

Supplementary Table 1. Number and percentage of households invited to participate in the COVID-19 Infection Survey who subsequently enrolled, by country and phase of study

Study phase	England	Wales	Northern Ireland	Scotland
Initial invitation	10,266 (51%)	7,031 (41%)	7,373 (43%)	N/A
Extension period	39,392 (43%)	N/A	N/A	N/A
AddressBase	173,583 (12%)	7,051 (14%)	N/A	23,217 (13%)

Notes: The initial invitation phase was open to previous respondents to ONS surveys who had consented to participate in future research, and started on 26 April 2020 in England, 29 June 2020 in Wales, and 26 July 2020 in Northern Ireland. The extension period refers to the period of time beyond the initial pilot phase of the study when the sample was increased, and started on 31 May 2020 in England. Sampling from AddressBase started on 13 July 2020 in England, 5 October 2020 in Wales, and 14 September 2020 in Scotland, and involved randomly selecting addresses from an address list. Enrolment rates are as of 31 January 2022, when recruitment into the study ended, and are taken from the technical dataset accompanying the official COVID-19 Infection Survey publication: <https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/datasets/covid19infectionsurveytechnicaldata>

Supplementary Table 2. Characteristics at enrolment of study participants who were either never infected with SARS-CoV-2 during follow-up, or who were infected and subsequently ever reported Long Covid

Characteristic	Level	All participants (<i>n</i> =116,988)	Never infected (<i>n</i> =108,548)	Ever reported Long Covid (<i>n</i> =8,440)	Absolute standardized difference (%)
Age (years), mean (SD)		45.2 (13.7)	45.1 (13.9)	46.3 (11.2)	8.9
Age group (<i>n</i> , %)	<16 years	649 (0.6)	634 (0.6)	15 (0.2)	37.9
	16 to 24 years	10,484 (9.0)	10,107 (9.3)	377 (4.5)	
	25 to 34 years	18,711 (16.0)	17,736 (16.3)	975 (11.6)	
	35 to 49 years	33,509 (28.6)	30,209 (27.8)	3,300 (39.1)	
	50 to 64 years	53,635 (45.8)	49,862 (45.9)	3,773 (44.7)	
Sex (<i>n</i> , %)	Male	54,769 (46.8)	51,659 (47.6)	3,110 (36.8)	21.9
	Female	62,219 (53.2)	56,889 (52.4)	5,330 (63.2)	
Ethnic group (<i>n</i> , %)	White	106,958 (91.4)	99,084 (91.3)	7,874 (93.3)	7.5
	Non-white	10,030 (8.6)	9,464 (8.7)	566 (6.7)	
Country/region of residence (<i>n</i> , %)	North East England	3,943 (3.4)	3,554 (3.3)	389 (4.6)	17.7
	North West England	12,127 (10.4)	11,065 (10.2)	1,062 (12.6)	
	Yorkshire and the Humber	8,789 (7.5)	8,050 (7.4)	739 (8.8)	
	East Midlands	7,495 (6.4)	6,899 (6.4)	596 (7.1)	
	West Midlands	8,553 (7.3)	7,880 (7.3)	673 (8.0)	
	East of England	10,847 (9.3)	10,045 (9.3)	802 (9.5)	
	London	21,420 (18.3)	20,196 (18.6)	1,224 (14.5)	
	South East England	14,553 (12.4)	13,622 (12.5)	931 (11.0)	
	South West England	9,264 (7.9)	8,658 (8.0)	606 (7.2)	
	Scotland	10,266 (8.8)	9,588 (8.8)	678 (8.0)	
	Wales	6,427 (5.5)	5,972 (5.5)	455 (5.4)	
	Northern Ireland	3,304 (2.8)	3,019 (2.8)	285 (3.4)	
Area deprivation quintile group (<i>n</i> , %)	1 (most deprived)	14,449 (12.4)	13,189 (12.2)	1,260 (14.9)	7.2
	2	21,078 (18.0)	19,457 (17.9)	1,621 (19.2)	
	3	25,228 (21.6)	23,465 (21.6)	1,763 (20.9)	
	4	27,163 (23.2)	25,330 (23.3)	1,833 (21.7)	
	5 (least deprived)	29,070 (24.8)	27,107 (25.0)	1,963 (23.3)	
Self-reported health/disability status (<i>n</i> , %)	No long-term health conditions	92,758 (79.3)	86,360 (79.6)	6,398 (75.8)	8.6
	Health conditions without impact to day-to-day activities	11,539 (9.9)	10,603 (9.8)	936 (11.1)	
	Day-to-day activities limited a little by health conditions	7,131 (6.1)	6,465 (6.0)	666 (7.9)	
	Day-to-day activities limited a lot by health conditions	5,560 (4.8)	5,120 (4.7)	440 (5.2)	

Supplementary Table 2 (continued)

Characteristic	Level	All participants (<i>n</i> =116,988)	Never infected (<i>n</i> =108,548)	Ever reported Long Covid (<i>n</i> =8,440)	Absolute standardized difference (%)
Employment status (<i>n</i> , %)	Employed	85,271 (72.9)	78,506 (72.3)	6,765 (80.2)	23.9
	Unemployed	3,325 (2.8)	3,146 (2.9)	179 (2.1)	
	Not working and not looking for work	10,637 (9.1)	9,817 (9.0)	820 (9.7)	
	Retired	12,984 (11.1)	12,446 (11.5)	538 (6.4)	
	Student	4,771 (4.1)	4,633 (4.3)	138 (1.6)	
Employment sector, among participants in employment (<i>n</i> , %)	Teaching and education	8,876 (10.4)	7,791 (9.9)	1,085 (16.0)	18.0
	Health care	7,348 (8.6)	6,709 (8.5)	639 (9.4)	
	Social care	2,152 (2.5)	1,946 (2.5)	206 (3.0)	
	Transport	2,916 (3.4)	2,694 (3.4)	222 (3.3)	
	Retail and wholesale	5,826 (6.8)	5,415 (6.9)	411 (6.1)	
	Hospitality	2,606 (3.1)	2,412 (3.1)	194 (2.9)	
	Food production, agriculture and farming	1,428 (1.7)	1,331 (1.7)	97 (1.4)	
	Personal services	1,043 (1.2)	973 (1.2)	70 (1.0)	
	Information technology and communication	5,808 (6.8)	5,506 (7.0)	302 (4.5)	
	Financial services	6,156 (7.2)	5,791 (7.4)	365 (5.4)	
	Manufacturing and construction	7,717 (9.0)	7,152 (9.1)	565 (8.4)	
	Civil service and local government	5,403 (6.3)	4,912 (6.3)	491 (7.3)	
	Armed forces	297 (0.3)	279 (0.4)	18 (0.3)	
	Arts, entertainment and recreation	2,114 (2.5)	1,994 (2.5)	120 (1.8)	
	Other	11,794 (13.8)	10,976 (14.0)	818 (12.1)	
	Unknown	13,787 (16.2)	12,625 (16.1)	1,162 (17.2)	
SOC Major Group, among participants in employment (<i>n</i> , %)	Managers, directors and senior officials	7,406 (8.7)	6,872 (8.8)	534 (7.9)	19.1
	Professional occupations	18,709 (21.9)	17,331 (22.1)	1,378 (20.4)	
	Associate professional and technical occupations	13,770 (16.1)	12,791 (16.3)	979 (14.5)	
	Administrative and secretarial occupations	9,802 (11.5)	8,992 (11.5)	810 (12.0)	
	Skilled trades occupations	6,117 (7.2)	5,680 (7.2)	437 (6.5)	
	Caring, leisure and other service occupations	5,375 (6.3)	4,681 (6.0)	694 (10.3)	
	Sales and customer service occupations	4,296 (5.0)	3,981 (5.1)	315 (4.7)	
	Process, plant and machine operatives	3,040 (3.6)	2,826 (3.6)	214 (3.2)	
	Elementary occupations	4,116 (4.8)	3,790 (4.8)	326 (4.8)	
	Unknown	12,640 (14.8)	11,562 (14.7)	1,078 (15.9)	
Self-employment status, among participants in employment (<i>n</i> , %)	Employee	76,980 (90.3)	70,776 (90.2)	6,204 (91.7)	5.4
	Self-employed	8,291 (9.7)	7,730 (9.8)	561 (8.3)	

Notes: SD: standard deviation; SOC: Standard Occupational Classification. Area deprivation was based on the English Indices of Deprivation 2019, the Welsh Index of Multiple Deprivation 2019, the Scottish Index of Multiple Deprivation 2020, and the Northern Ireland Multiple Deprivation Measure 2017. Health conditions were self-reported rather than clinically diagnosed based on the survey question: "Do you have any physical or mental health conditions or illnesses lasting or expected to last 12 months or more (excluding any long-lasting COVID-19 symptoms)?"

