

Covid-19 and the Public Perception of Genetics

January 2023

How well does the
public understand
genetics?

What is their
attitude to it?

Do they trust it?

Has the pandemic
made a difference?

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Survey

Kantar Public



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Introduction and motivation: How have public understanding, attitudes and trust in genetics changed during the Covid-19 pandemic?



From PCR tests to viral evolution, there was large scale coverage of genetical issues during the Covid-19 epidemic.

Did then the public's understanding of these concepts change?

Did the exposure of science and genetics through the pandemic change peoples' attitude towards, and trust in, science?

Has the appetite for science coverage in the media changed?

Perceived understanding of science and genetics

How well do you think you understand science?

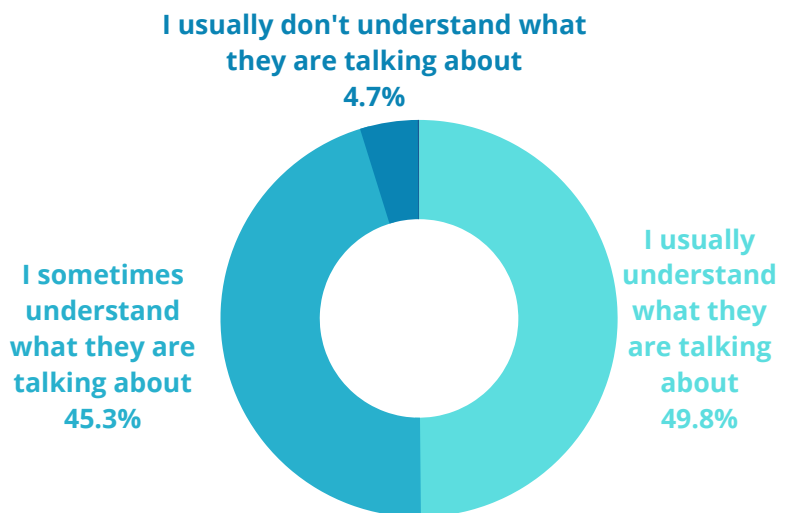
In 2015, when asked the same question, 39% were confident that they usually understood science as presented in the media (Wellcome Monitor wave 3*).

This has increased to almost 50% in our survey.

Since 2015, there has been a decrease (from 10% to 4.7%) of people reporting that they usually do not understand the content on the stories about science they see or hear on the news.

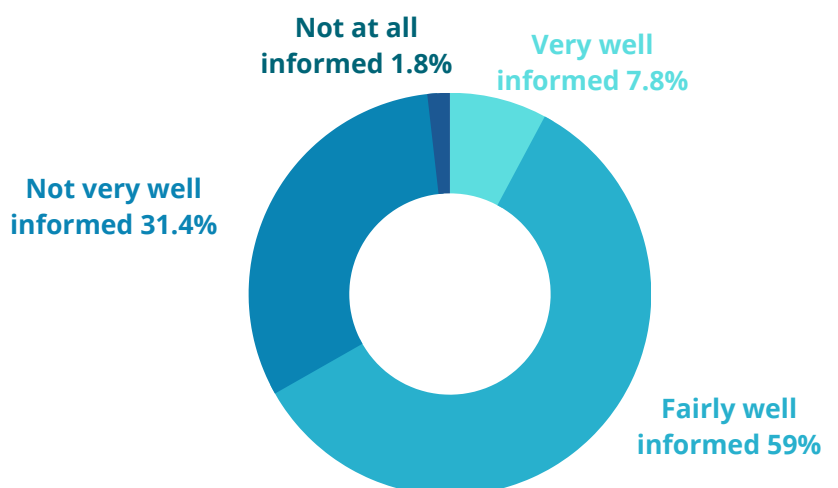
*<https://cms.wellcome.org/sites/default/files/monitor-wave3-full-wellcome-apr16.pdf>

Thinking of the stories about science you see or hear in the news, which of the following statements would you say best describes you?



Most of our sample (59%) also felt they were fairly well informed, in contrast to 1.8% that felt they were not at all informed.

How well informed do you feel, if at all, about science, and scientific research and developments?



How much do you think you understand Genetics?

Does this self reported understanding of science also translate to genetical topics, such as DNA, GM (genetically modified), natural selection and PCR? Has this understanding also increased over time?

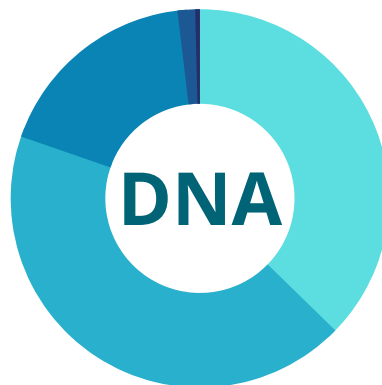
Except for PCR, self reported understanding is high.

In 2013, the Wellcome Trust monitor Wave 2* asked the same question about DNA and GM. Comparison with this indicates that people's perceived understanding of DNA and GM has increased: respondents thinking they have a very good understanding of DNA has increased from 19% to 37.3%, and for GM the increase is from 10% to 28.3%.

*<https://wellcome.org/sites/default/files/monitor-wave2-full-wellcome-may13.pdf>

We'd now like to ask you about your understanding of different scientific terms that are used in news stories dealing with medical research. When you hear the term _____, how would you rate your understanding of what the term means?

Very good
Good
Some understanding
Have heard the term but have little understanding of what it means
Have not heard the term

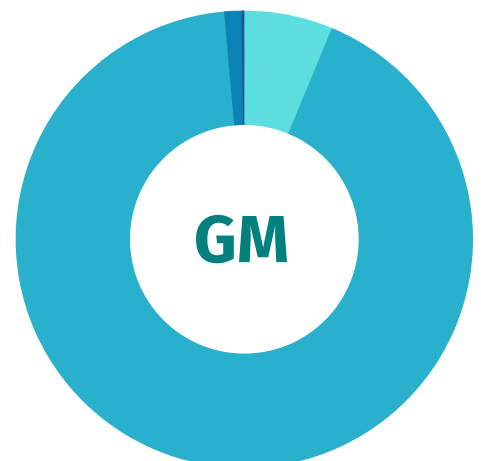
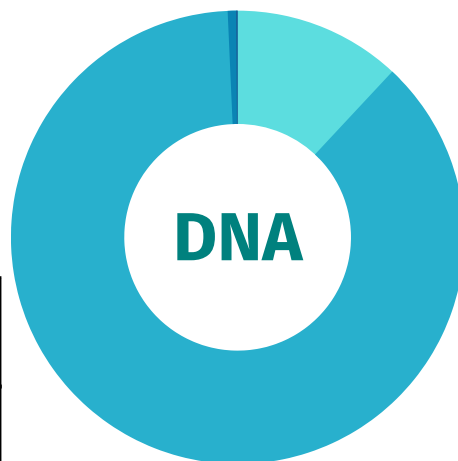


Has the pandemic changed your understanding of Genetics?

Did people think that their understanding of genetics had changed during the pandemic?

A few report increased understanding, but **most report no change**.

Now, thinking about the news stories you have heard since the start of the pandemic, do you feel that your understanding of...



Attitudes to genetics

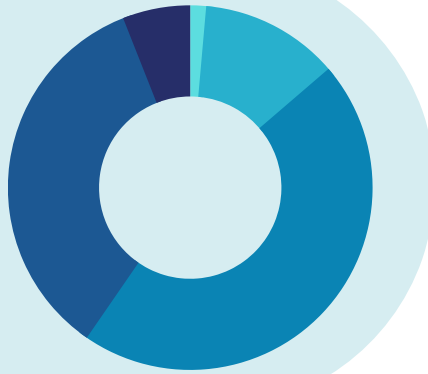
What was people's attitude to genetics before the pandemic?

Before asking about perceptions of change, we asked respondents to report their attitudinal position prior to the pandemic

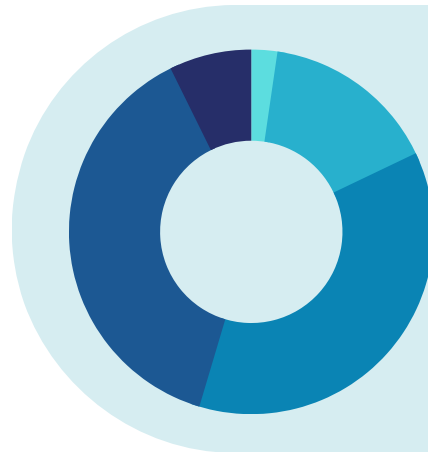
A minority report being negative prior to the pandemic.

