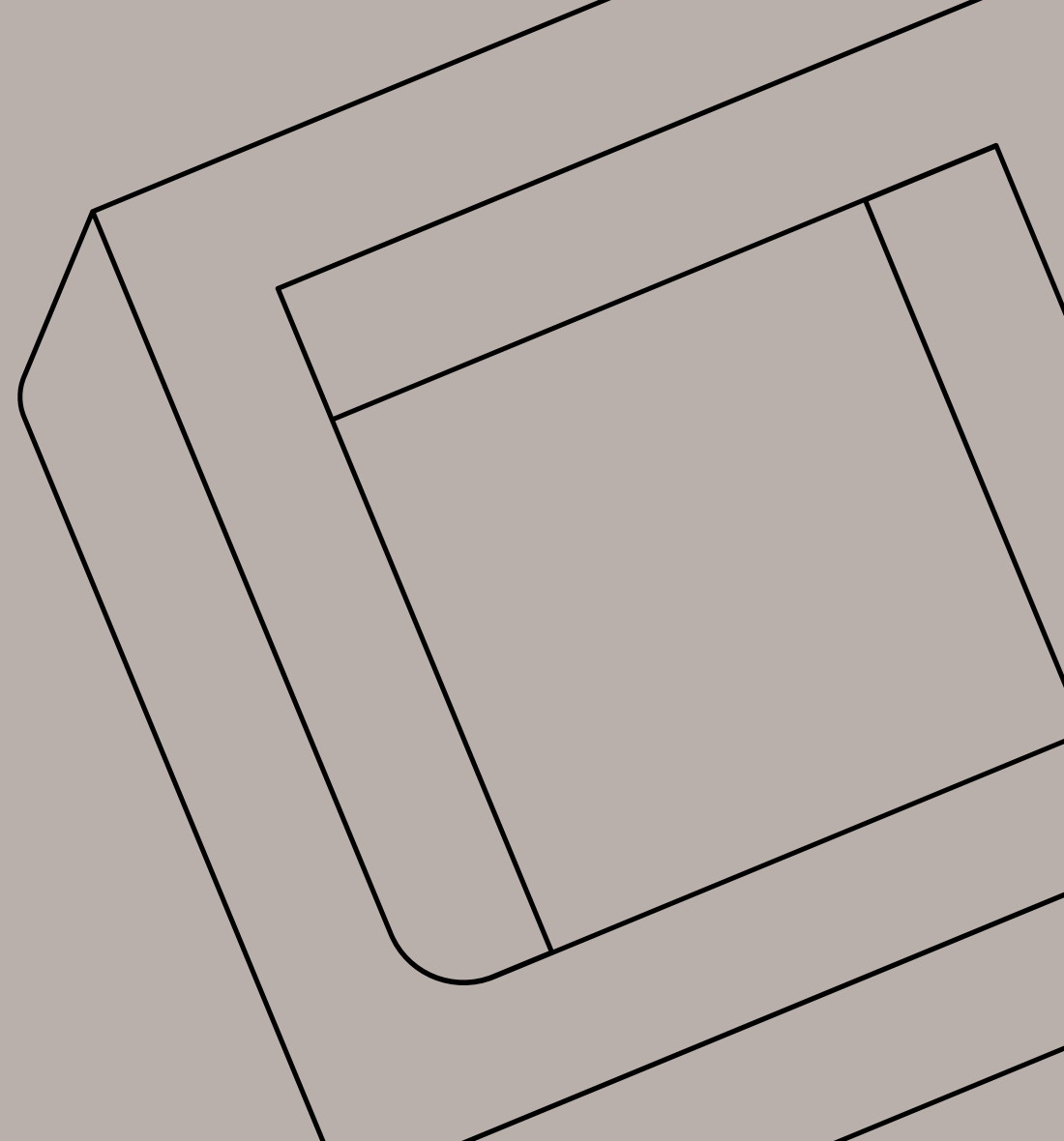


COVID-19's role in shaping reactions to public health advice and New Zealanders' preferences for handling a new pandemic



Report content

1. Executive summary
2. Introduction
3. How will people respond to public health advice in future pandemics?
4. What impact has COVID-19 had on people's response to a new pandemic?
5. Has COVID-19 influenced responses to a new pandemic differentially?
6. What would people want to know in a new pandemic and where would they look for it?
7. What public health measures would be acceptable in a new pandemic?
8. How can people be encouraged to comply with public health advice?
9. What would encourage childhood vaccination?
10. Appendix

1: Executive summary

Introduction

The research described in this report is the third stage of a four-stage research programme designed to:

- Measure actual and likely adherence to public health measures.
- Understand the drivers of public health behaviour to determine how best to influence behaviour.

The specific foci of this report are:

1. Understanding how COVID-19 is shaping New Zealanders' likely responses to a new pandemic.
 2. Communication preferences and public health measures in a new pandemic.
 3. The facilitators and inhibitors of childhood vaccination.
-

How is COVID shaping people's responses to a new pandemic?

- New Zealanders' default setting is to follow public health advice. The response to COVID-19, however, has eroded this default – the erosion is driven by a feeling that New Zealand over-reacted to the threat as well as a general tiredness of hearing about COVID.
 - The erosion of the default is not consistent across the population. The qualitative stage ('Life since the pandemic'), that preceded this stage of the research, identified that COVID has shaped New Zealanders' response to future pandemics in one of four ways – differing by level of concern about future coronavirus variants and reliance on authority versus self to make decisions. This research identified that of these four 'ways', it is those people who are less concerned about future coronavirus variants and are more reliant on themselves to make decisions (rather than the government) whose default setting has eroded the most. This group (who we've labelled the Discontented Doubters) make up 14% of the population.
-

[CONT] How is COVID shaping people's responses to a new pandemic?

- Since the response to COVID-19 has eroded the compliance default, we think that in a new pandemic, any comparison to COVID would likely hinder rather than enhance compliance with public health advice.

What would people want to know in a new pandemic?

- If there was a new pandemic ...
 - People want information direct from the Ministry – the website and app, as well as the COVID style daily briefings.
 - People's information priorities are: how the infection is spread, the highest risk situations, clear advice about when to stay away from work / study.
- Preferred information sources and priorities are fairly consistent across all people, however the Discontented Doubters will rely much more on discussions with friends and family than the other segments and also value the freedom to make their own choices.

Public health measures in a new pandemic

- Public health measures that are just applicable to high-risk or very specific situations are acceptable to most people. For example, 80% of people agree: compulsory masking wearing in high-risk situations, self-isolation for infected people, and screening of international passengers are acceptable. Additionally remote working is acceptable to 75% of people.
 - The least acceptable public health measures are closing the border to people who don't live in New Zealand (49% acceptable, 35% unacceptable) and vaccine mandates (48% acceptable and 35% unacceptable).
-

Heuristics and beliefs that can inhibit or encourage public health behaviour

- The qualitative stage identified that COVID-19 has led to several aversion to germ situation heuristics – e.g., an automatic recoil when hearing or seeing coughing and an urge to wash or sanitise hands after touching a germ surface. Both of these heuristics are prevalent throughout the population and have the strength to influence behaviour.
 - Of the vaccine beliefs included in the research, one in particular seems of concern – the belief that it is better to build natural immunity than have a vaccination. Thirty-two percent of the population hold this belief, at least weakly, and it does impact on the intention to get vaccinated in a new pandemic.
-

What could encourage childhood vaccination?

- Two encouragers have a direct positive effect on the intention to get a child the recommended vaccinations – (1) information that shows both the symptoms and the impact of the diseases that are being vaccinated against and (2) the efficacy of the vaccine.
 - Behind the direct positive effect, broad social norms (knowing how many other children have been vaccinated using the vaccines) drive other attitudes such as close social norms and openness to information. As a root attitude broad social norms are important in driving the intention to get a child vaccinated.
-

2: Introduction

Background

COVID-19 has had a considerable impact on the New Zealand health system and COVID continues to remain a threat, especially to the most vulnerable in society. COVID also revealed that public interventions are only useful if the population is willing and able to adhere to them.

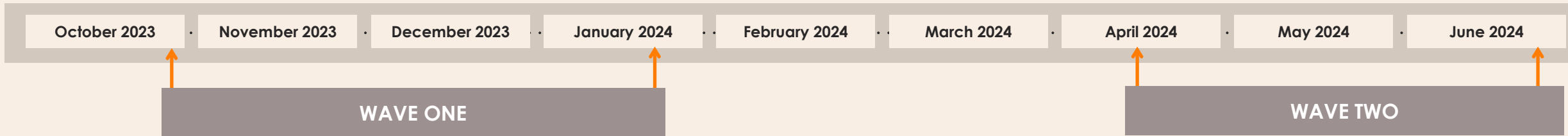
With the ongoing threat of COVID (including new variants) as well as possible new pandemics in the future, the Ministry of Health needs to be in a position to provide the best possible advice, recommendations, and decisions at critical junctures. To support this, the aim of this research is to:

- 1.** Monitor actual and likely adherence to public health measures.
- 2.** Understand the drivers and behaviours to public health behaviour to determine how best to influence public health behaviour in the future.

