Original Research

Biopsychosocial risk factors for subjective cognitive decline among older adults during the COVID-19 pandemic: a population-based study

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ABSTRACT

Objectives: There have been concerns that the COVID-19 pandemic and the measures used to contain it impacted the cognitive health of older adults. We therefore examined the prevalence of subjective cognitive decline, and its associated risk factors and health consequencs, among dementia-free older adults 2 years into the pandemic in Switzerland.
Study design: Population-based cohort study.
Methods: Prevalence of SCD was estimated using the cognitive complaint questionnaire administered to adults aged ≥65 years in June–September 2022 (Specchio-COVID19 cohort, N = 1414), and compared to prepandemic values from 2014 to 2018 (CoLaus|PsyCoLaus cohort, N = 1181). Associated risk factors and health consequences were assessed using logistic and/or linear regression.
Results: Prevalence of SCD in 2022 (18.9% [95% CI, 16.2–21.9]) was comparable to prepandemic levels in 2014–2018 (19.5% [17.2–22.1]). Risk factors included established risks for dementia—namely health issues, health behaviours, and depressive symptoms. Self-reported post-COVID, perceived worsening of mental health since the start of the pandemic, less frequent social club attendance, and increased loneliness were also risk factors for SCD. In turn, SCD was associated with poorer objective cognitive performance, difficulty performing instrumental activities of daily living, greater risk of falls, and lower well-being at one-year follow-up.
Conclusions: While the overall prevalence of SCD in 2022 was comparable to prepandemic levels, we identified several pandemic-related risk factors for SCD, including perceived worsening of mental health and increased isolation since the start of the pandemic. These findings highlight the importance of mental health promotion strategies in reducing cognitive complaints and preventing cognitive decline.
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Introduction

Neurocognitive decline is a growing public health issue.[1,2] The self-reported experience of decline in cognitive function without objective cognitive impairment, known as subjective cognitive decline (SCD),[2] is one of the earliest noticeable symptoms of Alzheimer's disease and dementia.[3,4] Because SCD manifests before the onset of clinical impairment, it is a potential target for preventive and early intervention trials.[5,6] Not everyone who experiences SCD goes on to develop dementia, but as many as half of older adults with SCD develop more severe cognitive decline.[3,7] Even without progression to more severe cognitive impairment, SCD can have a meaningful impact on everyday life, including the ability to work and engage in social activities.[8,9] An understanding of risk factors for SCD is therefore important to inform intervention strategies aiming to reduce cognitive complaints, improve quality of

life, and potentially prevent progression to more severe cognitive impairment.

Identified risk factors for SCD include established risks for dementia, namely physical health and lifestyle factors such as smoking, physical inactivity,[10,11] poor sleep quality, sensory impairment, obesity, comorbidities,[12,13] and poor physical performance,[14] as well as psychosocial factors such as social isolation, loneliness, and depression.[15–18] Poor mental health can acutely affect cognitive performance,[19] and is plausibly related to long-term cognitive outcomes due to direct effects on neurobiology and indirect effects on health behaviours and social withdrawal, which are risk factors for dementia.[20–22]

Adverse mental health effects during the COVID-19 pandemic[23,24] are a proposed mechanism through which the pandemic may have influenced the burden of cognitive decline and dementia among the older population.[25,26] Mental health deteriorated in the early stages of the pandemic, during times of stricter government policies relating to COVID-19.[27] This deterioration was due to the uncertainty and sudden change in everyday life, reduced social contact, health concerns, and perceived financial risks.[28] People who contracted COVID-19 in the early stages of the pandemic and those reporting post-COVID symptoms are also vulnerable to mental health effects due to psychosocial factors, such as worries about the virus, and/or direct effects of the virus.[29,30] Older adults are more vulnerable to the serious effects of COVID-19 infection,[31] and they are vulnerable to social isolation and loss of access to social and health care, which may lead to poor mental health and subsequent cognitive decline.[32,33]

An earlier study using retrospective measures found that most older adults reported that their cognitive functioning had not changed during the COVID-19 pandemic, while 8% indicated a decrease.[34] Other cross-sectional research found that pandemic-related worry was associated with poorer objective cognitive functioning,[35] while more recent research found that acute changes in older adults' mental health over 9 months during the earlier stages of the pandemic (summer 2020 to spring 2021) were related to worse perceived cognitive function and abilities.[36] To our knowledge, research comparing prepandemic estimates of SCD with estimates obtained during the pandemic is scarce.