Thinking back to before the start of the pandemic, to what extent would you have agreed or disagreed with the following statements at that time?

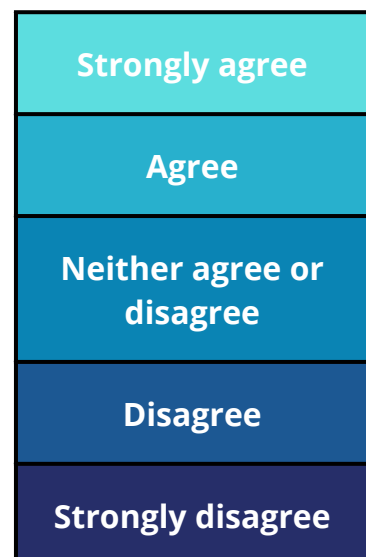
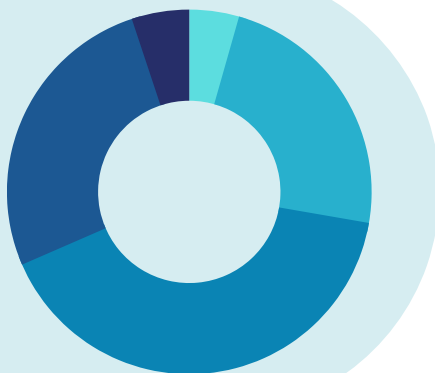
Many claims about the benefits of modern genetic science are greatly exaggerated.



Those in charge of new developments in genetic science cannot be trusted to act in society's interests.



On balance, the advantages of genetically modified (GM) foods outweigh any dangers.



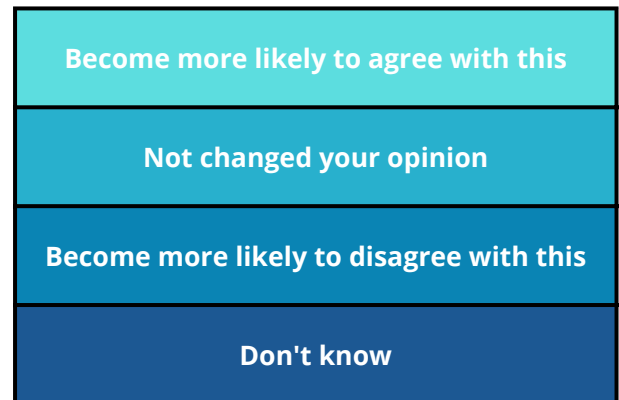
How have attitudes changed during the pandemic?

We asked two general questions about attitude to genetics that could have been modulated through the pandemic. We also asked about attitudes to GM as a control, but also to see if a positive general attitudinal change caused knock on effects.

More people say that they have become **more positive than more negative**. **Most people however have not changed their attitude.**

The effects with respect to GM are weaker and not more positive. There is no evidence that a positive change generally has transferred to a specific contentious issue.

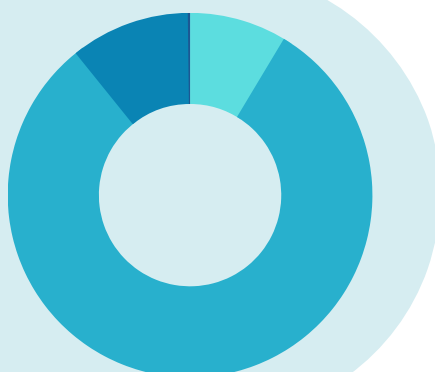
How do you think your views have changed in the last year? Thinking about the following statements, would you say that you have...



Many claims about the benefits of modern genetic science are greatly exaggerated.



On balance, the advantages of genetically modified (GM) foods outweigh any dangers.



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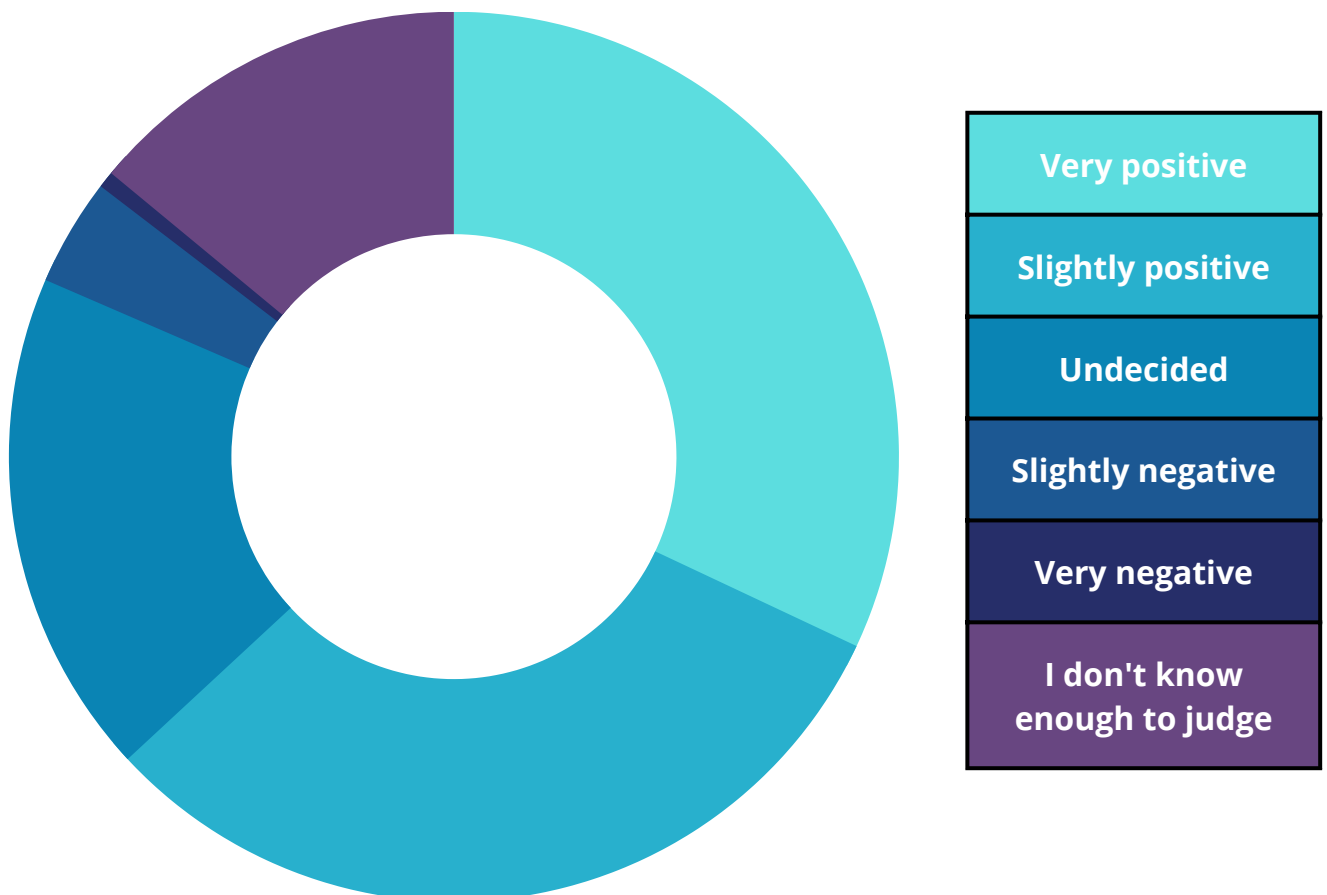


How do people currently feel about genetics?

We went on to ask people about their overall attitude to genetics at the time the survey was conducted.

Two thirds of people have a positive attitude towards genetics

On balance, which of the following best describes your attitude to the scientific study of genetics at present?



Does this same positivity transfer to the impact that genetics could have on healthcare ?

We were also interested to know whether people linked advances in genetics to improvements in healthcare.

90% of respondents indicated that they thought research in genetics would lead to positive healthcare outcomes.

