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Short Communication

Trajectories of loneliness, depressive symptoms, and anxiety symptoms during the COVID-19 pandemic in Austria

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ABSTRACT

Objective: There is considerable heterogeneity within populations regarding the effects of the COVID-19 pandemic on mental health. This study aimed at identifying latent groups of individuals within the older Austrian population that differ in their mental health trajectories across three phases of the pandemic. **Study design:** Data were gathered from a longitudinal survey study among a sample of older adults in Austria. The survey was carried out in May 2020 ($N_1 = 556$), March 2021 ($N_2 = 462$), and December 2021 ($N_3 = 370$) via either computer-assisted web or telephone interviewing.

Methods: Latent class growth analysis was conducted to explore different homogenous groups in terms of non-linear trajectories of loneliness, depressive symptoms, and anxiety symptoms as well as potential correlates thereof.

Results: We identified four latent classes. The vast majority of individuals belong to two classes that are either resilient (71%) or that have recovered relatively quickly from an initial COVID-19 shock (10.2%). Deterioration in mental health after the first phase of the pandemic (13.4%) or a generally high mental health burden (5.4%) characterizes the other two classes.

Conclusions: About 19% of individuals showed increasing or elevated levels in loneliness, depressive symptoms, and anxiety symptoms across the COVID-19 pandemic. The feeling of being socially supported and in control over one's own life emerged as potentially protective factors.

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Introduction

With the onset of the COVID-19 pandemic in late 2019, people's lives changed considerably nearly all over the world. Next to the perceived and real health threat from COVID-19, individuals have faced challenges, such as social disconnectedness, lifestyle changes, or financial losses, all of which may have negatively affected mental health and well-being.¹ A meta-analysis comparing mental health before and during the pandemic however suggested that deterioration was small and that populations adapted quite well to the new situation.² This finding may be due to the fact that most studies focus on mean changes and disregarded potential heterogeneity within populations. Ahrens et al.,³ for instance, identified three subgroups of German adults that considerably differed in their mental health responses to the first lockdown phase, with

most individuals being resilient and two smaller groups showing symptoms either in the first or later weeks. Yet, longitudinal studies that explore interindividual differences in mental health trajectories across the COVID-19 pandemic are still rare.⁴

This study thus aimed at identifying latent groups of individuals within the older Austrian population that differ in their trajectories in terms of loneliness, depressive symptoms, and anxiety symptoms across three measurement occasions during the COVID-19 pandemic. Moreover, we explored protective and risk factors for latent group membership.

Methods

Data and sample

We gathered data from three waves of a COVID-19 panel survey among the Austrian population of older adults aged ≥ 60 years.⁵ The data were collected in May 2020, March 2021, and December 2021 (supplemental materials A) via either computer-assisted web or telephone interviewing. Participant selection was based on a

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random sampling procedure from an online and offline participant pool for the web interviews and on a randomized last digit procedure for the telephone interviews. After excluding one participant (who did not provide any data for the main variables of interest), the sample size at baseline was $N_1 = 556$ individuals, of which $N_2 = 462$ (83%) and $N_3 = 370$ (67%) individuals also participated in waves 2 and 3, respectively.

Measures

At each wave, feelings of loneliness were measured with the UCLA three-item loneliness scale,⁶ and symptoms of depression and anxiety were assessed with the Brief Symptom Inventory⁷ (supplemental tables B.1.–B.2.). As regards loneliness, older adults had to indicate on a four-point scale ranging from “0 = never” to “3 = often” how often they felt (1) “a lack of companionship,” (2) “left out,” or (3) “isolated.” To measure depressive and anxiety symptoms, older adults had to indicate on a 5-point scale, ranging from “0 = not at all” to “4 = very strongly” how much they suffered from six depressive (e.g. “feeling no interest in things”) and six anxiety (e.g. “feeling fearful”) symptoms within the last 2 weeks. We summed up the respective item scores to obtain total scale scores for loneliness (range: 0–9) and for depressive and anxiety symptoms (range: 0–24).

The predictor variables of latent group membership (supplemental materials B. and D.) were based on a single item on the perceived threat from COVID-19 (no threat/threat), a self-constructed COVID-19–related social restrictions scale, an external locus of control subscale, the Oslo social support scale, age (years), sex (male/female), educational level (low/high), financial poverty risk (yes/no), living status (alone/not alone), and self-perceived health ([very] bad or fair/[very] good).

