



What Danes know about the efficacy and side effects of COVID-19 vaccines



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1 Introduction

Most people will have to consider COVID-19 vaccines at some point during the pandemic, as an individual being offered the vaccine or as relative of someone offered the vaccine. Vaccines are certainly a true public debate.

For every person to make an informed decision about vaccination, reliable information about vaccine safety and efficacy must be accessible to make that choice.

In other words: We need to have an informed public debate.

We all have a responsibility to ensure that public debate on vaccines is informed, proper and that it promotes respect for different opinions.

We must all support informed discussions in our use of social media when we read and share information about the efficacy and side effects of the vaccines. This is a task for the media. And this is a task for the authorities – including particularly the Danish Medicines Agency. As part of our responsibilities, we work with the European Medicines Agency, EMA, to assess the vaccines' data on efficacy and side effects prior to any approval, and we monitor the vaccines' safety after approval.

So, how's the public debate on vaccines doing? That is what this survey intends to find out.

The research company Epinion has conducted a questionnaire survey among the Danish population on behalf of the Danish Medicines Agency. The survey gives a representative picture of the Danes' knowledge of, views on and perception of the COVID-19 vaccine debate. The survey intends to promote a fact-based public debate on vaccines in Denmark. This report presents the key results from the survey.

2 Methodology

The survey is based on 1,501 interviews with Danish citizens aged 16 and over who constitute a representative sample of the target group.

The survey has been prepared based on 1,501 interviews with people aged 16 and over living in Denmark. The interviews were conducted via online panels in the period 26 March to 5 April 2021.

The sample size was composed to represent the four variables of sex, age, education and region. After data collection, so-called post-stratification weights were applied to the total data to ensure the weights of the respondents' composition reflect the composition of the Danish population in terms of sex, gender and education. Political affinity was also taken into account in terms of how the respondents voted at the last general elections. Political affinity is not published in the report and is only used as an auxiliary means to ensure representativeness.

The table below gives a demographic breakdown by sex and age, education and region of the data collected and of the population. The table shows that there are only slight variations between the distributions on population and data.

TABLE 1
DEMOGRAPHIC BREAKDOWN OF POPULATION AND DATA

		Population	Data
Sex and age	Women 16-34 years	14%	16%
	Women 35-50 years	12%	10%
	Women 51-65 years	12%	15 %
	Women over 65 years	12%	12%
	Men 16-34 years	15%	13%
	Men 35-50 years	12%	11%
	Men 51-65 years	12%	11%
	Men over 65 years	11%	13%
Education	Compulsory school and vocational training	56%	53%
	Upper secondary school and third-level education	44%	47%
Region	North Denmark Region	10%	8%
	Central Denmark Region	23%	24%
	Region of Southern Denmark	21%	20%
	Capital Region of Denmark	32%	33%
	Region Zealand	14%	15%

Source: Population data from Statistics Denmark (FOLK1E, HFUDD11 and HFUDD2 1).

Note: N(data) = 1,501.

3 Main conclusions

- What Danes know about the **efficacy** of COVID-19 vaccines:
The Danes are generally well-informed in terms of how COVID-19 vaccines prevent the disease as established in the clinical trials before vaccine approval. Accordingly, nine in ten believe that vaccinated people are at lower risk of getting COVID-19. If a person gets COVID-19 despite having a vaccination, seven in ten believe that the disease will be less severe compared to not having a vaccination. Eight in ten Danes also believe that the vaccine reduces the risk of being admitted to hospital.
- What Danes know about the **side effects** of COVID-19 vaccines:
Nearly half of Danes underestimate how often to expect mild transient side effects such as fever, headache and redness at the injection site after COVID-19 vaccination. Also, almost four in ten Danes would contact their doctor if they develop fever as a side effect after the COVID-19 vaccine jab even though this is usually a transient side effect requiring no medical treatment.
- What Danes know about **COVID-19 hospitalisations**:
Nearly four in ten in the 51-65 age group and more than four in ten aged 65 or over answer 'don't know' to the question of how many people out of 10,000 in their own age group are admitted to hospital with COVID-19 infection. Especially people in the older groups are unsure of how many.
- The Danes' **views** on COVID-19 vaccines:
More than half of Danes have confidence in COVID-19 vaccines, but nearly a quarter say they are sceptical about the vaccines. The vast majority find that development and approval of the COVID-19 vaccines have been quick, and that approval should not be any quicker if that means being less certain about the safety and efficacy. Nearly half of Danes worry over having vaccine side effects. Especially women aged between 35 and 50 feel this way.
- How Danes **experience** the vaccine debate:
Around one third of Danes find that the COVID-19 vaccines are debated in a positive tone and on an informed basis – one third of respondents disagree with this. Especially the young find that the vaccines are not debated in a positive tone. Four in ten believe that the debate is characterised by misinformation. The survey shows that 63 percent of Danes believe they have sufficient information about the vaccines. Those indicating that they lack information especially want to know more about side effects and efficacy. Whereas eight of ten say they respect other people's views on vaccines, it is only close to five in ten who find that their views are respected by others.

4 What Danes know about the efficacy of COVID-19 vaccines

Nine in ten believe that vaccinated people are at lower risk of getting COVID-19. If a person gets COVID-19 – despite having a vaccination – seven in ten believe that the disease will be less severe compared to not having a vaccination. Eight in ten also believe that the vaccine reduces the risk of being admitted to hospital. So, the Danes' knowledge basically corresponds to what the clinical trials established prior to vaccine approval.

The trials testing the COVID-19 vaccines prior to approval and after vaccine roll-out have established that the vaccines generally prevent COVID-19 disease, reduce the number of hospital admissions and reduce the severity of the disease.

When asked about the vaccines' effect on COVID-19, the replies are fairly similar for all four vaccines, i.e. the number of respondents answering true or false varies only slightly across all four vaccines.

