Reduction of physical activity during the COVID-19 pandemic is related to increased neuropsychiatric symptoms in memory clinic patients

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ABSTRACT

The COVID-19 pandemic led to unprecedented restrictions on social contacts and mobility. Memory clinic patients were disproportionately affected when care was disrupted and routines were abruptly changed. This trial was designed as a pragmatic, prospective, observational study to evaluate the effects of lockdown on memory clinic patients. Outpatients were included when they returned in May to July 2020 for their first follow-up after the lockdown. Indicators of lockdown intensity and its effect on patients were recorded, patients and caregivers were interviewed, and neuropsychological tests were performed. We included 72 patients, most of them suffering from Alzheimer's dementia or mild cognitive impairment. The median time of isolation was 8 weeks and social contacts were significantly reduced from five to two per week ($p < 0.001$). Light physical activity was significantly reduced (3.8 hours to 3 hours, $p = 0.016$) during the lockdown, and this reduction was significantly correlated with higher scores on the Neuropsychiatric Inventory score ($R -0.43$, $p > 0.001$). Fears regarding the pandemic were common and mostly related to the patients' health. Lockdown restrictions reduced physical activity in memory clinic patients which was associated with increased neuropsychiatric symptoms. Future restrictions should aim to mitigate the impacts on this vulnerable population.

KEYWORDS: COVID-19, dementia, neuropsychiatric symptoms, physical activity

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Introduction

The COVID-19 pandemic led to unprecedented restrictions across the globe. On 17 March 2020, Austria announced its first

lockdown, effectively confining its residents to their homes except for commuting, strictly necessary errands, helping others or physical activity.¹ This greatly reduced social contacts and led to a dramatic fall in mobility patterns across the country.² Restrictions were gradually eased in April and May 2020. While they proved highly effective in suppressing the first wave of the pandemic, social distancing and isolation had a pronounced negative impact on psychological wellbeing in the general population.³ Patients with dementia were disproportionately affected, owing in part to pre-existing disease-related neuropsychiatric symptoms and to the abrupt discontinuation of institutionalised care services such as day-care centres, therapists and 24-hour care.⁴ Symptoms of anxiety, apathy and agitation worsened in one cohort of Spanish patients with dementia,⁵ while deterioration was more prominent in patients with lower baseline cognitive function in another study.⁶ With the prospect of repeated constraints due to the COVID-19 pandemic, tailoring future interventions to minimise the negative impact on the especially vulnerable group of patients with dementia is paramount and should incorporate regional differences and experiences.⁷ This study was conceived out of the necessity to better understand the effects of the pandemic on our population and designed as a pragmatic, exploratory analysis.

Methods

This study was designed as a pragmatic, prospective, single-centre observational trial conducted in the memory clinic of a tertiary care centre. We included all patients that returned for their first follow-up visit after lockdown restrictions were eased and outpatient clinics were reopened in Vienna between May and July 2020.

Patients and caregivers were asked to recall a typical week prior to the pandemic, ie in February 2020, and a typical week during lockdown. We recorded the duration of strict social isolation, as some patients chose to self-quarantine for longer durations. Patients were asked to recall the average number of individual social contacts prior to and during the pandemic, and to give the cumulative duration of physical activities. They were then grouped into vigorous (eg weight lifting, high-intensity cycling, running), moderate (eg nordic walking, light cycling) and light (eg non-necessary walks, walking a pet) and recorded as hours per week.