Supplementary Table 3. Adjusted odds ratios for inactivity (excluding retirement) for participants currently reporting Long Covid compared with the pre-infection period, by time since SARS-CoV-2 infection and effect modifiers

Effect modifier	Level	Time since infection	aOR (95% CI)	Uncorrected p-value	Corrected p-value
Age group (6 tests)	16 to 49 years	12 to <18 weeks	0.73 (0.54 to 0.98)	Ref	Ref
		18 to <24 weeks	0.93 (0.67 to 1.29)	Ref	Ref
		24 to <30 weeks	0.98 (0.69 to 1.39)	Ref	Ref
		30 to <40 weeks	1.18 (0.85 to 1.64)	Ref	Ref
		40 to <52 weeks	0.99 (0.68 to 1.45)	Ref	Ref
		≥52 weeks	1.01 (0.70 to 1.46)	Ref	Ref
	50 to 64 years	12 to <18 weeks	0.92 (0.71 to 1.18)	0.24	0.59
		18 to <24 weeks	1.29 (0.97 to 1.72)	0.13	0.49
		24 to <30 weeks	1.43 (1.04 to 1.95)	0.11	0.49
		30 to <40 weeks	1.71 (1.28 to 2.29)	0.09	0.49
		40 to <52 weeks	1.70 (1.22 to 2.37)	0.03	0.49
		≥52 weeks	1.37 (1.02 to 1.83)	0.21	0.59
Sex (6 tests)	Male	12 to <18 weeks	0.99 (0.68 to 1.45)	Ref	Ref
		18 to <24 weeks	0.90 (0.58 to 1.39)	Ref	Ref
		24 to <30 weeks	1.03 (0.67 to 1.59)	Ref	Ref
		30 to <40 weeks	1.57 (1.05 to 2.35)	Ref	Ref
		40 to <52 weeks	1.41 (0.89 to 2.24)	Ref	Ref
		≥52 weeks	0.80 (0.52 to 1.21)	Ref	Ref
	Female	12 to <18 weeks	0.77 (0.62 to 0.96)	0.25	>0.99
		18 to <24 weeks	1.19 (0.93 to 1.54)	0.27	>0.99
		24 to <30 weeks	1.28 (0.97 to 1.69)	0.41	>0.99
		30 to <40 weeks	1.39 (1.08 to 1.81)	0.63	>0.99
		40 to <52 weeks	1.30 (0.97 to 1.75)	0.77	>0.99
		≥52 weeks	1.41 (1.07 to 1.86)	0.03	0.37
Ethnic group (6 tests)	Non-white	12 to <18 weeks	0.57 (0.27 to 1.20)	Ref	Ref
		18 to <24 weeks	0.64 (0.28 to 1.49)	Ref	Ref
		24 to <30 weeks	0.68 (0.28 to 1.69)	Ref	Ref
		30 to <40 weeks	0.66 (0.28 to 1.57)	Ref	Ref
		40 to <52 weeks	0.59 (0.25 to 1.42)	Ref	Ref
		≥52 weeks	1.15 (0.55 to 2.41)	Ref	Ref
	White	12 to <18 weeks	0.84 (0.69 to 1.03)	0.32	0.95
		18 to <24 weeks	1.15 (0.92 to 1.44)	0.19	0.77
		24 to <30 weeks	1.24 (0.98 to 1.58)	0.21	0.77
		30 to <40 weeks	1.51 (1.21 to 1.90)	0.07	0.51
		40 to <52 weeks	1.42 (1.10 to 1.85)	0.06	0.51
		≥52 weeks	1.18 (0.93 to 1.51)	0.95	>0.99

Supplementary Table 3 (continued)

Effect modifier	Level	Time since infection	aOR (95% CI)	Uncorrected p-value	Corrected p-value
Area deprivation quintile group (24 tests)	1 (most deprived)	12 to <18 weeks	0.69 (0.47 to 1.02)	Ref	Ref
		18 to <24 weeks	1.05 (0.68 to 1.62)	Ref	Ref
		24 to <30 weeks	1.35 (0.83 to 2.19)	Ref	Ref
		30 to <40 weeks	1.16 (0.76 to 1.78)	Ref	Ref
		40 to <52 weeks	1.17 (0.72 to 1.90)	Ref	Ref
		≥52 weeks	1.05 (0.69 to 1.59)	Ref	Ref
	2	12 to <18 weeks	1.15 (0.77 to 1.71)	0.07	>0.99
		18 to <24 weeks	1.27 (0.83 to 1.96)	0.53	>0.99
		24 to <30 weeks	1.22 (0.75 to 1.98)	0.78	>0.99
		30 to <40 weeks	2.23 (1.44 to 3.47)	0.04	>0.99
		40 to <52 weeks	2.01 (1.23 to 3.28)	0.13	>0.99
		≥52 weeks	2.09 (1.31 to 3.32)	0.03	>0.99
	3	12 to <18 weeks	0.97 (0.61 to 1.55)	0.27	>0.99
		18 to <24 weeks	0.84 (0.49 to 1.46)	0.54	>0.99
		24 to <30 weeks	1.16 (0.66 to 2.03)	0.69	>0.99
		30 to <40 weeks	1.21 (0.70 to 2.10)	0.91	>0.99
		40 to <52 weeks	1.76 (0.92 to 3.36)	0.32	>0.99
		≥52 weeks	0.81 (0.45 to 1.46)	0.48	>0.99
	4	12 to <18 weeks	0.73 (0.47 to 1.13)	0.88	>0.99
		18 to <24 weeks	1.47 (0.88 to 2.47)	0.32	>0.99
		24 to <30 weeks	1.06 (0.61 to 1.84)	0.52	>0.99
		30 to <40 weeks	1.45 (0.87 to 2.42)	0.52	>0.99
		40 to <52 weeks	1.21 (0.65 to 2.23)	0.94	>0.99
		≥52 weeks	1.29 (0.72 to 2.32)	0.57	>0.99
	5 (least deprived)	12 to <18 weeks	0.69 (0.42 to 1.12)	0.97	>0.99
		18 to <24 weeks	1.06 (0.61 to 1.84)	0.97	>0.99
		24 to <30 weeks	1.25 (0.72 to 2.20)	0.85	>0.99
		30 to <40 weeks	1.40 (0.81 to 2.44)	0.60	>0.99
		40 to <52 weeks	0.81 (0.41 to 1.57)	0.37	>0.99
		≥52 weeks	0.87 (0.44 to 1.70)	0.64	>0.99

Supplementary Table 3 (continued)

Effect modifier	Level	Time since infection	aOR (95% CI)	Uncorrected p-value	Corrected p-value
Self-reported health/disability status (18 tests)	No long-term health conditions	12 to <18 weeks	0.71 (0.55 to 0.91)	Ref	Ref
		18 to <24 weeks	1.13 (0.85 to 1.49)	Ref	Ref
		24 to <30 weeks	0.98 (0.72 to 1.33)	Ref	Ref
		30 to <40 weeks	1.42 (1.07 to 1.89)	Ref	Ref
		40 to <52 weeks	1.09 (0.79 to 1.50)	Ref	Ref
		≥52 weeks	1.13 (0.84 to 1.53)	Ref	Ref
	Health conditions without impact to day-to-day activities	12 to <18 weeks	0.77 (0.42 to 1.44)	0.79	>0.99
		18 to <24 weeks	1.05 (0.53 to 2.09)	0.86	>0.99
		24 to <30 weeks	1.34 (0.66 to 2.73)	0.42	>0.99
		30 to <40 weeks	1.53 (0.78 to 3.00)	0.84	>0.99
		40 to <52 weeks	2.56 (1.34 to 4.91)	0.02	0.66
		≥52 weeks	1.49 (0.77 to 2.87)	0.45	>0.99
	Day-to-day activities limited a little by health conditions	12 to <18 weeks	1.08 (0.66 to 1.78)	0.14	>0.99
		18 to <24 weeks	1.04 (0.59 to 1.84)	0.81	>0.99
		24 to <30 weeks	2.35 (1.20 to 4.63)	0.02	0.66
		30 to <40 weeks	1.73 (0.91 to 3.26)	0.59	>0.99
		40 to <52 weeks	1.63 (0.78 to 3.41)	0.33	>0.99
		≥52 weeks	2.07 (1.09 to 3.93)	0.10	>0.99
	Day-to-day activities limited a lot by health conditions	12 to <18 weeks	1.15 (0.71 to 1.87)	0.08	>0.99
		18 to <24 weeks	1.24 (0.70 to 2.20)	0.77	>0.99
		24 to <30 weeks	1.38 (0.77 to 2.48)	0.31	>0.99
		30 to <40 weeks	1.35 (0.80 to 2.28)	0.87	>0.99
		40 to <52 weeks	1.42 (0.72 to 2.77)	0.49	>0.99
		≥52 weeks	0.72 (0.40 to 1.31)	0.19	>0.99
Reinfected with SARS-CoV-2 (6 tests)	No	12 to <18 weeks	0.81 (0.67 to 0.98)	Ref	Ref
		18 to <24 weeks	1.11 (0.89 to 1.39)	Ref	Ref
		24 to <30 weeks	1.16 (0.91 to 1.47)	Ref	Ref
		30 to <40 weeks	1.49 (1.18 to 1.87)	Ref	Ref
		40 to <52 weeks	1.37 (1.04 to 1.81)	Ref	Ref
		≥52 weeks	1.13 (0.86 to 1.47)	Ref	Ref
	Yes	12 to <18 weeks	3.47 (0.77 to 15.64)	0.06	0.83
		18 to <24 weeks	1.46 (0.55 to 3.88)	0.59	>0.99
		24 to <30 weeks	2.54 (0.98 to 6.62)	0.12	0.83
		30 to <40 weeks	1.49 (0.72 to 3.07)	>0.99	>0.99
		40 to <52 weeks	1.47 (0.75 to 2.88)	0.85	>0.99
		≥52 weeks	1.69 (0.99 to 2.90)	0.17	0.83

Supplementary Table 3 (continued)

Effect modifier	Level	Time since infection	aOR (95% CI)	Uncorrected p-value	Corrected p-value
Mode of data collection (6 tests)	Face-to-face	12 to <18 weeks	0.88 (0.72 to 1.08)	Ref	Ref
		18 to <24 weeks	1.15 (0.90 to 1.46)	Ref	Ref
		24 to <30 weeks	1.16 (0.89 to 1.52)	Ref	Ref
		30 to <40 weeks	1.21 (0.93 to 1.56)	Ref	Ref
		40 to <52 weeks	1.31 (0.97 to 1.77)	Ref	Ref
		≥52 weeks	1.11 (0.84 to 1.46)	Ref	Ref
	Remote	12 to <18 weeks	0.58 (0.31 to 1.07)	0.20	>0.99
		18 to <24 weeks	1.02 (0.62 to 1.69)	0.69	>0.99
		24 to <30 weeks	1.30 (0.79 to 2.12)	0.70	>0.99
		30 to <40 weeks	2.21 (1.46 to 3.35)	0.01	0.22
		40 to <52 weeks	1.20 (0.76 to 1.87)	0.73	>0.99
		≥52 weeks	1.27 (0.90 to 1.79)	0.52	>0.99

Notes: aOR: adjusted odds ratio; CI: confidence interval; Ref: reference category. Estimates are from conditional logit models including the exposure variable interacted with each of the effect modifiers, adjusted for calendar day of study assessment, current age, and interactions between calendar day and each of current age, sex, self-reported health/disability status at survey enrolment, and each of the effect modifiers (excluding reinfection status and data collection mode). P-values were corrected using the Benjamini-Yekutieli method.