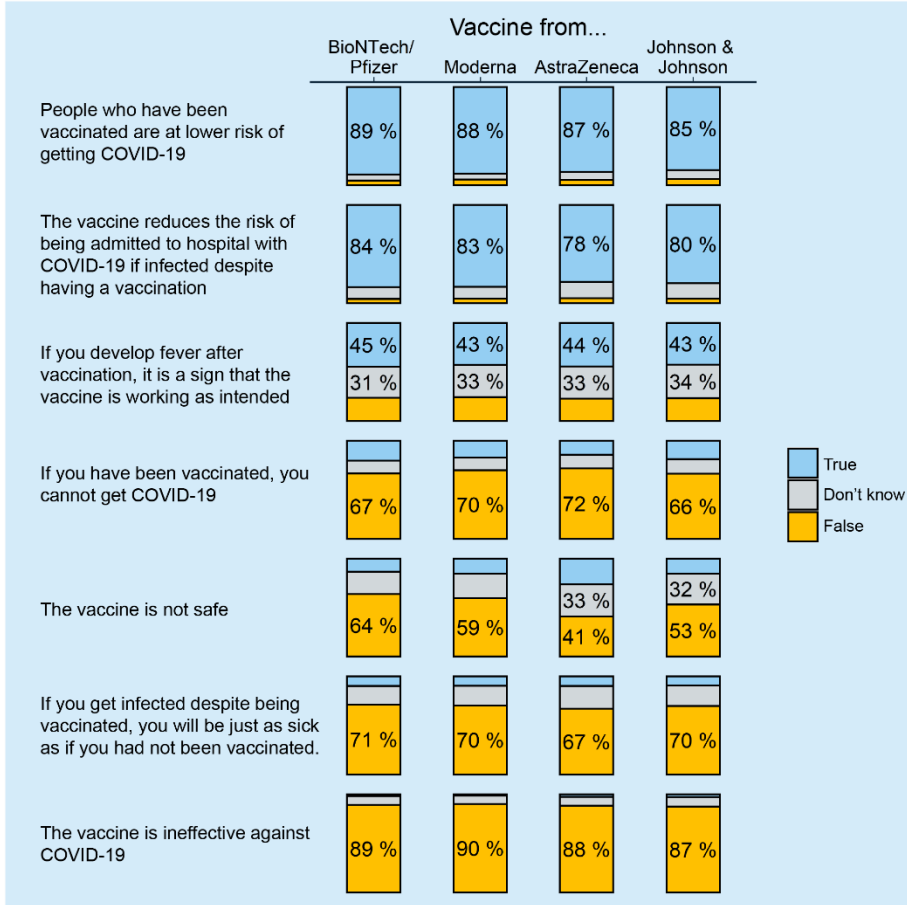
Similarly, the respondents generally agree on the vaccines' effect. Only very few (one to three percent) respond 'true' to the statement that the vaccines have *no* effect on COVID-19.

Across the four vaccines, between 66 and 72 percent say it is false that you cannot get COVID-19 if you have been given the vaccine. The vast majority say it is true that the risk of COVID-19 infection is smaller if you are vaccinated (85-89 percent), and 67-71 percent say it is false that you will be just as sick with or without vaccination. Finally, between 78 and 84 percent say it is true that a vaccine reduces the risk of being admitted to hospital with COVID-19 if you catch the disease despite being vaccinated.

The respondents are divided on the true or false question of whether fever after vaccination is a sign that the vaccine is working; 43-45 percent say that it is true, 23-24 percent say it is false. Many are unsure about this question, with one third answering 'don't know'.

FIGURE 1

THE DANES' RESPONSE TO TRUE OR FALSE QUESTIONS ABOUT VACCINE EFFICACY



Note: N(BioNTech/Pfizer) = 735; N(Moderna) = 780; N(AstraZeneca) = 730; N(Johnson & Johnson) = 757. Percentages below 30 percent have been removed to increase the readability of the figure.

5 What Danes know about side effects of COVID-19 vaccines

Nearly half of Danes underestimate how often to expect mild transient side effects such as fever, headache and redness at the injection site after COVID-19 vaccination. Almost four in ten would contact their doctor if they develop fever as a side effect after the COVID-19 vaccine jab although this is usually not necessary.

The clinical trials prior to approval of the vaccines showed that more than half of all people who were vaccinated experienced mild, transient side effects such as pain at the injection site, tiredness or headache.

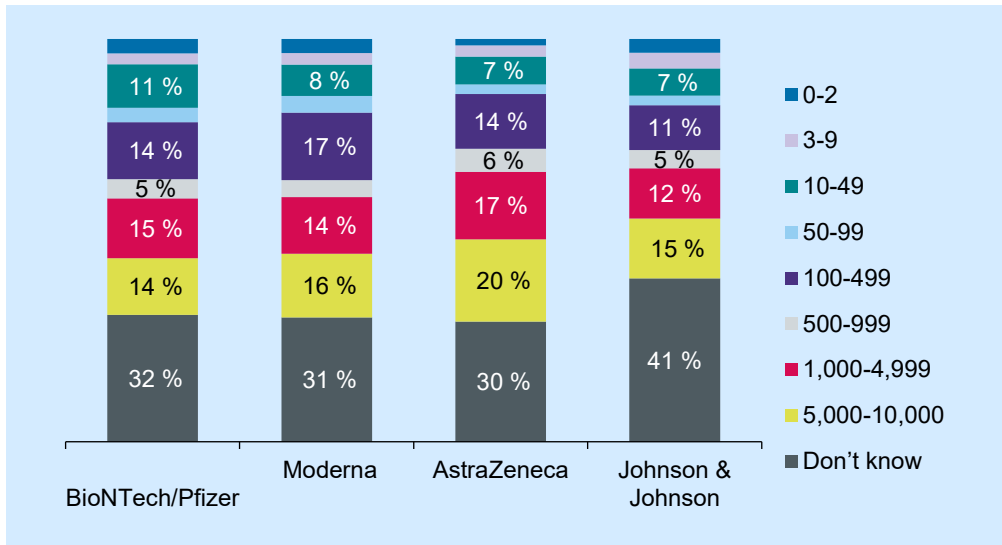
Nonetheless, the occurrence of these side effects is underestimated by a sizeable number of the population. Up to 40 percent thus believe that no more than up to 10 percent of everyone vaccinated will experience mild, transient side effects.

