Office for National Statistics

Article

Coronavirus and changing perceptions towards vaccination, England: 7 to 16 September 2021

Qualitative analysis of the motivations and barriers to vaccination among adults who previously declined, were unlikely to have or unsure about having a coronavirus (COVID-19) vaccine.

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1 . Main points

- Respondents from the COVID-19 Vaccine Opinions Study were able to write additional reasons, beyond those presented in multiple-selection lists, that had encouraged them, stopped them or would encourage them to get a coronavirus (COVID-19) vaccine.
- Primary motivations among adults who decided to get vaccinated included "protecting others or oneself", "regaining freedoms and rights" and "being influenced by others".
- The main reasons for those who remained unvaccinated included "feeling that the risks of a COVID-19 vaccine were too high or the benefits were too low", "distrusting or feeling discontent towards vaccine stakeholders" such as the government and vaccine manufacturers, and "lacking sufficient, trustworthy or favourable evidence on vaccine side effects, safety or effectiveness".
- Unvaccinated adults reported "having sufficient or trustworthy evidence on vaccine side effects, safety or effectiveness" and "feeling that the risks of a COVID-19 vaccine were lower or the benefits were higher" as the main factors that would encourage them to have a vaccine in the future.
- Responses often included more than one theme, particularly those reporting barriers to vaccination, which suggests that the decision of whether to have a COVID-19 vaccine is complex.
- Some interventions to reduce the spread of COVID-19, such as lockdowns and vaccine passports, encouraged some respondents to vaccinate but were a barrier to others.
- For some respondents, the barriers to vaccination were practical ones, such as having a disability or difficulty accessing a vaccination site.

2 . Overview of the study

These are findings from qualitative analysis of free-text responses collected as part of the COVID-19 Vaccine Opinions Study (VOS). VOS identified changes in uptake and attitudes towards coronavirus (COVID-19) vaccines among adults in England who had taken part in the Opinions and Lifestyle Survey (OPN) between 13 January and 8 August 2021.

It focused on adults who reported having declined a vaccine when offered, being unlikely to have it or unsure about having it if offered. Although there was a steady decline in this population over the same period from 10% to 3% of all adults, this research is important for understanding previously unvaccinated adults' motivations and barriers to vaccination.

Respondents were asked to choose from multiple selection lists and select all the applicable reasons:

- that encouraged them to vaccinate if they had received a vaccine
- that had stopped them from getting a vaccine
- that would make them more likely to have a vaccine if they remained unvaccinated

Respondents were also given the opportunity to write additional reasons into a free-text box.

Free-text responses often included more than one theme, particularly those reporting barriers to vaccination, which suggests that the decision of whether to have a COVID-19 vaccine is complex.

This research employed a new methodological approach that combines natural language processing techniques and thematic analysis to identify and analyse themes and sub-themes within the data. See Data sources and quality for more information about our methodology and sample characteristics.

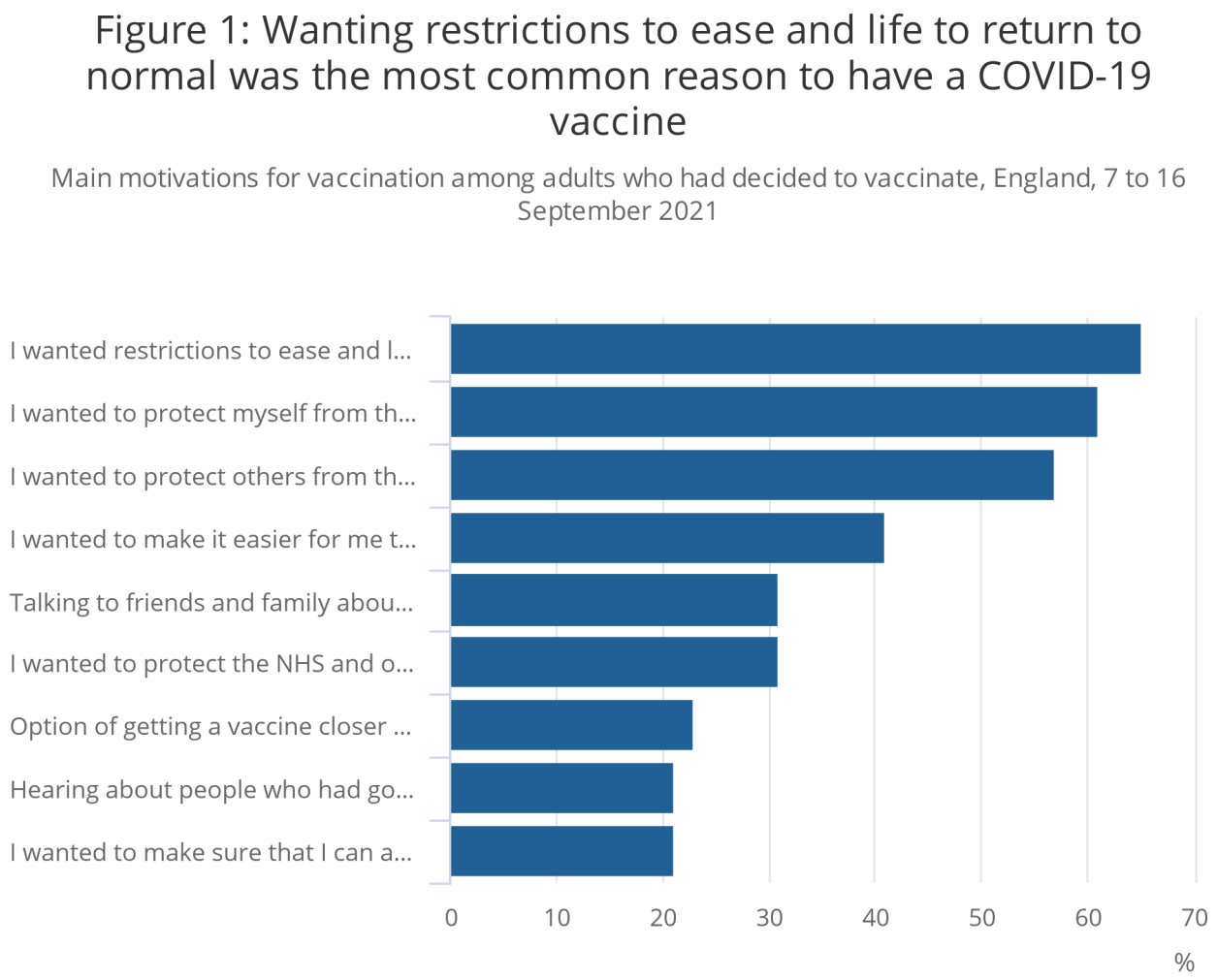
The main findings are from a qualitative analysis, so it is not possible to quantify their importance and they may not be generalisable to wider populations. Quotes represent respondents' views only. Official information about COVID-19 vaccines is available.

