

Figure 1: Flow diagram of study participant recruitment process.

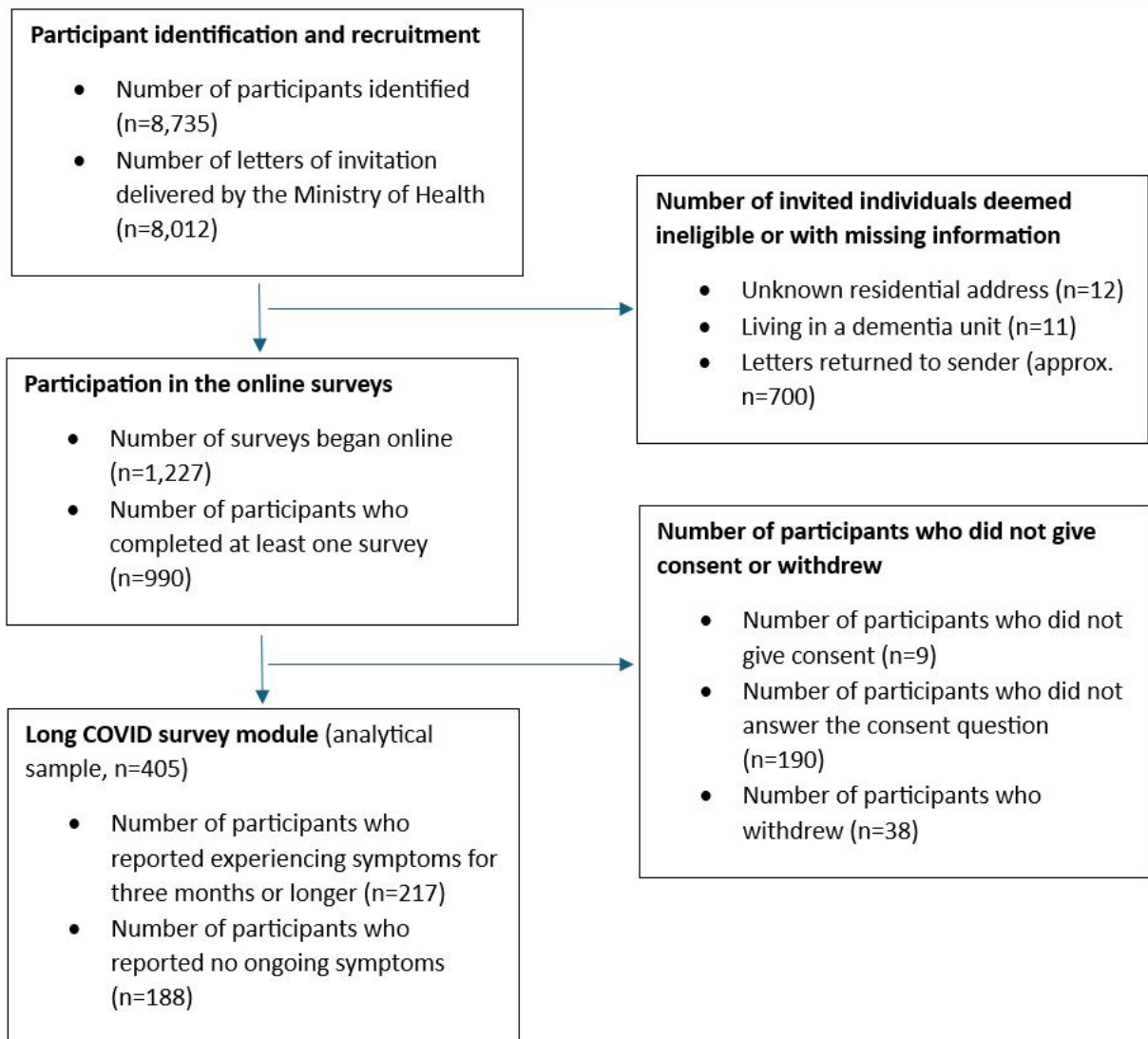


Table 1: Participant characteristics and the association between exposure variables and long COVID among 405 people in Aotearoa New Zealand.