Supplementary Table 4. Adjusted odds ratios for long-term (≥4 weeks) absence for participants currently reporting Long Covid compared with the pre-infection period, by time since SARS-CoV-2 infection and effect modifiers

Effect modifier	Level	Time since infection	aOR (95% CI)	Uncorrected p-value	Corrected p-value
Age group (6 tests)	16 to 49 years	12 to <18 weeks	0.99 (0.65 to 1.52)	Ref	Ref
		18 to <24 weeks	1.36 (0.89 to 2.09)	Ref	Ref
		24 to <30 weeks	1.05 (0.64 to 1.70)	Ref	Ref
		30 to <40 weeks	0.85 (0.52 to 1.40)	Ref	Ref
		40 to <52 weeks	0.84 (0.48 to 1.48)	Ref	Ref
		≥52 weeks	0.51 (0.27 to 0.97)	Ref	Ref
	50 to 64 years	12 to <18 weeks	1.46 (0.97 to 2.20)	0.20	0.83
		18 to <24 weeks	1.48 (0.97 to 2.28)	0.78	>0.99
		24 to <30 weeks	2.03 (1.27 to 3.26)	0.053	0.39
		30 to <40 weeks	1.28 (0.82 to 2.01)	0.23	0.83
		40 to <52 weeks	1.00 (0.61 to 1.66)	0.64	>0.99
		≥52 weeks	1.26 (0.73 to 2.18)	0.03	0.39
Sex (6 tests)	Male	12 to <18 weeks	1.32 (0.79 to 2.23)	Ref	Ref
		18 to <24 weeks	1.33 (0.77 to 2.31)	Ref	Ref
		24 to <30 weeks	1.88 (1.05 to 3.39)	Ref	Ref
		30 to <40 weeks	1.13 (0.62 to 2.09)	Ref	Ref
		40 to <52 weeks	0.93 (0.46 to 1.89)	Ref	Ref
		≥52 weeks	0.67 (0.31 to 1.44)	Ref	Ref
	Female	12 to <18 weeks	1.15 (0.81 to 1.65)	0.67	>0.99
		18 to <24 weeks	1.45 (1.01 to 2.09)	0.80	>0.99
		24 to <30 weeks	1.28 (0.85 to 1.95)	0.30	>0.99
		30 to <40 weeks	1.00 (0.67 to 1.48)	0.73	>0.99
		40 to <52 weeks	0.86 (0.55 to 1.35)	0.84	>0.99
		≥52 weeks	0.92 (0.56 to 1.53)	0.49	>0.99
Ethnic group (6 tests)	Non-white	12 to <18 weeks	1.26 (0.31 to 5.06)	Ref	Ref
		18 to <24 weeks	1.08 (0.24 to 4.91)	Ref	Ref
		24 to <30 weeks	0.51 (0.06 to 4.23)	Ref	Ref
		30 to <40 weeks	0.82 (0.19 to 3.57)	Ref	Ref
		40 to <52 weeks	0.32 (0.05 to 1.98)	Ref	Ref
		≥52 weeks	0.27 (0.05 to 1.40)	Ref	Ref
	White	12 to <18 weeks	1.20 (0.89 to 1.63)	0.95	>0.99
		18 to <24 weeks	1.41 (1.04 to 1.93)	0.74	>0.99
		24 to <30 weeks	1.52 (1.07 to 2.14)	0.32	>0.99
		30 to <40 weeks	1.05 (0.75 to 1.48)	0.75	>0.99
		40 to <52 weeks	0.93 (0.63 to 1.38)	0.26	>0.99
		≥52 weeks	0.89 (0.58 to 1.38)	0.17	>0.99

Supplementary Table 4 (continued)

Effect modifier	Level	Time since infection	aOR (95% CI)	Uncorrected p-value	Corrected p-value
Area deprivation quintile group (24 tests)	1 (most deprived)	12 to <18 weeks	0.71 (0.33 to 1.50)	Ref	Ref
		18 to <24 weeks	0.41 (0.16 to 1.08)	Ref	Ref
		24 to <30 weeks	0.85 (0.35 to 2.05)	Ref	Ref
		30 to <40 weeks	0.72 (0.29 to 1.80)	Ref	Ref
		40 to <52 weeks	0.73 (0.29 to 1.84)	Ref	Ref
		≥52 weeks	0.43 (0.15 to 1.20)	Ref	Ref
	2	12 to <18 weeks	1.29 (0.66 to 2.50)	0.24	>0.99
		18 to <24 weeks	2.26 (1.25 to 4.09)	0.003	0.26
		24 to <30 weeks	1.63 (0.81 to 3.28)	0.25	>0.99
		30 to <40 weeks	1.10 (0.53 to 2.27)	0.49	>0.99
		40 to <52 weeks	1.30 (0.56 to 2.98)	0.37	>0.99
		≥52 weeks	1.58 (0.67 to 3.73)	0.06	>0.99
	3	12 to <18 weeks	1.73 (0.91 to 3.32)	0.08	>0.99
		18 to <24 weeks	1.54 (0.78 to 3.03)	0.03	0.85
		24 to <30 weeks	1.87 (0.86 to 4.02)	0.19	>0.99
		30 to <40 weeks	1.32 (0.64 to 2.76)	0.31	>0.99
		40 to <52 weeks	0.74 (0.30 to 1.84)	0.99	>0.99
		≥52 weeks	0.33 (0.11 to 1.06)	0.75	>0.99
	4	12 to <18 weeks	1.55 (0.81 to 2.99)	0.12	>0.99
		18 to <24 weeks	2.13 (1.09 to 4.16)	0.01	0.26
		24 to <30 weeks	2.34 (1.15 to 4.75)	0.08	>0.99
		30 to <40 weeks	1.18 (0.58 to 2.42)	0.40	>0.99
		40 to <52 weeks	0.83 (0.37 to 1.87)	0.85	>0.99
		≥52 weeks	0.80 (0.33 to 1.98)	0.37	>0.99
	5 (least deprived)	12 to <18 weeks	0.96 (0.51 to 1.81)	0.54	>0.99
		18 to <24 weeks	1.09 (0.55 to 2.13)	0.11	>0.99
		24 to <30 weeks	0.95 (0.42 to 2.14)	0.85	>0.99
		30 to <40 weeks	0.88 (0.44 to 1.79)	0.73	>0.99
		40 to <52 weeks	1.04 (0.45 to 2.39)	0.58	>0.99
		≥52 weeks	1.45 (0.56 to 3.74)	0.09	>0.99

Supplementary Table 4 (continued)

Effect modifier	Level	Time since infection	aOR (95% CI)	Uncorrected p-value	Corrected p-value
Presence of self-reported health conditions (6 tests)	No	12 to <18 weeks	1.26 (0.89 to 1.79)	Ref	Ref
		18 to <24 weeks	1.96 (1.38 to 2.78)	Ref	Ref
		24 to <30 weeks	1.42 (0.95 to 2.12)	Ref	Ref
		30 to <40 weeks	1.00 (0.67 to 1.49)	Ref	Ref
		40 to <52 weeks	0.97 (0.62 to 1.53)	Ref	Ref
		≥52 weeks	1.05 (0.65 to 1.71)	Ref	Ref
	Yes	12 to <18 weeks	1.06 (0.61 to 1.85)	0.61	>0.99
		18 to <24 weeks	0.58 (0.31 to 1.10)	0.001	0.02
		24 to <30 weeks	1.51 (0.80 to 2.86)	0.87	>0.99
		30 to <40 weeks	1.04 (0.57 to 1.90)	0.91	>0.99
		40 to <52 weeks	0.67 (0.33 to 1.37)	0.40	>0.99
		≥52 weeks	0.45 (0.20 to 1.01)	0.08	0.57
Reinfected with SARS-CoV-2 (6 tests)	No	12 to <18 weeks	1.17 (0.87 to 1.58)	Ref	Ref
		18 to <24 weeks	1.35 (0.98 to 1.85)	Ref	Ref
		24 to <30 weeks	1.55 (1.08 to 2.22)	Ref	Ref
		30 to <40 weeks	0.93 (0.65 to 1.34)	Ref	Ref
		40 to <52 weeks	0.85 (0.56 to 1.30)	Ref	Ref
		≥52 weeks	0.69 (0.42 to 1.11)	Ref	Ref
	Yes	12 to <18 weeks	4.46 (0.51 to 39.38)	0.23	>0.99
		18 to <24 weeks	1.93 (0.64 to 5.83)	0.53	>0.99
		24 to <30 weeks	0.74 (0.24 to 2.28)	0.22	>0.99
		30 to <40 weeks	1.33 (0.55 to 3.22)	0.46	>0.99
		40 to <52 weeks	0.71 (0.28 to 1.84)	0.73	>0.99
		≥52 weeks	0.96 (0.44 to 2.10)	0.40	>0.99
Mode of data collection (6 tests)	Face-to-face	12 to <18 weeks	1.00 (0.71 to 1.41)	Ref	Ref
		18 to <24 weeks	1.01 (0.69 to 1.49)	Ref	Ref
		24 to <30 weeks	1.15 (0.72 to 1.81)	Ref	Ref
		30 to <40 weeks	0.89 (0.56 to 1.41)	Ref	Ref
		40 to <52 weeks	0.95 (0.57 to 1.59)	Ref	Ref
		≥52 weeks	0.72 (0.42 to 1.23)	Ref	Ref
	Remote	12 to <18 weeks	2.19 (1.14 to 4.21)	0.04	0.19
		18 to <24 weeks	2.37 (1.41 to 3.99)	0.01	0.13
		24 to <30 weeks	1.79 (1.07 to 2.98)	0.20	0.73
		30 to <40 weeks	1.05 (0.66 to 1.69)	0.61	>0.99
		40 to <52 weeks	0.44 (0.25 to 0.79)	0.04	0.19
		≥52 weeks	0.63 (0.37 to 1.07)	0.59	>0.99

Supplementary Table 4 (continued)