3 . Motivations for vaccination

When asked about motivations for vaccination, the Vaccine Opinions Study found the majority of adults reported that they had the first dose of a vaccine so that restrictions would ease and life would return to normal (65%), followed by wanting to protect themselves (61%) and others (57%) from coronavirus (COVID-19).

Figure 1: Wanting restrictions to ease and life to return to normal was the most common reason to have a COVID-19 vaccine

Main motivations for vaccination among adults who had decided to vaccinate, England, 7 to 16 September 2021



Source: Office for National Statistics – COVID-19 Vaccine Opinions Study

Notes:

1. Respondents were able to select more than one option.

2. Only the most common reasons are presented and some response options have been shortened for clarity. For full wording and estimates for all response options see the data tables.

3. Base: vaccinated adults who had previously declined a vaccine when offered, said they were unlikely to have it if offered or said they were unsure about having a vaccine if offered.

Vaccinated adults who provided free-text responses mentioned several additional reasons that encouraged them to get a first dose of a COVID-19 vaccine, but also offered more detailed information about the motivations they had selected from the presented list (Figure 1). These clustered around seven themes:

- protecting others or oneself
- regaining freedoms and rights
- being influenced by others
- feeling pressured, coerced or stigmatised
- feeling reassured by evidence or professional advice
- doing "the right thing"
- trusting the medical establishment

Protecting others or oneself

The strongest theme was wanting to protect oneself and, in particular, other people. Respondents said they had a vaccine to protect vulnerable family members, friends, patients or clients.

> My partner has underlying health conditions and wanted to ensure I was protecting him

Female, 30 to 39 years

> To protect the vulnerable, because I am a health worker

Female, 40 to 49 years

Others said they wanted to protect their unborn child while pregnant or baby while breastfeeding.

> I was pregnant (3rd trimester) and I wanted my baby and myself to be safe

Female, 30 to 39 years

Among those who reported having a vaccine to protect themselves, specific motivations included having a pre-existing health condition or feeling at increased risk of catching COVID-19 at work.

> I was scared as I have asthma and worried that due to me being mixed race I am more likely to catch the virus

Female, 30 to 39 years

> I work on [the] front line and no longer felt safe in my job

Female, 30 to 39 years

Others were concerned about preventing infection or reducing or resolving long COVID symptoms.

> I was more concerned [about] contracting Covid-19 and [getting] the long-term side effects that could impact my life

Female, 30 to 39 years

> I was extremely ill with long covid from mid-2020 and was hoping the vaccine would help cure my lingering symptoms

Male, 40 to 49 years

Regaining freedoms and rights

Avoiding restrictions and being able to "return to normal" was also a strong theme. Respondents said they had a vaccine to be able to engage in leisure activities, work or travel for work.

> I felt pressured into getting it due to the talk of covid passports and the like being required to enter certain venues or do certain things such as go on holiday or attend a concert or festival although I would have personally preferred not to have got it

Male, 18 to 29 years

> I needed to travel abroad for work so I knew having the vaccine would make that easier

Female, 30 to 39 years

Others also said they had a vaccine to be able to visit family members or friends.

> My father who has dementia lives abroad and my priority is to be able to visit him

Female, 50 to 59 years

Being able to have a particular vaccine brand was reported by few respondents, possibly because most people were not able to choose which vaccine they could have.

Being influenced by others

Being influenced by others, particularly family members or friends, was also reported as a reason to get vaccinated.

> As I was breastfeeding I was scared of having my vaccine but after speaking to family members who were breastfeeding and had had the vaccine I started to feel at ease

Female, 30 to 39 years

Only a minority of respondents said they had felt encouraged to get a vaccine by society in general, trusted public figures or community organisations, or the government or the NHS. However, about one-third (31%) of vaccinated respondents had selected "wanting to protect the NHS and other healthcare workers" from the presented list and may have not felt the need to mention it again in free-text responses.