How optimistic are you about the possibility of improved healthcare as a result of genetic research?



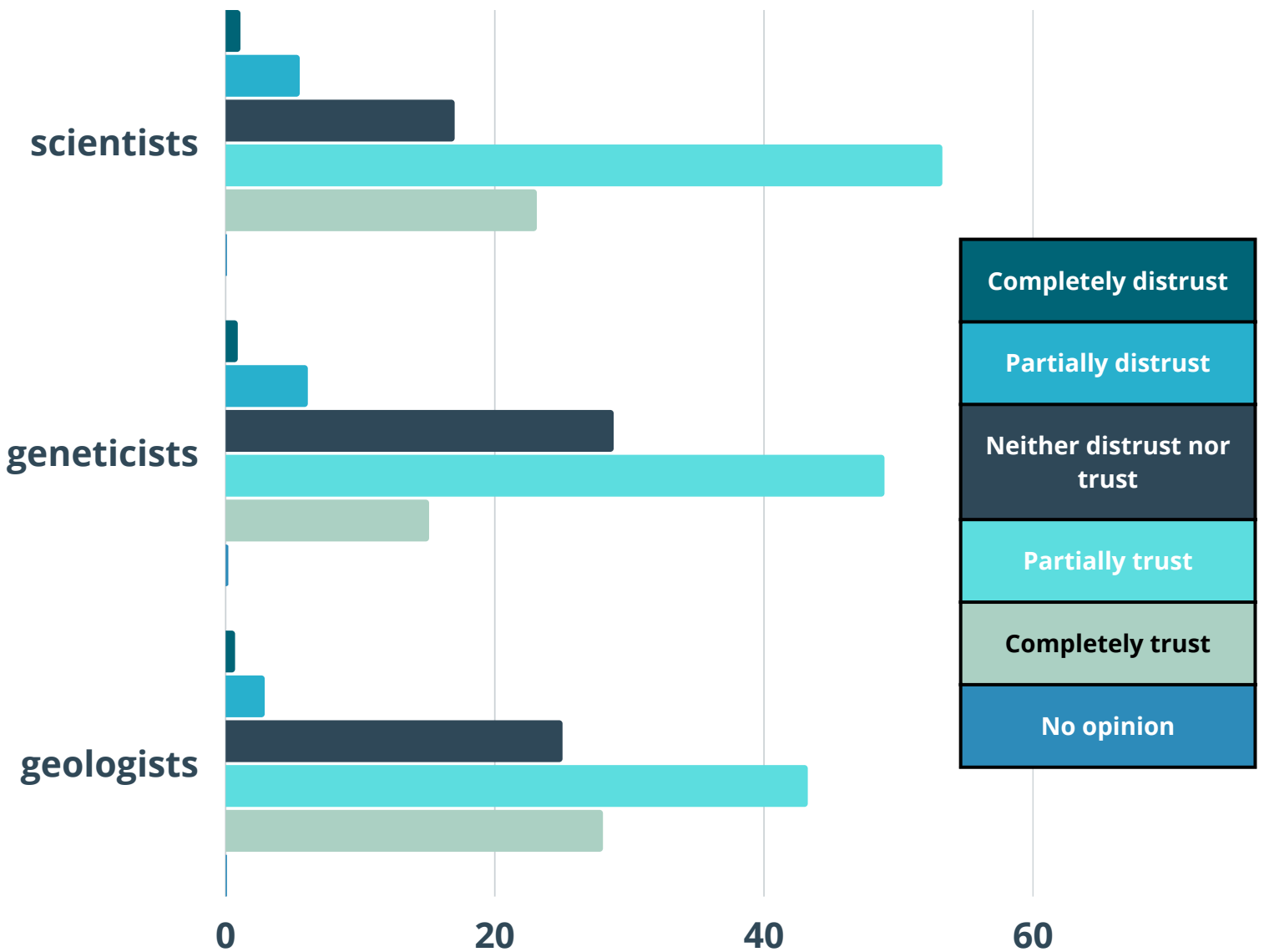
Public trust in scientists and geneticists

How much do you trust scientists and geneticists?

Is the public's attitude to scientists in general also applicable to their views of geneticists? Are all scientists equally trusted?

Scientists, geneticists and geologists are all more trusted than distrusted, although geneticists are the least trusted of the three groups.

In general, would you say you distrust or trust

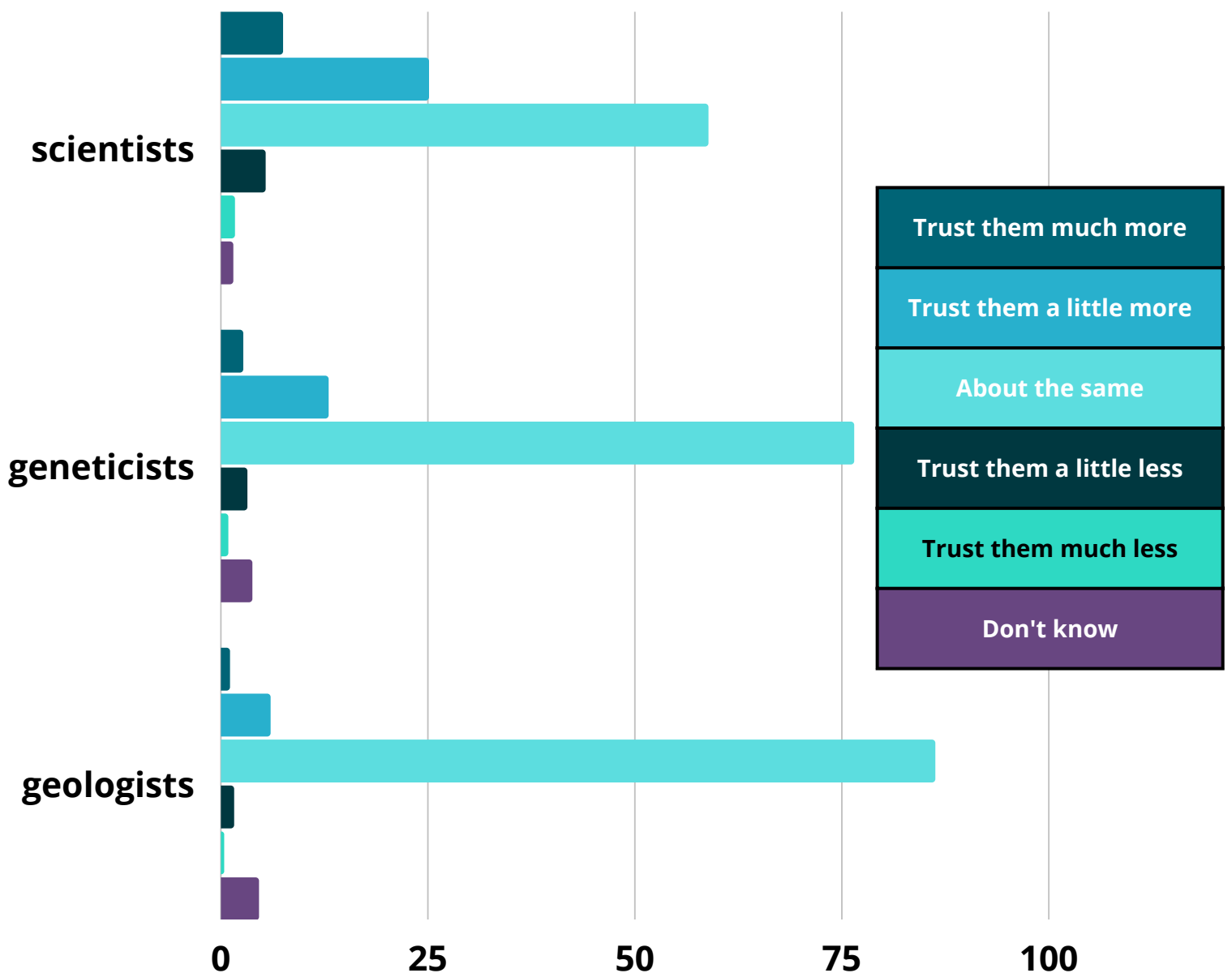


Has trust in scientists and geneticists altered through the pandemic?

Was any change in trust equal for scientists and geneticists and if not, why not?

