

Appendix 1 – Survey questions considered

Survey question	Available responses
A. Have you received a COVID-19 vaccine?	<ol style="list-style-type: none"> 1. Yes - 1 dose 2. Yes - 2 doses 3. Yes - 3 doses or more (including a booster dose) 4. No - I have been offered the COVID-19 vaccine, but I have not had it 5. No - I have not received a COVID-19 vaccine nor been invited to have one 6. Prefer not to say
<p>B. Which of the following best describes why you have only had one dose of/only had two doses of/not yet had the COVID-19 vaccine? <i>Please select all that apply.</i></p> <p>Base: All adults who have not had the COVID-19 vaccine or have had fewer than three doses, despite being invited (QA=1, 2 or 4)</p>	<ol style="list-style-type: none"> 1. I am worried about side effects of the vaccine 2. I am medically exempt 3. I don't trust the intentions behind wanting to vaccinate the public against COVID-19 4. I don't think the vaccine is effective / don't think it works 5. I don't think the COVID-19 is enough of a risk for me 6. I don't have time to attend a vaccine appointment 7. I don't think the vaccine is safe 8. Other reason 9. Prefer not to say
<p>C. Which of the following, if any, do you think would be most important in making COVID-19 public health messages effective? <i>Please select up to three.</i></p>	<ol style="list-style-type: none"> 1. Easy to relate to 2. Concise 3. From a reliable source 4. Timely 5. Informative 6. Memorable 7. Achievable 8. Accurate 9. Eye-catching 10. Encouraging 11. None of the above 12. Don't know
<p>D. In which of the following ways, if any, have you seen, heard, or received information about COVID-19? And which of these have been the main ways in which you have seen, heard or received information about COVID-19? <i>Please select up to three.</i></p>	<ol style="list-style-type: none"> 1. Government briefings/updates 2. Mainstream news outlet online/in app 3. Family 4. Radio 5. Friends 6. Print media 7. Medical professionals 8. Posters or billboards 9. From my employer 10. Colleagues 11. WhatsApp or other private messenger apps 12. Other social media 13. Facebook timeline 14. Twitter timeline

	<ol style="list-style-type: none"> 15. Community leaders/community groups 16. Research papers in academic journals 17. Professional/academic conferences 18. Podcasts 19. Messenger (previously Facebook Messenger) 20. Charity communications 21. Direct Message on Twitter 22. None of these 23. Don't know
<p>E. How often, if at all, have you shared views, information, content, or feelings about COVID-19 in the following ways <u>online</u>?</p> <ul style="list-style-type: none"> ▪ Made comments in online forums ▪ Made comments on online news sites ▪ Made comments on social media ▪ Shared links on social media or direct messaging <u>without commenting</u> (including WhatsApp) ▪ Shared memes on social media or direct messaging <u>without commenting</u> (including WhatsApp) ▪ Shared <u>and</u> commented on links on social media or direct messaging (including WhatsApp) ▪ Shared <u>and</u> commented on memes on social media or direct messaging (including WhatsApp) ▪ Exchanged direct messages online with people I personally know in real life (including via WhatsApp) ▪ Exchanged direct messages online with people I know online ▪ Exchanged direct messages online with strangers ▪ Created my own original video content ▪ Created my own original meme content ▪ Created my own original commentary online (e.g., published blog post, wall post, etc.) 	<ol style="list-style-type: none"> 1. Never 2. Rarely 3. Occasionally/Sometimes 4. Fairly often 5. Very often 6. Don't know

Appendix 2 – Message types considered and stimuli provided to respondents

Message type	Stimuli and variations
Personal responsibility and self-efficacy (modality)	a) You should wear a face covering (over mouth and nose) if you are visiting a hospital.
	b) You must wear a face covering [...]
Personal responsibility and self-efficacy (exclusivity)	a) Stopping the spread starts with you .
	b) Stopping the spread starts with all of us .
Threat and fear appeals: modality	a) If you go out, you can spread it, people will die.
	b) If you go out, you can spread it, people could die.
Threat and fear appeals: proximity	a) Stay at home. For your family . For your friends .
	b) Stay at home. For your neighbours . For our NHS .
Threat and fear appeals: social consequences	a) Stay home this bank holiday weekend. Don't put your family and friends in danger.
	b) [...] Don't put yourself in danger.
Moralizing messages	a) I wear this to protect you. Please wear yours to protect me. You should wear a face covering to keep your nose and mouth covered at all times on public transport, unless you have good reasons not to.
	b) [...] You must wear a face covering [...]
Framing (positive vs negative)	a) You should only be going shopping for essentials like food and medicine, and you should do this as infrequently as possible.
	b) You should not be going shopping except for essentials [...]
Grammatical mood (declarative vs imperative)	a) Coronavirus. Staying at home saves lives.
	b) Coronavirus. Stay at home save lives.