Between 14 and 20 percent of Danes say that more than half of people vaccinated get mild side effects.

Around 30-40 percent indicate not knowing the answer. There is greatest uncertainty about the vaccine from Johnson & Johnson, with 41 percent answering 'don't know'.

Figure 2

OUT OF 10,000 PEOPLE VACCINATED FOR COVID-19, HOW MANY DO YOU THINK WILL GET MILD, TRANSIENT SIDE EFFECTS FROM ...



Note: N(BioNTech/Pfizer) = 735; N(Moderna) = 780; N(AstraZeneca) = 730; N(Johnson & Johnson) = 757. Percentages below 5 percent have been removed to increase the readability of the figure.

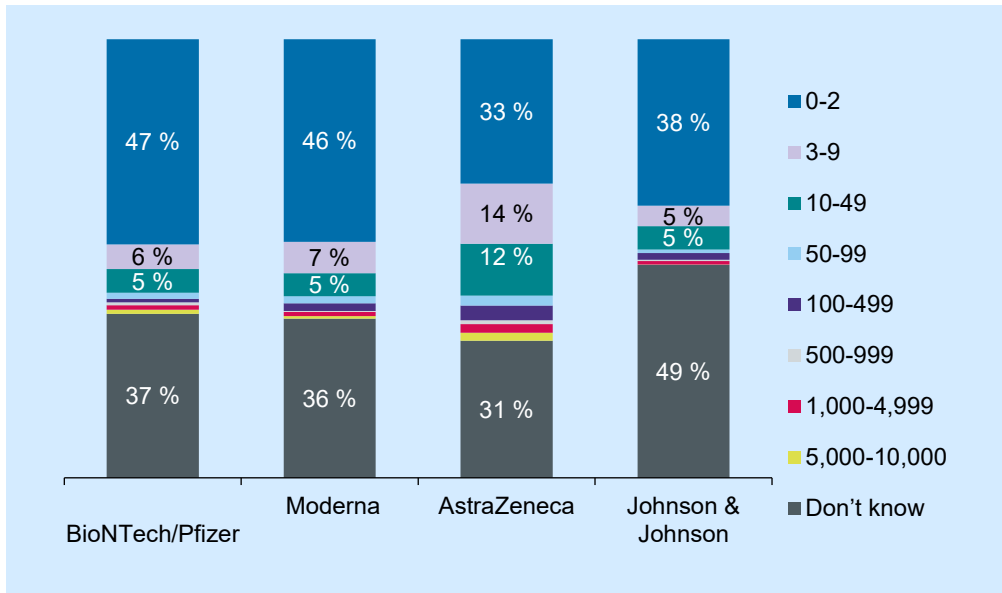
The occurrence of life-threatening side effects is overestimated

Between 10 and 20 percent of the population believe that more than 2 in 10,000 people get life-threatening side effects of the COVID-19 vaccines. Around one third of the population believe this to be the case for the AstraZeneca vaccine.

This is rather higher than the occurrence observed in clinical trials prior to the vaccines' approval and during subsequent monitoring of the vaccines.

Between 30 and 50 percent answer 'don't know' across all authorised vaccines. See figure 3.

FIGURE 3
OUT OF 10,000 PEOPLE VACCINATED FOR COVID-19, HOW MANY DO YOU THINK WILL GET LIFE-THREATENING SIDE EFFECTS FROM ...



Note: N(BioNTech/Pfizer) = 735; N(Moderna) = 780; N(AstraZeneca) = 730; N(Johnson & Johnson) = 757. Percentages below 5 percent have been removed to increase the readability of the figure.

Figure 3 also shows that Danes believe life-threatening side effects happen more often with the AstraZeneca vaccine than with the BioNTech/Pfizer or Moderna vaccine.

This is demonstrated by 36 percent saying that more than 2 in 10,000 get life-threatening side effects from the AstraZeneca vaccine. In comparison, 16 and 18 percent believe such side effects happen to more than 2 in 10,000 people in the case of the BioNTech/Pfizer and Moderna vaccines, respectively.

Reflection on these figures should take into account that the occurrence of life-threatening anaphylactic shock is much rarer, which is also the case for the unusual syndrome known as VITT.

Around one third say they do not know how many get life-threatening side effects from the vaccines from BioNTech/Pfizer, Moderna and AstraZeneca. The Johnson & Johnson vaccine is the vaccine that most are uncertain about, with half of the respondents saying they do not know the extent of side effects.

