

Supplementary Online Content

Matta J, Wiernik E, Robineau O, et al; Santé, Pratiques, Relations et Inégalités Sociales en Population Générale Pendant la Crise COVID-19—Sérologie (SAPRIS-SERO) Study Group. Association of self-reported COVID-19 Infection and SARS-CoV-2 serology test results with persistent physical symptoms among French adults during the COVID-19 pandemic. Published online November 8, 2021. *JAMA Intern Med*. doi:10.1001/jamainternmed.2021.6454

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This supplementary material has been provided by the authors to give readers additional information about their work.

eTable 1. Characteristics of the Study Population and the CONSTANCES Population

	Study population (N=26,823)	CONSTANCES population (N=201,762)
Age (years), mean (SD)	49.42 (12.87)	47.02 (13.51)
Sex (women), N (%)	13,731 (51.19)	108,178 (53.62)
Monthly income N (%)	missing=253	missing=6179
Less than 450 euros	69 (0.26)	1433 (0.73)
From 450 to less than 1000 euros	293 (1.10)	6612 (3.38)
From 1000 to less than 1500 euros	741 (2.79)	13,218 (6.76)
From 1500 to less than 2100 euros	1828 (6.88)	21,523 (11.00)
From 2100 to less than 2800 euros	3199 (12.04)	29,190 (14.92)
From 2800 to less than 4200 euros	8563 (32.23)	58,230 (29.77)
4200 euros or higher	11,026 (41.50)	54,073 (27.65)
Does not know how to answer	166 (0.62)	2246 (1.15)
Does not wish to answer	685 (2.58)	9058 (4.63)
Educational level, N (%)	missing=247	missing=5036
No diploma	148 (0.56)	5685 (2.89)
General education certificate, Primary education certificate, School-leaving certificate	863 (3.25)	11,100 (5.64)
Certificate of professional competence, vocational training certificate	2518 (9.47)	31,448 (15.99)
Baccalaureate or equivalent diploma	3711 (13.96)	32,419 (16.48)
Baccalaureate + 2 or 3 years	7392 (27.81)	51,041 (25.95)
Baccalaureate + 4 years	2884 (10.85)	16,596 (8.44)
Baccalaureate + 5 years and more	9012 (33.91)	47,912 (24.35)
Other	48 (0.18)	525 (0.27)
Self-rated health (scale from 1 to 8^a), N (%)	missing=203	missing=9996
1	4135 (15.53)	18,821 (9.81)
2	13,353 (50.16)	73,938 (38.56)
3	5783 (21.72)	57,488 (29.98)
4	1716 (6.45)	21,882 (11.41)
5	813 (3.05)	12,027 (6.27)
6	554 (2.08)	6229 (3.25)
7	204 (0.77)	1088 (0.57)
8	62 (0.23)	293 (0.15)

^a Lower scores indicate better self-rated health.

eTable 2. Comparison of the Characteristics of Participants With Positive Belief and Negative Belief

	Belief- (N=25,909)	Belief+ (N=914)	P- value
Age (years), mean (SD)	49.62 (12.85)	43.72 (11.96)	<0.001
Sex (women), N (%)	13,210 (50.99)	521 (57.00)	<0.001
Monthly income (missing=253), N (%)			0.34
Less than 450 euros	65 (0.25)	4 (0.44)	
From 450 to less than 1000 euros	280 (1.09)	13 (1.43)	
From 1000 to less than 1500 euros	711 (2.77)	30 (3.30)	
From 1500 to less than 2100 euros	1773 (6.91)	55 (6.06)	
From 2100 to less than 2800 euros	3106 (12.10)	93 (10.24)	
From 2800 to less than 4200 euros	8261 (32.19)	302 (32.26)	
4200 euros or higher	10,645 (41.48)	381 (41.96)	
Does not know how to answer	157 (0.61)	9 (0.99)	
Does not wish to answer	664 (2.59)	21 (2.31)	
Educational level (missing=247), N (%)			<0.001
No diploma	147 (0.57)	1 (0.11)	
General education certificate, Primary education certificate, School-leaving certificate	841 (3.28)	22 (2.41)	
Certificate of professional competence, vocational training certificate	2470 (9.62)	48 (5.27)	
Baccalaureate or equivalent diploma	3608 (14.06)	103 (11.31)	
Baccalaureate + 2 or 3 years	7132 (27.79)	260 (28.54)	
Baccalaureate + 4 years	2785 (10.85)	99 (10.87)	
Baccalaureate + 5 years and more	8635 (33.65)	377 (41.38)	
Other	47 (0.18)	1 (0.11)	
Self-rated health (scale from 1 to 8^a, missing=203), N (%)			0.75
1	4003 (15.57)	132 (14.55)	
2	12,893 (50.14)	460 (50.72)	
3	5575 (21.68)	208 (22.93)	
4	1660 (6.46)	56 (6.17)	
5	791 (3.08)	22 (2.43)	
6	532 (2.07)	22 (2.43)	
7	198 (0.77)	6 (0.66)	
8	61 (0.24)	1 (0.11)	

P-values reflect the statistical significance of between-group differences according to t-tests or Chi-square tests.