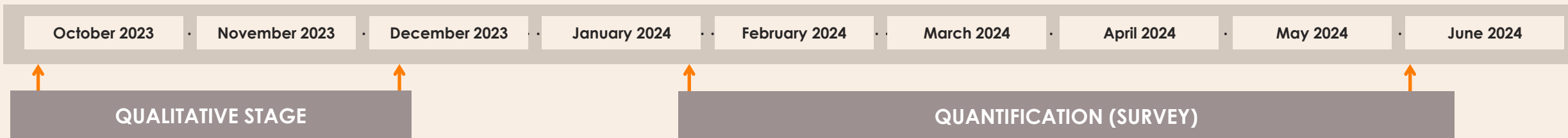
These objectives require a staged research approach, which is outlined on the next page.

The research programme

Part 1:
Tracking survey to monitor public health behaviours and intentions.



Part 2:
Qualitative and quantitative approach to understand drivers and barriers of public health behaviour and intention – as well as how to influence them.



This document reports the findings from Part 2, Quantification.

Focus of this report

This report focuses on:

- 1.** Understanding how COVID-19 is shaping New Zealanders' likely responses to a new pandemic – at a total population level as well as how this differs across the population.
- 2.** New Zealanders' preferences for communication channels, information, and public health measures in a new pandemic.
- 3.** The facilitators and inhibitors of childhood vaccination.

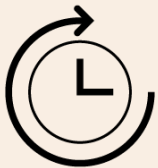
Methodology



1,655 surveys conducted online using online research panels. Sample structured to be demographically representative of the population by age, gender, and region. Māori and Pacific peoples over-sampled relative to population to ensure sufficient sample sizes for analysis – 322 of the 1,655 interviews were with Māori and 193 were with Pacific peoples (29 people identified as both Māori and Pacific).



200 surveys conducted by telephone – 107 with Māori and 101 with Pacific peoples (8 people identified as both Māori and Pacific).



Surveying conducted 17 April to 9 May, 2024.

Methodology – additional notes

Weighting

The results have been weighted so that the characteristics of the survey sample match the New Zealand population by these characteristics: age and gender at the total population level; region; education level; age by gender for Māori; age by gender for Pacific peoples; and age by gender for Asian peoples.

The weights assigned to individuals ranged from .04 to 4.44.

Disability status

Disability status was determined using the Washington Group Short Set questions and self-identification. Being disabled was defined as having at least a lot of difficulty with: seeing (even if wearing glasses), or hearing (even if using a hearing aid), or walking or climbing steps, or remembering or concentrating, or washing all over or dressing, or communicating using your usual language, or self-identifying as having a disability or tangata whaikaha Māori.

Rounding

Please note that the percentages may not always add to 100% for one of two reasons: (1) some questions allowed people to choose more than one response, or (2) rounding. Rounding is also the reason that some nett percentages may be slightly higher or lower than the sum of the categories that make up the nett.

Demographic analysis

A series of logistic regressions (forward stepwise) were used to understand demographic differences in the responses to key questions (i.e., to determine which demographic variables best explain differences across the total population). Demographic groups were entered into the regression either as binary variables (e.g., each ethnic group) or as a categorical variables (e.g., household incomes). For the categorical variables the following reference categories were used: men 35-49, rest of North Island (i.e., the North Island excluding Auckland and Wellington), household income of \$70,001 to \$100,000, in paid work, Bachelor's Degree, 3+ doses of a COVID vaccine, and large town/city. These categories were selected because they were closest to the population average on the most variables. The full list of demographic variables used in the logistic regressions can be found in the sample profile tables in the Appendix of this report. No interaction effects were included in the regressions because of sample size constraints.

Methodology – additional notes [cont.]

Bayesian Belief Networks

Bayesian Belief Networks were used to understand the interdependencies between knowledge, beliefs, and behaviours. An explanation of how to interpret the structural maps produced by the Bayesian Belief Network analysis precede the presentation of the maps and an explanation of how the analysis is conducted is contained in the Appendix.

3:

How will people respond to public health advice in future pandemics?

To understand how people might respond to public health advice in future pandemics, people were asked to imagine themselves in two pandemic scenarios. Scenario A was a high transmission/low mortality scenario, and Scenario B was a low transmission/high mortality scenario – both are shown to the right. The scenarios and the control measures were informed by: Likely Future Pandemic Agents and Scenarios - An Epidemiological and Public Health Framework.

People were asked about one scenario at a time and the order they were shown the scenarios was randomised.

Scenario A: High transmission / low mortality

Imagine there is a new pandemic beginning and that we know the following about the virus:

- It spreads quickly if left uncontrolled. Every person infected spreads it to four other people.
- It is not particularly severe. Out of every thousand people infected, one person will die.
- There is no vaccine available yet.

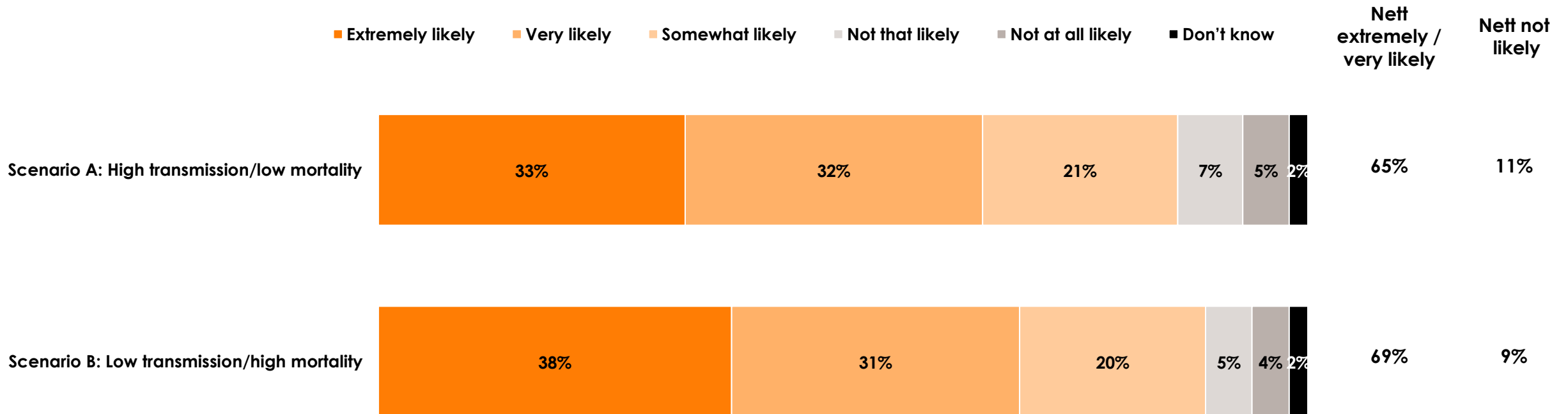
Scenario B: Low transmission / high mortality

Imagine there is a new pandemic beginning and that we know the following about the virus:

- It doesn't spread quickly, every person infected spreads it to 1.5 other people.
- It is severe. Out of every thousand people infected, twenty people will die.
- There is no vaccine available yet.

Around two-thirds of New Zealanders are extremely or very likely to follow public health advice if a new pandemic emerged – whether it is a high transmission/low mortality or a low transmission/high mortality pandemic. Around one in every ten people are not likely to follow public health advice.