Effect modifier	Level	Time since infection	aOR (95% CI)	Uncorrected p-value	Corrected p-value
Employment sector, among participants in employment (42 tests)	Teaching and education	12 to <18 weeks	0.89 (0.43 to 1.81)	Ref	Ref
		18 to <24 weeks	1.12 (0.59 to 2.11)	Ref	Ref
		24 to <30 weeks	2.06 (1.08 to 3.96)	Ref	Ref
		30 to <40 weeks	1.00 (0.52 to 1.90)	Ref	Ref
		40 to <52 weeks	0.69 (0.31 to 1.56)	Ref	Ref
		≥52 weeks	1.39 (0.56 to 3.44)	Ref	Ref
	Health or social care	12 to <18 weeks	2.07 (1.15 to 3.73)	0.07	>0.99
		18 to <24 weeks	2.00 (1.04 to 3.84)	0.21	>0.99
		24 to <30 weeks	0.99 (0.42 to 2.31)	0.18	>0.99
		30 to <40 weeks	0.82 (0.38 to 1.78)	0.71	>0.99
		40 to <52 weeks	0.85 (0.35 to 2.04)	0.74	>0.99
		≥52 weeks	0.46 (0.16 to 1.31)	0.12	>0.99
	Transport	12 to <18 weeks	0.23 (0.02 to 2.19)	0.26	>0.99
		18 to <24 weeks	0.77 (0.11 to 5.17)	0.72	>0.99
		24 to <30 weeks	0.53 (0.10 to 2.70)	0.13	>0.99
		30 to <40 weeks	0.52 (0.10 to 2.71)	0.47	>0.99
		40 to <52 weeks	0.34 (0.05 to 2.34)	0.51	>0.99
		≥52 weeks	1.48 (0.25 to 8.68)	0.95	>0.99
	Retail and wholesale	12 to <18 weeks	1.30 (0.30 to 5.63)	0.64	>0.99
		18 to <24 weeks	0.49 (0.09 to 2.78)	0.38	>0.99
		24 to <30 weeks	2.05 (0.39 to 10.82)	0.99	>0.99
		30 to <40 weeks	0.96 (0.22 to 4.11)	0.96	>0.99
		40 to <52 weeks	0.97 (0.23 to 4.12)	0.69	>0.99
		≥52 weeks	0.74 (0.14 to 3.81)	0.51	>0.99
	Hospitality	12 to <18 weeks	0.65 (0.07 to 5.85)	0.80	>0.99
		18 to <24 weeks	3.35 (0.47 to 23.84)	0.30	>0.99
		24 to <30 weeks	6.69 (0.84 to 53.53)	0.29	>0.99
		30 to <40 weeks	2.98 (0.39 to 22.90)	0.32	>0.99
		40 to <52 weeks	6.99 (0.85 to 57.43)	0.04	>0.99
		≥52 weeks	3.97 (0.25 to 62.24)	0.48	>0.99
	Manufacturing and construction	12 to <18 weeks	1.30 (0.42 to 4.05)	0.58	>0.99
		18 to <24 weeks	2.06 (0.64 to 6.61)	0.36	>0.99
		24 to <30 weeks	2.84 (0.78 to 10.40)	0.67	>0.99
		30 to <40 weeks	1.26 (0.21 to 7.63)	0.81	>0.99
		40 to <52 weeks	2.22 (0.35 to 13.91)	0.26	>0.99
		≥52 weeks	1.12 (0.17 to 7.18)	0.84	>0.99

Supplementary Table 4 (continued)

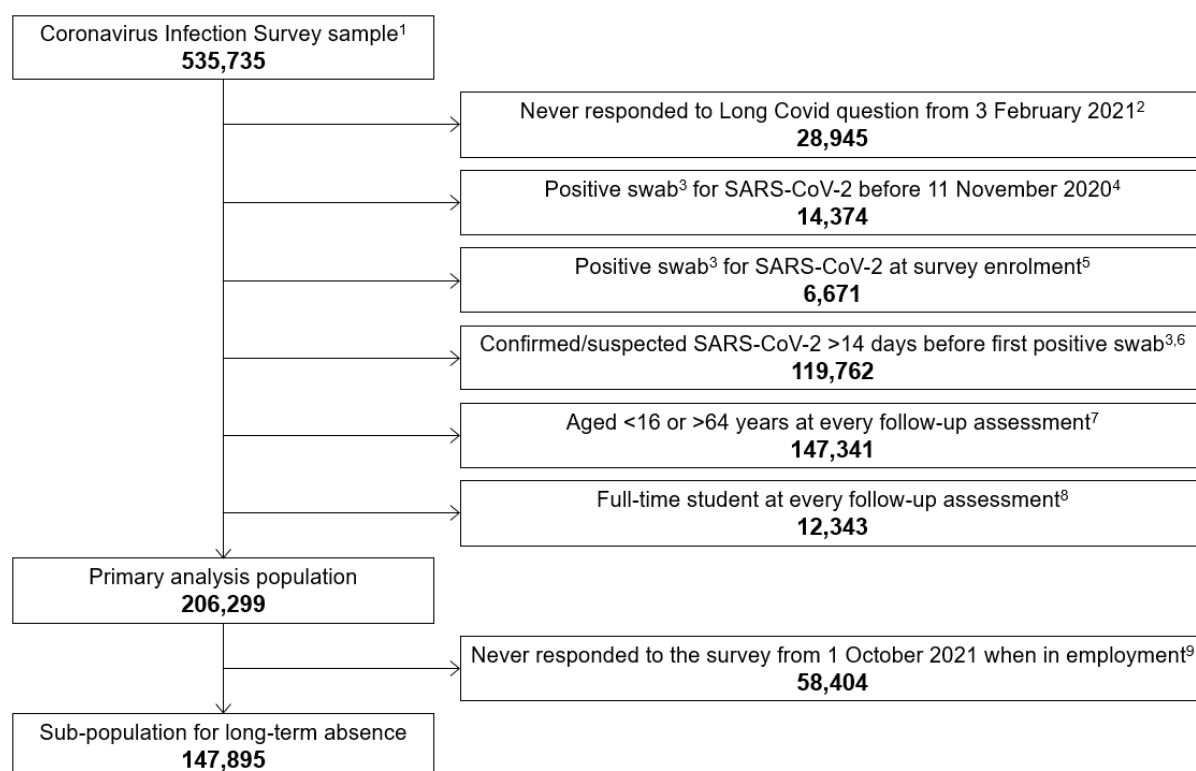
Effect modifier	Level	Time since infection	aOR (95% CI)	Uncorrected p-value	Corrected p-value
Employment sector, among participants in employment (42 tests) (continued)	Civil service and local government	12 to <18 weeks	0.92 (0.32 to 2.68)	0.95	>0.99
		18 to <24 weeks	0.44 (0.12 to 1.55)	0.19	>0.99
		24 to <30 weeks	0.28 (0.05 to 1.47)	0.03	>0.99
		30 to <40 weeks	0.40 (0.10 to 1.51)	0.22	>0.99
		40 to <52 weeks	0.11 (0.02 to 0.62)	0.06	>0.99
		≥52 weeks	0.06 (0.01 to 0.37)	0.002	0.41
	Other	12 to <18 weeks	0.72 (0.34 to 1.52)	0.69	>0.99
		18 to <24 weeks	1.53 (0.78 to 3.00)	0.50	>0.99
		24 to <30 weeks	1.17 (0.50 to 2.70)	0.29	>0.99
		30 to <40 weeks	0.93 (0.40 to 2.15)	0.89	>0.99
		40 to <52 weeks	0.23 (0.08 to 0.69)	0.11	>0.99
		≥52 weeks	0.27 (0.10 to 0.72)	0.01	>0.99
SOC Major Group, among participants in employment (42 tests)	Managers, directors and senior officials	12 to <18 weeks	1.16 (0.32 to 4.19)	Ref	Ref
		18 to <24 weeks	1.56 (0.32 to 7.65)	Ref	Ref
		24 to <30 weeks	3.02 (0.79 to 11.45)	Ref	Ref
		30 to <40 weeks	1.09 (0.20 to 5.91)	Ref	Ref
		40 to <52 weeks	2.41 (0.47 to 12.30)	Ref	Ref
		≥52 weeks	0.57 (0.07 to 4.67)	Ref	Ref
	Professional occupations	12 to <18 weeks	1.35 (0.74 to 2.47)	0.83	>0.99
		18 to <24 weeks	1.68 (0.88 to 3.19)	0.94	>0.99
		24 to <30 weeks	1.35 (0.66 to 2.77)	0.30	>0.99
		30 to <40 weeks	1.12 (0.55 to 2.25)	0.98	>0.99
		40 to <52 weeks	0.87 (0.40 to 1.92)	0.27	>0.99
		≥52 weeks	0.84 (0.35 to 2.02)	0.73	>0.99
	Associate professional and technical occupations	12 to <18 weeks	1.31 (0.50 to 3.39)	0.88	>0.99
		18 to <24 weeks	1.72 (0.74 to 4.00)	0.92	>0.99
		24 to <30 weeks	1.58 (0.46 to 5.49)	0.49	>0.99
		30 to <40 weeks	1.73 (0.61 to 4.92)	0.65	>0.99
		40 to <52 weeks	0.74 (0.21 to 2.57)	0.26	>0.99
		≥52 weeks	0.70 (0.18 to 2.69)	0.87	>0.99
	Administrative and secretarial occupations	12 to <18 weeks	0.60 (0.18 to 2.05)	0.47	>0.99
		18 to <24 weeks	1.13 (0.41 to 3.08)	0.73	>0.99
		24 to <30 weeks	1.72 (0.50 to 5.85)	0.54	>0.99
		30 to <40 weeks	1.36 (0.46 to 4.04)	0.83	>0.99
		40 to <52 weeks	0.46 (0.11 to 1.86)	0.13	>0.99
		≥52 weeks	0.73 (0.20 to 2.60)	0.84	>0.99

Supplementary Table 4 (continued)