Appendix 3 – Main collocates of ‘vaccine’ and ‘vaccinate’

Grammatical patterns with 'vaccine'	UK (439 hits; RF: 228.24)	Scotland (733 hits; RF: 108.39)	Wales (472 hits; RF:149.05)
<i>modifiers of 'vaccine'</i>	(98/22.3) (RF: 50.95)	(125/17.1) (RF: 18.48)	(187/39.6) (RF: 59.05)
	<i>Total hits: 48 (RF: 24.95)</i>	<i>Total hits: 60 (RF: 8.87)</i>	<i>Total hits: 91 (RF: 28.73)</i>
Vaccine brands / labs / types	AstraZeneca (11/11.7); Oxford (8/11.1); Pfizer (7/11.1); BioNTech (6/10.9); Pfizer-BioNTech (4/10.3); Moderna (3/9.92); COVID (3/9.45)	Pfizer (18/12); AstraZeneca (8/10.9); Zeneca (5/10.3); Astra (5/10.3); Moderna (4/9.97); COVID-19 (6/9.94); Covid (8/9.42)	COVID-19 (28/11); AstraZeneca (11/10.8); Covid-19 (13/10.6); Pfizer (7/10.2); BioNTech (6/9.99); Oxford (5/9.69); Moderna (4/9.42)
	<i>Total hits: 4 (RF: 2.07)</i>	<i>Total hits: 19 (RF: 2.81)</i>	<i>Total hits: 47 (RF: 14.84)</i>
Vaccine doses	third (2/9.02); first (2/7.92)	booster (7/9.89); first (10/8.71); third (2/8.14)	booster (15/10.9; first (11/9.75); second (7/9.7); third (3/8.5); dose (2/8.41); additional (2/7.4)
	<i>Total hits: 18 (RF: 9.35)</i>	<i>Total hits: 9 (RF: 1.33)</i>	<i>Total hits: 12 (RF: 3.79)</i>
Evaluative qualifiers	successful (4/10.2); effective (4/10.1); different (4/9.86); tricky (2/9.35); new (4/8.05)	effective (4/9.58); safe (2/8.24); new (3/6.23)	effective (5/9.51); free (3/8.55); new (4/7.09)
<i>nouns modified by 'vaccine'</i>	(89/20.3) (RF: 46.27)	(134/18.3) (RF: 19.81)	(94/19.9) (RF: 29.68)
	<i>Total hits: 35 (RF: 18.19)</i>	<i>Total hits: 49 (RF: 7.24)</i>	<i>Total hits: 30 (RF: 9.43)</i>
Vaccination strategy	rollout (11/11.7); deployment (4/10.3); programme (10/10.3); plan (6/10.1); distribution (2/9.48); supply (2/9.19)	supply (13/11); programme (24/10.4); deployment (3/9.45); offer (3/9.38); delivery (3/9.17)	programme (15/10.2); offer (4/9.93); strategy (4/9.61); supply (3/9.55); rollout (2/9.34); roll (2/9.3); coverage (2/9.17)
	<i>Total hits: 21 (RF: 10.91)</i>	<i>Total hits: 6 (RF: 0.89)</i>	
Vaccine development/ studies	development (6/10.8); Taskforce (5/10.7); candidate (4/10.4); advance (2/9.32); Force (2/9.23); testing (2/8.3)	trial (3/9.23); development (3/9.15)	
	<i>Total hits: 2 (RF: 1.03)</i>	<i>Total hits: 23 (RF: 3.40)</i>	<i>Total hits: 5 (RF: 1.58)</i>
Uptake	uptake (2/9.42)	certification (12/11.1); certificate (13/11); hesitancy (2/8.91); uptake (2/8.65); appointment (2/8.46)	status (3/9.65); uptake (2/9.35)
		<i>Total hits: 4 (RF: 0.59)</i>	<i>Total hits: 5 (RF: 1.58)</i>
Safety		immunity (2/8.86); protection (2/8.08)	safety (3/9.67); protection (2/8.65)
<i>verbs with 'vaccine' as object</i>	(108/24.6) (RF: 56.15)	(133/18.1) (RF: 19.66)	(158/33.5) (RF: 49.89)
	<i>Total hits: 31 (RF: 16.12)</i>	<i>Total hits: 30 (RF: 4.44)</i>	<i>Total hits: 55 (RF: 17.37)</i>
Vaccination strategy	deploy 86/10.6); offer (7/10.4); produce (4/10); deliver (4/9.34); roll (2/9.17); secure (2/8.9); make (4/8.42); provide (2/8.08)	administer (9/10.8); deliver (10/10.4); offer (8/9.79); make (3/6.6)	administer (9/10.7); offer (14/10.4); transport (4/9.59); deliver (7/9.33); give (6/9.31); store (3/9.25); manufacture (3/9.18); procure (2/8.66); deploy