The most common side effects

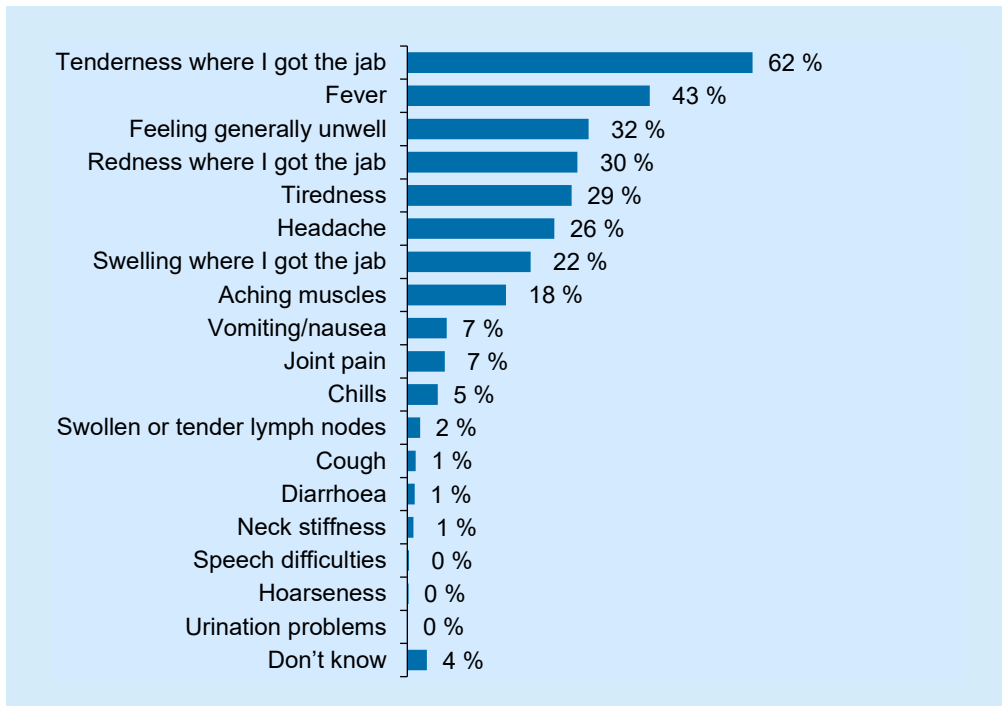
A majority of Danes believe tenderness where the vaccine is injected to be one of the three most common side effects of COVID-19 vaccination. The top three side effects reported by most respondents as being the most common are: tenderness (62 percent), fever (43 percent) and feeling generally unwell (32 percent).

Nearly just as many find that redness at the injection site (30 percent) and tiredness (29 percent) are in top three. All these side effects are among the most frequently observed in the clinical trials based on which the vaccines were approved.

Only four percent indicate not knowing the answer.

FIGURE 4

WHICH OF THE FOLLOWING SIDE EFFECTS DO YOU BELIEVE TO BE THE THREE MOST FREQUENTLY OCCURRING SIDE EFFECTS AFTER VACCINATION WITH A COVID-19 VACCINE?

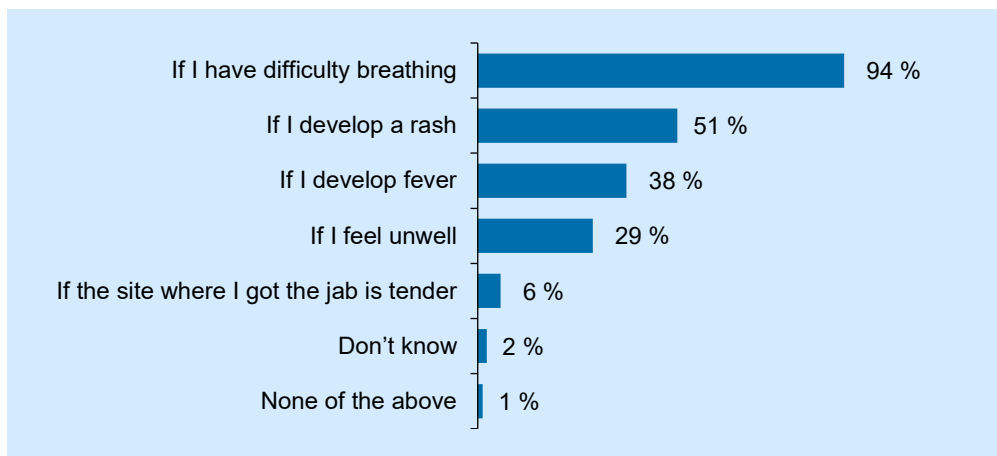


Note: N = 1,501. The numbers in the figure sum up to more than 100 percent because the respondents were asked to select three side effects.

What reactions make Danes contact their doctor?

The respondents were also asked to reflect on whether they would contact their doctor if they experienced certain reactions after vaccination. The vast majority (94 percent) would contact their doctor if they experienced breathing difficulties after vaccination – see figure 5.

FIGURE 5
IN WHICH OF THE FOLLOWING SITUATIONS WOULD YOU CONSULT A DOCTOR AFTER VACCINATION FOR COVID-19?



Note: N = 1,501.

True or false statements on side effects

The survey respondents answered several true or false statements about side effects from the vaccines.

One of the questions concerned whether the vaccines could cause death or life-threatening allergic reactions.

It is well known that serious, allergic (so-called anaphylactic) reactions can occur in very rare cases, and it has also been seen with other vaccines. That is why people are asked to wait for a short while at the vaccination centre after the vaccination. These rare serious allergic reactions are life-threatening in theory, but nevertheless simple to treat.

In Denmark and in the rest of the world, we have also seen very rare cases of deaths after vaccination with the vaccines from AstraZeneca and Johnson

& Johnson involving the rare syndrome termed VITT. As for the Johnson & Johnson vaccine, the possible association was established after this survey was completed at Easter 2021.

Looking at the four vaccines separately, there are relatively more respondents who believe that the AstraZeneca vaccine is more likely to cause death and allergic reactions than the other three vaccines.

