

# **Daily activities, mental well-being and restrictions among older people during the Covid-19 pandemic across European countries – a multilevel analysis.**

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## **Background**

Since the start of the COVID-19 pandemic, countries across Europe have induced different strategies to curb the spread of the virus and to hamper the negative health consequences. While some countries have applied a strict lockdown, others have relied more on recommendations and voluntary adjustments (Hale et al. 2020). One focus in previous research have been on the effectiveness of restrictions and recommendations on people's behaviour, mobility and activities and on the short-term effect on impeding the spread of the COVID-19 virus. Previous studies found a strong impact of different strategies and on people's daily mobility but also large variations across countries (Santamaria et al. 2020; Mendolia et al. 2020). In an earlier study, we examined the impact on different kinds of daily activities. We found that daily life of older people - the group most affects by the pandemic - was substantially restrained due to restrictions and recommendations. (Connolly et al 2021). Hence, restrictions as well as voluntary adjustment may have helped to curb the spread of the virus but have also restrained people's daily life and resulted in social isolation and inactivity. A key question is to what extent restrictions has influenced the mental well-being of older people and to what extent this has been mediated by a reduction in daily activities.

The aim of the paper is to examine if changes in mental well-being of older people (50 years and older) in Europe was influenced by policy-induced restrictions and voluntary reduction in different daily activities during the COVID-19 pandemic in Europe. Previous studies indicate that out-of-home activities, especially social activities, are important for well-being (Jakobsson Bergstad et al. 2012). Further, recent studies have revealed a significant impact of reduction of social activities in response to the Covid-19 pandemic on mental health (Litwin & Levinsky 2021). Moreover, Atzendorf, & Gruber (2021) found that both governmental restrictions and infections rates were associated with an increase of depressed mood among older people in Europe. We here add to this research by investigating to what extent daily activity reduction among older people in Europe mediates the relationship between governmental restriction and decreases in mental health (increased feelings of sadness/depression and anxiety). We also contribute by analysing a larger number of daily activities than previous studies and examine if their effects on mental well-being differs. The analyses is carried out by applying a multilevel approach to explore the impact of macro level factors (restrictions and infection rates) on mental well-being at the micro level and mediated by reduction of activities on the micro level. We also analyse potential moderators in the relationship between activity reduction and mental well-being.

## **Data and Method**

By use of multilevel regression analysis, we explore the associations between changes in mental well-being, on one hand, and daily activities and stringency on the other hand. We consider the daily activities as a mediator, influencing the relationship between mental well-being and restriction stringency. We observe self-reported reduction in various daily activities on an individual level and we examine how changes in these daily activities mediate the association between restrictions stringency and changes in self-reported mental well-being. We also introduce sociodemographic variables on the individual level to explore how mental well-being has changed during the pandemic in different groups, by age, gender and education level. In addition, we use interaction variables to explore to what extent the impact of activity reduction

differs across age groups and household composition (e.g. living alone vs. cohabiting). Stringency in restrictions is observed at national level and is introduced as level 2 in the multilevel analysis.

Information on mental well-being at baseline (pre-corona) is retrieved from wave 6 and 7 of SHARE where respondents answered the question about how often they felt "*sad or depressed*" during the past month. This item is taken from the Euro-D Depression scale (Guerra et al. 2015). We also use an indicator of self-reported anxiety included in wave 6 of SHARE. Further, we use follow-up information from the SHARE Corona Survey that was collected via computer-assisted telephone interviews in 27 European countries as well as Israel during summer 2020 (Scherpenzeel et al. 2020). From the SHARE Corona Survey we use items where respondents were asked to rate their depressed mood and anxiety on the same scale used in wave 6 and/or 7. We further examine data on the reported adjustment of daily activities, walking, shopping, visiting family members and meeting more than five people during the COVID-19 pandemic.

We determined the adjustment of activities based on the question "*Since the outbreak of Corona, how often have you done the following activities, as compared to before the outbreak?*" The respondents were asked to specify the extent to which they have adjusted the following daily activities: "*Going shopping*", "*Going out for a walk*", "*Meeting with more than 5 people from outside your household*", and "*Visiting other family members*". Included in the analyses were also sociodemographic variables such as gender, age, and education level. Education is measured on the International Standard Classification of Education Scale (ISCED-97), ranging from 0 (none/early childhood education) to 6 (doctoral or equivalent level).

Moreover, we utilised data from the Oxford COVID-19 Government Response Tracker (OxCGRT) to measure government response across Europe and Israel (Hale et al. 2020). The OxCGRT is a composite measure based on nine policy indicators on country level, including school and workplace closures and restrictions in movement (ibid.). The stringency index measures government policy responses to the COVID-19 pandemic, rescaled to a value from 0 to 100, where 100 is the strictest level. Mean levels were calculated for all countries for the period 1 March-31 July 2020, equivalent to the time period when COVID-19 broke out and the time period for the SHARE Corona Survey fieldwork.

Since aggregated OxCGRT data is not available for Malta, respondents from Malta were excluded from the analytical sample. Thus, the sample contains data from 26 countries: Germany, Sweden, the Netherlands, Spain, Italy, France, Denmark, Greece, Switzerland, Belgium, Czech Republic, Poland, Portugal, Luxembourg, Hungary, Slovenia, Estonia, Croatia, Lithuania, Bulgaria, Cyprus, Finland, Latvia, Romania, Slovakia and Israel. Data on confirmed COVID-19 cases and deaths for all countries were retrieved from the COVID-19 Data Repository by the Centre for Systems Science and Engineering (CSSE) at Johns Hopkins University, maintained by Our World in Data ([www.ourworldindata.org/covid-5](http://www.ourworldindata.org/covid-5) cases).

## **Expected outcome**

It is imperative to investigate potential negative well-being consequences of activity adjustment of older people in Europe in response to the COVID-19 pandemic. Such analysis is important in order to obtain information that can be used to weigh the costs and benefits of societal interventions aimed at reducing the spread of a pandemic. Thus, we believe that our analysis of

the relationships between restrictions, infections rates, activity adjustment and mental well-being can provide useful information in this regard. We also expect that our paper will contribute to research on the relationship between daily activities and well-being by showing how different types of activities are associated with mental well-being among older people in Europe, and if these associations between activities and well-being are moderated by different sociodemographic factors. Thus, we expect that our paper will shed light on *why* and for *whom* daily activity reduction may be harmful for older people's mental well-being.

## References

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