Likelihood of following public health advice to help manage the pandemic

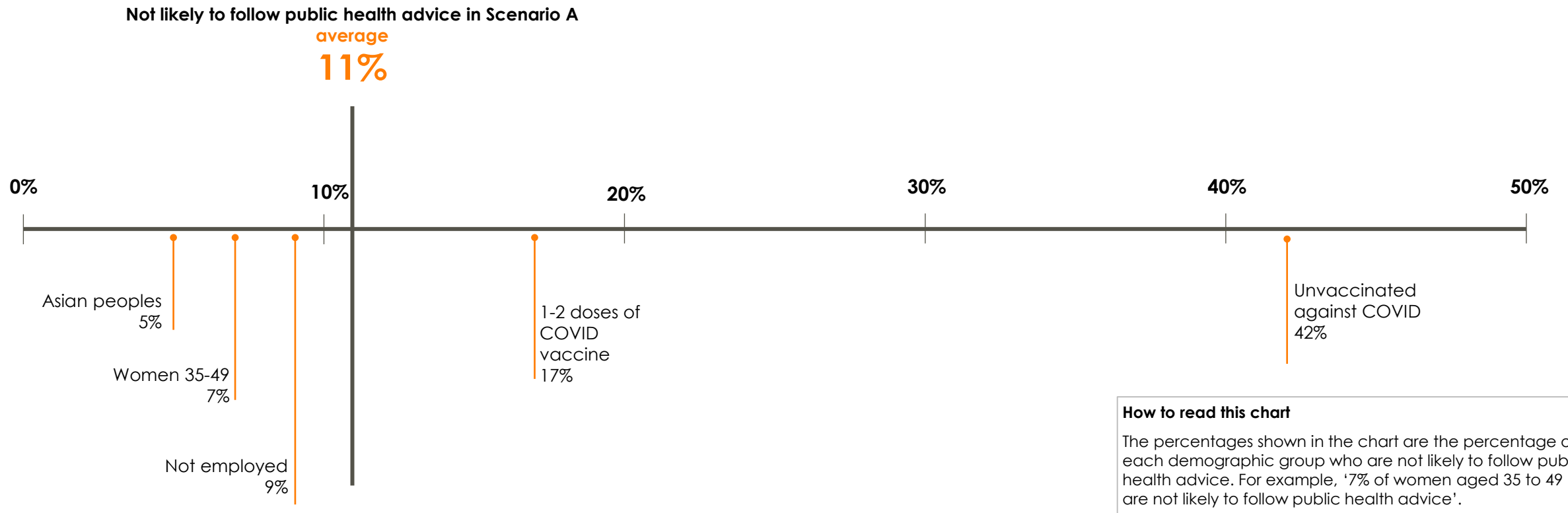


Source: Q2b. How likely would you be to follow government public advice intended to help manage the pandemic? Q3b. How likely would you be to follow government public advice intended to help manage the pandemic?

Base: All respondents n=1855.

In Scenario A (a high transmission/low mortality pandemic) the best predictor of who is unlikely to follow public health advice is their COVID-19 vaccination status.

Demographic explainers of being not that likely or not at likely to follow public health advice in Scenario A (a high transmission/ low mortality pandemic)*



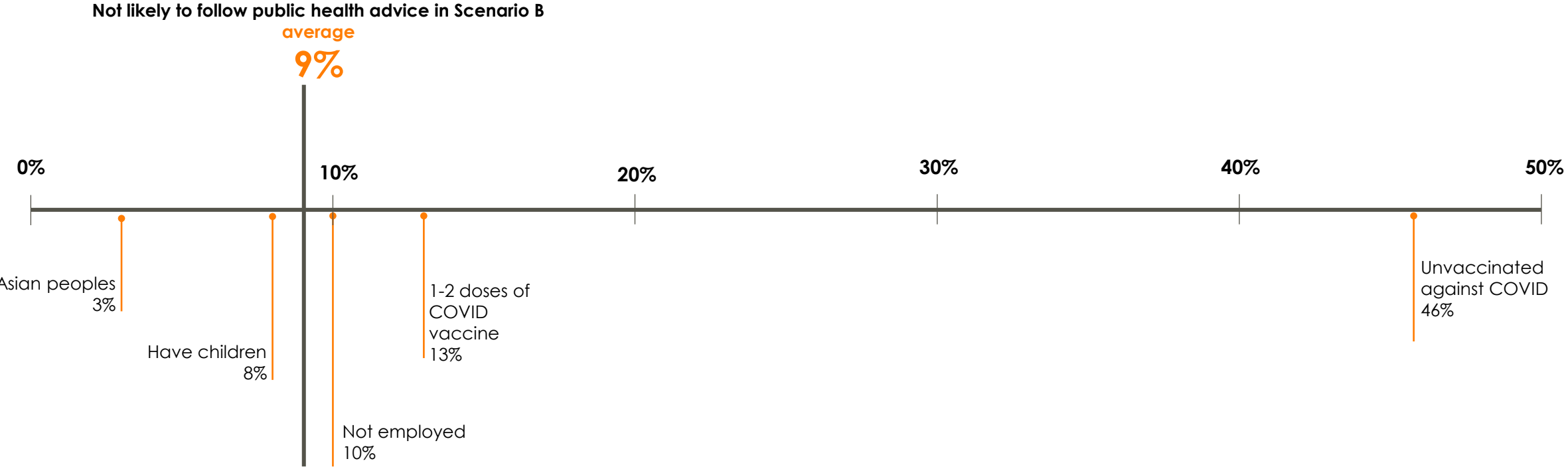
*A logistic (forward stepwise) regression was done to determine which demographic variables help explain being unlikely to follow public health advice. The regression showed that demographic variables explain 21.5% of the variance in following public health advice (Nagelkerke R-squared). The demographic variables shown in the chart above are those that significantly contribute to the explanation (at the <0.01 level). The 'don't know' category was excluded from the regression, but not excluded in the calculation of the not that/not at all likely percentages shown.

Source: Q2b. How likely would you be to follow government public advice intended to help manage the pandemic?

Note: Categories with less than 50 people are not shown above. See appendix for sample sizes of each demographic group.

Similarly, in Scenario B (a low transmission/high mortality pandemic) the best predictor of who is unlikely to follow public health advice is their COVID-19 vaccination status.

Demographic explainers of being not that likely or not at likely to follow public health advice in Scenario B (a low transmission/high mortality pandemic)*



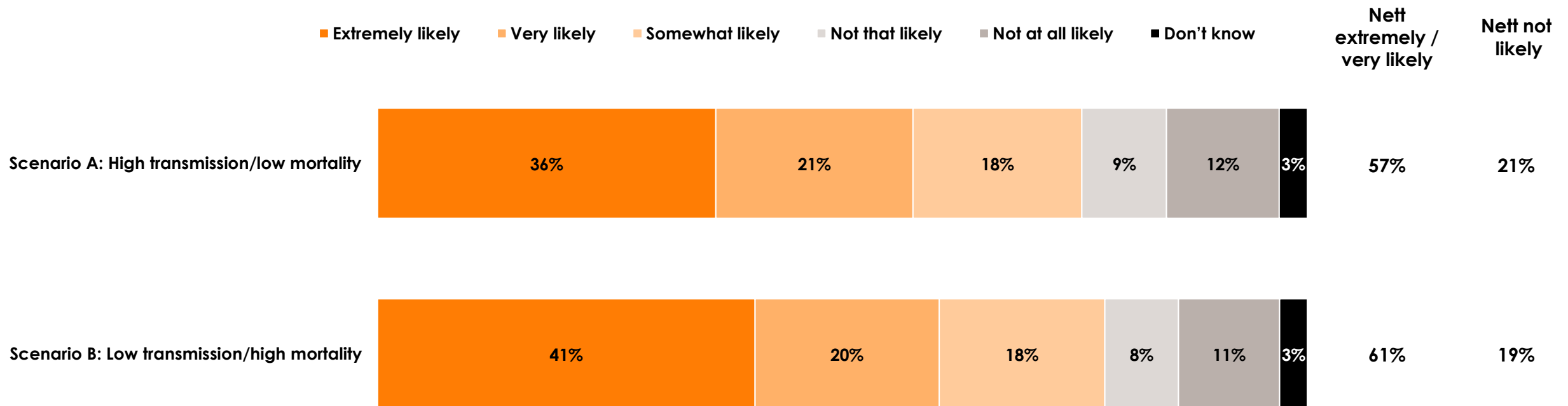
*A logistic (forward stepwise) regression was done to determine which demographic variables help explain being unlikely to follow public health advice. The regression showed that demographic variables explain 21.5% of the variance in following public health advice (Nagelkerke R-squared). The demographic variables shown in the chart above are those that significantly contribute to the explanation (at the <0.01 level). The 'don't know' category was excluded from the regression, but not excluded in the calculation of the not that/not at all likely percentages shown.

Source: Q3b. How likely would you be to follow government public advice intended to help manage the pandemic?

Note: Categories with less than 50 people are not shown above. See appendix for sample sizes of each demographic group.

Around 60% of people are extremely or very likely to get a vaccination in a new pandemic – whether it be a high transmission/low mortality pandemic or a low transmission/high mortality pandemic. Around 20% of people are not likely to get vaccinated.