Effect modifier	Level	Time since infection	aOR (95% CI)	Uncorrected p-value	Corrected p-value
SOC Major Group, among participants in employment (42 tests) (continued)	Skilled trades occupations	12 to <18 weeks	0.12 (0.01 to 1.43)	0.11	>0.99
		18 to <24 weeks	0.67 (0.16 to 2.75)	0.43	>0.99
		24 to <30 weeks	3.69 (0.87 to 15.69)	0.84	>0.99
		30 to <40 weeks	0.45 (0.08 to 2.49)	0.47	>0.99
		40 to <52 weeks	1.70 (0.43 to 6.70)	0.74	>0.99
		≥52 weeks	1.13 (0.22 to 5.91)	0.61	>0.99
	Caring, leisure and other service occupations	12 to <18 weeks	1.67 (0.82 to 3.41)	0.62	>0.99
		18 to <24 weeks	1.28 (0.56 to 2.93)	0.83	>0.99
		24 to <30 weeks	1.76 (0.74 to 4.15)	0.50	>0.99
		30 to <40 weeks	1.55 (0.74 to 3.27)	0.71	>0.99
		40 to <52 weeks	0.70 (0.27 to 1.83)	0.20	>0.99
		≥52 weeks	0.59 (0.20 to 1.75)	0.97	>0.99
	Sales and customer service occupations	12 to <18 weeks	1.69 (0.33 to 8.79)	0.72	>0.99
		18 to <24 weeks	3.51 (0.49 to 25.18)	0.53	>0.99
		24 to <30 weeks	<0.01 (<0.01 to >99.9)	0.98	>0.99
		30 to <40 weeks	1.67 (0.35 to 8.08)	0.72	>0.99
		40 to <52 weeks	0.48 (0.10 to 2.39)	0.17	>0.99
		≥52 weeks	0.47 (0.11 to 2.03)	0.89	>0.99
	Process, plant and machine operatives; and elementary occupations	12 to <18 weeks	1.22 (0.47 to 3.15)	0.95	>0.99
		18 to <24 weeks	1.91 (0.68 to 5.36)	0.84	>0.99
		24 to <30 weeks	2.12 (0.78 to 5.77)	0.68	>0.99
		30 to <40 weeks	1.34 (0.42 to 4.29)	0.84	>0.99
		40 to <52 weeks	1.24 (0.23 to 6.59)	0.58	>0.99
		≥52 weeks	1.22 (0.24 to 6.23)	0.57	>0.99
Self-employment status, among participants in employment (6 tests)	Employee	12 to <18 weeks	1.21 (0.88 to 1.67)	Ref	Ref
		18 to <24 weeks	1.39 (1.00 to 1.92)	Ref	Ref
		24 to <30 weeks	1.35 (0.94 to 1.94)	Ref	Ref
		30 to <40 weeks	1.14 (0.80 to 1.62)	Ref	Ref
		40 to <52 weeks	0.75 (0.50 to 1.13)	Ref	Ref
		≥52 weeks	0.71 (0.45 to 1.11)	Ref	Ref
	Self-employed	12 to <18 weeks	1.04 (0.45 to 2.40)	0.74	>0.99
		18 to <24 weeks	1.23 (0.51 to 2.97)	0.80	>0.99
		24 to <30 weeks	1.35 (0.49 to 3.73)	>0.99	>0.99
		30 to <40 weeks	0.18 (0.05 to 0.68)	0.01	0.12
		40 to <52 weeks	1.38 (0.53 to 3.63)	0.24	>0.99
		≥52 weeks	0.79 (0.28 to 2.21)	0.84	>0.99

Notes: aOR: adjusted odds ratio; CI: confidence interval; Ref: reference category. Estimates are from conditional logit models including the exposure variable interacted with each of the effect modifiers, adjusted for calendar day of study assessment, current age, and interactions between calendar day and each of current age, sex, self-reported health/disability status at survey enrolment, and each of the effect modifiers (excluding reinfection status and data collection mode). Models were fitted to study assessments from 1 October 2021 when participants were in employment. P-values were corrected using the Benjamini-Yekutieli method.

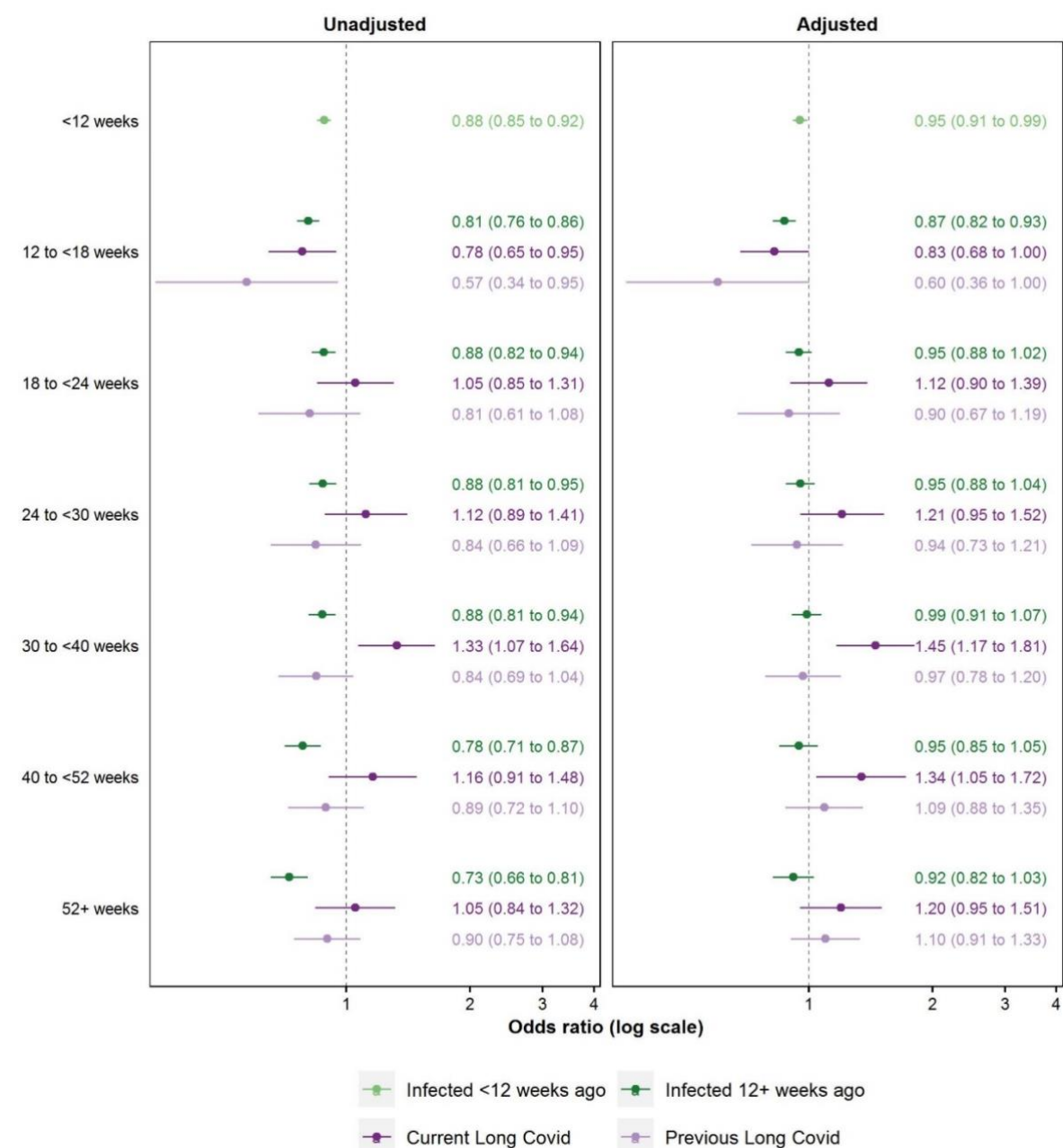
Supplementary Figure 1. Study participant flow diagram for the analysis population



Notes:

1. 535,735 participants from 267,913 households enrolled into the Coronavirus Infection Survey (CIS). However, not all households who were invited to participate in the survey chose to enrol. Supplementary Table 1 reports household enrolment rates, which were as high as 51% at the start of the survey but dropped to as low as 12% by the end of recruitment.
2. The Long Covid survey question was introduced on the Coronavirus Infection Survey (CIS) on 3 February 2021.
3. Positive swab tests for SARS-CoV-2 included polymerase chain reaction (PCR) tests via CIS study assessments and all swabs taken outside of the study, as self-reported by participants.
4. We excluded participants first testing positive before 11 November 2020 (12 weeks before the Long Covid survey question was implemented) so that we could fully observe participants' self-reported Long Covid experience. Before this date, participants' Long Covid status 12 weeks post-infection cannot be obtained.
5. To ensure that a first positive swab for SARS-CoV-2 during the study period was likely to represent a first infection, we excluded participants with a first positive swab at CIS enrolment, as the timing of infection could not be determined for these participants.
6. We excluded participants with a positive spike-antibody blood test (excluding any tests after COVID-19 vaccination) or who reported thinking they had had COVID-19 ≥ 14 days before their first positive swab, as the first observed positive test may have represented a reinfection for these participants.
7. Participants aged <16 or >64 years are not considered to be of working-age and were therefore outside the scope of this analysis.
8. Students were outside the scope of this analysis.
9. When analysing long-term absence from work, we excluded study assessments when participants were not in employment and those before 1 October 2021, when the UK Coronavirus Job Retention Scheme (also known as 'furlough') was in operation.