30% of people reported increased trust in scientists but only 15% reported an increased trust in geneticists. This difference is probably not owing to chance alone as only 7% reported increased trust in geologists. We used geologists as a control because people are unlikely to link the science of geology with the pandemic.

Would you say you now trust scientists/geneticist/geologist more, less, or about the same as you did at the start of the pandemic?



Is greater media exposure reflected in the public's perception?

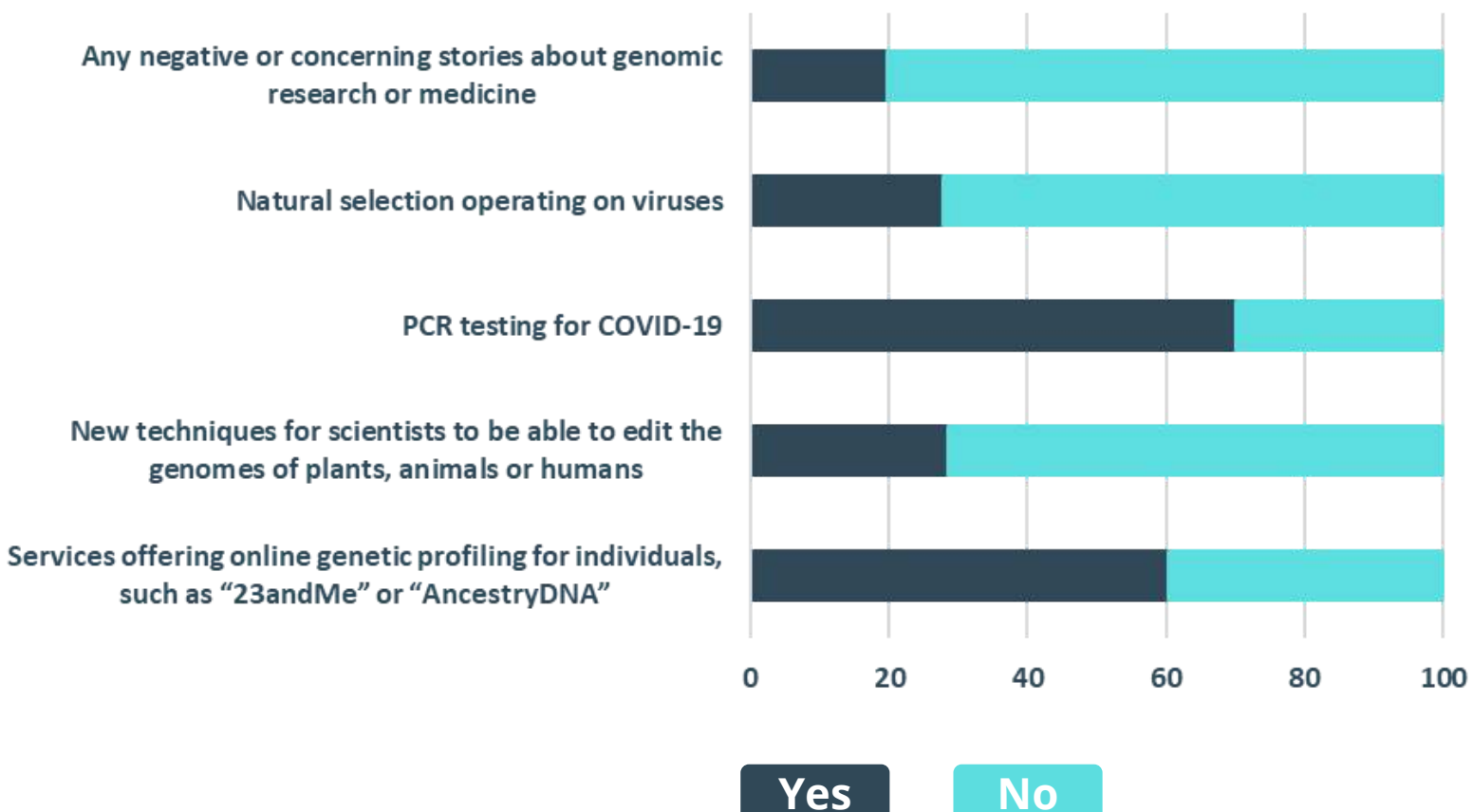
An assumption we make is that improvements in the public's understanding of, and attitudes to, science and genetics was at least in part owing to greater media exposure during the pandemic. Subjects not related to Covid-19 should then not have as high a recognition as, for example PCR testing.

Indeed, **70% report having heard about PCR testing** but many fewer report having heard about other genetical methods, such as gene editing.

On the other hand, the fact that 30% have not heard of PCR despite greater media attention, suggests a limit to scientific engagement.

While the virus is evolving owing to natural selection, lack of explicit media mention of this term seems reflected in the lack of reported exposure.

Which, if any, of these have you seen, read or heard about over the last three months?

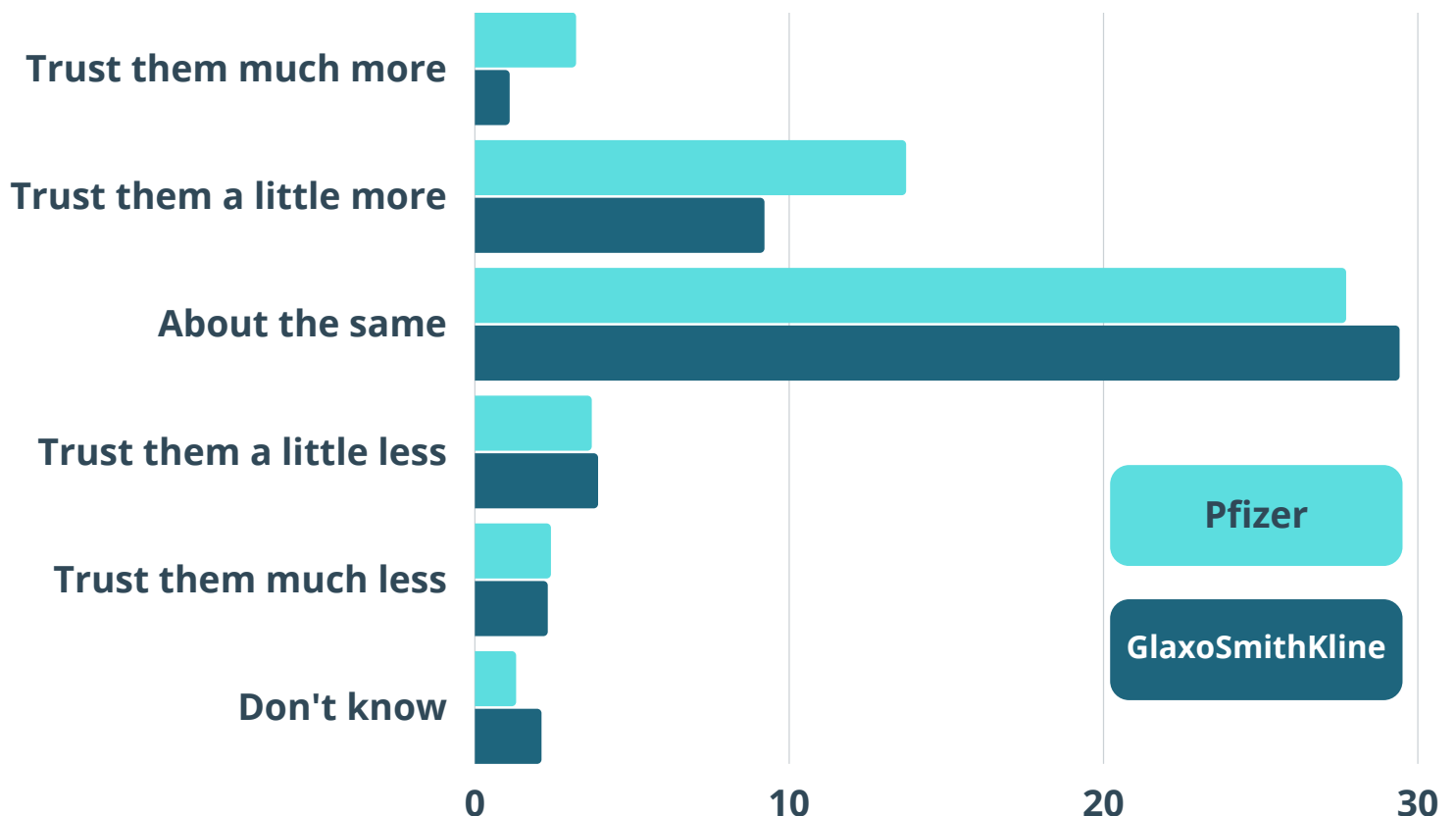


Has exposure changed attitudes to the pharmaceutical industry?