Likelihood of getting a vaccination if one became available

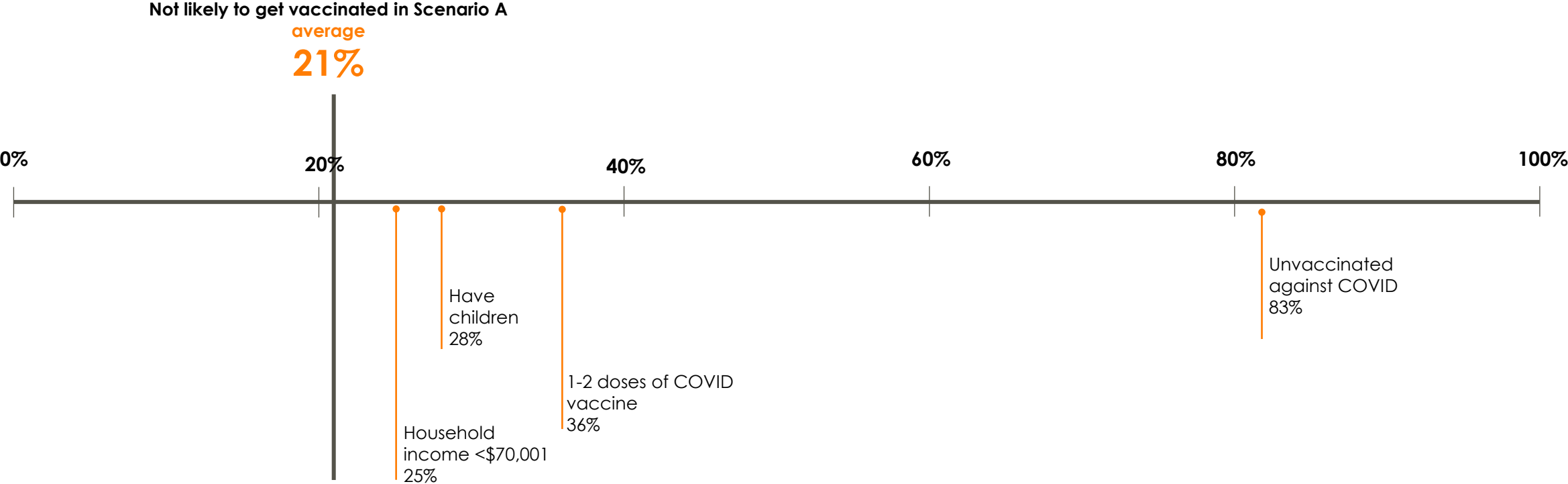


Source: Q2c. If a vaccine against the new pandemic became available, how likely would you be to get it? Q3c. If a vaccine against the new pandemic became available, how likely would you be to get it?

Base: All respondents n=1855.

In Scenario A (a high transmission/ low mortality pandemic) the best predictor of who is unlikely to get vaccinated is someone’s COVID-19 vaccination status.

Demographic explainers of being not that likely or not at likely to get vaccinated in Scenario A (a high transmission/low mortality pandemic)*



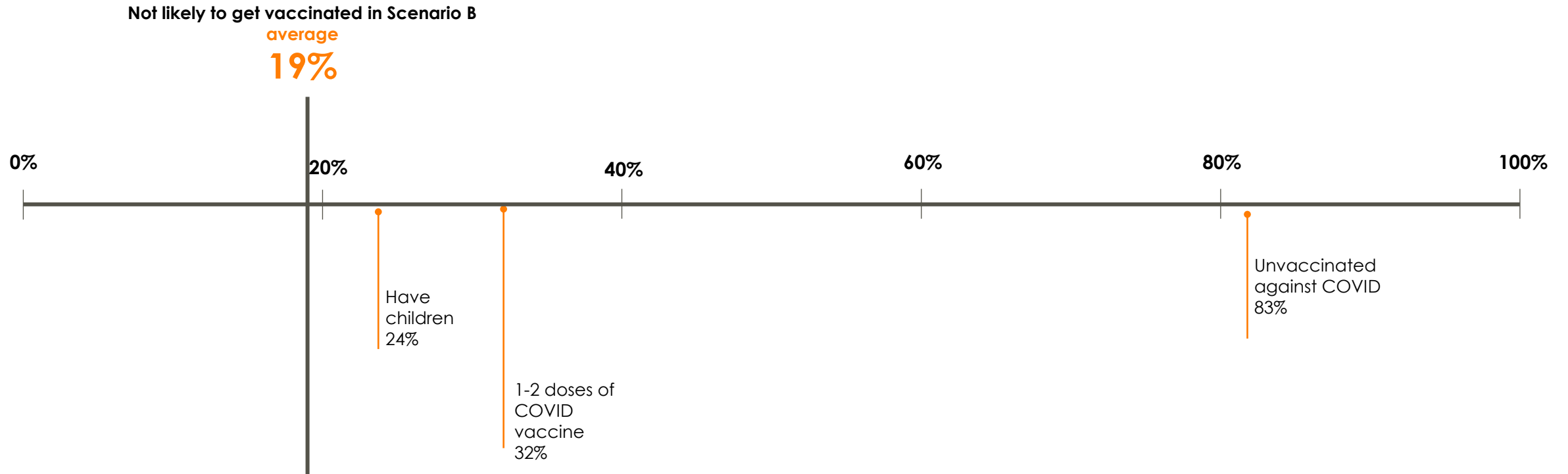
*A logistic (forward stepwise) regression was done to determine which demographic variables help explain being unlikely to get vaccinated. The regression showed that demographic variables explain 35.8% of the variance in the likelihood to get vaccinated (Nagelkerke R-squared). The demographic variables shown in the chart above are those that significantly contribute to the explanation (at the <0.01 level). The 'don't know' category was excluded from the regression, but not excluded in the calculation of the not that/not at all likely percentages shown.

Source: Q2c. If a vaccine against the new pandemic became available, how likely would you be to get it?

Note: Categories with less than 50 people are not shown above. See appendix for sample sizes of each demographic group.

In Scenario B (a low transmission/high mortality pandemic) COVID vaccination status is also the best predictor of who is unlikely to get vaccinated.

Demographic explainers of being not that likely or not at likely to get vaccinated in Scenario B (a low transmission/high mortality pandemic)*



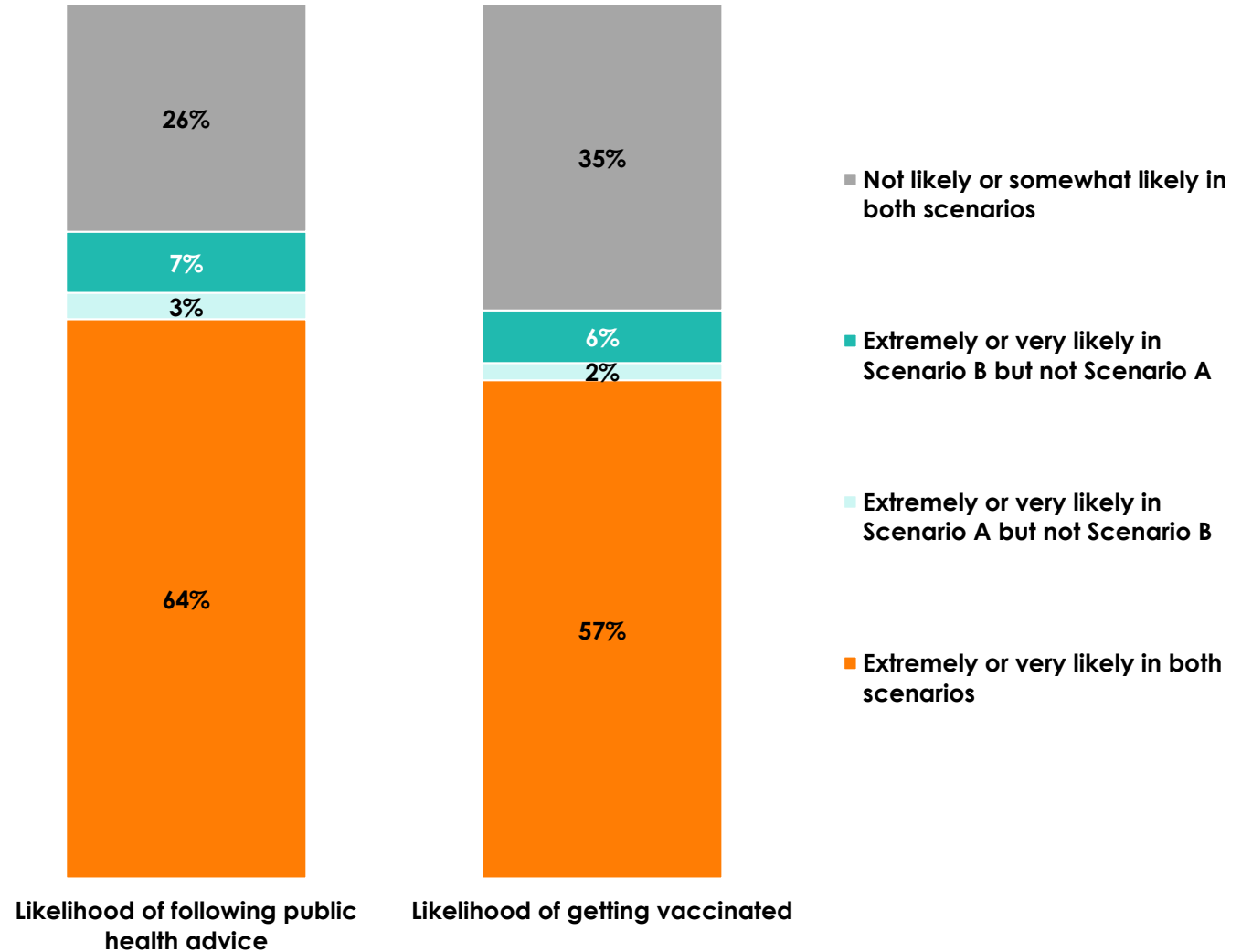
*A logistic (forward stepwise) regression was done to determine which demographic variables help explain being unlikely to get vaccinated. The regression showed that demographic variables explain 38.3% of the variance in the likelihood to get vaccinated (Nagelkerke R-squared). The demographic variables shown in the chart above are those that significantly contribute to the explanation (at the <0.01 level). The 'don't know' category was excluded from the regression, but not excluded in the calculation of the not that/not at all likely percentages shown.