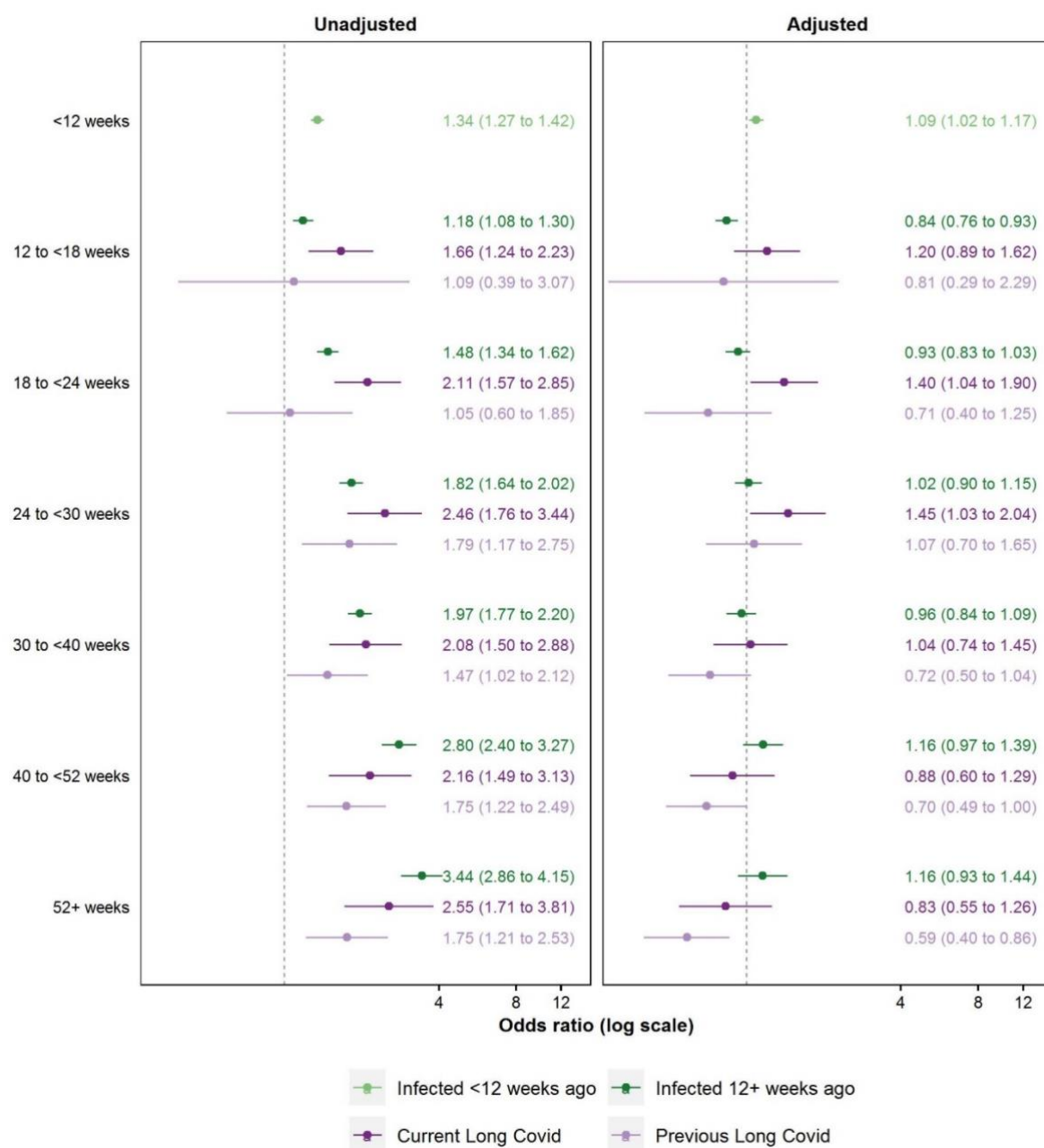
Supplementary Figure 2a. Unadjusted and adjusted odds ratios for inactivity (excluding retirement) compared with the pre-infection period



Notes: Both sets of estimates are from conditional logit models. Adjusted estimates are adjusted for calendar day of study assessment, current age, and interactions between calendar day and each of current age, sex, and self-reported health/disability status at survey enrolment.

The adjustment for calendar time appears to have considerable value in reducing bias in the estimates. The unadjusted ORs for inactivity for participants previously infected with SARS-CoV-2 without reporting Long Covid are significantly lower than 1 in all time-since-infection strata, but it is infeasible that being infected with SARS-CoV-2 would increase the likelihood of labour market participation. This is suggestive of bias in the unadjusted estimates, caused by temporal confounding between the risk of infection and background labour market conditions (the likelihood of ever being infected with SARS-CoV-2 increased as the pandemic unfolded, coinciding with increasing employment in the UK labour market from mid-2021).

Supplementary Figure 2b. Unadjusted and adjusted odds ratios for long-term (≥ 4 weeks) absence compared with the pre-infection period



Notes: Both sets of estimates are from conditional logit models. Adjusted estimates are adjusted for calendar day of study assessment, current age, and interactions between calendar day and each of current age, sex, and self-reported health/disability status at survey enrolment. Models were fitted to study assessments from 1 October 2021 when participants were in employment.

SUPPLEMENTARY APPENDIX 1

Survey question used to derive labour market study variables

All Coronavirus Infection Survey (CIS) participants were asked the following question at enrolment and at each follow-up assessment:

What is your current work, education or other status, that is, where you spend most of your time? (Select one)

1. *Employed and currently working (including if on leave or sick leave for less than 4 weeks)*
2. *Employed and currently not working (e.g. on leave due to the COVID-19 pandemic (furloughed); sick leave for 4 weeks or longer; or maternity/paternity leave)*
3. *Self-employed and currently working (include if on leave or sick leave for less than 4 weeks)*
4. *Self-employed and currently not working (e.g. on leave due to the COVID-19 pandemic; sick leave for 4 weeks or longer; or maternity/paternity leave)*
5. *Looking for paid work and able to start*
6. *Not in paid work and not looking for paid work (include doing voluntary work here)*
7. *Retired (include doing voluntary work here)*
8. *Child under 4-5 years not attending nursery, pre-school or childminder*
9. *Child under 4-5 years attending nursery, pre-school or childminder*
10. *4-5 years and older at school/home-school (including if temporarily absent)*
11. *Attending college or other further education provider, including apprenticeships (including if temporarily absent)*
12. *Attending university (including if temporarily absent)*

For this analysis, participants were classified to labour market statuses as follows:

- In employment: response options 1-4
- Long-term absent while in employment: response options 2 and 4
- Unemployed: response option 5
- Labour market inactive (excluding retired): response option 6
- Retired: response option 7
- Student: response options 10-12

SUPPLEMENTARY APPENDIX 2

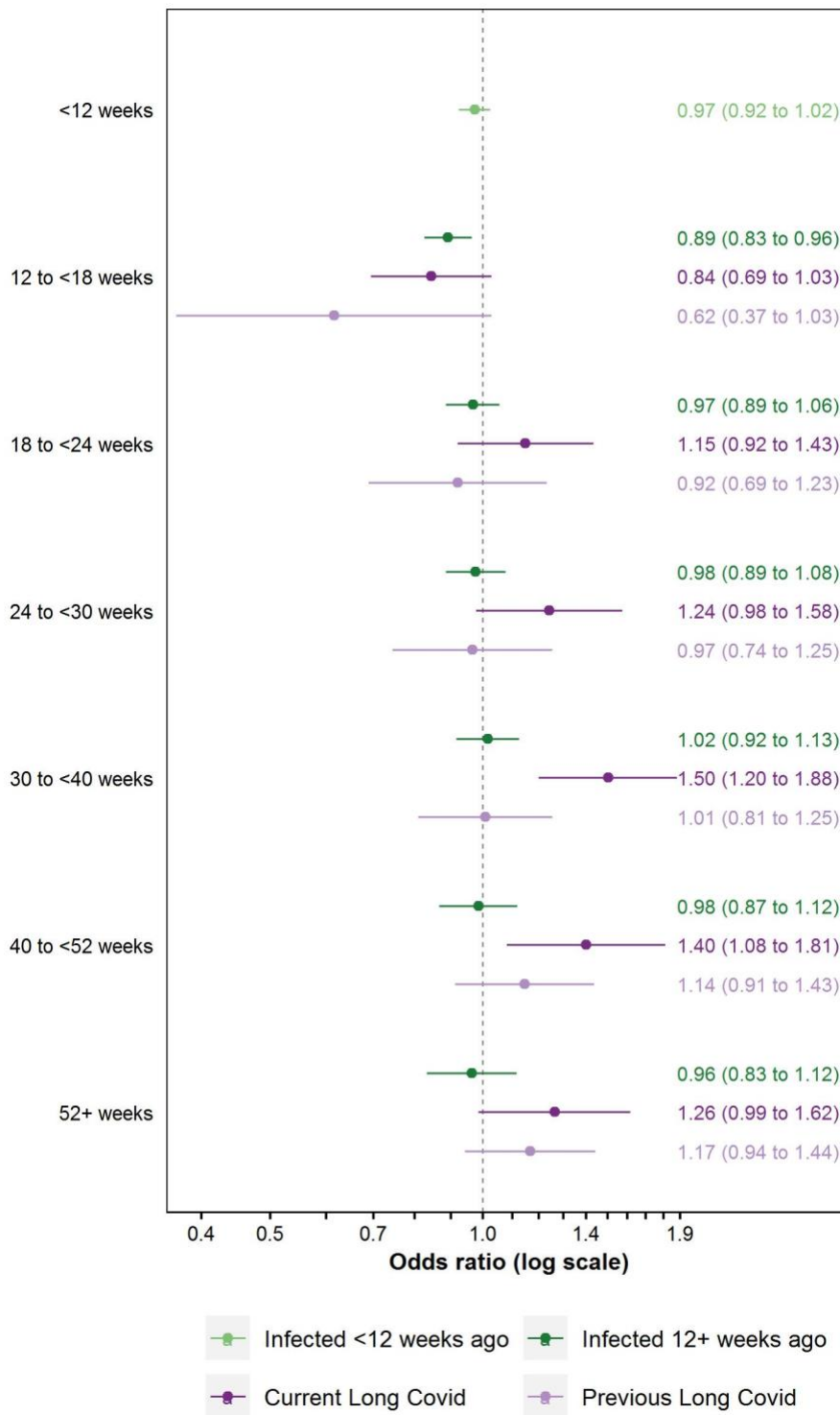
Sensitivity analyses for labour market inactivity

We performed several sensitivity analyses for the primary outcome, labour market inactivity:

- First, we restricted the analysis to participants who tested positive for SARS-CoV-2 during follow-up to mitigate against selection effects
- Second, we excluded study assessments when study participants were retired, and therefore ineligible to be otherwise inactive
- Third, we investigated alternative specifications of the restricted cubic spline for modelling calendar time and age