Prepandemic prevalence estimates of SCD vary considerably between studies (6.1–52.7%[37]), depending on the population under study and the assessment tool used (ranging from a single question to more comprehensive scales, which are tested in individuals with cognitive impairment and controls[38]). In Switzerland, the prepandemic prevalence of SCD among dementia-free older adults (2010–2013), using the cognitive complaint questionnaire,[38,39] was estimated to be 18.5%.[18]

We aimed to build upon existing research by the following: 1) Providing recent prevalence estimates of SCD among dementia-free older adults in the Swiss population, with comparisons to prepandemic prevalence estimates using the same measure, and 2) examining pandemic-related risk factors for SCD, including changes in mental health, social engagement, and loneliness during the pandemic, alongside established risk factors. To further validate our findings, a secondary aim of the study was to examine associations between SCD and health outcomes, including difficulties in instrumental activities of daily living (IADL), risk of falls, and subsequent well-being.

Methods

Study design and participants

Data were from Specchio-COVID19, a population-based study launched in December 2020 to follow up serosurvey participants in Geneva, Lemanic Region of Switzerland.[40] In June to September 2022, a questionnaire assessing SCD was administered to participants aged 65 years and above ($N = 1645$). Among these older adults, 1414 completed the questionnaire (online ($N = 1210$), paper version ($N = 204$); total response rate 86%; mean age = 73 years (range = 65–101 years)). None of these participants reported having been diagnosed with a cognitive impairment, such as Alzheimer's disease or dementia.

We assessed prepandemic levels of SCD using data from CoLaus|PsyCoLaus, a population-based study assessing cardiovascular risk factors and mental disorders in adults aged 35–75 years at baseline living in Lausanne, also in the Lemanic Region of Switzerland.[41] At the first and second psychiatric follow-ups (2010–2013; 2014–2018), a cognitive test battery was administered to participants aged 65 years and above. We used cognitive data from the most recent prepandemic assessment (2014–2018). In total, 1187 individuals provided data on SCD at the second follow-up. Participants were excluded if they had a Clinical Dementia Rating score greater than 0.5,[42] resulting in a total analysis sample of 1181 (mean age = 73 years, range = 65–88).

The Specchio-COVID19 study was approved by the Cantonal Research Ethics Commission of Geneva (CCER project ID 2020-00881). The physical and psychiatric investigations of CoLaus|PsyCoLaus were approved by the Institutional Ethics Committee of the University of Lausanne (project reference numbers: 16/03, 33/09, 26/14 and 134/05, 239/09, respectively), which later became the Ethics Commission of Canton Vaud. All participants provided written informed consent.

Measures

Subjective cognitive decline in CoLaus|PsyCoLaus and Specchio-COVID19

SCD was assessed using the cognitive complaint questionnaire, which has been validated in French.[38,39] The questionnaire consists of 10 yes/no questions about subjective cognitive changes such as difficulties remembering recent events, appointments, finding words, and losing things more often, over the last six months. SCD is considered present based on the number of positive answers to the 10 questions. Internal consistency of the questionnaire was acceptable in each cohort (Cronbach's alphas≥0.70).

Risk factors for subjective cognitive decline in Specchio-COVID19

Upon registration, Specchio-COVID19 participants completed a questionnaire assessing sociodemographic factors and preexisting chronic disease. All other risk factors for SCD (apart from serological status, see below) were assessed by a questionnaire in March (general health questionnaire) and May (health behaviour questionnaire) 2022. The choice of risk factors was based on the existing literature on SCD.