Source: Q3c. If a vaccine against the new pandemic became available, how likely would you be to get it?

Note: Categories with less than 50 people are not shown above. See appendix for sample sizes of each demographic group.

There are more commonalities than differences in the responses to the two pandemic scenarios – e.g., 90% of people have the same broad likelihood of following public health advice in both scenarios (i.e., 64% of people are extremely or very likely in both and 26% are only somewhat or not likely in both).

Where people do respond differently to the scenarios, their responses are consistent with being more concerned about Scenario B (low transmission/high mortality) than Scenario A (high transmission/low mortality). This is more evident when looking at the shift in the individual scale points (not shown in the chart to the right). For instance, 19% of people were at least one scale point (e.g., extremely to very likely) less likely to follow public health advice in Scenario A than in Scenario B. Nine percent were at least one scale point less likely to follow public advice in Scenario B than Scenario A.



Source: Q2b, Q3b, Q2c, Q3c.

Base: All respondents excluding those who said don't know; likelihood of following public health advice n=1810, likelihood of getting vaccinated n=1780.

4:

What impact has COVID-19 had on people's response to a new pandemic?

The qualitative stage of the Part 2 research (‘Life since the pandemic’) identified that New Zealanders’ attitudes towards public health advice have been influenced by COVID-19.

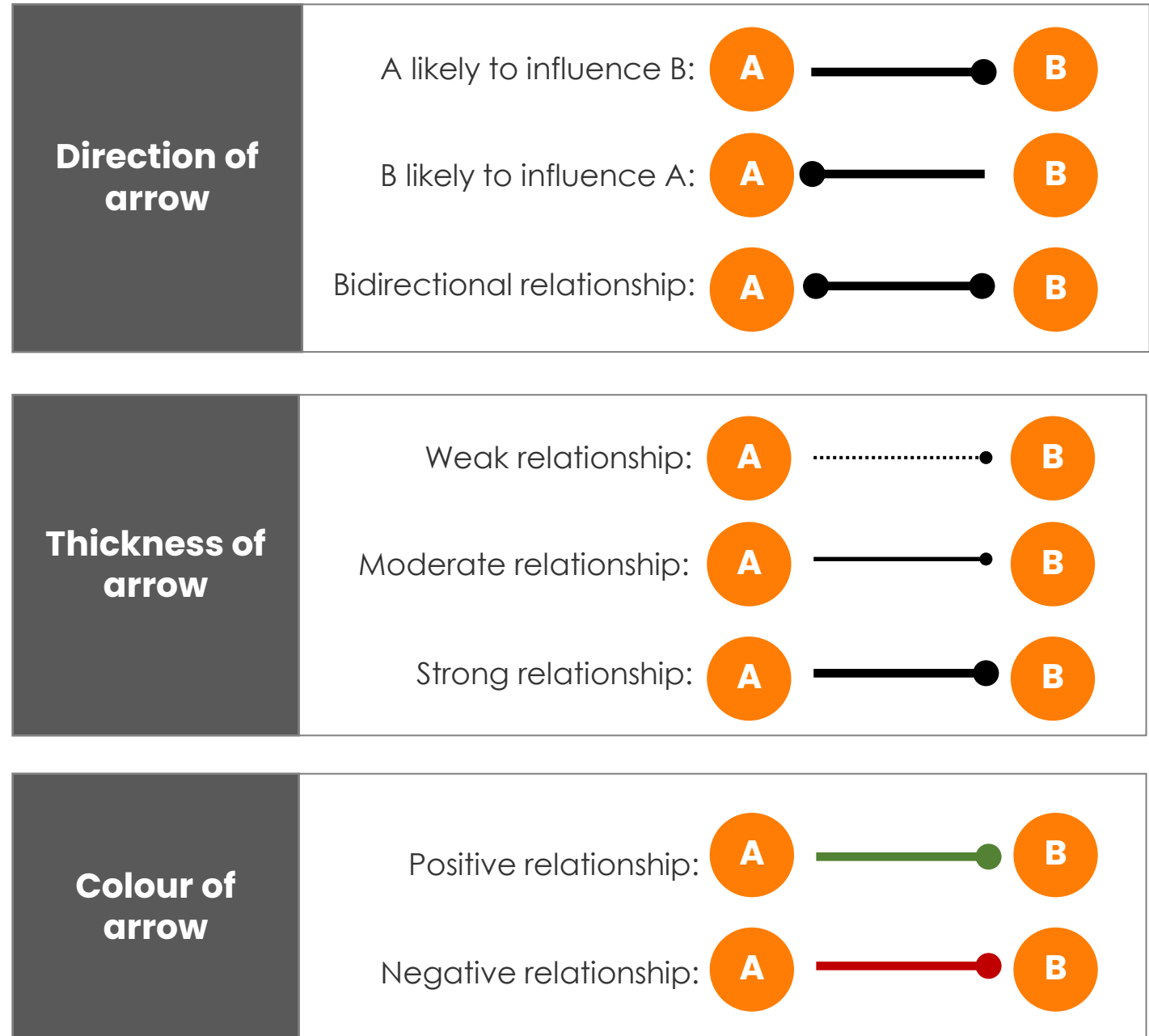
To understand just how COVID-19 has influenced attitudes towards future pandemics, people’s attitudes towards COVID¹ and their heuristics/beliefs associated with public health behaviours² were included in a Bayesian Belief Network, which looked to understand their impact on the likelihood of following public health advice in a new pandemic³.

The diagram to the right illustrates how to interpret the relationships illustrated on the following slides.

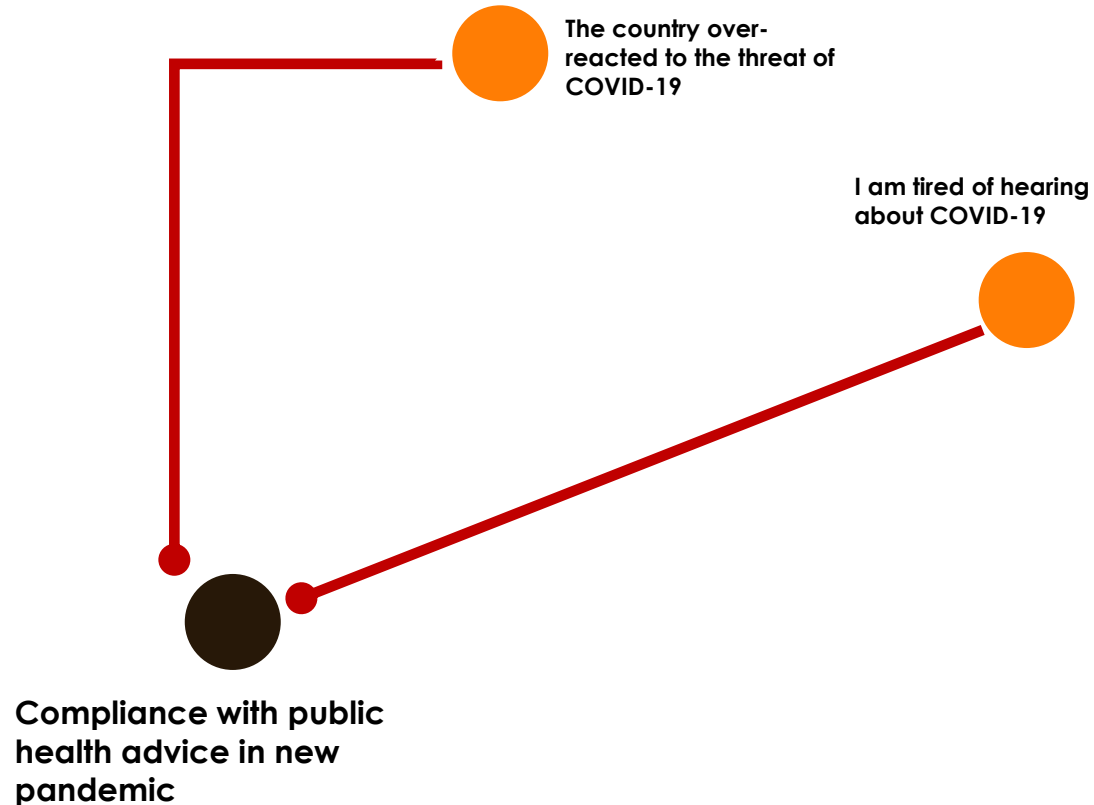
1. The qualitative stage identified that twelve attitudes differentiate people’s opinions towards COVID-19 and the protective measures taken. These attitudes were included in the survey as agree/disagree statements. A full list of the attitudes can be found in the next section.