Feeling pressured, coerced or stigmatised

Feeling forced or avoiding stigma was another reason to have a vaccine, particularly among those who also indicated they decided to get vaccinated to regain freedoms and rights.

Respondents said they felt pressured by the government or media, or by family members or friends.

> Making it impossible not to get it, by not being able to do anything unless vaccinated so felt very pressured and forced

Male, 30 to 39 years

> Peer pressure from friends and family - being accused of being an 'antivaxxer' at work and being treated as stupid because of my fear

Female, 18 to 29 years

Other respondents said they felt pressured by their employer, or others.

> My employer made me very anxious about how not having the vaccine may impact me at work

Female, 30 to 39 years

> I was scared of stigma or being ostracised if I didn't

Female, 40 to 49 years

Less frequently reported themes

Some respondents said they had vaccinated after doing some research or seeking professional advice.

> Speaking to scientists, my GP and reading various medical journals

Female, 40 to 49 years

For others, doing "the right thing" was the main reason to vaccinate.

> Because it was for the greater good

Female, 60 to 69 years

A minority of respondents had vaccinated because they trusted vaccines, the medical establishment or both.

> I've had many vaccinations in my life and I have never had adverse reactions so I trust them, the science behind them and I have faith in our world leading health system

Male, 40 to 49 years

A full list of themes and sub-themes identified, and additional illustrative quotes can be found in the accompanying data.

Further information about coronavirus vaccines

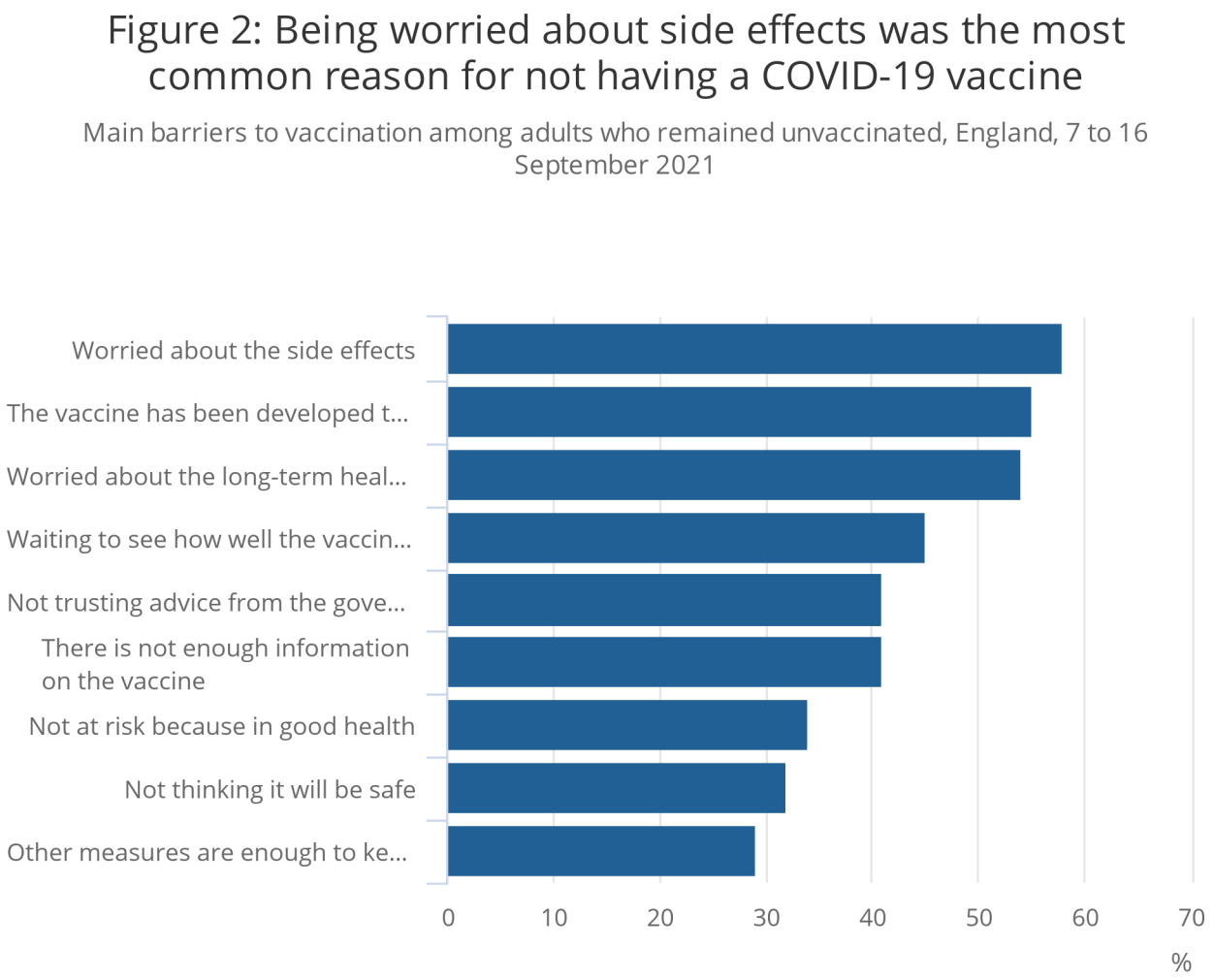
- Read findings from the Vaccines Opinion Study
- Explore the latest coronavirus data from the ONS and other sources.
- Read about the social impacts and public opinion of the coronavirus pandemic in Great Britain and explore data on self-reported vaccine uptake and attitudes towards the vaccine.
- View modelled regional antibody and self-reported vaccine uptake data for the UK from the Covid-19 Infection Survey.
- Understand the proportions of the English population who have taken the vaccine by different characteristics through linked administrative data.
- Visit the government's coronavirus dashboard for official population counts on the UK vaccination programme.