Variable	Category	LC (%) n=217	No LC (%) n=188	OR (95% CI)	p-value
Age	15–24	21 (9.7)	21 (11.2)	0.89 (0.45–1.75)	0.73
	25–44	90 (41.5)	80 (42.6)	Reference	
	45–64	86 (39.6)	67 (35.6)	1.14 (0.74–1.77)	0.56
	65+	20 (9.2)	20 (10.6)	0.89 (0.45–1.77)	0.74
Gender	Male	61 (28.1)	60 (31.9)	Reference	
	Female	156 (71.9)	128 (68.1)	1.20 (0.78–1.84)	0.40
Ethnicity	Māori	33 (15.2)	28 (14.9)	0.90 (0.52–1.57)	0.72
	Pacific peoples	3 (1.4)	15 (8.0)	0.15 (0.04–0.54)	0.004
	Asian	9 (4.2)	13 (6.9)	0.53 (0.22–1.28)	0.16
	Other	172 (79.3)	132 (70.2)	Reference	
Education	School	46 (21.2)	38 (20.2)	1.02 (0.62–1.68)	0.94
	Post-school	44 (20.3)	43 (22.9)	0.86 (0.53–1.41)	0.56
	University	127 (58.5)	107 (56.9)	Reference	
Income struggle	Strongly agree/ agree	29 (13.4)	24 (12.8)	1.19 (0.65–2.21)	0.57
	Neither agree nor disagree	25 (11.5)	22 (11.7)	1.12 (0.59–2.14)	0.72
	Disagree/ strongly disagree	90 (41.5)	89 (47.3)	Reference	
	Missing	73 (33.6)	53 (28.2)	1.36 (0.86–2.16)	0.19
Household crowding	Overcrowding	10 (4.6)	12 (6.4)	0.71 (0.30–1.68)	0.43
	None	207 (95.4)	176 (93.6)	Reference	
Pre-COVID disability	Pre-COVID disabled	23 (10.6)	13 (6.9)	1.60 (0.78–3.25)	0.20
	Non-disabled ⁱ	194 (89.4)	175 (93.1)	Reference	
COVID Vaccination	Vaccinated	126 (58.1)	123 (65.4)	0.73 (0.49–1.10)	0.13
	Unvaccinated	91 (41.9)	65 (34.6)	Reference	
Hospitalisation with COVID	Hospitalised	23 (10.6)	19 (10.1)	1.05 (0.56–2.00)	0.87
	Not hospitalised	194 (89.4)	169 (89.9)	Reference	

LC = long COVID; OR = odds ratio; 95% CI = 95% confidence interval.

ⁱNon-disabled cohort also includes participants who identified as having a disability that began after COVID-19 infection (n=30).

Table 2: Crude association between metabolic risk factors and long COVID among 405 people in Aotearoa New Zealand.

Variable	Category	LC (%) n=217	No LC (%) n=188	OR (95% CI)	p-value
BMI	High ($\geq 25\text{kg/m}^2$)	104 (47.9)	86 (45.7)	2.16 (1.25–3.72)	0.006
	Underweight/ normal ($< 25\text{kg/m}^2$)	28 (12.9)	50 (26.6)	Reference	
	Missing	85 (39.2)	52 (27.7)	2.92 (1.64–5.20)	<0.001
High blood pressure	Yes	11 (5.1)	9 (4.8)	1.06 (0.43–2.62)	0.90
	No	206 (94.9)	179 (95.2)	Reference	
Diabetes	Yes	6 (2.8)	5 (2.7)	1.04 (0.31–3.47)	0.95
	No	211 (97.2)	183 (97.3)	Reference	
Heart disease	Yes	7 (3.2)	2 (1.1)	3.10 (0.64–15.11)	0.16
	No	210 (96.8)	186 (98.9)	Reference	
Stroke	Yes	1 (0.5)	1 (0.5)	0.87 (0.05–13.94)	0.92
	No	216 (99.5)	187 (99.5)	Reference	

LC = long COVID; OR = odds ratio; 95% CI = 95% confidence interval; BMI = body mass index.

Table 3: The association between metabolic risk factors and long COVID (multivariable logistic regression model).

Variable	Category	*aOR (95% CI)	p-value
BMI	High BMI ($\geq 25\text{kg/m}^2$)	2.35 (1.33–4.17)	0.003
	Underweight/normal ($< 25\text{kg/m}^2$)	Reference	
	Missing	5.46 (1.74–17.2)	0.004
High blood pressure	Yes	1.34 (0.50–3.60)	0.56
	No	Reference	
Diabetes	Yes	1.52 (0.41–5.62)	0.53
	No	Reference	
Heart disease	Yes	4.31 (0.80–23.3)	0.090
	No	Reference	
Stroke	Yes	1.02 (0.05–18.69)	0.99
	No	Reference	

aOR = adjusted odds ratio; 95% CI = 95% confidence interval; BMI = body mass index.

*Adjusted for age, gender, prioritised ethnicity, education, income struggle, overcrowding, pre-COVID disability, COVID-19 vaccine and COVID-related hospitalisation.

Table 4: Sensitivity analysis for BMI and the risk of long COVID.

	Treatment of missing BMI data	OR (95% CI)	p-value	*aOR (95% CI)	p-value
Scenario 1	Underweight/normal/missing BMI	Reference		Reference	
	High BMI	1.09 (0.74–1.61)	0.66	1.73 (1.02–2.93)	0.042
Scenario 2	Underweight/normal BMI	Reference		Reference	
	High/missing	2.45 (1.47–4.08)	0.001	2.53 (1.44–4.45)	0.001

BMI = body mass index; OR = odds ratio; 95% CI = 95% confidence interval; aOR = adjusted odds ratio.

*Adjusted for age, gender, prioritised ethnicity, education, income struggle, overcrowding, pre-COVID disability, COVID-19 vaccine and COVID-related hospitalisation.

Table 5: BMI and the risk of long COVID stratified by Māori/non-Māori.

Variable	Category	Māori (%)	OR (95% CI)	p-value	Non-Māori (%)	OR (95% CI)	p-value
BMI	High BMI	32 (52.5)	1.70 (0.25–11.59)	0.59	158 (45.9)	2.22 (1.25–3.93)	0.006
	Under-weight/ normal BMI	5 (8.2)	Reference		73 (21.2)	Reference	
	Missing	24 (39.3)	2.10 (0.29–14.98)	0.66	113 (32.9)	3.06 (1.66–5.64)	<0.001

BMI = body mass index; OR = odds ratio; 95% CI = 95% confidence interval.