^a Lower scores indicate better self-rated health.

eTable 3. Comparison of the Characteristics of Participants With Positive Serology and Negative Serology

	Serology- (N=25,732)	Serology+ (N=1091)	P- value
Age (years), mean (SD)	49.72 (12.84)	42.43 (11.59)	<0.001
Sex (women), N (%)	13,099 (50.91)	632 (57.93)	<0.001
Monthly income (missing=253), N (%)			0.001
Less than 450 euros	65 (0.26)	4 (0.37)	
From 450 to less than 1000 euros	279 (1.09)	14 (1.29)	
From 1000 to less than 1500 euros	689 (2.70)	52 (4.80)	
From 1500 to less than 2100 euros	1753 (6.88)	75 (6.92)	
From 2100 to less than 2800 euros	3084 (12.10)	115 (10.61)	
From 2800 to less than 4200 euros	8188 (32.13)	375 (34.59)	
4200 euros or higher	10,603 (41.60)	423 (39.02)	
Does not know how to answer	160 (0.63)	6 (0.55)	
Does not wish to answer	665 (2.61)	20 (1.85)	
Educational level (missing=247), N (%)			<0.001
No diploma	148 (0.58)	0	
General education certificate, Primary education certificate, School-leaving certificate	841 (3.30)	22 (2.03)	
Certificate of professional competence, vocational training certificate	2474 (9.71)	44 (4.05)	
Baccalaureate or equivalent diploma	3588 (14.08)	123 (11.33)	
Baccalaureate + 2 or 3 years	7074 (27.75)	318 (29.28)	
Baccalaureate + 4 years	2762 (10.84)	122 (11.23)	
Baccalaureate + 5 years and more	8556 (33.57)	456 (41.99)	
Other	47 (0.18)	1 (0.09)	
Self-rated health (scale from 1 to 8a, missing=203), N (%)			0.31
1	3961 (15.51)	174 (16.07)	
2	12,781 (50.05)	572 (52.82)	
3	5568 (21.80)	215 (19.85)	
4	1650 (6.46)	66 (6.09)	
5	787 (3.08)	26 (2.40)	
6	533 (2.09)	21 (1.94)	
7	195 (0.76)	9 (0.83)	
8	62 (0.24)	0	

P-values reflect the statistical significance of between-group differences according to t-tests or Chi-square tests.

^a Lower scores indicate better self-rated health.

eTable 4. Characteristics of Participants by Belief and Serology Status

	Belief- /Serology- (N=25,271)	Belief+ /Serology- (n=461)	Belief- /Serology+ (N=638)	Belief+ /Serology+ (N=453)	P- value
Age (years), mean (SD)	49.82 (12.83)	43.56 (11.98)	41.62 (11.25)	43.89 (11.94)	<0.001
Sex (women), N (%)	12,829 (50.77)	251 (55.41)	381 (59.72)	270 (58.57)	<0.001
Monthly income (missing=253), N (%)					0.028
Less than 450 euros	63 (0.25)	2 (0.44)	2 (0.32)	2 (0.44)	
From 450 to less than 1000 euros	274 (1.09)	8 (1.78)	6 (0.95)	5 (1.09)	
From 1000 to less than 1500 euros	681 (2.72)	22 (4.89)	30 (4.73)	8 (1.75)	
From 1500 to less than 2100 euros	1723 (6.88)	25 (5.56)	50 (7.89)	30 (6.55)	
From 2100 to less than 2800 euros	3039 (12.14)	48 (10.67)	67 (10.57)	45 (9.83)	
From 2800 to less than 4200 euros	8033 (32.10)	147 (32.67)	228 (35.96)	155 (33.84)	
4200 euros or higher	10,408 (41.59)	186 (41.33)	237 (37.38)	195 (42.58)	
Does not know how to answer	155 (0.62)	4 (0.89)	2 (0.32)	5 (1.09)	
Does not wish to answer	652 (2.61)	8 (1.78)	12 (1.89)	13 (2.84)	
Educational level (missing=247), N (%)					<0.001
No diploma	147 (0.59)	0	0	1 (0.22)	
General education certificate, Primary education certificate, School-leaving certificate	832 (3.32)	13 (2.88)	9 (1.42)	9 (1.96)	
Certificate of professional competence, vocational training certificate	2450 (9.79)	24 (5.31)	20 (3.15)	24 (5.23)	
Baccalaureate or equivalent diploma	3535 (14.12)	50 (11.06)	73 (11.51)	53 (11.55)	
Baccalaureate + 2 or 3 years	6944 (27.74)	130 (28.76)	188 (29.65)	130 (28.32)	