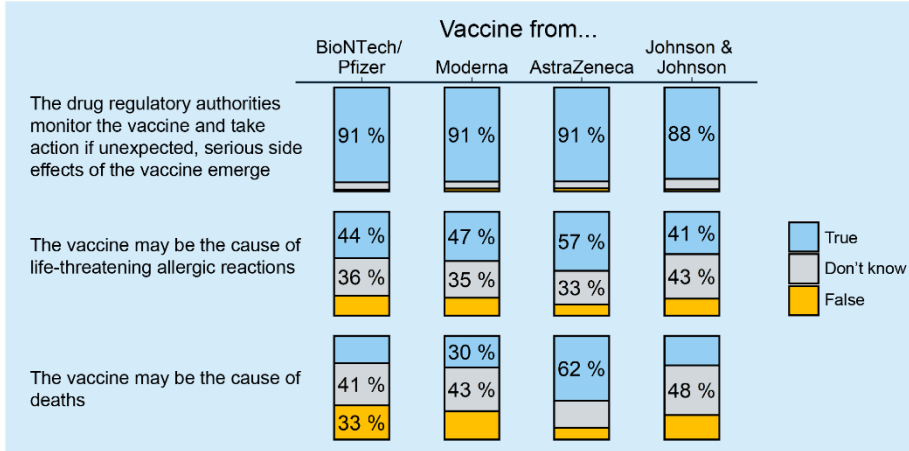
Thus, 62 percent of Danes believe that the AstraZeneca vaccine might cause death. The proportions for the other vaccines range from 26 to 30 percent. Along the same lines, 57 percent of Danes believe that the vaccine from AstraZeneca might cause life-threatening, allergic reactions; for the other vaccines it is between 41 and 47 percent. The AstraZeneca vaccine is also the vaccine that fewest people are unsure of when asked about side effects.

Conversely, the Johnson & Johnson vaccine receives the most 'don't knows'. Almost half of the respondents say they do not know if the vaccine could cause death or life-threatening allergic reactions.

Nevertheless, people have great confidence that the drug regulatory authorities will monitor the vaccines and take action in the event of unexpected serious side effects. About nine in ten believe this to be the case for all four vaccines.

FIGURE 6

RESPONSE TO TRUE OR FALSE QUESTIONS ABOUT THE VACCINES' SIDE EFFECTS



Note: N(BioNTech/Pfizer) = 735; N(Moderna) = 780; N(AstraZeneca) = 730; N(Johnson & Johnson) = 757. Percentages below 30 percent have been removed to increase the readability of the figure.

5 What Danes know about COVID-19 hospitalisations

Nearly four in ten in the 51-65 age group and more than four in ten aged 65 or over answer 'don't know' to the question of how many people out of 10,000 in their own age group are admitted to hospital with COVID-19 infection.

Deciding whether to get the vaccine is a personal choice that we make based on several factors. Two aspects are of crucial importance: On the one hand, how dangerous do we perceive the disease prevented by the vaccine to be. On the other, how do we perceive the risks posed by the vaccine itself?

To learn more about how the population perceives the severity of the disease, we asked the respondents to consider how many of 10,000 COVID-19-infected persons they think are admitted to an intensive care unit in their own age group.

This question is not easy to approach, and the right answer involves uncertainties, the reason being that the number of people infected is most likely higher than the number of cases registered with the authorities. Consequently, the results should be interpreted cautiously as they may not be fully indicative of the population's perception of the topic.

Almost every second respondent answers 'don't know'

It is worth noting, however, that almost one in two aged 50 or over answer 'don't know' to this question, especially considering that older populations are at increased risk of a serious disease course.

There are generally more older people than younger people who indicate not knowing how many people of the same age are admitted to an intensive care unit with coronavirus. Whereas 17 percent of the 16 to 34-year-olds say they do not know how many of 10,000 infected people of the same age are admitted to hospital, 43 percent of those aged 65 or over indicate not knowing.

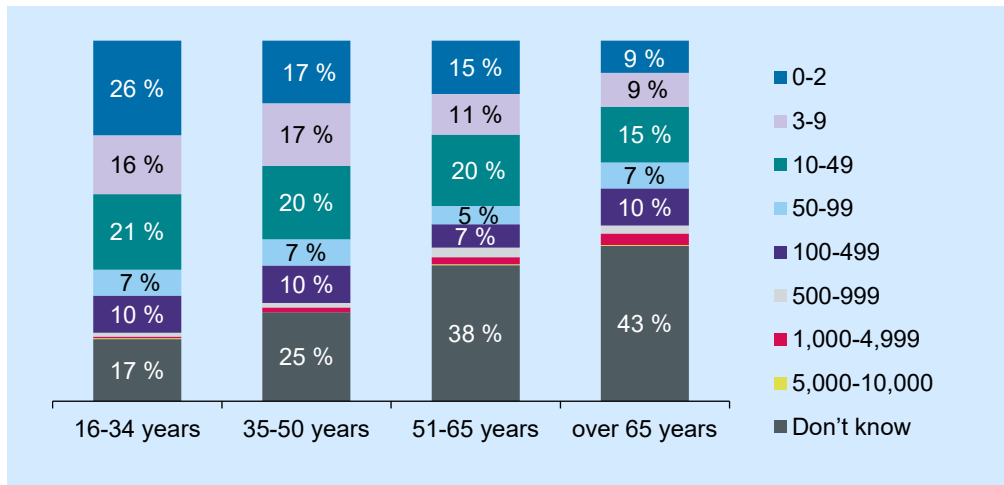
Forty percent of the older age groups underestimate the frequency of hospital admissions

Of the respondents attempting to answer, the older groups generally assess that their own age group is slightly more exposed to hospitalisation than younger persons – yet not to an extent matching the real frequency of

hospital admissions per infected cases. As mentioned, the figures should be interpreted with caution and are purely indicative, e.g. due to underreported infected cases. Nonetheless, 40 percent of people aged 65 or over say that considerably fewer people their age are admitted to hospital per 10,000 than the number of 370 registered by Statens Serum Institut (SSI) as at mid-April 2021.

The figure below also shows that the discrepancies between answers and real frequency of hospital admissions appear to be smaller for the younger populations. It is impossible to conclude anything with certainty due the above-mentioned reservations.