From the beginning of the pandemic one of the most discussed issues was the use of vaccines against Covid-19 and how biopharmaceutical companies could benefit from it. Various biopharmaceutical companies were in the race to develop vaccines against Covid-19 and therefore in the forefront of news. We developed an experiment to test if people's trust in biopharmaceutical companies would be affected depending on which company was given as an example. In this case, half the sample was prompted with GlaxoSmithKline (which at the time of field work did not have an available vaccine) and the other half were given Pfizer (one of the first companies to develop a Covid-19 vaccine) as an example.

The development of the vaccine and associated media exposure is associated with more trust (Pfizer is more trusted than GlaxoSmithKline).

Would you say you now trust pharmaceutical companies, e.g. GlaxoSmithKline/Pfizer, more, less or about the same as you did at the start of the pandemic?



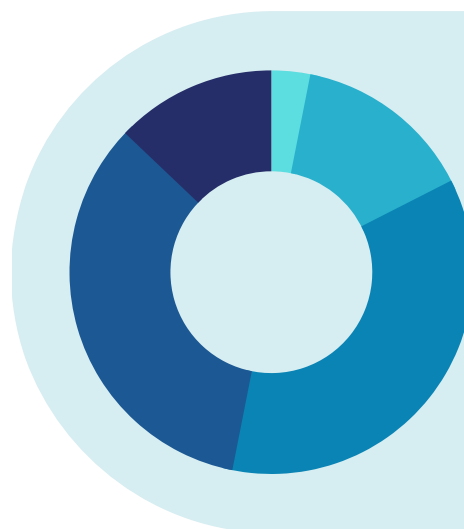
Have the public connected Covid-19 science with genetics?

Much of the media exposure, including PCR testing, viral evolution, is related to genetics. But have the public made the connection? Could this explain why many more report increased trust in scientists than geneticists?

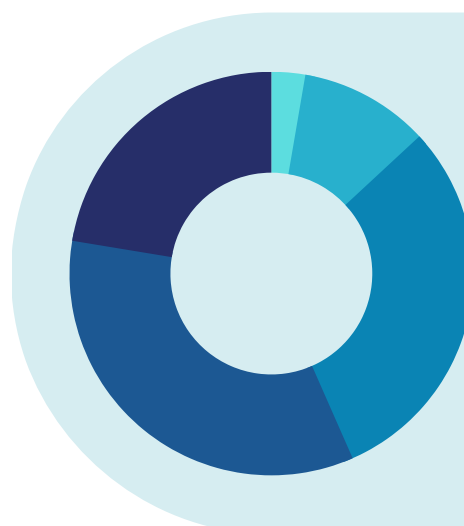
While 70% have heard about PCR testing, for example, 86% say that have not thought about genetics issues at all, or a very small amount. 70% of the public report having had only a small amount or not very much contact with genetics news.

This suggests that the public have not necessarily associated Covid-19 science with genetics.

A great deal
Quite a lot
A small amount
Not very much
Not at all



Over the last few months, how much, if anything, have you heard or read about issues to do with genes and genetics?



Over the past few months, how much, if at all, have you thought about issues to do with genes and genetics?

Trust in information sources

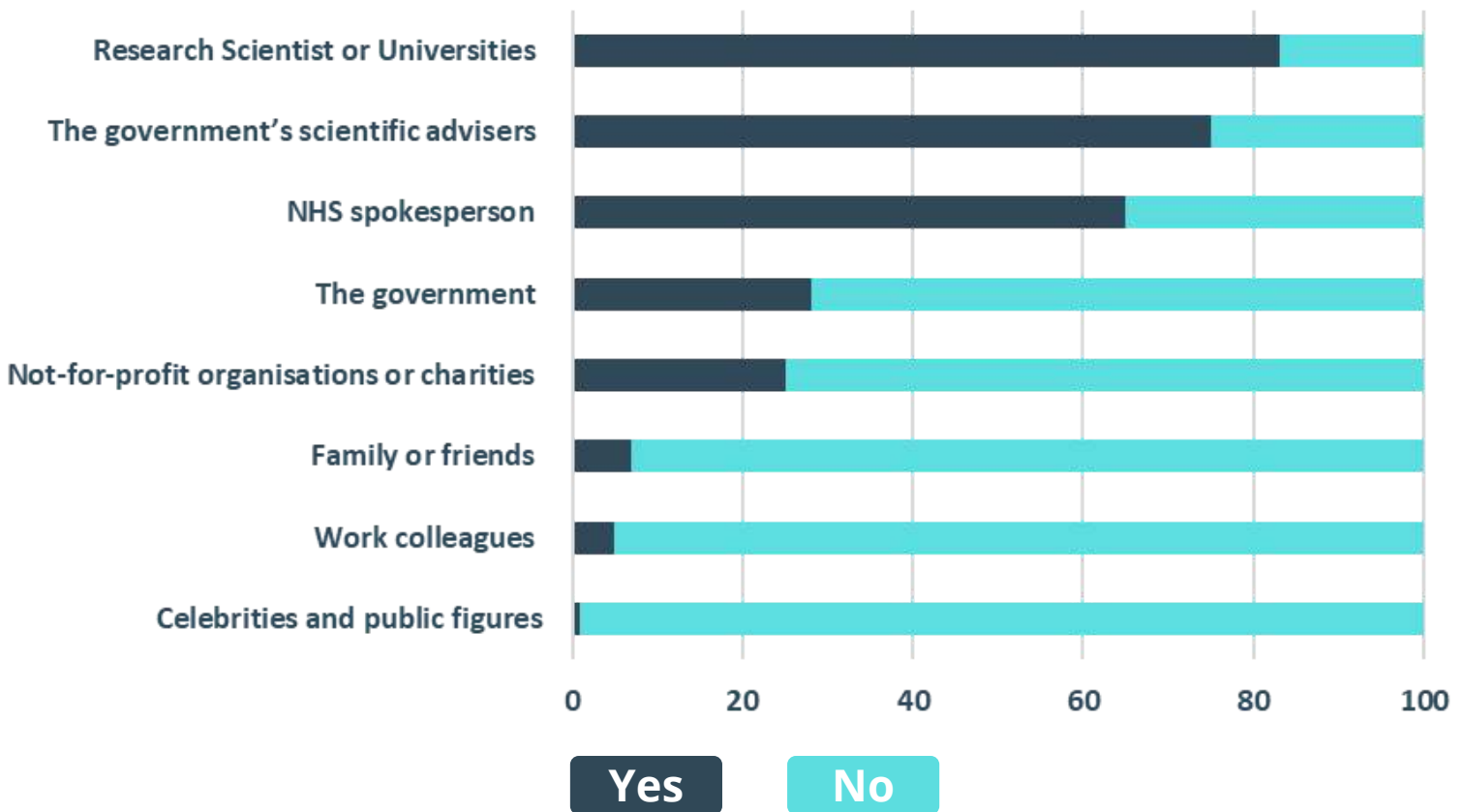
Who would you trust to provide information about Covid-19?

Which individuals do the public trust for information about COVID-19?

University and government scientists are well trusted.

Government and not-for-profit organisations are not as well trusted.

Who would you trust to provide accurate and reliable information about COVID-19?



Which sources would you trust to provide information about Covid-19?