4 . Barriers to vaccination

When asked about barriers to vaccination, the Vaccine Opinions Study (VOS) found that the majority of adults reported being worried about side effects (58%), feeling that the vaccine had been developed too quickly (55%) and being worried about the long-term effects on their health (54%).

Figure 2: Being worried about side effects was the most common reason for not having a COVID-19 vaccine

Main barriers to vaccination among adults who remained unvaccinated, England, 7 to 16 September 2021



Source: Office for National Statistics – COVID-19 Vaccine Opinions Study

Notes:

1. Respondents were able to select more than one option.

2. Only the most common reasons are presented and some response options have been shortened for clarity. For full wording and estimates for all response options see the data tables.

3. Base: unvaccinated adults who had previously declined a vaccine when offered, said they were unlikely to have it if offered or said they were unsure about having it if offered.

Unvaccinated adults who provided free-text responses reported a variety of reasons that had stopped them from having a coronavirus (COVID-19) vaccine. Some of these reasons were new and others were in-depth descriptions of the barriers they had selected from the presented list (Figure 2). These also clustered around seven themes:

- feeling that the risks of a COVID-19 vaccine were too high, or the benefits were too low
- distrusting or feeling discontent towards vaccine stakeholders
- lacking sufficient, trustworthy or favourable evidence on vaccine side effects, safety or effectiveness
- perceiving COVID-19 as low-risk to self
- feeling pressured or coerced
- worldview-related barriers
- practical barriers

Feeling that the risks of a COVID-19 vaccine were too high, or the benefits were too low

The strongest theme around barriers to COVID-19 vaccination was the perception that having a vaccine was too risky or its benefits were too low.

Concerns about vaccine side effects were often reiterated in free-text responses, in line with the main reasons given in the survey. This suggests that the perceived risks of COVID-19 vaccines were a key barrier. Specifically, respondents were worried about long-term or severe side effects (for example, allergic reactions or blood clots).

> Side effects of the vaccines, concerns about the possibility of rare blood clotting issues. A colleague at work had [vaccine brand] vaccine, was well beforehand but afterwards had several side effects and was away from work for 7 days. Those side effects of the vaccine on her frightened me a bit.

Female, 40 to 49 years

Others were concerned about vaccine effects on fertility, pregnancy or breastfeeding, or on pre-existing health conditions, such as long COVID.

> I am trying to conceive and cannot do anything that may risk my fertility

Female, 40 to 49 years

> After contracting the virus last year and being hospitalised, I now have long covid, chronic asthma and fatigue, I worried that by getting the vaccine I could become ill again

Male, 50 to 59 years

Some were worried about how side effects might impact their ability to work or care for children, or had experienced side effects from other vaccines.

> A close friend was bed bound for 3 days after the vaccine - [I] cannot afford for this to happen due to having a young child with a disability needing our support

Male, 30 to 39 years

> I had side effects from the FLU vaccine and the rubella

Female, 50 to 59 years

The "emergency approval" of COVID-19 vaccines and their "rushed development" were also cited as areas of concern, particularly regarding mRNA vaccines or the use of ingredients that were perceived to be unsafe.

> The vaccines are still in stage 3 trials and were approved on emergency measures, and hence the long-term side effects of the vaccine have still to be determined and disclosed to the public

Male, 40 to 49 years

The benefits of COVID-19 vaccines were often questioned by the same respondents who expressed concern about their risks. They felt vaccines were inadequate at preventing COVID-19 infection, hospitalisation or death.

Fit healthy people have died after getting the vaccine, I personally work with people who are double jabbed yet when the Covid 19 (Delta variant) swept through our work place they were still affected just as I was so basically if you can still get it after been jabbed and from my own personal experience they got it just as bad as I did what's the point in getting it?

Male, 40 to 49 years

Distrusting or feeling discontent towards vaccine stakeholders

Another strong theme was distrust of, or discontent with, those encouraging vaccine take up, with negative opinion generally directed at the government.

Distrusting or disagreeing with COVID-19 policy, both in the UK and internationally, was a common barrier. This distrust covered several aspects such as interventions to stop the spread of COVID-19 and focus on policies to control the coronavirus pandemic above other priorities.

> The government handling has been shambolic. They created a unnecessary state of fear to coerce the public into blindly following their rules… Several MPs and leading government advisers have failed to stick to their own farcical rules so why should we.

Female, 30 to 39 years

> More people will die because they cannot get medical treatment they need. I am waiting about one month for letter with ultrasound scan appointment.

Female, 30 to 39 years

> Constant lies, how many jabs required now, is it three or four? Only jab over 18's, now over 12's

Male, 50 to 59 years

Long-term distrust in government and politicians was also reported. Previous medical controversies or scandals, particularly the use of Thalidomide in pregnant women, were also given as reasons for distrusting government.