FIGURE 7
OUT OF 10,000 PEOPLE OF YOUR AGE WHO ARE INFECTED WITH COVID-19, HOW MANY DO YOU THINK ARE ADMITTED TO AN INTENSIVE CARE UNIT?



Note 1: N = 1,501. Percentages below 5 percent have been removed to increase the readability of the figure.

Note 2: Data from Statens Serum Institut (SSI) on the number of people admitted to an intensive care unit per registered infected cases (the real number of infected people is in all probability higher) as at mid-April 2021 shows the following: For the 16 to 34-year-olds, the number is 7. For the 35 to 50-year-olds, the number is 29. For the 51 to 65-year-olds, the number is 101. For the 65-year-olds and older, the number is 370. Source: SSI.

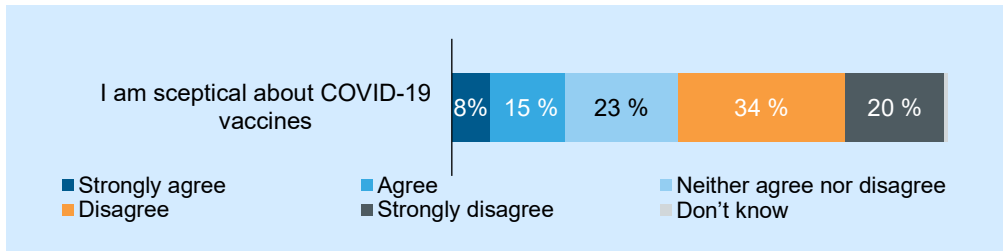
6 The Danes' views on COVID-19 vaccines

Most Danes have confidence in the COVID-19 vaccines and experience that the development and approval of the vaccines have been quick. Nearly half worry over having vaccine side effects. Especially women aged between 35 and 50 are worried and sceptical about the vaccines.

A majority (54 percent) are generally not sceptical about the COVID-19 vaccines, whereas 23 percent neither agree nor disagree with the statement 'I am sceptical about COVID-19 vaccines'.

People with a shorter education are more sceptical about the vaccines than people with a longer education¹, and women are generally more sceptical than men (not shown in figure).

FIGURE 8
DO YOU AGREE OR DISAGREE WITH THE FOLLOWING STATEMENT?



Note: N = 1,501.

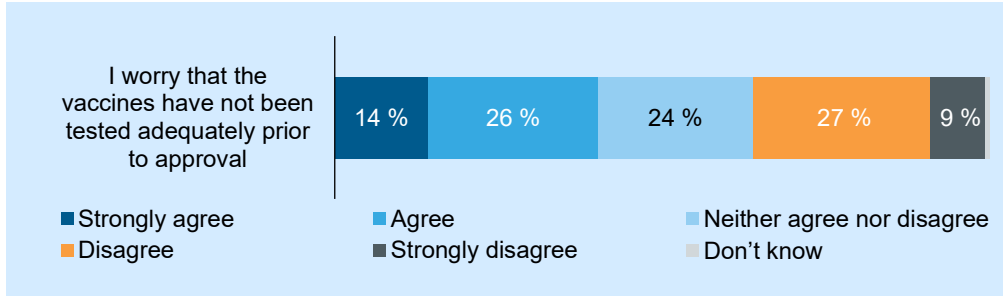
Overall, the Danes find that both development and approval of the COVID-19 vaccines have been quick. Seventy percent find that the vaccine development has been quick or very quick, and 71 percent say that the vaccine approval has been quick.

At the same time, 40 percent are worried that the vaccines may not have been tested adequately prior to approval. Thirty-five percent are not worried, whereas 24 percent say 'none of the above'. Women aged between 35 and

¹ People in this group either completed compulsory school or vocational training as their highest education.

50 and people with a shorter education are more inclined to worry about whether the vaccines have been tested adequately.

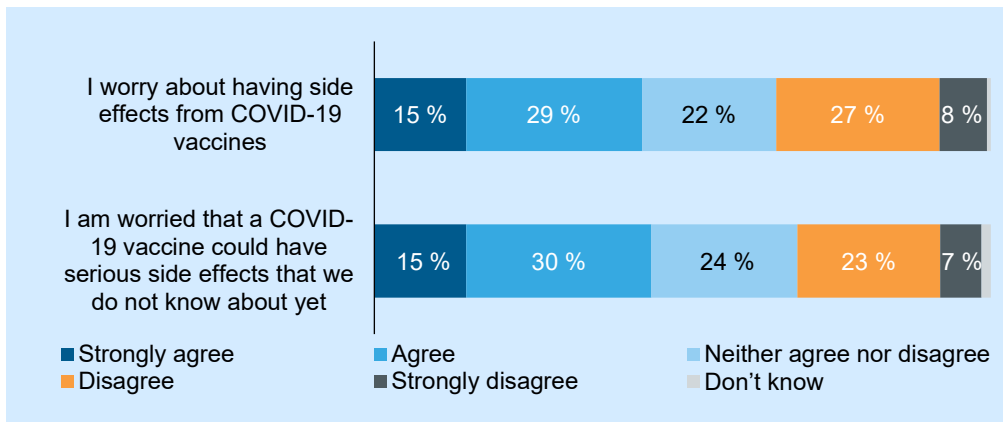
FIGURE 9
DO YOU AGREE OR DISAGREE WITH THE FOLLOWING STATEMENT?



Note: N = 1,501. Percentages below 5 percent have been removed to increase the readability of the figure.

Around half of Danes worry about side effects of COVID-19 vaccines. Whereas 44 percent worry about having side effects from the vaccines, 45 percent are worried that a COVID-19 vaccine could cause serious side effects that we do not know about yet. This concern is most pronounced among women aged between 35 and 50, and least pronounced among younger men aged 34 or under.