Statistical analysis

We performed latent class growth analysis using Mplus version 8.4.¹¹ Non-linear growth curves were estimated for loneliness, depressive symptoms, and anxiety symptoms. Non-linearity was specified by fixing the slope factor loadings of the first and second waves to 0 and 1, respectively, while freely estimating the slope factor loadings of the third wave. We estimated models with up to six latent classes and decided on the number of classes based on both statistical and substantive grounds. To examine the relationship between latent class membership and the predictor variables, we used the three-step approach.⁸ After the latent class growth analysis (step 1) and classifying cases into the most likely latent class (step 2), the variable created in step 2 was regressed on the predictor variables while accounting for the uncertainty in latent class assignment (step 3).

Results

At baseline, participants were aged between 60 and 89 years (mean = 70.0 years, standard deviation = 6.6), and 53% of participants were female (supplemental Table A.7).

We found the 4-class solution to provide the best trade-off between model fit and interpretability (supplemental material D.2.). Fig. 1 shows the latent trajectories for loneliness and for depressive and anxiety symptoms based on the estimated means for each class. Most older adults (71.0%) belong to the resilient class, which shows generally low levels for each of the three constructs. The second largest class (13.4%)—the increasing burden class—is characterized by an increase in depressive and anxiety symptoms

from wave 1 to wave 2, which remains elevated in wave 3. Loneliness, in turn, is stable on a relatively high level. The third class (10.2%) is called the recovered class and shows decreasing levels in depressive and anxiety symptoms from wave 1 to wave 2, and no significant change thereafter. Loneliness is stable on a low to mediocre level. The smallest class (5.4%)—the high burden class—does not show considerable changes across waves, but the estimates for all three constructs are on a generally high level.

Greater perceived COVID-19–related social restrictions at wave 1 were related to a higher chance of belonging to the increasing burden class than to the resilient class. Higher levels of an external locus of control went along with a higher chance of belonging to the recovered and the high burden classes than to the resilient class. More perceived social support was related to a lower chance of belonging to the increasing and the high burden classes. Increasing age went along with a lower chance of belonging to the increasing burden (vs the resilient) class. Interestingly, poverty risk (vs no poverty risk) was related to a lower chance of belonging to the recovered class than to the resilient class. (Very) bad or fair (vs [very] good) self-perceived health was associated with a lower chance of belonging to the resilient class than to the other three classes (supplemental Table A.9).

Discussion

In this study, we identified four latent groups of mental health trajectories in terms of loneliness and of depressive and anxiety symptoms during the COVID-19 pandemic in Austria. Most older adults seemed to be resilient against the pandemic-related burden across the entire period of observation. A second smaller group showed elevated levels of mental strain only in the initial phase of the pandemic but appear to have recovered later on. The remaining two groups can be considered the two risk groups, with a combined population share of about 19%. One of these groups showed a considerable increase in depressive and anxiety symptoms from spring 2020 to spring 2021. Given the relatively high level of loneliness and the fact that more perceived COVID-19–related social restrictions and a lack of social support were associated with a higher chance of belonging to this group, it is likely that individuals within this group may be particularly at risk to suffer from the social effects of the pandemic.⁵ The other risk group, in turn, demonstrated generally high levels in all three constructs across the entire period, with poor self-perceived health, high external locus of control, and low social support as important predictors of belonging to this group. Because prepandemic levels of mental health are lacking and because the perceived threat from COVID-19 as well as the experienced COVID-19–related social restrictions did not predict membership to this high burden group, the direct impact of the pandemic however remains unclear. Nevertheless, the two risk groups require special attention to prevent and tackle long-term suffering. Future interventions may focus on strengthening both social and psychological resources³ because we found the feeling of being socially supported and of being in control over one's own life to be protective factors in this context.

Despite considerable differences in study design and data, our findings are comparable to those of previous studies.^{3,4,9,10} These studies also found the vast majority of individuals to be either resilient or to have recovered relatively quickly from the initial COVID-19 shock. But, there are also smaller vulnerable groups that show elevated levels of mental health burden. As our and other studies¹⁰ found a similar pattern of mental health trajectories in the specific subgroup of older adults as was revealed in other samples spanning the entire range of adulthood,^{3,4,9} it seems that the