			(2/8.6); provide (3/6.87); make (2/6.8)
Vaccine development / studies	<i>Total hits: 31 (RF: 16.12)</i>	<i>Total hits: 10 (RF: 1.48)</i>	<i>Total hits: 7 (RF: 2.21)</i>
	develop (14/11.4); approve (9/11.3); find (6/10.4); authorise (2/9.19)	approve (5/10.2); authorise (2/8.92); develop (3/8.8)	approve (4/9.56); authorise (3/9.23)
Uptake	<i>Total hits: 13 (RF: 6.76)</i>	<i>Total hits: 21 (RF: 3.11)</i>	<i>Total hits: 39 (RF: 12.32)</i>
	receive (3/9.21); get (8/9.19); take (2/7.12)	receive (17/10); get (17/9.54); take (4/6.39)	get (19/10.8); receive (10/9.78); take (8/8.68); request (2/8.6)
verbs with 'vaccine' as subject	(111/25.3) (RF: 57.71)	(154/21) (RF: 22.77)	(106/22.5) (RF: 33.47)
Safety	<i>Total hits: 14 (RF: 7.28)</i>	<i>Total hits: 15 (RF: 2.22)</i>	<i>Total hits: 5 (RF: 1.58)</i>
	save (3/9.64); reduce (2/9.14); secure (2/9.04); protect (2/9.02); help (2/8.79); work (3/8.71)	reduce (5/9.58); offer (4/9.48); work (5/8.73)	offer (5/10)
Grammatical patterns with 'vaccinate'	UK (73 hits) (RF: 37.95)	Scotland (456 hits) (RF: 67.43)	Wales (119 hits) (RF: 37.58)
modifiers of 'vaccinate'	(16/21.9) (RF: 3.07)	(154/33.8) (RF: 22.77)	(33/27.7) (RF: 10.42)
temporal references	<i>Total hits: 12 (RF: 6.24)</i>	<i>Total hits: 51 (RF: 7.54)</i>	<i>Total hits: 4 (RF: 1.26)</i>
	first (1/9.27), now (10/8.55), currently (1/8.44)	soon (11/10.4); quickly (8/9.37); yet (6/8.3); first (3/8.29); only (3/7.73); then (2/7.24), now (12/7.23), just (2/5.79)	once (1/8.65), yet (1/8.4), already (1/6.24), now (1/6.21)
vaccination references	<i>Total hits: 1 (RF: 0.52)</i>	<i>Total hits: 95 (RF: 14.05)</i>	<i>Total hits: 25 (RF: 8.84)</i>
	once (1/8.68)	fully (85/12.7); double (10/10.9)	fully (25/12.5)
objects of 'vaccinate'	(15/20.5) (RF: 7.79)	(132/28.9) (RF: 19.52)	(53/44.5) (RF: 16.74)
references to people	<i>Total hits: 15 (RF: 7.79)</i>	<i>Total hits: 88 (RF: 13.01)</i>	<i>Total hits: 33 (RF: 10.42)</i>
	someone (2/11.1), fifth (1/11), 80 (1/11) group (2/10.7), population (1/10.5), resident (1/10.1), people (7/9.04)	population (14/11.6), traveller (6/10.4), resident (6/10.2), people (35/9.82), rest (3/9.45), everybody (5/9.32), someone (3/9.09), teenager (2/8.92), group (3/8.87), individual (3/8.87), proportion (2/8.72), everyone (3/7.89), number (3/6.77)	population (4/11.1), people (18/9.62), child (3/9.5), group (2/9.34), 39-year-olds (1/9.24), passenger (1/9.12), patient (1/8.33), anyone (1/8.23), community (1/7.52), everyone (1/7.15)
qualifiers of people		<i>Total hits: 6 (RF: 0.89)</i>	<i>Total hits: 3 (RF: 0.94)</i>
		old (3/9.46), adult (3/3.34)	adult (3/10.4)

Appendix 4 – Responses to “Have you received a COVID-19 vaccine?” by demographic

Have you received a COVID-19 vaccine? Base: All adults aged 16-75 in Great Britain. 1-3 March 2022.