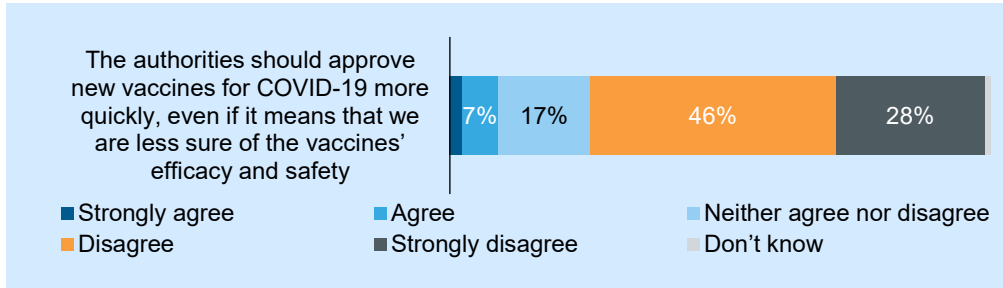
FIGURE 10
DO YOU AGREE OR DISAGREE WITH THE FOLLOWING STATEMENTS?



Note: N = 1,501. Percentages below 5 percent have been removed to increase the readability of the figure.

Only a very small proportion of Danes find that the approval of COVID-19 vaccines should be quicker, even if it means less certainty about the vaccine's efficacy and safety. Nine percent find that the approval should be quicker, whereas 73 percent disagree with this.

FIGURE 11
DO YOU AGREE OR DISAGREE WITH THE FOLLOWING STATEMENT?

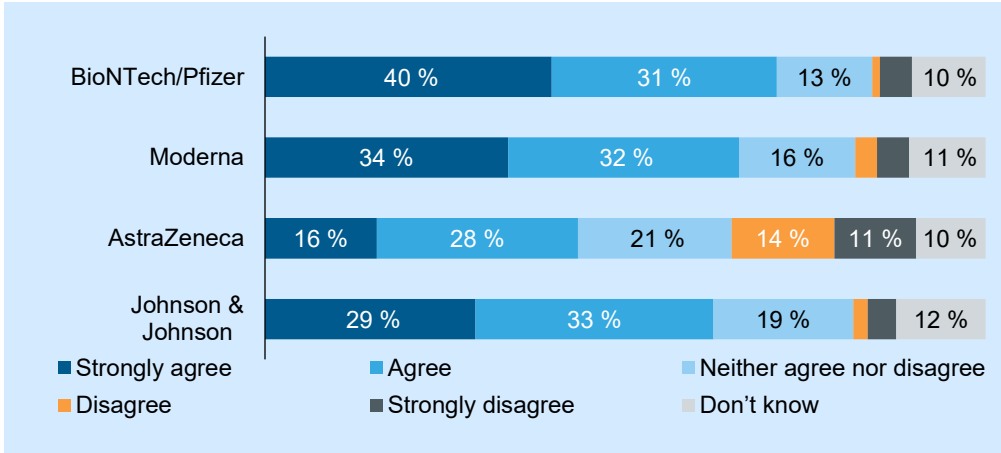


Note: N = 1,501. Percentages below 5 percent have been removed to increase the readability of the figure.

When this survey was carried out over the Easter period 2021, only a minority felt that the disadvantages of the vaccines from BioNTech/Pfizer, Moderna and Johnson & Johnson outweighed the benefits. But whereas it was five to seven percent who thought the disadvantages outweighed the benefits for these three vaccines, 25 percent thought that the disadvantages outweighed the benefits for the AstraZeneca vaccine at that time.

FIGURE 12

THE BENEFITS OF (BIONTECH/PFIZER / MODERNA / JOHNSON & JOHNSON / ASTRAZENECA) IN TERMS OF COVID-19 PREVENTION OUTWEIGH THE DISADVANTAGES IN THE FORM OF SIDE EFFECTS



Note: N = 1,501. The respondents were asked this question about two randomly selected vaccines of the four currently approved vaccines (in the question's parentheses) Percentages below 5 percent have been removed to increase the readability of the figure.

6 How Danes experience the vaccine debate

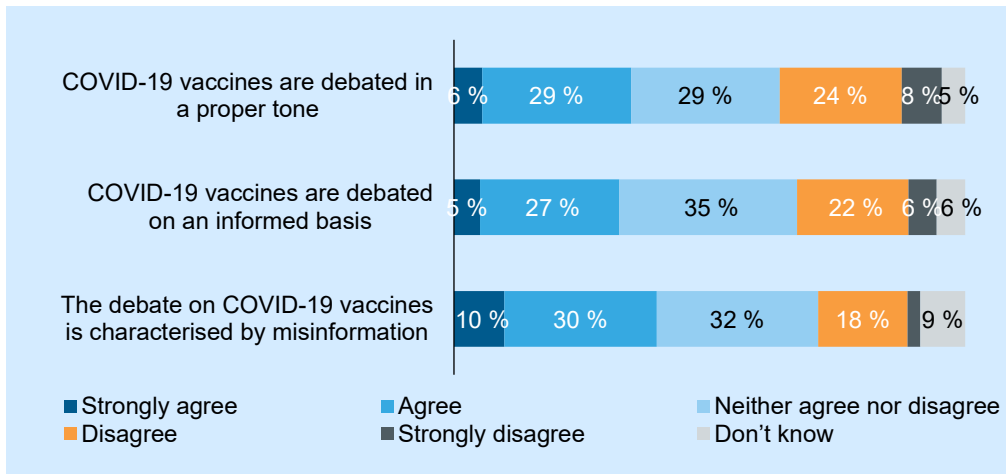
Around one third of Danes find that the COVID-19 vaccines are debated in a positive tone and on an informed basis – one third of respondents disagree with this. The majority of Danes have the information they need about the vaccines – one third find they lack information.