2. The qualitative stage also identified eight heuristics/beliefs that shape people’s public health behaviours. These were included in the survey as agree/disagree statements and a full list of these is presented later in this report.

3. A single outcome variable was created using factor analysis to combine the two ‘How likely would you be to follow government public advice intended to help manage the pandemic?’ questions (i.e., the high transmission/low mortality and the low transmission/high mortality questions reported in the previous section).



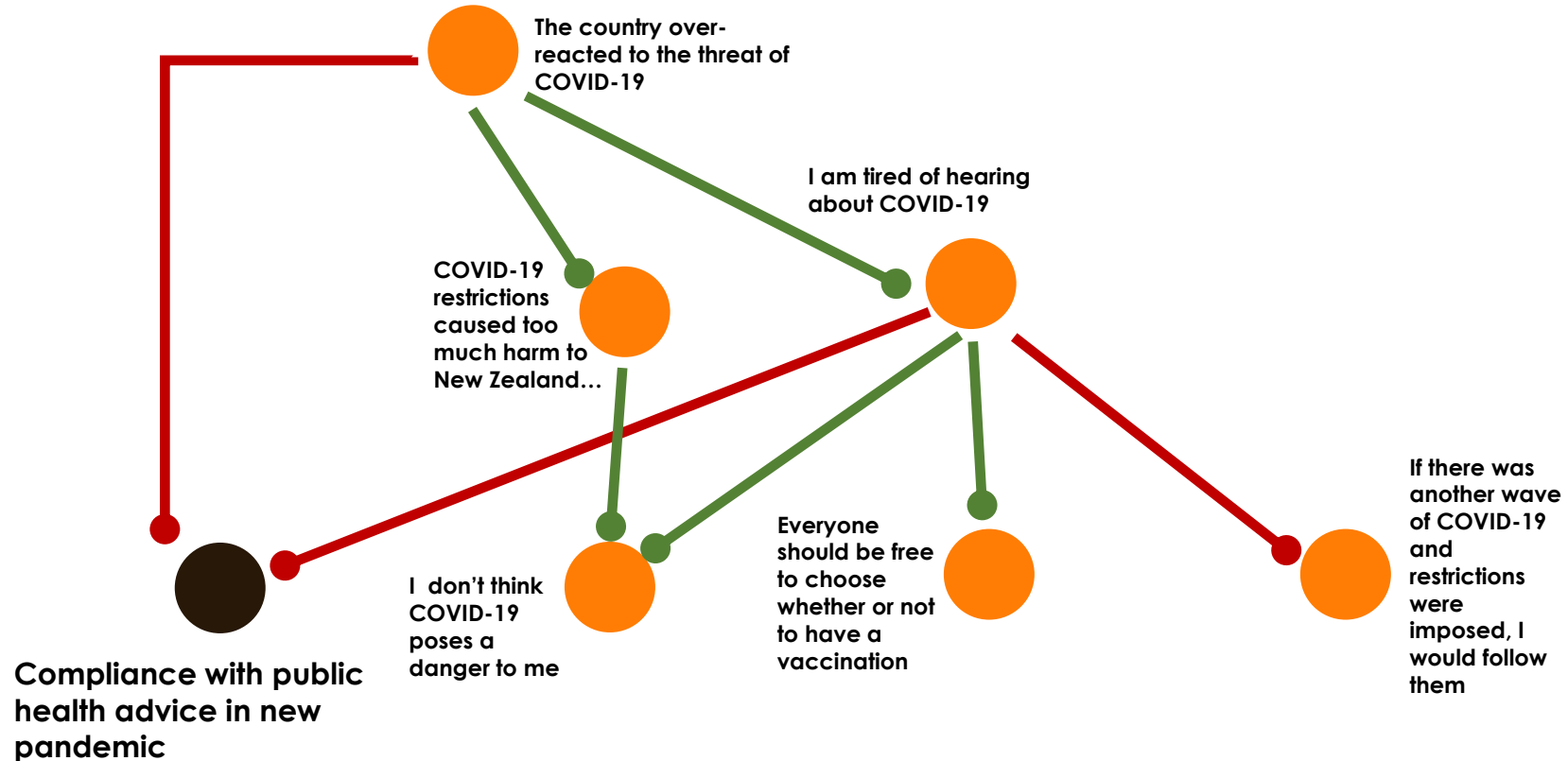
The Bayesian Belief Network reveals that two attitudes have a direct impact on the likelihood of complying with public health advice. Both of these attitudes have a negative impact on compliance – i.e., the presence of these attitudes reduces compliance. This suggests that people have a ‘default setting’ of compliance with advice and that COVID-19 has eroded this default.



Note: Threshold value, 0.90

Base: All respondents who did not have a missing response to the independent and dependent measures, n=723

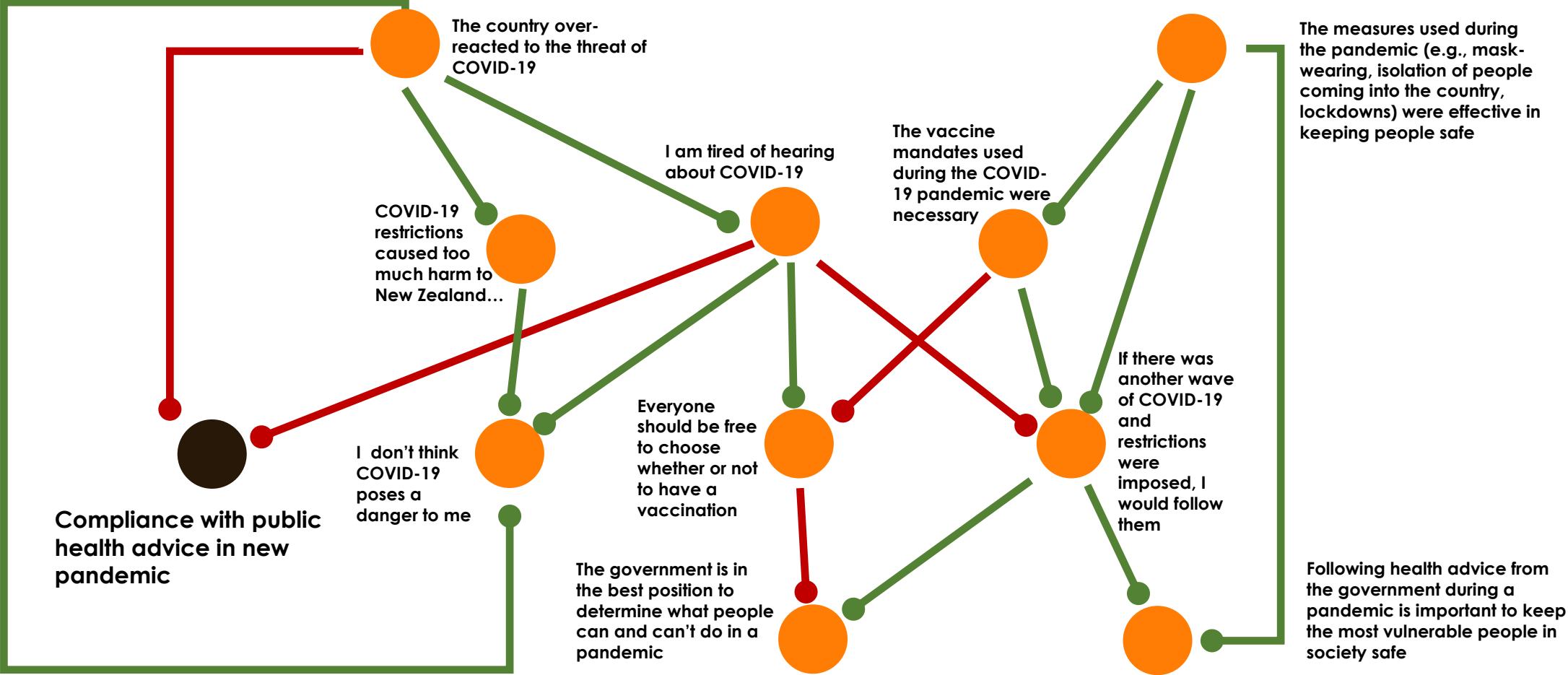
When we layer in secondary influences – we can see that the two primary influences are the ones influencing the secondary influences, not the other way around. This means ‘the country over-reacted to the threat of COVID-19’ and ‘I’m tired of hearing about COVID-19’ are the root attitudes as well as the ones directly influencing likely compliance with public health advice in a new pandemic.