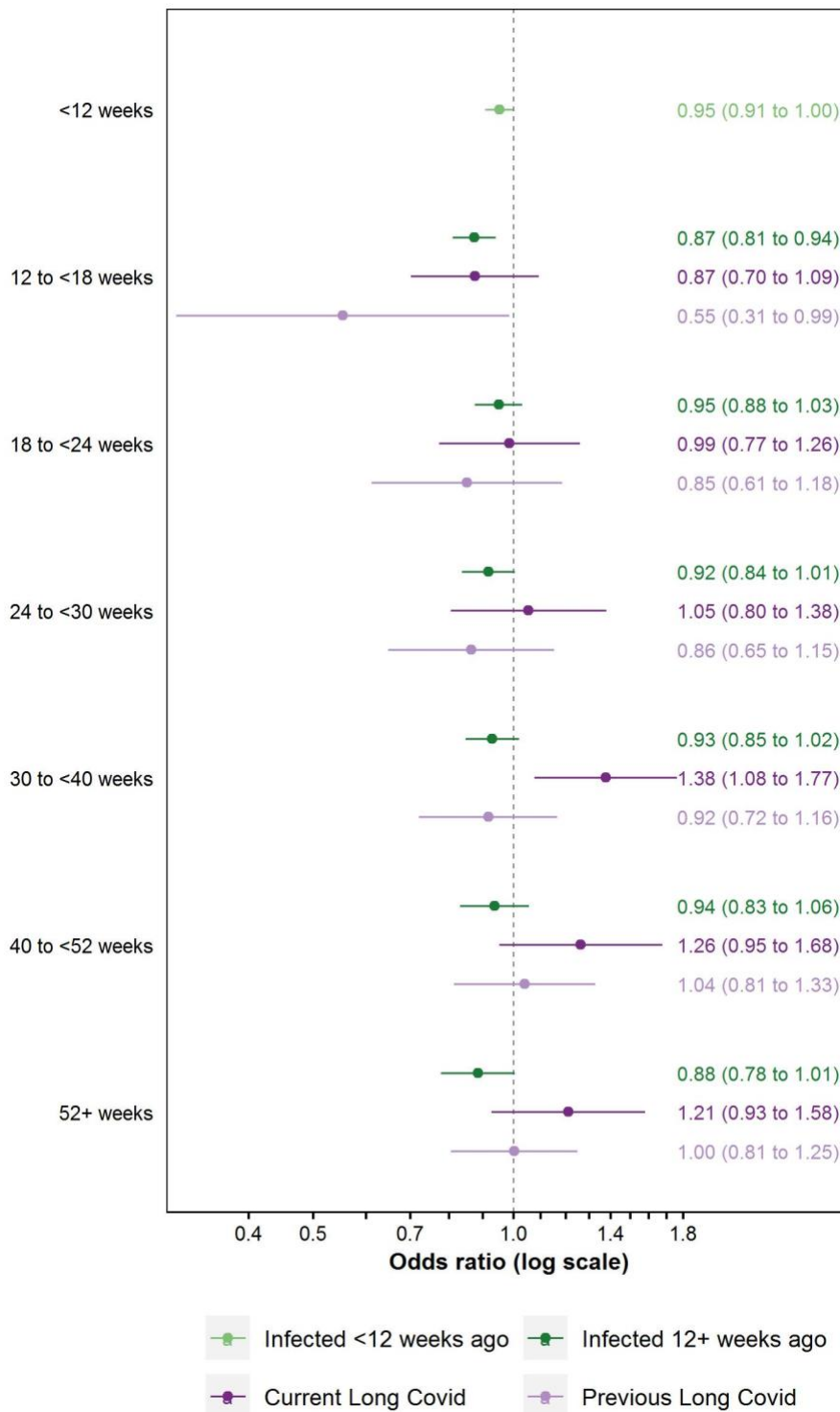
These analyses are illustrated in the following figures. All estimates and inferences are similar to those presented in the main analysis.

Sensitivity analysis 1: Adjusted odds ratios for inactivity (excluding retirement) compared with the pre-infection period, after restricting the analysis population to ever-infected participants



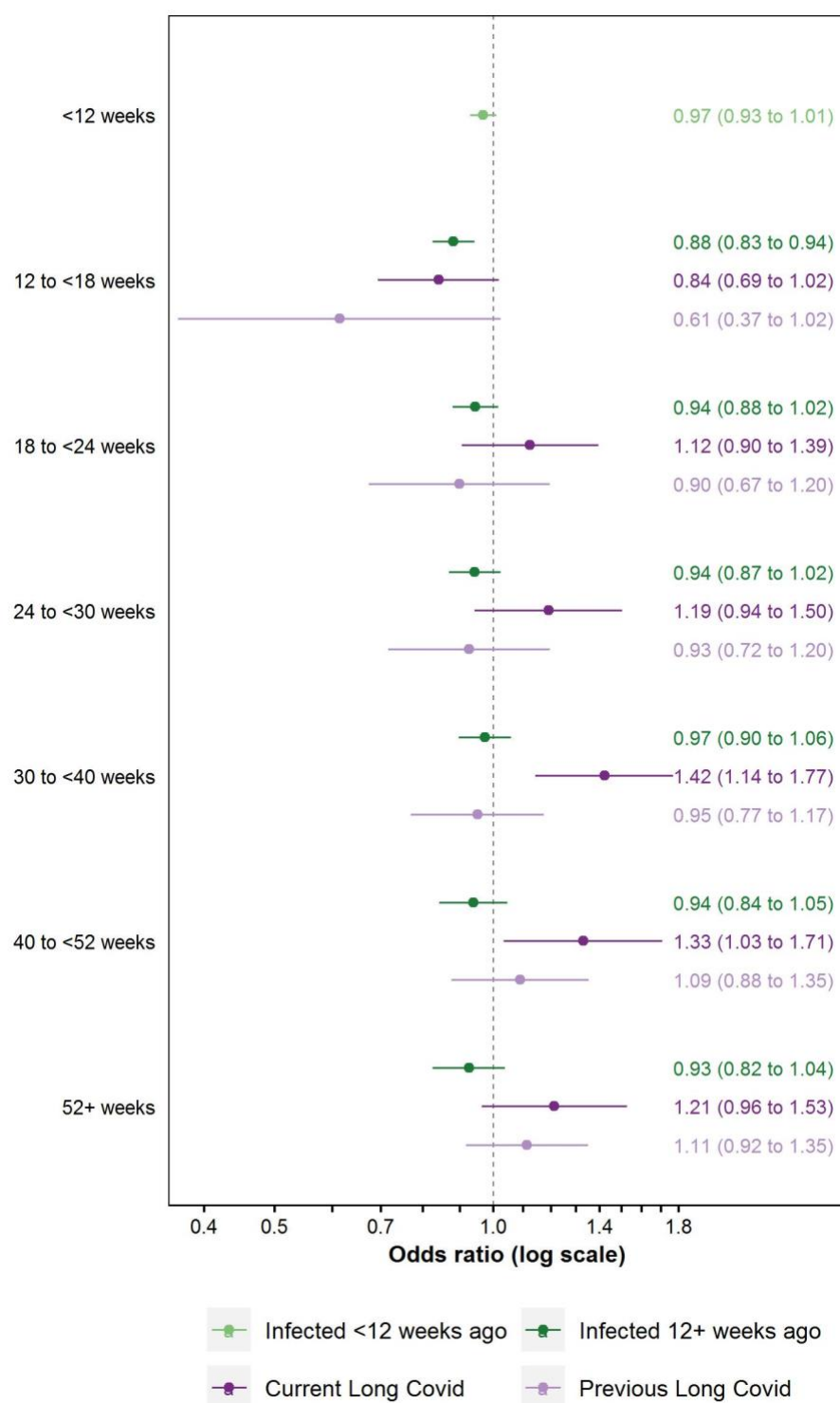
Notes: Estimates are from a conditional logit model adjusted for calendar day of study assessment, current age, and interactions between calendar day and each of current age, sex, and self-reported health/disability status at survey enrolment.

Sensitivity analysis 2: Adjusted odds ratios for inactivity (excluding retirement) compared with the pre-infection period, after excluding study assessments when participants were retired



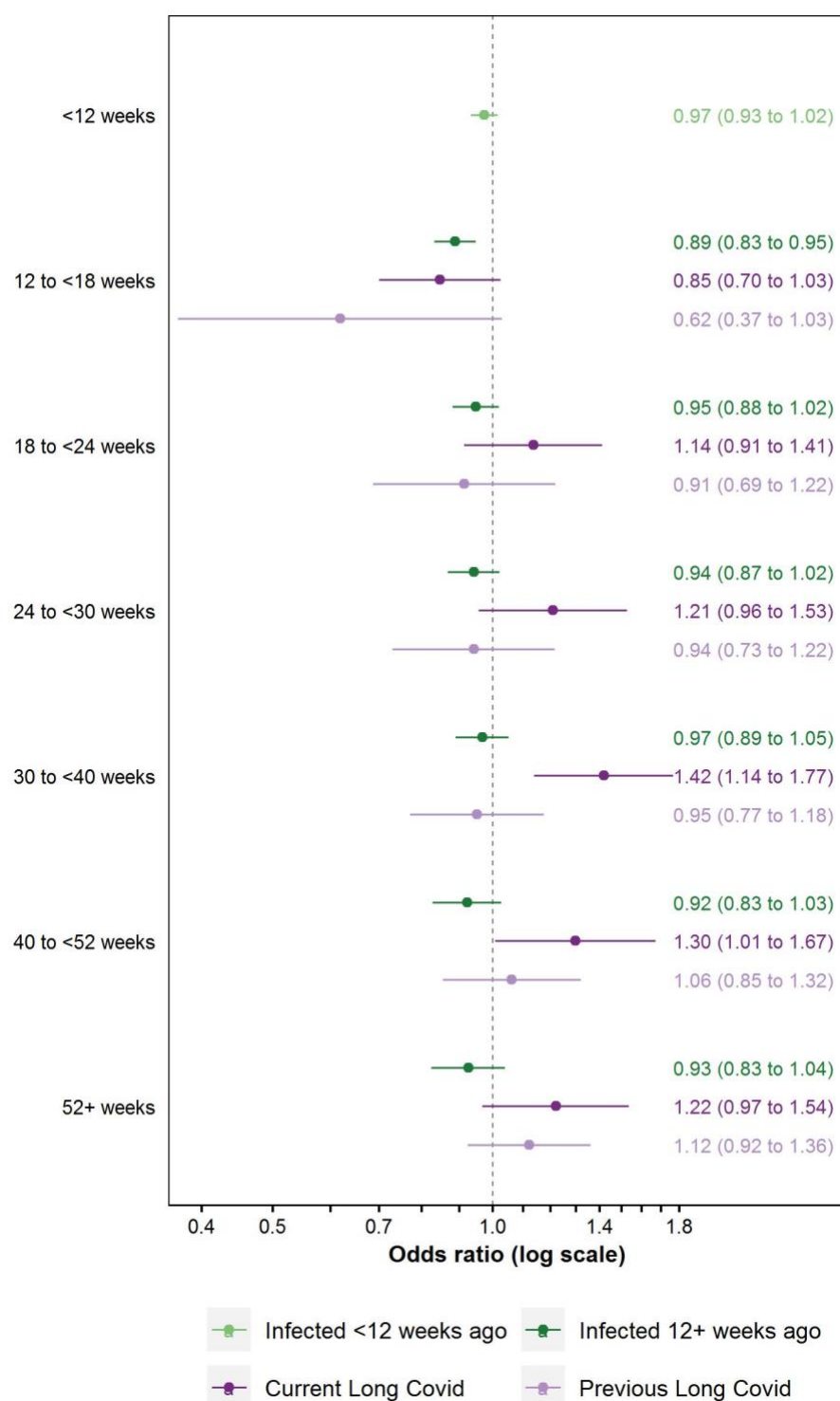
Notes: Estimates are from a conditional logit model adjusted for calendar day of study assessment, current age, and interactions between calendar day and each of current age, sex, and self-reported health/disability status at survey enrolment.