Sociodemographic factors included age (years), biological sex (male, female), living arrangement (alone, with others), employment status (working, not working), education level, and household income. Education level was categorised as primary (none or compulsory education), secondary (high school diploma or vocational training), or tertiary (university level qualification). Household income was categorised according to household composition, using information from the Cantonal Office of Statistics of Geneva for 2015–2017 (low (below the first quartile of the income distribution), middle (between the first and third quartiles), or high (above the third quartile)). Ethnicity was not included in the analysis, as the sample was almost exclusively white European (97%).

Biological and health risk factors included multimorbidity, mobility issues, sensory impairment, appetite loss in the past six

months, smoking (current smoker/former smoker/non-smoker), sleep quality (very good or good/poor or very poor), obesity (BMI>30 kg/m^2), physical inactivity, and binge drinking. Multi-morbidity was defined as having two or more diagnosed physical health conditions (yes/no). Mobility issues (yes/no) were defined as any difficulty climbing 10 steps in a row without assistance and without resting, or the inability to walk 200 m or more without assistance and without resting. Sensory impairment (yes/no) was any sensory disability (such as blindness, visual impairment, deafness, reduced hearing, and hypoesthesia). Physical inactivity was never or rarely engaging in any moderate or vigorous physical activity. Binge drinking was drinking six or more alcoholic beverages on the same occasion at least once per month (question from The Alcohol Use Disorders Identification Test-Concise).

Previous SARS-CoV-2 infection, which causes the disease known as COVID-19, was assessed as: 1) a positive serology test result during March to December 2020 (before roll-out of COVID-19 vaccination[43,44]), and 2) a positive anti-nucleocapsid serology test result during June to July 2021 (when mRNA-based vaccines were available in Switzerland[45,46]). Self-reported post-COVID was any long-term manifestations of COVID-19 over the last 12 months, namely persistent symptoms lasting more than 12 weeks. The response categories 'yes, suspected' and 'yes, diagnosed by a doctor' were combined to create a binary variable (yes/no) due to the few cases with diagnosed post-COVID syndrome ($N = 16$).

Depressive symptoms were assessed using the Patient Health Questionnaire-2 (PHQ-2), a validated measure of core symptoms of depression.[47] Respondents indicate how often they experienced each symptom over the past 2 weeks. Scores are summed (range 0–6), with higher scores reflecting poorer mental health. The internal consistency of the PHQ-2 was acceptable (Cronbach's alpha = 0.75).

Participants were also asked to rate their mood, feelings of loneliness, and social participation (in the activities of a club, political party, cultural, charitable, religious, or sports association) compared to before the COVID-19 pandemic. Responses were categorised as unchanged or better/less lonely/more frequent participation and worse/more lonely/less frequent participation.

Instrumental activities of daily living, falls, and well-being in Specchio-COVID19

Independence in the IADL was assessed using the Lawton scale.[48] Individuals who reported needing help with one or more IADLs (e.g. using the telephone, shopping, housekeeping, and handling finances) were identified as having difficulty with IADL. Participants were also asked whether they had had a fall in the past 12 months (yes/no). The 5-item World Health Organization Well-Being Index[49] was used to assess psychological well-being. Data on well-being were available in March 2022 and 2023.

Objective cognitive performance in CoLaus|PsyCoLaus

Objective cognitive performance (verbal fluency, cognitive flexibility, short- and long-term memory, processing speed, inhibitory control, and constructional praxis) was assessed using a neuropsychological test battery (see supplementary information for a detailed description).

Statistical analysis

Statistical analyses were conducted using R version 4.1.0 (R Foundation for Statistical Computing, Vienna, Austria). Proportions and 95% confidence intervals (CIs) were calculated to estimate the prevalence of SCD in each cohort separately. Analyses of both data sets incorporated survey sampling weights (for age, sex, and

education) using statistics from the Swiss Federal Statistical Office to generate comparable nationally representative estimates of SCD.