Note: Threshold value, 0.90

Base: All respondents who did not have a missing response to the independent and dependent measures, n=723

When the full range of influences are layered in, again we see ‘the country over-reacted to the threat of COVID-19’ and ‘I’m tired of hearing about COVID-19’ are the attitudes that influence other attitudes.



Note: Threshold value, 0.90

Base: All respondents who did not have a missing response to the independent and dependent measures, n=723

5:
Has COVID-19 influenced responses to a new pandemic differentially?

In addition to identifying that attitudes towards public health have been influenced by COVID-19, the qualitative stage ('Life since the pandemic'), also identified that influence of COVID differs between New Zealanders. New Zealanders' attitudes differ on two dimensions:

- **The extent to which people rely on themselves or authority to make decisions about the best course of action (illustrated top right).**
- **The level of concern about future coronavirus variants (illustrated bottom right).**

Although expressed differently, these dimensions are consistent with the two attitudes with a direct impact on compliance identified in the Bayesian Belief Network. That is, higher versus lower concern about future coronavirus variants is consistent with the level of personal concern expressed in 'being tired hearing about COVID-19', while reliant on self versus authority is consistent with the country level response in 'the country over-reacted to COVID-19'.

Reliant on self to make decisions

At one extreme are those who tend to rely more on themselves to make decisions for themselves.

Reliant on authority to guide or direct

At the other extreme are those who rely on information and guidance from the Government to determine what actions to take.

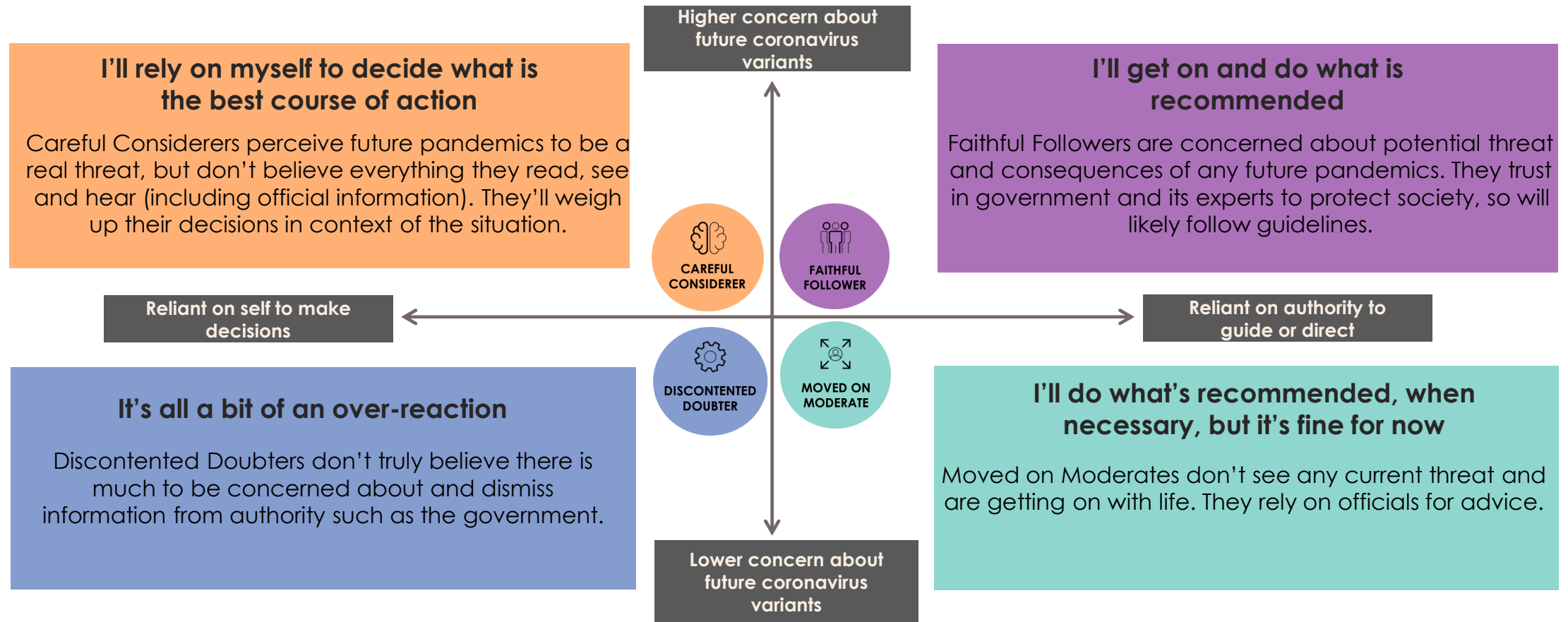
Higher concern about future coronavirus variants

At one extreme are those who are highly concerned about the likelihood and impact of future coronavirus variants.

Lower concern about future coronavirus variants

At the other extreme are those who aren't particularly concerned about future coronavirus variants, and don't give it much thought.

In the qualitative report, the two dimensions intersect to form four different profiles or attitudinal groups.



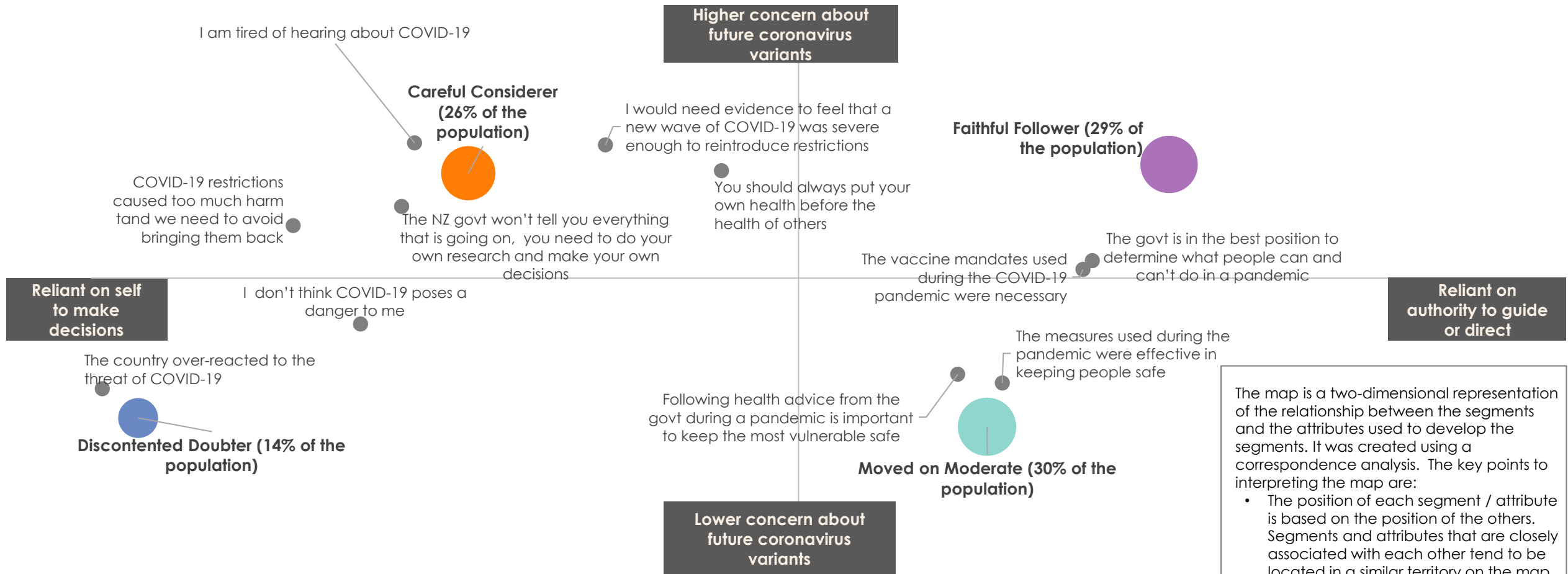
Source: 'Life since the pandemic'.

To size and validate the four profiles from the qualitative stage, 11 attitudes uncovered in the qualitative stage¹ (the full range of attitudes that differentiate people’s opinions towards protective measures and vaccinations) were included in the quantitative survey as agree/disagree statements.

Survey respondents were grouped using their responses to the 11 statements (latent class segmentation). The algorithm suggested five segments were optimal and a closer investigation revealed four of the segments corresponded to the qualitative profiles and the fifth was a group with high agreement to all statements. A second segmentation was run using the original responses to the statements as well as a standardised version of the responses (to equalise for some people generally being more likely to agree), this revealed four segments, largely consistent with the qualitative.