Baccalaureate + 4 years	2715 (10.85)	52 (11.50)	70 (11.04)	47 (10.24)	
Baccalaureate + 5 years and more	8362 (33.41)	183 (40.49)	273 (43.06)	194 (42.27)	
Other	46 (0.18)	0	1 (0.16)	1 (0.22)	
Self-rated health (scale from 1 to 8^a, missing=203), N (%)					0.53
1	3901 (15.55)	72 (15.96)	102 (16.14)	60 (13.16)	
2	12,547 (50.03)	226 (50.11)	346 (54.75)	234 (51.32)	
3	5454 (21.75)	94 (20.84)	121 (19.15)	114 (25.00)	
4	1627 (6.49)	33 (7.32)	33 (5.22)	23 (5.04)	
5	776 (3.09)	11 (2.44)	15 (2.37)	11 (2.41)	
6	523 (2.09)	12 (2.66)	9 (1.42)	10 (2.19)	
7	192 (0.77)	3 (0.67)	6 (0.95)	3 (0.66)	
8	61 (0.24)	0	0	1 (0.22)	

P-values reflect the statistical significance of between-group differences according to ANOVA F-tests or Chi-square tests.

^a Lower scores indicate better self-rated health.

eTable 5. Self-Reported Confirmation of the Diagnosis Among Participants Who Believe They Have Had COVID-19

Answers to the question: ‘Has this been confirmed?’	N (%)
‘Yes, by virological or PCR test’	165 (16.48)
‘Yes, by antigenic test’	7 (0.70)
‘Yes, by serological test’	321 (32.07)
‘Yes, by rapid diagnostic test’	17 (1.70)
‘Yes, by saliva test’	0
‘Yes, by chest CT scan’	18 (1.80)
‘Yes, by a physician (without testing)’	128 (12.79)
‘No, but I think I had it’	333 (33.27)
‘I don’t know’	12 (1.20)

eTable 6. Associations Between Persistent Symptoms, Belief and Serology Test Results, Further Adjusting for Self-Rated Health (Model 4) or Depressive Symptoms (Model 5)

Symptoms	N	Model 4		Model 5	
		Belief OR (95%CI)	Serology OR (95%CI)	Belief OR (95%CI)	Serology OR (95%CI)
Sleep problems	2729	1.14 (0.89-1.46)	0.90 (0.70-1.14)	0.96 (0.74-1.25)	0.95 (0.74-1.22)
Joint pain	1894	1.39 (1.03-1.88)	0.88 (0.65-1.21)	1.31 (0.97-1.77)	0.90 (0.66-1.23)
Back pain	1630	1.37 (1.04-1.82)	1.03 (0.78-1.36)	1.29 (0.97-1.72)	1.04 (0.78-1.37)
Digestive track problems ^a	909	2.15 (1.53-3.03)	0.72 (0.48-1.08)	1.97 (1.40-2.77)	0.76 (0.51-1.14)
Muscular pain, sore muscles	867	1.81 (1.24-2.65)	0.99 (0.66-1.49)	1.57 (1.07-2.30)	1.07 (0.71-1.59)
Fatigue	766	5.08 (3.91-6.59)	1.10 (0.81-1.49)	4.54 (3.45-5.96)	1.24 (0.91-1.70)
Poor attention or concentration	644	3.43 (2.50-4.71)	1.16 (0.81-1.66)	3.08 (2.21-4.30)	1.26 (0.87-1.82)
Skin problems	632	1.77 (1.15-2.71)	0.50 (0.29-0.85)	1.59 (1.03-2.46)	0.51 (0.30-0.88)
Other symptoms ^b	514	2.92 (1.97-4.32)	1.11 (0.72-1.73)	2.63 (1.78-3.90)	1.15 (0.74-1.79)
Sensory symptoms	492	2.06 (1.25-3.42)	0.54 (0.28-1.04)	1.92 (1.16-3.17)	0.55 (0.28-1.05)
Hearing impairment	479	1.45 (0.82-2.56)	1.04 (1.03-1.05)	1.33 (0.75-2.35)	1.05 (0.59-1.88)
Headache	360	2.36 (1.48-3.74)	1.12 (0.68-1.85)	2.13 (1.34-3.39)	1.17 (0.70-1.93)
Breathing difficulties	256	7.70 (5.20-11.40)	1.10 (0.68-1.76)	6.79 (4.56-10.11)	1.19 (0.74-1.91)
Palpitations	213	5.09 (3.14-8.24)	1.06 (0.59-1.88)	4.49 (2.77-7.29)	1.12 (0.63-2.01)
Dizziness	178	2.68 (1.38-5.22)	1.44 (0.70-2.93)	2.40 (1.24-4.65)	1.51 (0.74-3.05)
Chest pain	174	6.27 (3.79-10.36)	1.31 (0.73-2.34)	6.07 (3.69-9.98)	1.31 (0.73-2.35)
Cough	167	4.45 (2.48-7.98)	0.98 (0.48-1.98)	4.56 (2.57-8.08)	0.94 (0.46-1.90)
Anosmia	146	17.27 (10.75-27.60)	2.57 (1.56-4.21)	15.29 (9.53-24.55)	2.81 (1.71-4.63)