Logistic regression was used to examine biopsychosocial risk factors for SCD in the Specchio-COVID19 cohort ($N = 1414$). Missing data on risk factors were imputed through multivariate imputation by chained equations (20 imputed data sets).[50] Model 1 tested unadjusted associations between biopsychosocial risk factors and SCD; model 2 was adjusted for sociodemographic factors (age, sex, educational attainment) and health status (multimorbidity and mobility issues); depressive symptoms were added in model 3. A P-value of <0.05 was considered statistically significant.

Associations between SCD and health outcomes (IADL, falls, and well-being at follow-up) were assessed in the Specchio-COVID19 cohort using logistic (IADL, falls) or linear (well-being) regression. Covariates were age, sex, education, multimorbidity, mobility impairment, and current depressive symptoms, as these factors have been associated with both SCD and the outcomes. Supplementary analyses in CoLaus|PsyCoLaus examined associations between SCD and objective cognitive performance, adjusting for age, sex, education, and depressive symptoms.

Results

Sociodemographic characteristics of the Specchio-COVID19 and CoLaus|PsyCoLaus participants are shown in Table 1. The cohort samples were similar in terms of age (mean age 73 years), employment status, and most were white Europeans (97%). Specchio-COVID19 had an equal distribution of men and women, while CoLaus|PsyCoLaus had slightly more women participating. A greater proportion of Specchio-COVID19 participants were educated to tertiary level than CoLaus|PsyCoLaus participants (59% vs. 17%), and more CoLaus|PsyCoLaus participants were living alone (43% vs. 25%). Descriptive statistics for the full set of risk factors for SCD in Specchio-COVID19 are shown in Table 2.

Prevalence of subjective cognitive decline

In June 2022, 18.9% (95% CI, 16.2–21.9) of adults aged 65 years and above ($N = 1414$) had SCD, relative to 19.5% (17.2–22.1; $N = 1181$) in 2014–2018. Among the subgroups examined, SCD was

Table 1
Sociodemographic characteristics of adults aged 65 years and above in the Specchio-COVID19 and CoLaus|PsyCoLaus cohorts (% (n), unless stated otherwise).

	Specchio-COVID19	CoLaus|PsyCoLaus	P-value
	$N = 1414$	$N = 1181$	
Age (years), mean (SD)	72.9 (5.8)	73.3 (5.4)	0.090
Sex			<0.001
Man	48.4 (682)	40.2 (475)	
Woman	51.6 (728)	59.8 (706)	
Ethnicity			0.83
White European	96.5 (1142)	96.6 (1141)	
Other	3.5 (42)	3.4 (40)	
Living arrangement			<0.001
With others	74.9 (1059)	56.8 (640)	
Alone	25.1 (355)	43.2 (486)	
Education level			<0.001
Primary	5.4 (76)	15.9 (188)	
Secondary	35.3 (497)	67.3 (795)	
Tertiary	59.3 (835)	16.8 (198)	
Work situation			0.28
Not working	85.9 (1195)	84.4 (950)	
Working	14.1 (196)	15.6 (176)	
Subjective cognitive decline[a]			0.98
Yes	18.2 (258)	18.2 (215)	
No	81.8 (1156)	81.8 (966)	

[a] Unweighted prevalence. See Fig. 1 for weighted prevalence estimates.

Table 2
Descriptive statistics for biopsychosocial risk factors in the Specchio-COVID19 cohort.