> ...UK governments' previous history with rolling out vaccines/pharmaceuticals (swine flu vaccine causing narcolepsy in NHS staff and thalidomide) all combine to destroy my trust in the government

Male, 30 to 39 years

The perception that government was silencing or ignoring dissenting scientists was also mentioned by a few respondents.

> The government has not listened to the opinions of many leading world scientists and in fact has gone along with silencing them

Female, 70 years and over

Some felt the media was censoring dissenting voices and uncritically echoing messages from government or the World Health Organisation about COVID-19 and COVID-19 vaccines.

> All Main Stream Media singing government's terror tactics, scientific lies and never a mention of deaths and injuries from the vaccine, even the under reported MHRA data

Male, 70 years and over

Other respondents reported feelings of distrust toward vaccine manufacturers, particularly around pharmaceutical companies previously being taken to court for malpractice or not being liable for COVID-19 vaccines' adverse outcomes.

> The lack of accountability for pharmaceutical companies producing the vaccine and the poor track record of said companies (such as previous law suits) producing the vaccine does not inspire any confidence

Male, 30 to 39 years

The perceptions that vaccine manufacturers were not being transparent in reporting data from COVID-19 vaccines' clinical trials or were profiting from vaccinations were also reported.

Lacking sufficient, trustworthy or favourable evidence on vaccine side effects, safety or effectiveness

The perceived lack of long-term evidence about the effects of COVID-19 vaccination was a primary concern, with respondents saying they wanted to wait for this data to become available to make an informed decision.

> Evidence over many years has shown how important information only becomes available years after decisions are made to authorise drugs/vaccinations that have adverse effects on people's lives

Male, 60 to 69 years

Some suggested that information about others' negative vaccination experiences had stopped them from having a vaccine.

> I know of a number of people who have had adverse effects from these 'vaccines', a relative died from COVID after 2 jabs when it was touted that these 'vaccines' would protect the person from hospitalisation and death

Female, 60 to 69 years

Others said that unfavourable evidence, reportedly from scientists, medical professionals, prominent podcasters or radio hosts was a barrier.

> Many scientific reports from respected independent (of the vaccine industry) scientists and scientific researchers have raised serious questions about the safety of this new, not fully tested, vaccine

Male, 70 years and over

Other evidence-related barriers to vaccination included:

- lack of balanced information
- insufficient evidence on the side effects for healthy people or those with chronic health conditions
- insufficient data on vaccine effectiveness against different variants
- difficulty accessing data

Perceiving COVID-19 as low-risk to self

Respondents mentioned several reasons why they were not concerned about COVID-19. These included feeling fit and healthy and the belief that COVID-19 does not cause severe enough disease to justify mass vaccination.

> I am 27 years old, very fit and healthy with no underlying health conditions, always had good personal hygiene and when looking at the number of people in my category who have actually died since coronavirus came into our lives... Around 90 people in my category who have sadly passed away in 18 months in a country of 68 million people?

Male, 18 to 29 years

> [I] remember [name of politician] and his team of 'experts' telling us that the vast majority of people who get covid will only suffer a very mild to moderate illness akin to the flu

Male, 50 to 59 years

Other reasons were using alternative protection measures, having experienced mild COVID-19 disease or acquiring immunity because of previous infection.

> ...although the wearing of face-masks is now a matter of personal choice in public, relatively crowded places and in my workplace, I choose to continue wearing a face-mask and I maintain my frequent use of hand-sanitiser when at work or shopping, etc.

Female, 60 to 69 years

> When I had COVID-19 it was similar to a cold, I wasn't as ill as some people have been so if my body can fight it without a vaccine then that's good enough for me.

Male, 18 to 29 years

Feeling pressured or coerced

Some respondents mentioned that feeling pressured or coerced discouraged them from getting vaccinated. The government was identified as the main source of this pressure.

The prospect of vaccine passports was frequently mentioned and associated with "bullying" and "manipulation". In particular, concern was raised about the use of vaccine passports to control international travel or access to certain events, or to work in certain sectors, such as healthcare.

> All the government have done is manipulate the figures and manipulate people to get the vaccine- such as claiming 'vaccine passports' will stop people from going on holiday, to clubs and other social events

Female, 18 to 29 years

> If I don't have the vaccine I will [lose] my job and career which took me 5 years to train [for]

Female, 50 to 59 years

Others were concerned about incentives offered to get vaccinated, which were perceived as "bribery".

> I don't like how I am feeling forced, coerced or bribed into have the vaccine, offering incentives or freebies

Female, 18 to 29 years

Giving vaccines to some children without parental consent was also mentioned as a concern.

> As a parent I was appalled at the governments attempt to give vaccines without parental consent

Female, 40 to 49 years

Worldview-related barriers

Barriers relating to the respondent's views of the world were reported less frequently than other themes but were varied. The main barrier within this theme was the belief that natural immunity is more effective than vaccination.

> The natural immunity I have is much more effective than trying to gain immunity from any of the vaccines

Male, 70 years or older

Other barriers were:

- a preference for alternative approaches, which have proven to be ineffective in preventing or treating COVID-19
- COVID-19 denial or anti-system sentiment
- ethical or religious objections, including objections to the use of animal trials during the development of vaccines
- being against all vaccines or healthcare in general
- vaccine equity (for example, believing other countries should be vaccinated first) or altruism

Practical barriers

Practical barriers were also less frequently reported by respondents, yet they were usually mentioned as the sole reason preventing vaccine uptake. The main barrier was lack of support or special arrangements for phobias or anxiety.