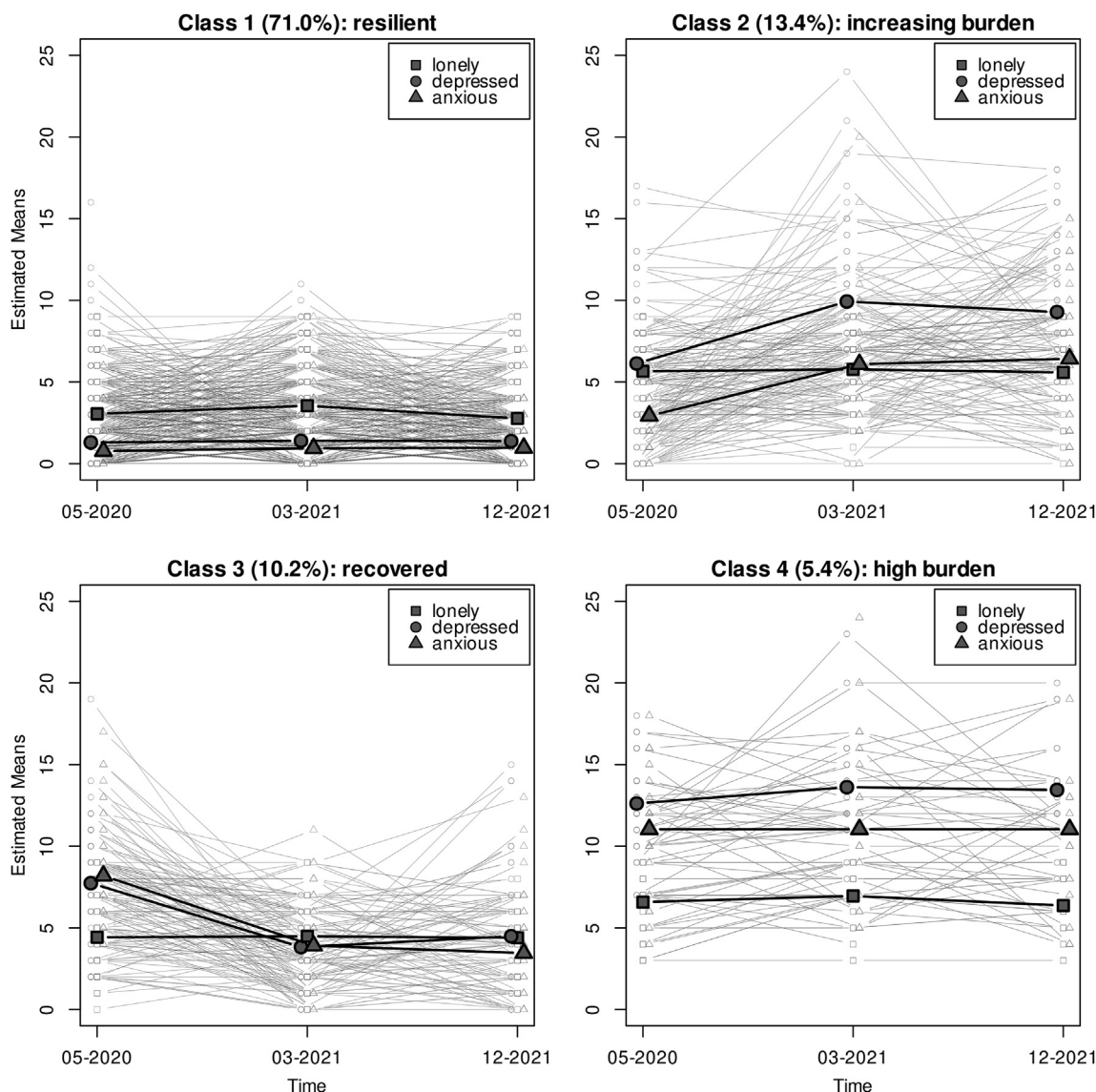


Fig. 1. The black trajectories show the estimated means of the loneliness, the depressive symptoms, and the anxiety symptoms scale scores for each of the four latent classes. The gray trajectories in the background illustrate the repeated observations for each individual after latent class assignment. The symbols are slightly shifted along the x-axis for better visibility.

pattern of mental health responses to the pandemic is quite comparable across age. Although older groups were initially expected to be at high risk for experiencing the negative effects of the pandemic, we even found older age to go along with a higher chance of belonging to the resilient group than to the other groups. However, the effect was rather small and statistically significant only for the increasing burden group.

Future research is encouraged to further monitor the long-term and prolonged effects of the pandemic on mental health of the identified risk groups and to explore strategies and interventions for specific public health measures.

Author statements

Ethical approval

The study was approved by the Ethics Committee of an Austrian University (32-368 ex 19/20; 33-226 ex 20/21).

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None declared.

Competing interests

None declared.

Data availability

The survey data are available on request. Data will be also made available for scientific use via the Austrian Social Science Data Archive.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.puhe.2022.08.004>.

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