	N	% (n), unless stated otherwise
Multimorbidity	1414	
No		75.6 (1069)
Yes		24.4 (345)
Mobility impairment	1411	
No		93.3 (1317)
Yes		6.7 (94)
Sensory impairment	1403	
No		93.4 (1311)
Yes		6.6 (92)
Appetite loss	1411	
No		86.7 (1223)
Yes		13.3 (188)
Obesity	1409	
No		89.7 (1264)
Yes		10.3 (145)
Smoking status	1414	
Non-smoker		47.0 (664)
Former smoker		42.9 (607)
Current smoker		10.1 (143)
Binge drinking	1095	
No		91.3 (1000)
Yes, at least once per month		8.7 (95)
Physical inactivity	1413	
Active		89.8 (1269)
Inactive		10.2 (144)
Sleep quality	1095	
Very good or good		82.7 (906)
Very poor or poor		17.3 (189)
Positive serology test result March to December 2020	1009	
No		92.8 (936)
Yes		7.2 (73)
Positive anti-nucleocapsid serology test result 2021	1009	
No		93.4 (942)
Yes		6.6 (67)
Self-reported post-COVID	863	
No		93.0 (803)
Yes		7.0 (60)
Current depressive symptoms, mean (SD)[a]	1141	0.5 (0.9)
Perceived mood change since the start of the pandemic	1407	
No change or better		85.1 (1198)
Worse		14.9 (209)
Perceived loneliness change since the start of the pandemic	1408	
No change or less lonely		89.9 (1267)
More lonely		10.0 (141)
Perceived social engagement change since the start of the pandemic	1414	
No change or more frequent		60.5 (856)
Less frequent		13.5 (191)
Never attended		26.0 (367)

[a] Measured using the Patient Health Questionnaire-2 (PHQ-2).

most prevalent among those aged 75 years and above: 23% (18.4–28.3) in June 2022, and 24% (19.9–28.6) in 2014–2018. In each cohort, the prevalence of SCD did not vary systematically by sex or education level (Fig. 1).

Risk factors for subjective cognitive decline in the Specchio-COVID19 cohort

The results of the logistic regression models are shown in Table 3. In the univariate models, older age, lower income, multimorbidity, mobility issues, sensory impairment, appetite loss, former smoking, poor sleep quality, self-reported post-COVID, higher levels of depressive symptoms, perceived decline in mood compared to before the pandemic, alongside less frequent social club attendance and increased loneliness, were associated with greater risk of SCD. These associations held when adjusting for age, sex, education, multimorbidity, and mobility impairment, but the association between lower income and SCD became non-significant. Associations were reduced but largely held when adjusting for depressive symptoms. The pattern of results was the same when conducting a complete case analysis.

Associations between subjective cognitive decline, functional impairment, and subsequent well-being

SCD was associated with a greater risk of difficulty performing IADL (OR [95% CI] = 3.04 [1.80, 5.11], P < 0.001), a greater risk of falls (OR [95% CI] = 2.00 [1.31, 3.05], P = 0.001), and poorer well-being at 1-year follow-up in 2023 (standardised β [95% CI] = -0.15 [−0.21, −0.09], P < 0.001), adjusting for age, sex, education level, multimorbidity, mobility impairment, and depressive symptoms. SCD was also associated with slower processing speed, and poorer short- and long-term memory performance in the CoLaus|-PsyCoLaus cohort, adjusting for age, sex, education level, and depressive symptoms (see Supplementary Table 1).

Discussion

We found that the overall prevalence of SCD among dementia-free older adults in June to September 2022 was comparable to prepandemic estimates in 2014–2018. Risk factors for SCD included established risk factors for cognitive impairment and dementia—namely health issues (multimorbidity, mobility issues, sensory impairment, and appetite loss), health behaviours (former smoking, poor sleep quality), and depressive symptoms—as well as pandemic-related risk factors. Moreover, SCD was associated with difficulty performing IADL, increased risk of falls, and poorer subjective well-being at 1-year follow-up.

Our finding that SCD was comparable to prepandemic estimates is reassuring and in line with an earlier study finding that most older adults reported no change in their cognitive functioning during the COVID-19 pandemic.[34] Our finding is also in line with previous research showing overall resilience in mental health, in the sense that a deterioration during the earlier pandemic phases was followed by a return to prepandemic levels.[27,51] However, we did identify several pandemic-related risk factors for SCD, including perceived worsening of mental health, less frequent social club attendance, and increased loneliness since the start of the pandemic. These findings are in line with previous research identifying depression and social isolation as risk factors for SCD[15–18] and cognitive impairment,[21] and also suggest that their deterioration is associated with an increased risk of SCD.