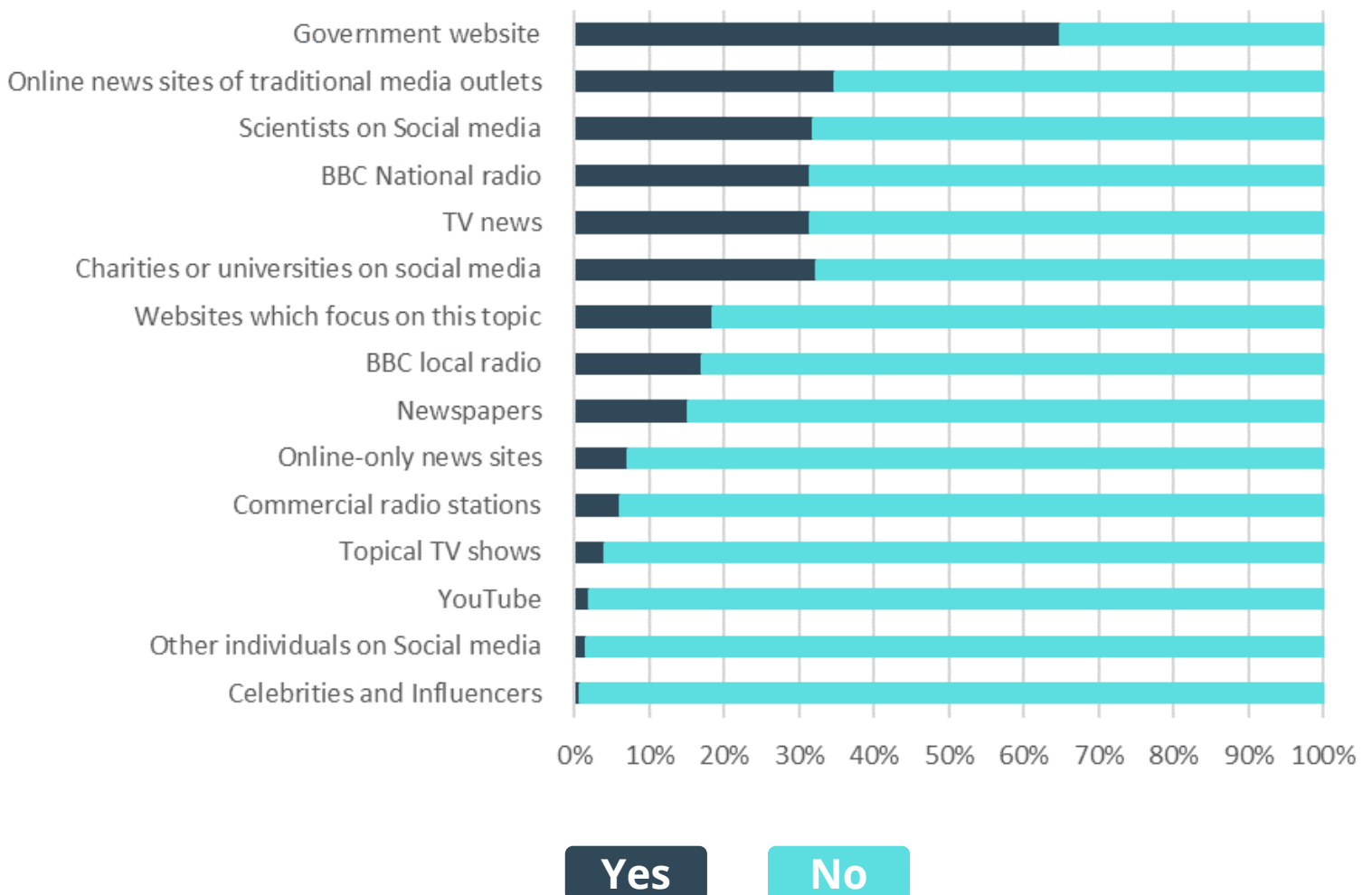
Does the source of the information matter?

Most sources surveyed do not have majority trust

People have trust in government websites but not the government (see above).

People report not trusting celebrities and influencers, or individuals on social media

And which of these sources would you trust to provide accurate and reliable information about Covid-19?



Which sources would you trust to provide information about Covid-19?

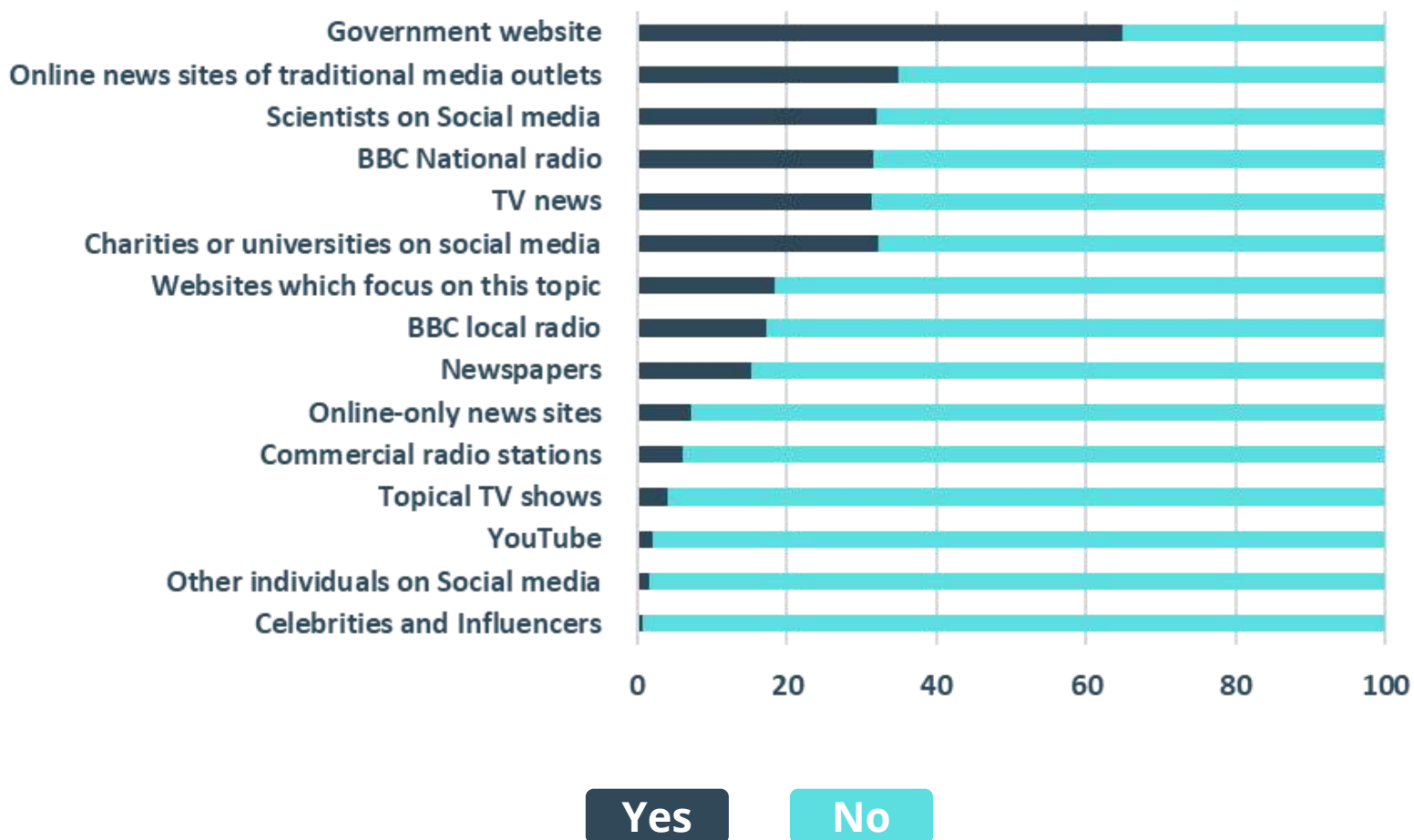
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How engaged are the public with science?

Do people feel connected with science?

To what extent are people engaged with science?

Only 11% report that science isn't for them. The great majority are interested or very well connected

Which of these statements best describes your relationship with science?



I feel connected with science -
I actively seek out science
news, events, activities or
entertainment

I'm interested in science, but I
don't make a special effort to
keep informed

Science is not for me

Would you like to hear more about science?

Is there too much science coverage, not enough or too little?

There is **an appetite for more information**, with a total of 44% of the people questioned agreeing with the statements, "These days I hear and see too little/far too little information about science".

Which of the following statements do you most agree with? These days I hear and see ...