The perception of the COVID-19 vaccine debate is quite mixed. Whereas 35 percent find that the COVID-19 vaccines are debated in a positive tone, 32 percent experience the opposite.

Whereas 32 percent agree that discussions take place on an informed basis, 28 percent disagree. Whereas 40 percent agree that the debate is characterised by misinformation, 20 percent disagree with this.

It is especially the age groups under 50 who disagree that the discussions are held in a proper tone and take place on an informed basis (not shown in figure). These groups are also more inclined to say that the vaccine debate is characterised by misinformation. Across the questions about the debate’s tone, degree of informed debate and misinformation, there are large proportions who neither agree nor disagree with the statements (29, 35 and 32 percent, respectively).

FIGURE 13
DO YOU AGREE OR DISAGREE WITH THE FOLLOWING STATEMENTS?



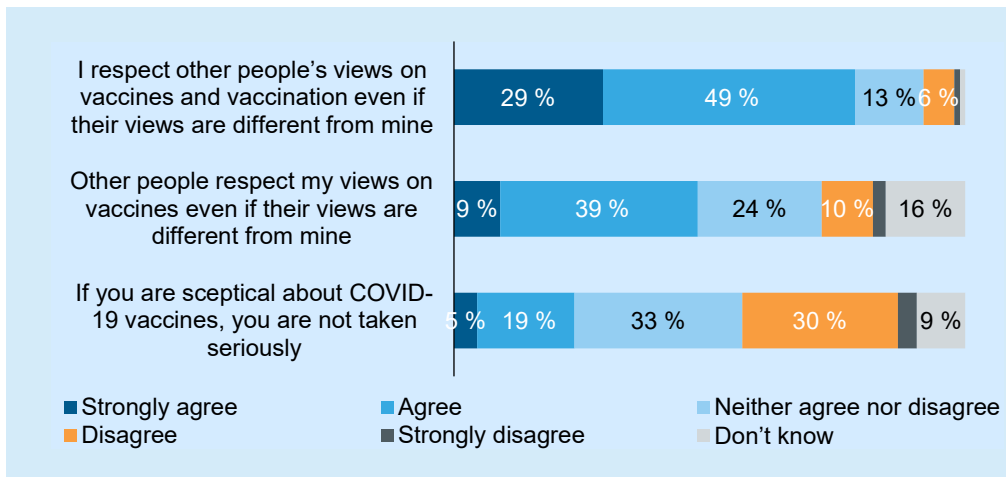
Note: N = 1,501. Percentages below 5 percent have been removed to increase the readability of the figure.

Clear difference between perceived tolerance towards others and perceived tolerance towards yourself

Eighty percent say that they respect other people’s views on vaccines. However, fewer people (48 percent) find that their views are respected by others, while 13 percent say that their views are not respected.

While 24 percent of the respondents agree that you are not taken seriously if you are sceptical about COVID-19 vaccines, 34 percent disagree with this and thus believe that sceptics are taken seriously.

FIGURE 14
DO YOU AGREE OR DISAGREE WITH THE FOLLOWING STATEMENTS?



Note: N = 1,501. Percentages below 5 percent have been removed to increase the readability of the figure.

Almost every third respondent say they lack information

Overall, 63 percent of Danes say that they have sufficient information about COVID-19 vaccines, while 28 percent experience a lack of information (see figure below).

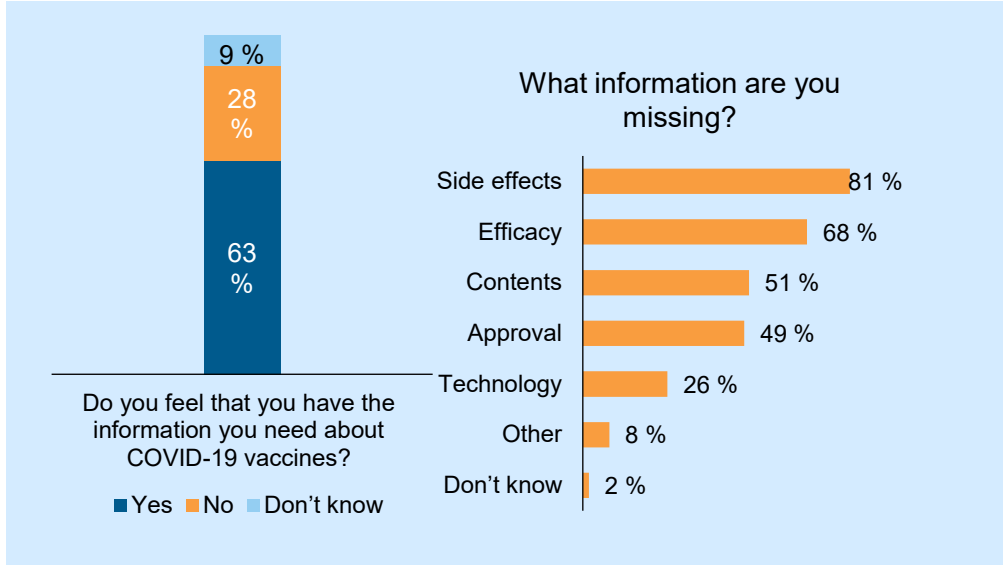
Especially women under 65 and persons with a shorter education² experience a lack of information. Those who experience that they lack

² People in this group either completed compulsory school or vocational training as their highest education.

information especially request more information about the vaccines' side effects (81 percent) and efficacy (68 percent).

FIGURES 15 & 16

**DO YOU FEEL THAT YOU HAVE THE INFORMATION YOU NEED ABOUT COVID-19 VACCINES?
& WHAT INFORMATION ARE YOU MISSING?**



Note: N(figure 15) = 1,501 og N(figure 16) = 423.