Individuals reporting worsening mental health, loneliness, and less frequent social engagement since the start of the pandemic may have been particularly susceptible to adverse effects of the pandemic (including uncertainty, reduced social contact, and health concerns), and/or they may have already been on the pathway of cognitive decline. As the measures of change within these factors were self-reported and retrospective, it is possible that individuals experiencing SCD were more likely to perceive changes in their mental health and social circumstances than individuals without cognitive decline. However, the associations held when adjusting for current depressive symptoms and are in line with recent findings that within-individual changes in mental health during the pandemic were associated with cognitive complaints.[36] In Switzerland, there were fewer and less intense policies
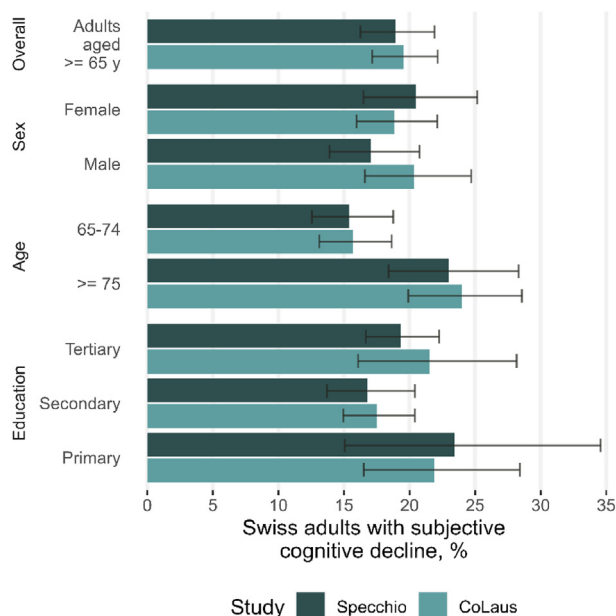
Fig. 1. Shows the weighted prevalence of SCD among adults aged 65 years and above in the Specchio-COVID19 and CoLaus|PsyCoLaus cohorts. SCD, subjective cognitive decline.

related to containment (such as school closings and stay-at-home measures) and disease surveillance (such as testing and contact tracing) than in other countries.[52] The observed effects could,

therefore, be even greater in countries where measures were stricter, and among vulnerable individuals who do not participate in cohort studies.

When including depressive symptoms as a covariate in the models testing risk factors for SCD, associations largely held but were reduced−especially for psychosocial risk factors and for self-reported post-COVID. These findings indicate that at least part of the association between biopsychosocial risk factors and SCD were explained by current depressive symptoms. Affective symptoms are important to consider when examining associations between SCD and other constructs,[53] but further research is needed to disentangle the complexities of these relationships. Depression may increase the risk for SCD,[21] SCD can negatively affect mental health,[8] and there may be common risk factors and shared pathophysiological mechanisms.[54] Research is needed to concurrently assess SCD and affective symptoms over time to further understand the nature of their association, and to help inform interventions and clinical recommendations.

Consistent with findings from other large cohorts,[55,56] and from previous waves of the CoLaus|PsyCoLaus cohort,[18] we observed an association between SCD and objective cognitive performance, independent of depressive symptoms. Biological changes such as white matter lesions, temporal atrophy, and altered cerebrospinal fluid biomarkers have also been observed in individuals with SCD.[57−59] Given that SCD may reflect the experience of subtle but relevant cognitive decline,[2] and is relatively easy to assess, it may help to identify individuals at risk of future cognitive impairment, who would benefit from further cognitive testing. Individuals reporting cognitive decline may also benefit from primary care advice on dementia awareness and healthier lifestyle, tailored to

Table 3
Risk factors for subjective cognitive decline in Specchio-COVID19 ($N = 1414$). Results presented are odds ratios with 95% confidence intervals.