... far too much information about science

... too much information about science

... the right amount of information about science

... too little information about science

... far too little information about science

Summary

What does this survey reveal? We highlight several features:

- Attitudes to genetics have become much more positive through the pandemic
- Public trust in scientists and geneticists is strong and became stronger through the pandemic
- Self-reported understanding of genetics is, however, largely not changed
- Media exposure led to increased awareness of genetical issues, but the connection with genetics was not necessarily established
- University scientists are trusted, government websites (but not the government itself) are a trusted source
- Nearly half the people would like more science coverage

Methods: How the survey was done.

FIELDWORK

The target population was UK individuals aged 18+ and living in residential accommodation.

Sample was a random probability online panel that is representative of the UK population. This panel belongs to Kantar Public that was contracted to run the survey.

- ◆ **Sample size: 2065**
- ◆ **Online survey: 1948 (94%)**
- ◆ **Phone interview: 117 (6%)**
- ◆ **Dates: 1 - 10th June 2021**

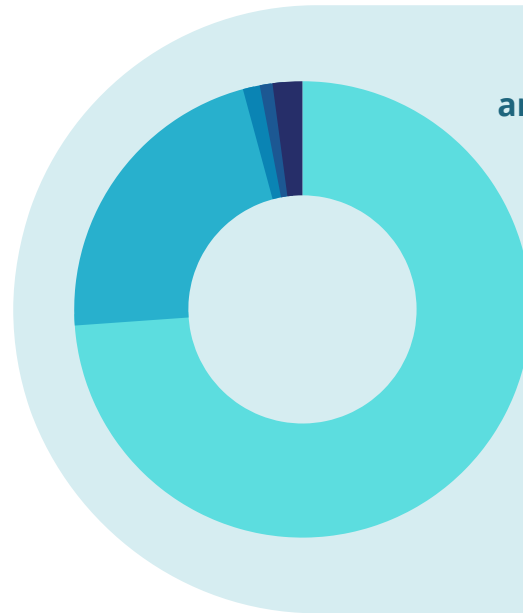


**Appendix 1:
"Textbook" science
knowledge**

We asked respondents 12 "textbook" science questions....

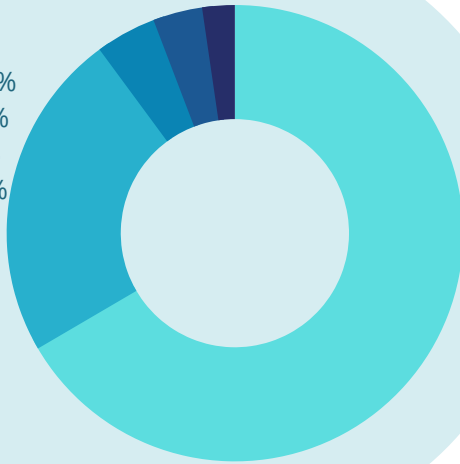
All plants and animals have DNA

Definitely true 73.8%
 Probably true 21.9%
 Probably false 1.2%
 Definitely false 0.9%
 Don't know 2.1%



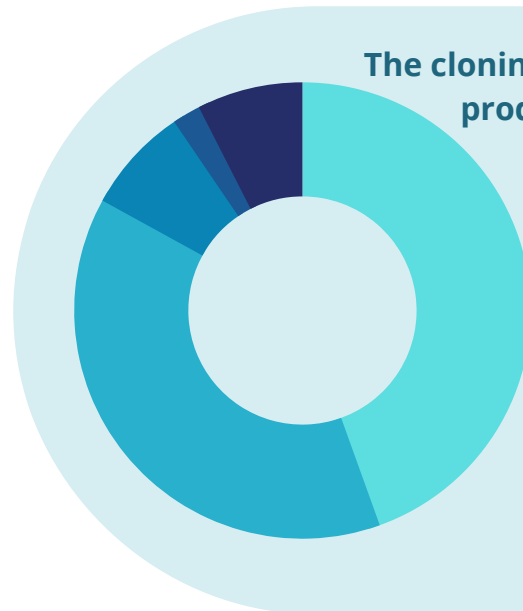
The oxygen we breathe comes from plants

Definitely true 66.5%
 Probably true 23.3%
 Probably false 4.3%
 Definitely false 3.5%
 Don't know 2.3%



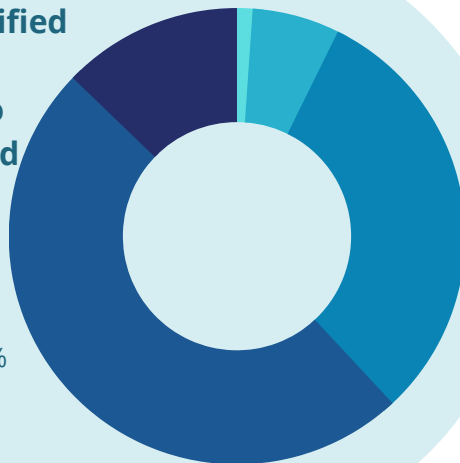
The cloning of living things produces genetically identical copies

Definitely true 44.5%
 Probably true 38.5%
 Probably false 7.5%
 Definitely false 2%
 Don't know 7.5%

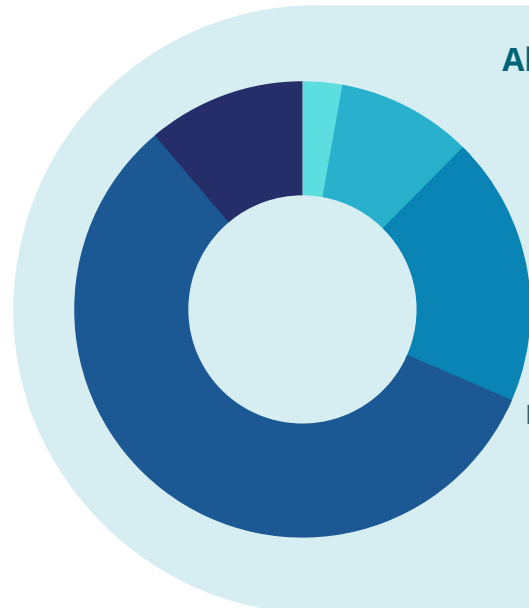


By eating a genetically modified fruit, a person's genes could also become modified

Definitely true 1.1%
 Probably true 6.2%
 Probably false 30.8%
 Definitely false 49.2%
 Don't know 12.8%

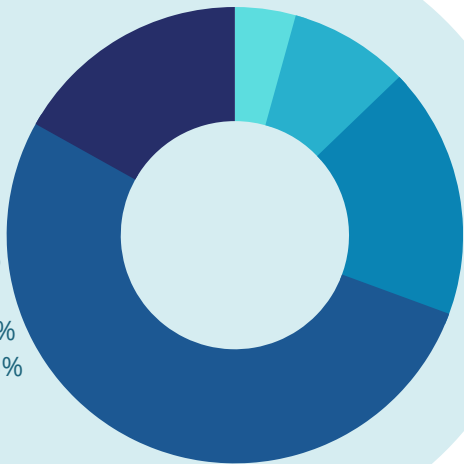


All radioactivity is human-made



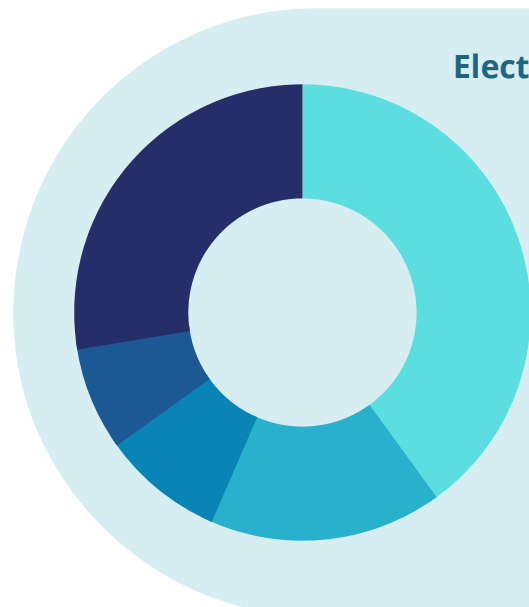
Definitely true 2.8%
 Probably true 9.6%
 Probably false 19.1%
 Definitely false 57.3%
 Don't know 11.2%