> I have had difficult experiences and fainted after having vaccines before so would prefer to know that the place I am going for my vaccine is going to be calm and quiet, with as few people as possible around and that I can bring someone I trust with me

Female, 18 to 29 years

Other barriers included:

- location of or access to a vaccination centre
- being unable to choose the vaccine brand
- lack of time to attend a vaccination appointment
- difficulty in booking a vaccination appointment
- delaying vaccination because of recent COVID-19 infection
- not being able to get a GP appointment to discuss the effects of a vaccine on pre-existing health conditions

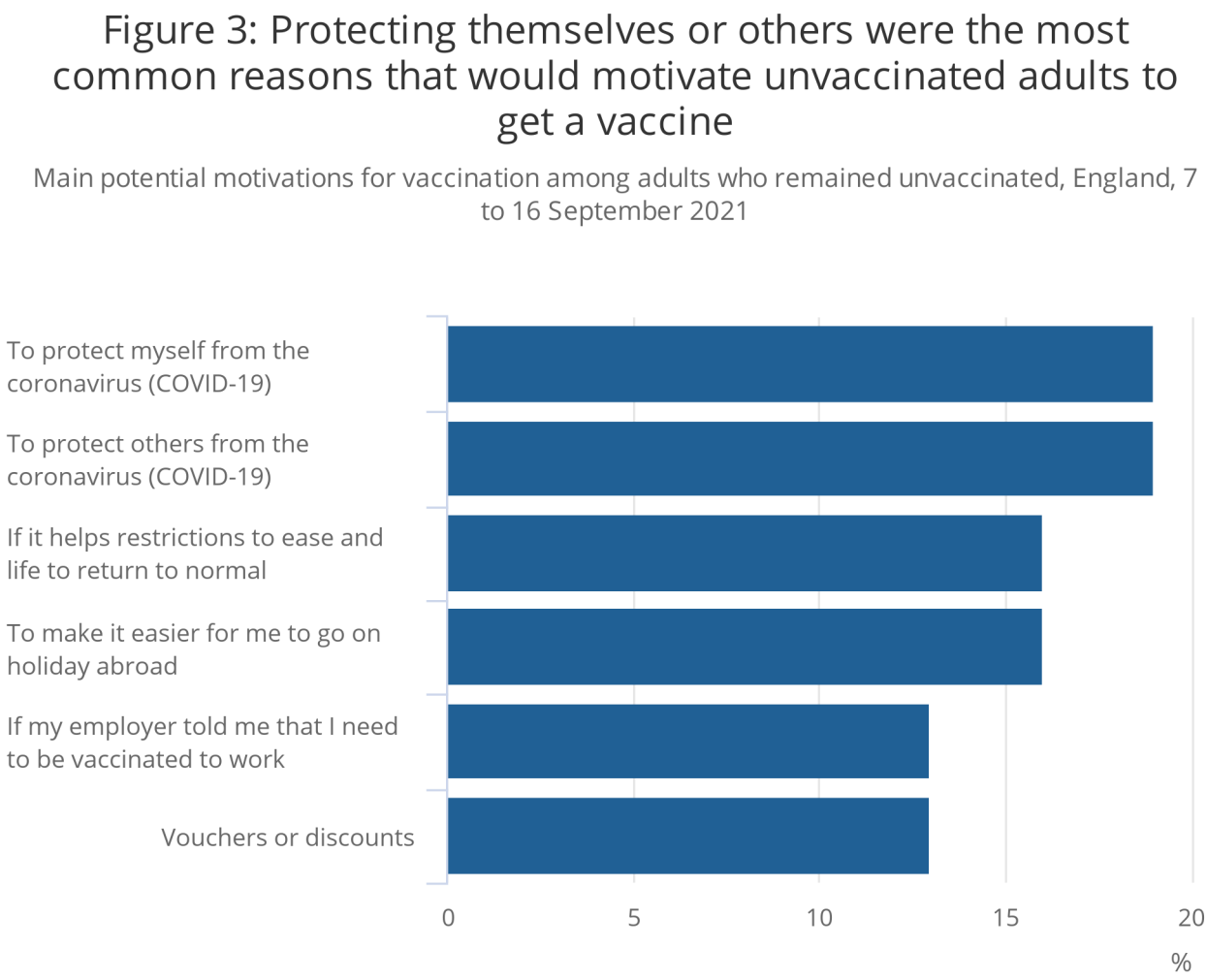
A full list of themes and sub-themes identified, and additional illustrative quotes can be found in accompanying data.

5 . Potential motivations for vaccination

Respondents who remained unvaccinated were also asked about what would make them more likely to have a vaccine. The Vaccine Opinions Study found that wanting to protect themselves or others from coronavirus (COVID-19) were the most selected reasons (19% for both). However, compared with motivations for and barriers to vaccination, a high proportion also selected "none of the above" to the reasons listed. Therefore, free-text responses were particularly useful in shedding light on what would encourage unvaccinated adults to get a vaccine.