	Model 1[a]	Model 2[b]	Model 3[c]
Sociodemographic factors			
Age in years, per unit increase	1.05 (1.03, 1.08) ***	1.03 (1.01, 1.06) **	1.05 (1.02, 1.09) **
Female sex (Ref: male)	1.04 (0.79, 1.36)	1.03 (0.78, 1.37)	0.93 (0.66, 1.31)
Primary education (Ref: tertiary)	1.23 (0.70, 2.18)	0.96 (0.53, 1.74)	0.78 (0.35, 1.74)
Secondary	0.86 (0.64, 1.15)	0.76 (0.56, 1.03)	0.59 (0.40, 0.86) **
Not working (Ref: working)	1.01 (0.68, 1.49)	1.16 (0.78, 1.74)	1.14 (0.70, 1.87)
Lower household income (Ref: higher)	2.61 (1.28, 5.35) **	2.05 (0.97, 4.33)	2.14 (0.87, 5.27)
Middle	2.32 (1.22, 4.42) *	1.94 (1.01, 3.73) *	2.15 (0.99, 4.69)
Living alone (Ref: with others)	1.03 (0.76, 1.41)	0.86 (0.61, 1.21)	0.89 (0.59, 1.35)
Biological and health factors			
Multimorbidity (Ref: no)	2.16 (1.62, 2.89) ***	1.83 (1.35, 2.48) ***	1.46 (1.00, 2.12) *
Mobility impairment (Ref: no)	4.14 (2.69, 6.38) ***	3.22 (2.03, 5.10) ***	2.66 (1.46, 4.85) **
Sensory impairment (Ref: no)	2.37 (1.50, 3.76) ***	1.79 (1.10, 2.92) *	2.15 (1.22, 3.77) **
Appetite loss (Ref: no)	3.29 (2.35, 4.59) ***	2.68 (1.89, 3.81) ***	2.24 (1.45, 3.47) ***
Obesity (Ref: no)	1.31 (0.86, 1.99)	1.08 (0.69, 1.68)	1.05 (0.62, 1.80)
Former smoker (Ref: non-smoker)	1.49 (1.12, 1.98) **	1.48 (1.10, 1.99) **	1.61 (1.13, 2.31) **
Current smoker	0.87 (0.52, 1.45)	0.95 (0.56, 1.61)	0.98 (0.51, 1.85)
Binge drinking (Ref: no)	1.12 (0.64, 1.97)	1.45 (0.80, 2.60)	1.53 (0.81, 2.89)
Physical inactivity (Ref: no)	1.20 (0.78, 1.84)	0.84 (0.52, 1.34)	0.91 (0.51, 1.64)
Poor sleep quality (Ref: very good or good)	2.47 (1.70, 3.59) ***	2.26 (1.53, 3.35) ***	1.98 (1.29, 3.04) **
Positive serology result March−Dec 2020	1.36 (0.75, 2.45)	1.27 (0.67, 2.38)	1.29 (0.64, 2.62)
Positive anti-nucleocapsid serology test result 2021	1.25 (0.67, 2.35)	1.16 (0.59, 2.28)	1.20 (0.58, 2.50)
Self-reported post-COVID (Ref: no)	3.05 (1.70, 5.45) ***	2.87 (1.57, 5.23) **	2.14 (1.08, 4.23) *
Psychosocial factors			
Current depressive symptoms, per unit increase	1.70 (1.47, 1.97) ***	1.68 (1.44, 1.95) ***	−
Worsened mood (Ref: no change or better)	5.05 (3.68, 6.95) ***	4.95 (3.54, 6.91) ***	2.92 (1.90, 4.48) ***
More lonely (Ref: no change or less lonely)	4.22 (2.92, 6.08) ***	4.02 (2.74, 5.90) ***	2.38 (1.43, 3.96) **
Less frequent club attendance (Ref: no change or more frequent)	2.77 (1.93, 3.97) ***	2.30 (1.58, 3.35) ***	1.93 (1.23, 3.04) **
Never attended	1.47 (1.07, 2.02) *	1.25 (0.90, 1.75)	1.34 (0.90, 2.01)