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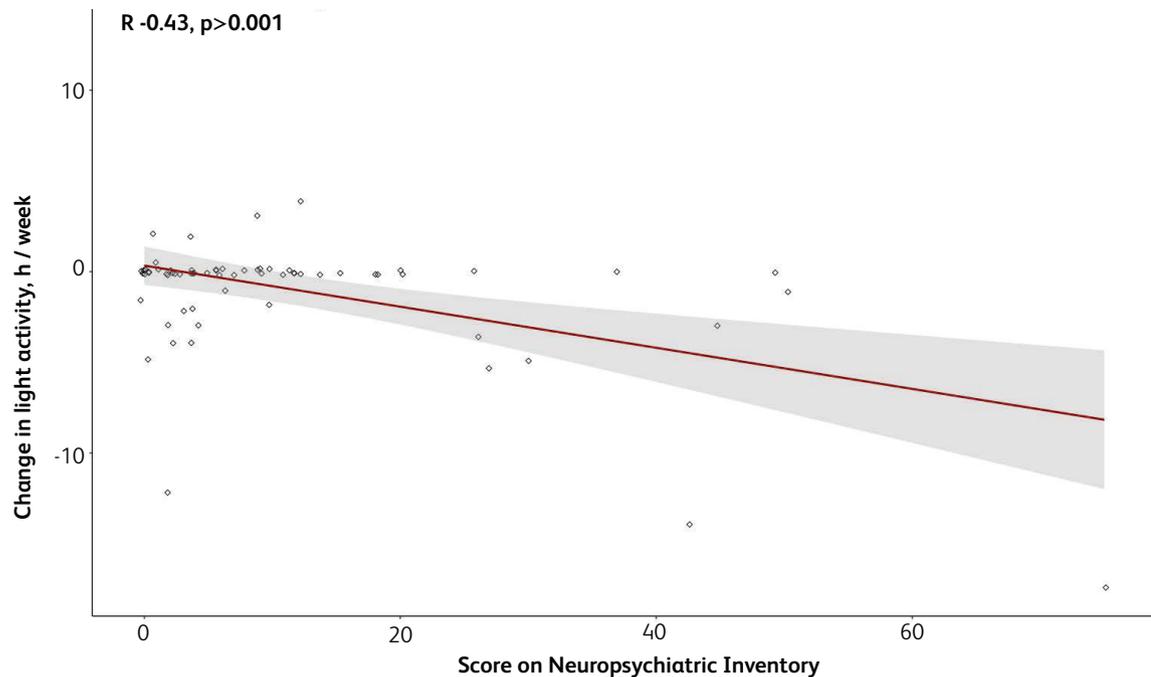


Fig 2. Scatterplot depicting the change in light activity during a COVID-19 lockdown and the total score on the Neuropsychiatric Inventory scale.

common. Higher reductions in light activity were significantly correlated with a higher overall score on the NPI. Physical activity is recommended to prevent dementia and other age-related diseases, but it has also been shown to be effective in the management of neuropsychiatric symptoms.¹² An association of physical activity with neuropsychiatric symptoms thus appears plausible and people with dementia would likely benefit from home-based, remotely instructed forms of exercise.¹³ We found, however, that few of our patients were using digital communication tools.

15% reported that the lockdown impacted their dementia-specific care when stay-in nurses could not enter the country or therapists' offices were closed without replacement. At the same time, the mandated closure of clubs for senior citizens, day-care centres and other places of gathering for patients with dementia abruptly changed the structure of a typical day. This can be especially impactful in a population where the adherence to a structured daily routine has been shown to be beneficial,¹⁴ and a lack thereof could contribute to the neuropsychiatric symptoms in our cohort.

Fears or worries regarding the pandemic were common and mostly related to the patients' health or that of their relatives; however, increased loneliness and more general worries about an uncertain future were also prevalent, as is seen in the wider population during the pandemic.¹⁵

This study is limited by its retrospective design in that patients and caregivers were asked to recall facts or symptoms in the past. This is of course complicated in patients with memory deficits, but most patients included in this trial were affected mildly. However, recall bias cannot be excluded in patients and caregivers.

Our results highlight the specific needs of people with dementia during this pandemic. While immunisation is rolling out around the world, it becomes obvious that (localised) restrictions will remain part of our response. Further developments of digital solutions for the care of the elderly along with more emphasis on

traditional forms of communication should be used to increase physical activity and facilitate social interaction. This could reduce neuropsychiatric symptoms and future regulations should actively provide means of mitigation by timely communication and allowing for patients and caregivers to restructure their days. ■

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