Sensitivity analysis 3a: Adjusted odds ratios for inactivity (excluding retirement) compared with the pre-infection period, after increasing the number of internal knots in splines for calendar time and age from one to two



Notes: Estimates are from a conditional logit model adjusted for calendar day of study assessment, current age, and interactions between calendar day and each of current age, sex, and self-reported health/disability status at survey enrolment.

Sensitivity analysis 3b: Adjusted odds ratios for inactivity (excluding retirement) compared with the pre-infection period, after increasing the number of internal knots in splines for calendar time and age from one to three



Notes: Estimates are from a conditional logit model adjusted for calendar day of study assessment, current age, and interactions between calendar day and each of current age, sex, and self-reported health/disability status at survey enrolment.

SUPPLEMENTARY APPENDIX 3

Methodology and summary of findings for the heterogeneity analysis

Methodology

We tested for effect modification by socio-demographics at COVID-19 Infection Survey (CIS) enrolment; SARS-CoV-2 reinfection status at each assessment (based on time since first positive swab and number of successive negative tests¹), which may be associated with Long Covid severity; and mode of data collection to allow for differential exposure misclassification (CIS participants were 30% more likely to report Long Covid if responding remotely rather than face-to-face², perhaps due to stigma associated with the condition³). It was possible to test for heterogeneity by labour market attributes (employment sector, SOC Major Group, self-employment status) for long-term absence but not for economic inactivity, as these attributes are only definable for people in employment. For each outcome and each modifier, statistically significant interactions were identified at the 5% level after performing Benjamini-Yekutieli⁴ corrections to p-values to account for multiple comparisons across time-since-infection intervals and levels of modifiers.

Labour market inactivity

There was no evidence of heterogeneity in the relationship between Long Covid and inactivity by socio-demographic characteristics, SARS-CoV-2 reinfection status, or data collection mode in any time-since-infection interval (**Supplementary Table 3**). Despite not reaching the 5% threshold for statistical significance, aORs were consistently numerically highest for participants reporting Long Covid aged 50-64 years.

Long-term absence

There was no evidence of heterogeneity in the relationship between Long Covid and long-term absence for any effect modifier in any time-since-infection interval (**Supplementary Table 4**), except for the presence of underlying health conditions 18 to <24 weeks post-infection ($p=0.02$). Participants without health conditions who reported Long Covid in this interval were more likely to be long-term absent compared with pre-infection (aOR: 1.96; 95% CI: 1.38 to 2.78), while there was no evidence of difference between the pre- and post-infection periods for participants with health conditions (aOR: 0.58; 95% CI: 0.31 to 1.10).

References

¹ Office for National Statistics. Coronavirus (COVID-19) Infection Survey, characteristics of people testing positive for COVID-19, UK: 19 October 2022. 2022. <https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/bulletins/coronaviruscovid19infectionsurveycharacteristicsofpeopletestingpositiveforcovid19uk/19october2022>

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SUPPLEMENTARY APPENDIX 4

Methodology for estimating labour market inactivity attributable to Long Covid

Point estimates

1. For each time-since-infection stratum (i), use the published estimates of the total number of people reporting Long Covid (n_i) and those who are inactive (y_i)¹ to calculate the probability of inactivity among people reporting Long Covid (p_i):

$$p_i = y_i/n_i$$

Column:	A	B	C = B / A
Time since first infection	Total with self-reported long COVID (thousands)	Number inactive (thousands)	Probability of inactivity
12-17 weeks ago	123	16	0.1301
18-23 weeks ago	101	19	0.1881
24-29 weeks ago	108	20	0.1852
30-39 weeks ago	151	17	0.1126
40-51 weeks ago	123	17	0.1382
≥52 weeks ago	746	112	0.1501

2. For each time-since-infection stratum, calculate the odds of inactivity (o_i) among people reporting Long Covid from the probability:

$$o_i = p_i/(1 - p_i)$$

Column:	C	D = C / (1 - C)
Time since first infection	Probability of inactivity	Odds of inactivity
12-17 weeks ago	0.1301	0.1495
18-23 weeks ago	0.1881	0.2317
24-29 weeks ago	0.1852	0.2273
30-39 weeks ago	0.1126	0.1269
40-51 weeks ago	0.1382	0.1604
≥52 weeks ago	0.1501	0.1767

3. For each time-since-infection stratum, divide the odds of inactivity by the estimated adjusted odds ratio (aOR) for people currently reporting Long Covid (r_i) in the corresponding time-since-infection stratum; this gives an estimate of the counterfactual odds of inactivity (\tilde{o}_i) (that is, the odds had those reporting Long Covid not been infected with SARS-CoV-2) assuming the statistical model is correct:

$$\tilde{o}_i = o_i/r_i$$

Column:	D	E	F = D / E
Time since first infection	Odds of inactivity	Adjusted odds ratio for inactivity among people with Long Covid	Counterfactual odds of inactivity
12-17 weeks ago	0.1495	0.83	0.1802
18-23 weeks ago	0.2317	1.12	0.2069
24-29 weeks ago	0.2273	1.21	0.1878
30-39 weeks ago	0.1269	1.45	0.0875
40-51 weeks ago	0.1604	1.34	0.1197
≥52 weeks ago	0.1767	1.20	0.1472

4. For each time-since-infection stratum, convert the counterfactual odds of inactivity to a counterfactual probability (\tilde{p}_i):

$$\tilde{p}_i = \tilde{o}_i / (1 + \tilde{o}_i)$$

Column:	F	G = F / (1 + F)
Time since first infection	Counterfactual odds of inactivity	Counterfactual probability of inactivity
12-17 weeks ago	0.1802	0.1527
18-23 weeks ago	0.2069	0.1714
24-29 weeks ago	0.1878	0.1581
30-39 weeks ago	0.0875	0.0805
40-51 weeks ago	0.1197	0.1069
≥52 weeks ago	0.1472	0.1283

5. For each time-since-infection stratum, multiply the total number of people reporting Long Covid by the counterfactual probability of inactivity; this gives an estimate of the number of people reporting Long Covid who would have been inactive had they not been infected with SARS-CoV-2 (\tilde{y}_i) assuming the statistical model is correct:

$$\tilde{y}_i = n_i \tilde{p}_i$$

Column:	A	G	H = A * G
Time since first infection	Total with self-reported long COVID (thousands)	Counterfactual probability of inactivity	Number inactive if not infected (thousands)
12-17 weeks ago	123	0.1527	19
18-23 weeks ago	101	0.1714	17
24-29 weeks ago	108	0.1581	17
30-39 weeks ago	151	0.0805	12
40-51 weeks ago	123	0.1069	13
≥52 weeks ago	746	0.1283	96

6. For each time-since-infection stratum, calculate the difference between the number of people reporting Long Covid who were inactive and the estimated number who would have been inactive had they not been infected with SARS-CoV-2; this gives an estimate of the inactivity attributable to Long Covid (Δ_i) assuming the statistical model is correct:

$$\Delta_i = y_i - \tilde{y}_i$$

Column:	B	H	I = B - H
Time since first infection	Number inactive (thousands)	Number inactive if not infected (thousands)	Inactivity attributable to Long Covid (thousands)
12-17 weeks ago	16	19	-3
18-23 weeks ago	19	17	2
24-29 weeks ago	20	17	3
30-39 weeks ago	17	12	5
40-51 weeks ago	17	13	4
≥52 weeks ago	112	96	16

7. Sum the estimated attributable inactivity totals across time-since-infection strata:

$$\Delta = \sum_i \Delta_i$$

Column:	I
Time since first infection	Inactivity attributable to Long Covid (thousands)
12-17 weeks ago	-3
18-23 weeks ago	2
24-29 weeks ago	3
30-39 weeks ago	5
40-51 weeks ago	4
≥52 weeks ago	16
	Total: 27

Confidence intervals

There is uncertainty inherent in both inputs to our estimates: the number of people in the population reporting Long Covid by inactivity status; and the adjusted odds ratios for inactivity by time since first SARS-CoV-2 infection and current Long Covid status. We therefore constructed confidence intervals around our estimates using simulation:

1. For each time-since-infection stratum, take a random draw from the normal distribution with mean equal to the total number of people reporting Long Covid who are inactive, and standard deviation equal to the corresponding standard error.
2. For each time-since-infection stratum, take a random draw from the normal distribution with mean equal to the estimated coefficient for the 'currently reporting Long Covid' group from the conditional logit model, and standard deviation equal to the corresponding standard error.
3. For each time-since-infection stratum, take the antilog of the value randomly drawn in step 2 above to obtain the corresponding aOR.
4. Go through steps 1-7 in the 'point estimates' subsection, but replacing y_i and r_i by their randomly drawn values, y_i^* and r_i^* , to obtain Δ^* .
5. Repeat steps 1-4 above a further 9,999 times (i.e., 10,000 iterations in total).
6. Calculate the standard deviations of the sampling distributions of y^* and Δ^* , s^{y^*} and s^{Δ^*} respectively. These provide estimates of the standard errors of y and Δ respectively.
7. Construct 95% confidence intervals around y and Δ :

$$y \pm 1.96 \times s^{y^*}; \Delta \pm 1.96 \times s^{\Delta^*}$$

References

¹ Office for National Statistics. Number of working-age non-students with self-reported long COVID, and those who are economically inactive (excluding retirement), by time since first COVID-19 infection, UK: July 2022. 2023.
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