Model 4 includes both belief and serology test results, controlling for age, sex, educational level, income and self-rated health in 2019 (measured before the pandemic)

Model 5 includes both belief and serology test results, controlling for age, sex, educational level, income and depressive symptoms during the SAPRIS survey (measured during the pandemic)

^a*Digestive track problems refer to the presence of one or more of the following persistent symptoms (nausea, diarrhea, constipation and stomach pain).*

^b*Other symptoms refer to additional symptoms that patients declared and are not on the symptom list, plus symptoms with a low number of cases such as speech problems, fever or fever sensation, anomaly of the facial nerves and discomfort.*

eTable 7. Associations Between the Serology Results or the Confirmation of the Diagnosis by a Test or a Physician and Persistent Symptoms Attributed to the COVID-19 Among Individuals Who Believe They Have Had the Disease

Symptoms	N	Model 6 Serology OR (95% CI)	Model 7 Self-reported confirmation of the diagnosis by a test or a physician OR (95% CI)
Sleep problems	54	0.76 (0.42-1.36)	0.92 (0.51-1.67)
Joint pain	35	1.38 (0.69-2.73)	1.40 (0.64-3.03)
Back pain	38	1.58 (0.80-3.09)	1.24 (0.60-2.55)
Digestive track problems ^a	29	0.61 (0.27-1.35)	1.16 (0.50-2.49)
Muscular pain, sore muscles	27	1.05 (0.48-2.29)	1.40 (0.58-3.38)
Fatigue	82	1.17 (0.73-1.88)	1.43 (0.85-2.39)
Poor attention or concentration	53	1.45 (0.82-2.57)	1.73 (0.89-3.34)
Skin problems	14	0.61 (0.20-1.91)	0.87 (0.28-2.65)
Other symptoms ^b	26	1.44 (0.65-3.18)	1.47 (0.60-3.56)
Sensory symptoms	12	0.21 (0.04-1.01)	0.65 (0.20-2.08)
Hearing impairment	9	3.99 (0.82-19.45)	1.03 (0.25-4.22)
Headache	18	1.18 (0.45-3.12)	1.32 (0.46-3.79)
Breathing difficulties	44	0.85 (0.45-1.59)	1.41 (0.71-2.80)
Palpitations	18	0.95 (0.38-2.37)	1.06 (0.39-2.87)
Dizziness	11	1.37 (0.41-4.58)	2.18 (0.46-10.35)
Chest pain	25	1.16 (0.50-2.67)	1.15 (0.48-2.73)
Cough	14	0.89 (0.29-2.70)	1.73 (0.47-6.31)
Anosmia	61	2.99 (1.59-5.60)	4.29 (1.92-9.58)

Model 6 includes the self-reported confirmation of the diagnosis by a test or a physician, controlling for age, sex, educational level and income

Model 7 includes the serology test results, controlling for age, sex, educational level and income

^a*Digestive track problems refer to the presence of one or more of the following persistent symptoms (nausea, diarrhea, constipation and stomach pain).*

^b*Other symptoms refer to additional symptoms that patients declared and are not on the symptoms list, plus symptoms with a low number of cases such as speech problems, fever or fever sensation, anomaly of the facial nerves and discomfort.*

eFigure. Timeline of the Study