It is the mother's genes that determine the sex of the child



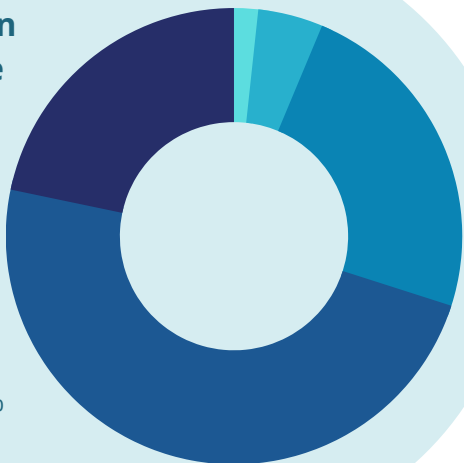
Definitely true 4.3%
 Probably true 8.5%
 Probably false 17.8%
 Definitely false 52.5%
 Don't know 16.9%

Electrons are smaller than atoms



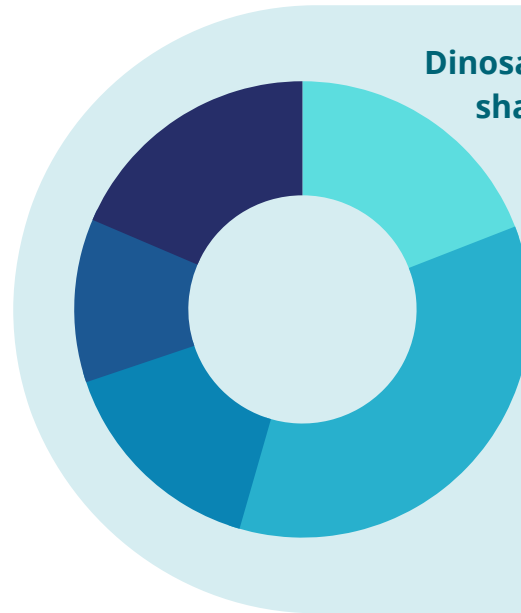
Definitely true 40%
 Probably true 16.5%
 Probably false 8.6%
 Definitely false 7.3%
 Don't know 27.6%

Tomatoes do not naturally contain genes; genes are only found in genetically modified tomatoes



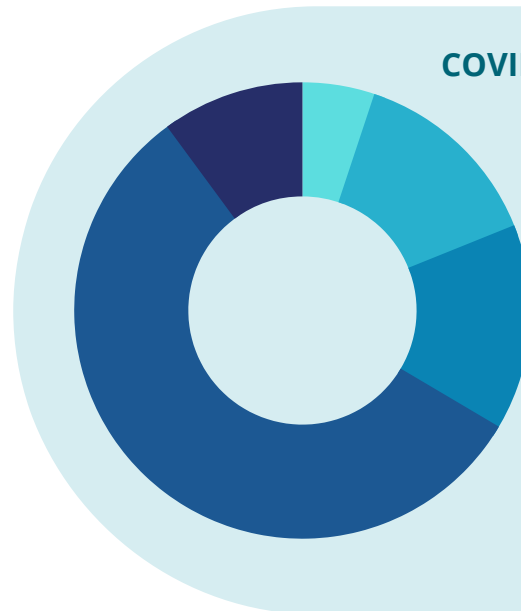
Definitely true 1.7%
 Probably true 4.6%
 Probably false 23.6%
 Definitely false 48.3%
 Don't know 21.7%

Dinosaurs and humans share a common ancestor



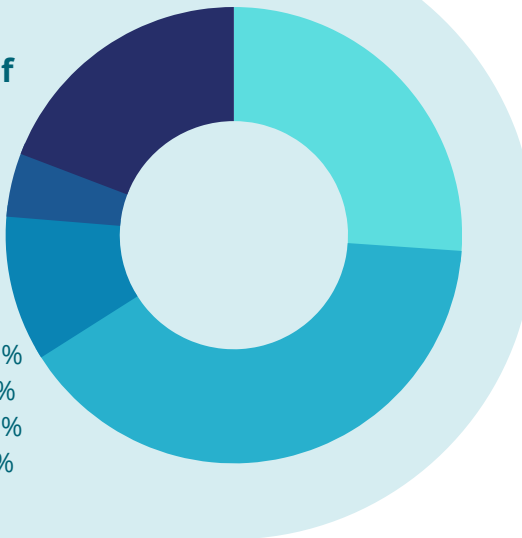
Definitely true 19.1%
Probably true 35.4%
Probably false 15.4%
Definitely false 11.6%
Don't know 18.6%

COVID-19 is caused by bacteria



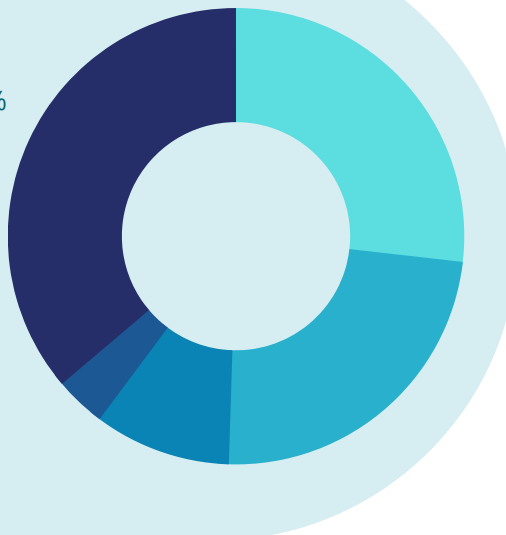
Definitely true 5.1%
Probably true 13.8%
Probably false 14.6%
Definitely false 56.4%
Don't know 10.1%

The spread of new variants of viruses can occur through natural selection



Definitely true 26.1%
Probably true 39.9%
Probably false 10.3%
Definitely false 4.5%
Don't know 19.2%

Viruses are smaller than bacteria



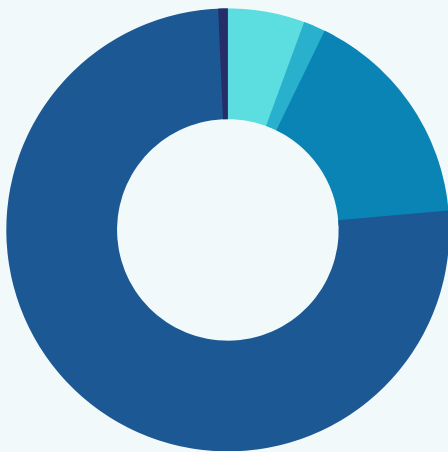
Definitely true 26.8%
Probably true 23.7%
Probably false 9.7%
Definitely false 3.6%
Don't know 36.2%

**Appendix 2:
Attitude to the
COVID-19 vaccine**

If you were offered a COVID-19 vaccine would you take it?

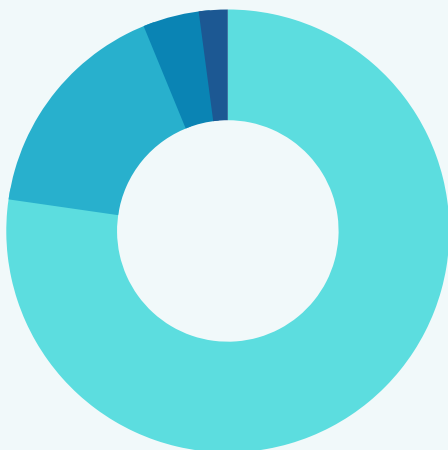
Is our demographic representative? The questionnaire field work was done in May 2021 at a time that healthcare and care workers had already been offered two doses of the vaccine and the rollout of the vaccine was in the 35-40 year olds, so some of our sample would have been eligible for a vaccine at that point or waiting to be offered one. The majority of our sample (77.9%) replied that "Yes", and "I have already been vaccinated" which is in line with the percentage of the UK population that was vaccinated at the time*.

*<https://coronavirus.data.gov.uk/details/vaccinations?areaType=overview&areaName=United%20Kingdom>



Do you think that you have, or have had, COVID-19?

Yes, confirmed by a positive test 5.6%
 Yes, suspected by a healthcare professional but not tested 1.6%
 Yes, my own suspicions 16.4%
 No 75.7%
 Prefer not to answer 0.7%



If you were offered a COVID-19 vaccine would you take it?

Yes, and I have already been vaccinated 77.2%
 Yes, but I am yet to be vaccinated 16.5%
 No, I would not get vaccinated 4.1%
 Prefer not to answer 2.1%