Figure 3: Protecting themselves or others were the most common reasons that would motivate unvaccinated adults to get a vaccine

Main potential motivations for vaccination among adults who remained unvaccinated, England, 7 to 16 September 2021



Source: Office for National Statistics – COVID-19 Vaccine Opinions Study

Notes:

1. Respondents were able to select more than one option.

2. Only the most common reasons are presented and some response options have been shortened for clarity. For full wording and estimates for all response options see the data tables.

3. Base: unvaccinated adults who had previously declined a vaccine when offered, said they were unlikely to have it if offered or said they were unsure about having it if offered.

Unvaccinated respondents who provided free-text responses often referred back to the reasons that had stopped them from having a vaccine and suggested that the lifting of these barriers would increase their likelihood of being vaccinated. The identified themes, therefore, broadly mirrored those described in the previous section and are not discussed in-depth here.

The strongest theme was having sufficient or trustworthy evidence on vaccine side effects, safety or effectiveness from "conventional" clinical trials (for example, lengthier studies) and vaccine rollout.

> [I would vaccinate] Once the vaccine has concluded [the] full approval cycle and the full range of side effects are known and documented consistent with most new medicines

Male, 50 to 59 years

Another strong theme was feeling that the risks of a COVID-19 vaccine were lower or the benefits were higher:

> If you could guarantee beyond [a] shadow of any doubt what so ever, that it would not harm my health and actually provide real protection against the virus instead of saying you can still get it but it won't be as bad, then I might consider it

Male, 30 to 39 years

Being able to trust vaccine stakeholders was mentioned by some as a potential motivation to vaccinate. Others would vaccinate if COVID-19 became a higher risk to themselves or others because of increased susceptibility (for example, aging) or more severe variants. This finding improves our understanding of the specific reasons that would encourage adults to protect themselves or others from COVID-19 in the future, both of which were the most chosen potential motivations from the multiple-selection list.

Less frequently reported themes were improving access to the vaccine, being asked or mandated to vaccinate and worldview-related reasons, such as banning animal testing during vaccine development.

A full list of themes and sub-themes identified, and additional illustrative quotes can be found in accompanying data.

6 . Coronavirus and changing perceptions towards vaccination data

Coronavirus and changing perceptions towards vaccination, England: 7 to 16 September 2021
Dataset | Released 16 March 2022
Data from the COVID-19 Vaccine Opinions Study summarising themes, sub-themes and illustrative quotes on motivations for vaccination; barriers to vaccination; and potential motivations for vaccination.

7 . Glossary

Vaccinated

"Vaccinated" refers to those who reported in the OPN that they had previously declined the first dose of a coronavirus (COVID-19) vaccine, were unlikely to have it or unsure about having it, but then decided to get vaccinated and self-reported having a vaccine.

Unvaccinated

"Unvaccinated" refers to those who reported in the OPN that they had previously declined the first dose of a COVID-19 vaccine, were unlikely to have it or unsure about having it, and self-reported that they remained unvaccinated, excluding those waiting for an appointment to be vaccinated.

8 . Data sources and quality

This release is supplementary to Coronavirus and changing attitudes towards vaccination, England: 7 to 16 September 2021 and provides data from free-text responses.

The Vaccine Opinions Study (VOS) was commissioned and funded by the Department of Health and Social Care (DHSC) to gain insight into changes in attitudes and uptake towards coronavirus (COVID-19) vaccines among adults in England, and the reasons behind those changes. The VOS questionnaire was designed by the Office for National Statistics (ONS) in consultation with the DHSC, NHS England and NHS improvement.

VOS respondents were adults who had taken part in the Opinions and Lifestyle Survey (OPN) over the period 13 January to 8 August 2021 and had previously:

- been offered a vaccine but did not get vaccinated
- reported being "very or fairly unlikely" to have a vaccine if offered
- responded "neither likely nor unlikely", "don't know" or "prefer not to say" to the question "if a vaccine for the coronavirus (COVID-19) was offered to you, how likely or unlikely would you be to have the vaccine?"

The VOS sample contained 2,482 individuals, who were surveyed between 7 and 16 September 2021. Over 4 in 10 (44%) were now vaccinated, while 55% remained unvaccinated.

A high proportion of unvaccinated respondents provided free-text responses about what had discouraged them to vaccinate (40%). About one in five vaccinated respondents (22%) and unvaccinated respondents (19%) described what had motivated them or would make them more likely to have a vaccine, respectively.

Table 1: Sample characteristics of adults who responded to the Vaccine Opinions Study, 7 to 16 September 2021

Characteristic		%	Count
All [note 1]		100	874
	Age [note 2] [note 3]		
	Aged 16 to 17	2	19
	Aged 18 to 29	16	144
	Aged 30 to 39	29	257
	Aged 40 to 49	17	152
	Aged 50 to 59	15	127
	Aged 60 to 69	13	117
	Aged 70 years or above	7	58
Sex			
	Men	40	346
	Women	60	528
Ethnicity [note 4] [note 5]			
	White	87	753
	Mixed or Multiple ethnic groups	3	27
	Asian or Asian British	4	36
	Black, African, Caribbean or Black British	5	43
	Other ethnic group	1	10
Highest Education level [note 6]			
	Degree or equivalent	38	332
	Below degree level	50	438
	Other qualification	6	49
	None	6	55

Source: COVID-19 Vaccine Opinions Study

Notes

1. "All" refers to respondents of the Vaccine Opinions Study (VOS) who provided free-text, qualitative, information about motivations, potential motivations or barriers to having a COVID-19 vaccination.