		Unweighted base	Yes - 1 dose	Yes - 2 doses	Yes - 3 doses	No - I have been offered the COVID-19 vaccine, but I have not had it	No - I have not received a COVID-19 vaccine nor been invited to have one	Prefer not to say
Social grade	AB	490	2%	14%	74%	5%	4%	1%
	C1	321	2%	12%	77%	5%	2%	2%
	C2	101	1%	19%	62%	11%	6%	1%
	DE	177	5%	15%	54%	12%	1%	2%
Age	16-24	160	6%	28%	29%	18%	15%	4%
	25-34	202	4%	19%	52%	14%	10%	2%
	35-44	192	3%	19%	66%	6%	4%	2%
	45-54	210	1%	10%	81%	5%	2%	*
	55-75	325	1%	6%	89%	2%	1%	1%
Household size	1	219	1%	12%	73%	10%	5%	-
	2	370	2%	9%	80%	5%	2%	1%
	3	218	4%	18%	56%	7%	13%	1%
	4+	282	3%	24%	56%	10%	4%	3%
Income	up to £19,999	238	4%	14%	62%	10%	9%	1%
	£20,000-£34,999	262	3%	15%	69%	8%	3%	2%
	£35,000 - £54,999	265	2%	18%	67%	8%	4%	1%
	£55,000+	242	1%	14%	76%	5%	4%	1%
	Prefer not to say	82	1%	9%	73%	4%	8%	5%
Education	GCSE/O Level/NV Q12	249	4%	17%	61%	9%	7%	3%
	A Level or equivalent	229	2%	18%	62%	11%	5%	2%
	Degree/Masters/PhD	565	1%	12%	77%	5%	4%	1%
	No formal qualifications	46	8%	13%	55%	10%	11%	3%

Appendix 5 – Motivations for vaccine refusal

Which of the following best describes why you have only had one dose of/ only had two doses of/ not yet had the COVID-19 vaccine? Base: 258 Adults who have not had the vaccine despite having been invited, or who have had 2 or fewer doses. 1-3 March 2022.

		Unweighted base	I am worried about side effects of the vaccine	I am medically exempt	I don't trust the intentions behind wanting to vaccinate the public against COVID-19	I don't think the vaccine is effective / don't think it works	I don't think COVID-19 is enough of a risk for me	I don't have time to attend a vaccine appointment	I don't think the vaccine is safe	Other reasons	Prefer not to say
Social grade	AB	109	31%	9%	16%	25%	18%	10%	14%	25%	3%
	C1	61	33%	2%	18%	19%	27%	11%	8%	27%	3%
	C2	31	23%	2%	29%	28%	50%	11%	17%	19%	3%
	DE	57	31%	10%	15%	25%	21%	18%	17%	15%	7%
Age	16-24	81	17%	9%	13%	24%	34%	17%	15%	14%	4%
	25-34	71	32%	5%	20%	18%	23%	15%	8%	22%	3%
	35-44	48	45%	5%	24%	29%	28%	13%	20%	15%	7%
	45-54	37	21%	6%	19%	28%	25%	10%	10%	26%	4%
	55-75	21	40%	-	29%	30%	41%	-	33%	42%	2%
Household size	1	38	43%	4%	27%	34%	41%	5%	28%	20%	2%
	2	56	28%	1%	19%	30%	24%	9%	11%	15%	3%
	3	64	28%	5%	15%	17%	26%	18%	14%	23%	2%
	4+	100	23%	10%	19%	20%	28%	17%	12%	24%	7%
Income	up to £19,999	70	37%	7%	26%	26%	35%	15%	19%	13%	5%
	£20,000-£34,999	63	33%	1%	21%	27%	27%	12%	15%	25%	3%
	£35,000-£54,999	66	21%	4%	14%	24%	32%	11%	15%	28%	5%
	£55,000+	50	19%	11%	18%	18%	17%	16%	7%	14%	5%
	Prefer not to say	9	33%	23%	11%	20%	29%	9%	11%	37%	-
Education	GCSE/ O Level/ NVQ1	74	21%	5%	17%	17%	27%	11%	18%	32%	5%
	A Level or equivalent	70	30%	6%	11%	23%	35%	11%	16%	18%	3%

<i>Degree / Master s/PhD</i>	99	40%	6%	30%	31%	29%	16%	15%	14%	3%
<i>No formal qualifications</i>	15	12%	7%	17%	32%	19%	10%	4%	18%	6%