Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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Letter to the editor

Diminished well-being persists beyond the end of the COVID-19 lockdown

The coronavirus disease 2019 (COVID-19) outbreak dramatically affects mental well-being [1]. Even if the causes for this decline in mental health during COVID-19 are not yet known, some explanations seem obvious. According to the OECD's Economic Outlook from June 2020, the COVID-19 pandemic has triggered the most severe recession in nearly a century [2]. Furthermore, the fear of infection and possible consequences, including death, might impact mental health symptoms [3]. Furthermore, most governments have enacted restrictions to prevent uncontrolled spreading of the virus. In Austria, the first governmental restrictions against COVID-19 became obligatory on the 16th of March 2020 (COVID-19 lockdown) and lasted until the 30th of April 2020. During the lockdown, leaving the house was only allowed for a few specific reasons. Although these restrictions helped to achieve the goal of attenuating the uncontrolled spread of the virus, reduced access to social contacts and other social support systems have been reported to impair mental well-being [4]. There is a need to explore whether reduced mental well-being related to the COVID-19 pandemic emerged primarily due to restrictions to prevent the uncontrolled spreading such as lockdowns, or it changes when these measures are lifted. Therefore, this longitudinal study aimed to evaluate mental health in the Austrian general population during and 6 weeks after the end of the lockdown. A representative quota sampling according to age, gender, education, and region was recruited through Qualtrics. In total, 1,005 participated in the first wave of the online survey 4 weeks after the lockdown started (detailed data is presented here [5]). All participants were re-contacted in the second wave, 6 weeks after the end of the lockdown and N = 445 responded at the second time point (response rate 44.3%). Sociodemographic characteristics are summarized in Suppl. Table 1. We examined differences between the two measurement points in well-being (WHO Well-being Index (WHO-5) [6], psychological quality of life (WHO-QoL BREF [7]), anxiety (Generalized Anxiety Disorder 7 scale (GAD-7) [8]), and sleep quality (Insomnia Severity Index (ISI) [9]). All data were analyzed using SPSS26 (IBM Corp, Armonk, NY, USA). To compare outcome measures during the COVID-19 lockdown in responders vs. non-responders independent t-tests were conducted. Differences between both measurement time points (during vs. after lockdown) were analyzed with paired t-tests. To analyze whether changes between the two time points differed between gender and age groups, mixed ANOVAs were calculated with time (2-levels: during and 6 weeks after the end of the lockdown) as the within-subject factor and age (6-levels: 6 age groups see Supplementary Tables) or gender (2-levels: female and male) as between-subject factors. All tests were conducted using two-tailed with p-values of less than .05 being considered statistically significant. Well-being (WHO-5: M ± SD 61.32 ± 21.22 vs. 61.92 ± 22.21; t(444) = −.78; p = .434), psychological quality of life (WHO QoL-BREF psychological domain: 71.04 ± 18.44 vs. 71.09 ± 18.74; t(444) = −.10; p = .922), anxiety (GAD-7: 5.69 ± 4.74 vs. 5.57 ± 4.88; t(444) = .80 p = .425), and sleep quality (ISI: 7.91 ± 5.38 vs. 8.03 ± 5.77; t(444) = .69; p = .492) did not differ significantly during and after lockdown, respectively (Table 1). Gender and age effects were observed for all outcome variables (Supplementary Tables 2–3), with female and younger participants showing worse outcomes across both time points (p≤.036). However, the interaction effects between time and gender as well as between time and age were not significant for any outcome variables (p≥.143). The responders (n = 445) did not differ from the non-responders (n = 560) in well-being (WHO-5), psychological quality of life (WHO-QoL BREF), and anxiety symptoms (GAD-7) during the COVID-19 lockdown. However, responders differed from non-responders in sleep quality (ISI: 7.91 ± 5.38 vs. 8.63 ± 5.94) at the first measurement point (p = 0.046).

The deterioration of mental well-being during the COVID-19 lockdown compared to pre-epidemiological data [5] remained unchanged in Austria despite the end of the lockdown. This is in line with research suggesting long-term mental health effects after large-scale disasters [10].

The generalizability of these data according to the relatively small sample size and the low response rate is limited. Even if there are no significant differences between responders and non-responders in most outcome measures, a possible bias cannot be excluded. A further limitation is that no causal conclusions are possible about changes in mental health due to the COVID-19 pandemic per se since the presented sample's mental health was not assessed before the pandemic. Three measurement points (before vs. during vs. after COVID-19 lockdown) would have been more appropriate to study changes in mental health due to lockdown measures as well as the COVID-19 pandemic. A further limitation is that mental health was assessed only by self-ratings without clinician-based assessments. In conclusion, reduced mental well-being remained despite end of COVID-19 lockdown.

Ethics approval and consent to participate

This study was approved by the Ethics Committee of the Danube University Krems (approval code: EK GZ 26/2018-2021) and was conducted following the Declaration of Helsinki. All participants gave electronic informed consent upon completing the questionnaires.

Consent for publication

Not applicable.

Availability of data and materials

The datasets used and/or analyzed during the current study are available from the corresponding author upon reasonable request.

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Table 1
Measures of mental well-being, psychological health, anxiety symptoms and sleep quality during the COVID-19 lockdown as compared to the time thereafter in $n = 445$ individuals.

		Time point		Statistic
		During lockdown	After lockdown	
WHO-5	M	61.32	61.92	$t(444) = -0.78$;
	SD	21.22	22.21	p = .434
WHO-QoL BREF	M	71.04	71.09	$t(444) = -0.10$;
Psychological domain	SD	18.44	18.74	p = .922
GAD-7	M	5.69	5.57	$t(444) = 0.80$ p
	SD	4.74	4.88	= .425
ISI	M	7.91	8.03	$t(444) = 0.69$;
	SD	5.38	5.77	p = .492

p: p-values (2-tailed); M: mean score; SD: standard deviation, t: *t*-test; ISI: Insomnia Severity Index, GAD-7: Generalized Anxiety Disorder 7 scale; WHO-5: Well-being questionnaire of the World Health Organization (WHO); WHO-QoL BREF: Quality of Life questionnaire of the World Health Organization (WHO).

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Declaration of competing interest

The authors declare that they have no competing interests.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.genhosppsych.2021.01.004.

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