2. The age groups used in this analysis separates 16- to 17-year-olds from other ages as those aged under 18 were not included in the initial JCVI vaccine roll out. Age groups have been informed by the JCVI vaccine roll out age groups and the available sample.

3. Age groups have been defined in this analysis using the date of birth provided by the respondent when completing the Vaccine Opinions Study. Where a respondent's date of birth was not reported, their age when completing the Opinions and Lifestyle Survey has been used as a proxy.

4. The ethnicity disaggregation used was chosen to align with the Government Statistical Service (GSS) ethnicity harmonised standard.

5. Ethnicity data was not available for all respondents. As such, ethnicity counts do not sum to 'All'.

6. Highest educational level refers to the level of the highest qualification obtained by a respondent when they were initially surveyed by the Opinions and Lifestyle Survey.

7. Percentages may not sum to 100% due to rounding

Data analysis

Free-text responses were initially analysed using natural language processing (NLP) techniques to identify patterns in the data and cluster similar responses into topics or themes. Three techniques were considered: topic modelling, word embedding and part-of-speech tagging. However, topic modelling using Latent Dirichlet Allocation (LDA) proved to be the most useful.

Responses were separated into sentences, which the LDA model allocated into one of ten topics. The number of topics used was determined qualitatively by looking at the similarity and coherence of the topics produced by the LDA model. The aim of this procedure is to ensure that topics make sense and are sufficiently different from each other.

Topics were then reviewed for accuracy and inductive thematic analysis, a bottom-up approach whereby themes emerge from the data themselves, was used to refine the data groupings and identify themes and sub-themes. We then undertook a quality assurance review of the analysis by recoding 10% of the sentences in each topic, to ensure the responses were correctly classified within each theme and the quotes selected were representative of their theme.

Quotations have been used throughout the article to illustrate themes identified in the analysis. All survey responses were anonymous and any potentially identifying information has been removed from the quotations.

Given that this is a qualitative dataset, socio-demographic differences in the reporting of motivations and barriers to vaccination were not evaluated. For more information on the motivations and barriers to COVID-19 vaccination by characteristics including age, sex and ethnicity, see Coronavirus and changing attitudes towards vaccination, England: 7 to 16 September 2021.

Strengths and limitations

Strengths

- Targeting a "hard to reach" group (those who declined, were unlikely to have or unsure about having a vaccine), achieved by using a sample of adults who have taken part in the Opinions and Lifestyle Survey (OPN) and agreed to take part in future research.

- Respondents did not need to recall their previous vaccine behaviour or intention, as this information was collected via the initial OPN.

- The questionnaire was developed with customer consultation, and design expertise was applied in the development stages.

- Quality assurance procedures were undertaken throughout the analysis stages to minimise the risk of error.

- Respondents used free-text boxes to report other motivations and barriers to vaccination beyond those presented in the multiple-selection lists, but also more detailed information about the reasons respondents had chosen from these lists, both of which improve our understanding about the reasons underpinning COVID-19 vaccination behaviour.

Limitations

- There is limited comparability or coherence with other data sources as this is a "hard to reach" group.

- Responses reflect the views of those who were motivated to report other reasons for having or not having a vaccine and write their views, so they may not represent the full range of perspectives from the VOS sample.

- There was no cognitive testing of the questions because of time restrictions, which may lead to misinterpretation of questions by respondents.

- NLP is a useful method to aid the analysis of large qualitative datasets, but it is less accurate when categorising a relatively small number of responses; therefore, combining NLP with thematic analysis is necessary to ensure the data are adequately categorised.

- Previously self-reported vaccination behaviour or intention may have been influenced by when respondents were offered the vaccine and when they took part in the OPN.

- Findings are linked to factors that have changed, such as available information or extent of vaccine rollout, and so related vaccine perceptions and associated behaviour may have also changed.

9 . Related links

Coronavirus and the social impacts on Great Britain: 4 March 2022
Bulletin | Released 4 March 2022
Indicators from the Opinions and Lifestyle Survey covering the period 16 to 27 February 2022, to understand the impact of the coronavirus (COVID-19) pandemic on people, households and communities in Great Britain.

Coronavirus (COVID-19) latest data and analysis
Web page | Updated as data become available
Latest data and analysis on coronavirus (COVID-19) in the UK and its effects on the economy and society.

Coronavirus (COVID-19) latest insights
Web page | Updated as data become available
An interactive tool to explore the latest data and trends about the coronavirus (COVID-19) pandemic from the Office for National Statistics (ONS) and other sources.

Coronavirus and changing attitudes towards vaccination, England: 7 to 16 September 2021
Bulletin | Released 9 November 2021
Changes in uptake and attitudes towards the coronavirus (COVID-19) vaccines, amongst adults who previously reported vaccine hesitancy.

Coronavirus vaccine hesitancy in younger adults: June 2021
Article | Released 3 September 2021
A qualitative study of adults aged 16 to 29 years looking into reasons why they are hesitant towards a coronavirus (COVID-19) vaccine.

COVID-19 Question Bank
Webpage | Updated frequently
This page provides a bank of questions from multiple Office for National Statistics (ONS) surveys related to COVID-19 to be used in other surveys to further support harmonisation and questionnaire development. This bank also provides users with an understanding of what data ONS have in relation to the coronavirus pandemic.