*$P < 0.05$, **$P < 0.01$, ***$P < 0.001$.
[a] Unadjusted results.
[b] Adjusted for age, sex, education level, multimorbidity, and mobility impairment.
[c] Adjusted for age, sex, education level, multimorbidity, mobility impairment, and depressive symptoms.

their needs.[2] This notion is strengthened by our finding, alongside previous reports, that SCD is associated with functional impairment,[8,9] increased risk of falls,[60] and poorer quality of life.[53]

The association between SCD and IADL has been shown in previous quantitative[9] and qualitative research,[8] and can be explained by the fact that IADL are cognitively demanding tasks, and IADL impairment increases with progressing cognitive decline.[61,62] Individuals with both SCD and functional difficulties are at an even higher risk for progression to dementia;[63] therefore, the identification of IADL dysfunction alongside SCD could serve as an additional indicator to assess the risk for dementia.

An association between SCD and well-being has also been reported in previous research, the majority of which is cross-sectional.[53] Our findings corroborate and extend previous work, showing that SCD predicted poorer well-being at 1-year follow-up, adjusting for depressive symptoms at baseline. Associations between SCD and poorer well-being could be explained by increased mental fatigue due to the cognitive effort required to perform complex tasks,[64] and/or worries about SCD developing into dementia.[65,66]

Practical implications

Individuals reporting worsening mental health, loneliness, and less frequent social engagement since the start of the COVID-19 pandemic had a greater risk of SCD, suggesting that older adults required additional mental health support during the pandemic. This finding also highlights the need to improve screening for mental health problems and access to psychological support in this population. Free or heavily subsidised mental health services (face-to-face or online, where appropriate), ensuring safe access to essential services (such as day services for older adults), loneliness and social isolation alleviation initiatives (such as digital inclusion strategies and social prescribing), as well as mental health promotion within the community, are ways in which older adults can be supported. Healthcare providers also play a key role in supporting their patients, and ensuring they receive the necessary care if they are suffering from ongoing symptoms of COVID-19 and cognitive complaints.

Strengths and limitations

Study strengths include the comparison of recent estimates of SCD with prepandemic data from two population-based cohorts in the same geographical region, the examination of a range of risk factors, and the assessment of health consequences. Many studies have used a single question to measure SCD, while we used a more comprehensive and detailed measure with 10 questions. However, we did not have information on worries about SCD, which can identify individuals with a higher risk of progressing to cognitive impairment.[2,67] Moreover, we examined SCD in dementia-free older adults. Further research should examine how the pandemic may have influenced the progression from SCD to mild cognitive impairment or dementia. Although we considered a range of risk factors, we did not have information on genetic risk for dementia. The data were largely cross-sectional, which limits our ability to determine the direction of causality between risk factors, SCD, and health outcomes. Specchio-COVID19 participants had a higher education level than CoLaus|PsyCoLaus participants, and there were fewer women and people living alone. However, the prevalence of SCD did not vary systematically by sex, education level, or living arrangement in either cohort, and we applied weights to generate comparable nationally representative estimates of SCD. Nevertheless, it is possible that there was selection bias due to other factors associated with survey participation not accounted for by weighting. Objective cognitive performance data were available in CoLaus|PsyCoLaus only, although we expect that the same associations would be observed in Specchio-COVID19.

Conclusion

There have been concerns that adverse effects during the COVID-19 pandemic may exacerbate mental health and cognitive problems; therefore, it is important to monitor these outcomes in the general population and in vulnerable groups. Our findings indicate that the overall prevalence of SCD among dementia-free older adults 2 years into the pandemic was comparable to pre-pandemic levels. However, the strong association between perceived worsening of mental health and SCD indicates that further research is needed to examine their association over time, and their determinants, beyond the pandemic. These findings are relevant for strategies aiming to reduce cognitive complaints, improve quality of life, and potentially prevent cognitive decline in older adults.

Competing interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.puhe.2024.05.025.

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