1. These attitudes are the same as those included in the Bayesian Belief Network in the previous section – with the exception of 'If there was another wave of COVID-19 and restrictions were imposed, I would follow them' as this has been used to understand the predictive validity of the profiles.

The map shows the relative size of each of the segments in the population and how they relate to the attitudes that were used to develop the segments. While the segments are largely consistent with the qualitative profiles, there are some differences – most notably, the x-axis (horizontal) is more of a continuum than suggested by the qualitative. That is, the Careful Considerers and Moved on Moderates have less extreme positions on reliance on self versus authority than the Discontented Doubters and the Faithful Followers.

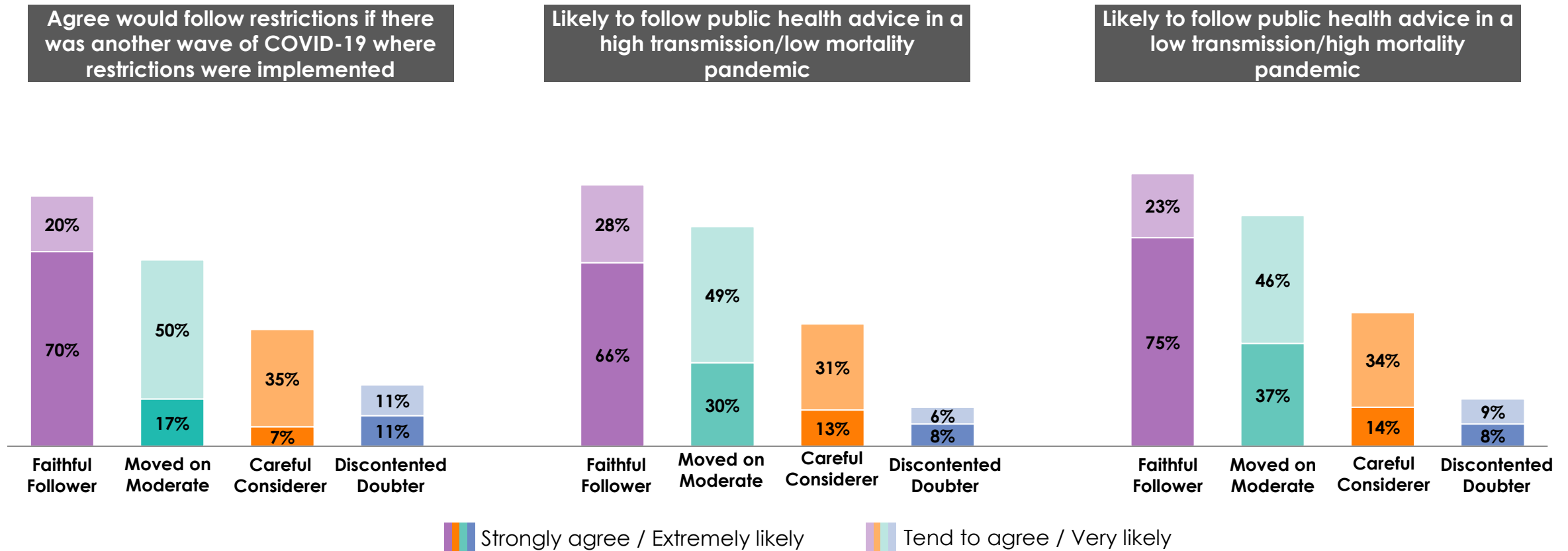


The map is a two-dimensional representation of the relationship between the segments and the attributes used to develop the segments. It was created using a correspondence analysis. The key points to interpreting the map are:

- The position of each segment / attribute is based on the position of the others. Segments and attributes that are closely associated with each other tend to be located in a similar territory on the map.
- The closer a segment / attribute is to the centre the less defined or differentiated it is.

Base: Faithful followers n=572, Careful Considerer n=558, Moved on Moderate n=463, Discontented Doubter n=262.

The attitudinal segments are strongly differentiated on their intentions to follow public health advice.

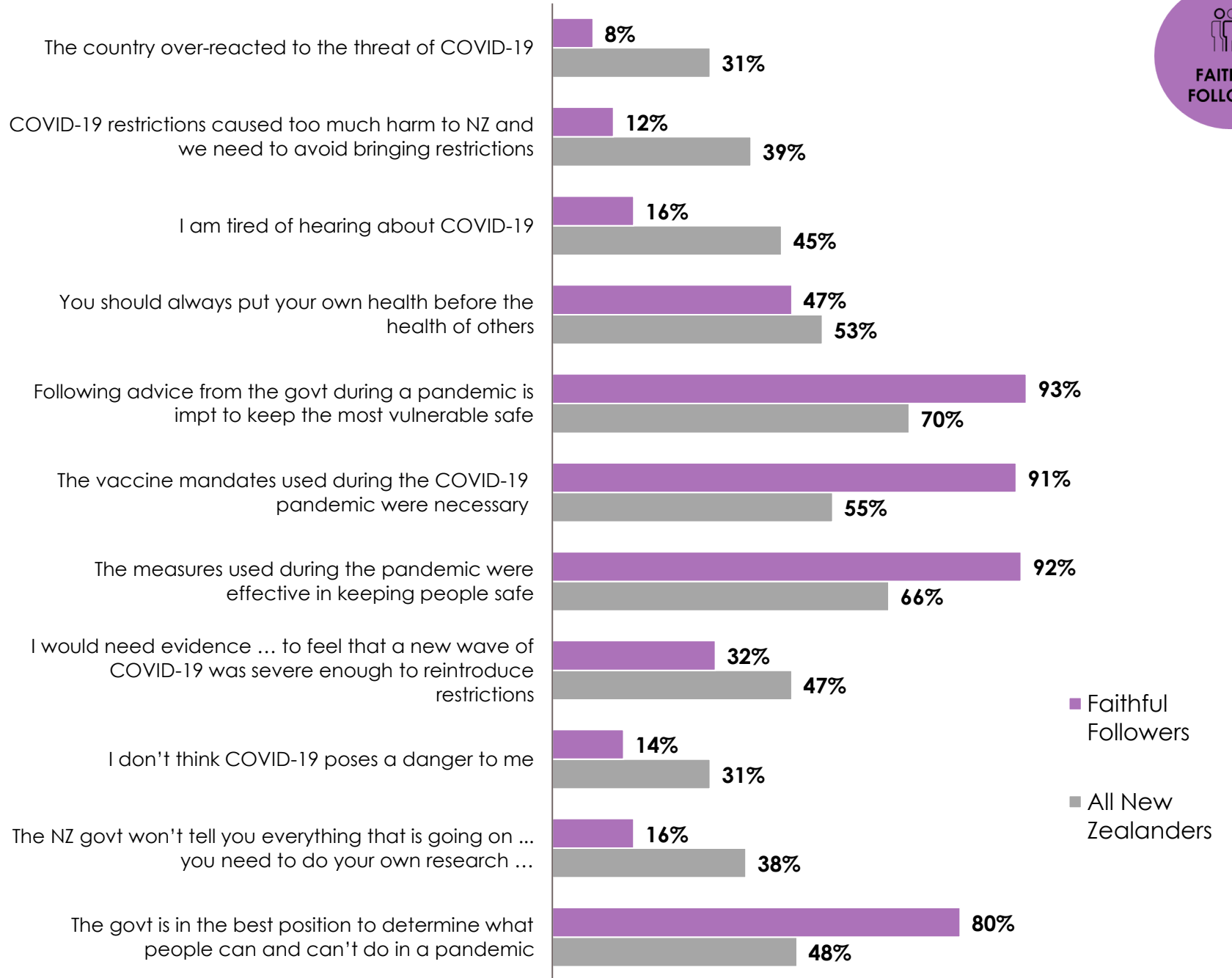


Source: Q2b. How likely would you be to follow government public advice intended to help manage the pandemic? Q3b. How likely would you be to follow government public advice intended to help manage the pandemic? Q2c. If a vaccine against the new pandemic became available, how likely would you be to get it? Q3c. If a vaccine against the new pandemic became available, how likely would you be to get it? Q1. Please indicate how strongly you, personally, agree or disagree with each of the following statements ... if there was another wave of COVID-19 and restrictions were imposed, I would follow them.

Base: Faithful followers n=572, Moved on Moderate n=558, Careful Considerer n=463 Discontented Doubter n=262.



Attitudinally, Faithful Followers are very supportive of the measures taken during the COVID pandemic and also very supportive of the government – this is consistent with the qualitative profile.



% strongly agree / tend to agree with attitudinal statements

Note. Attributes presented in a shortened form to make the chart more readable.

Source: Q1. Please indicate how strongly you, personally, agree or disagree with each of the following statements.

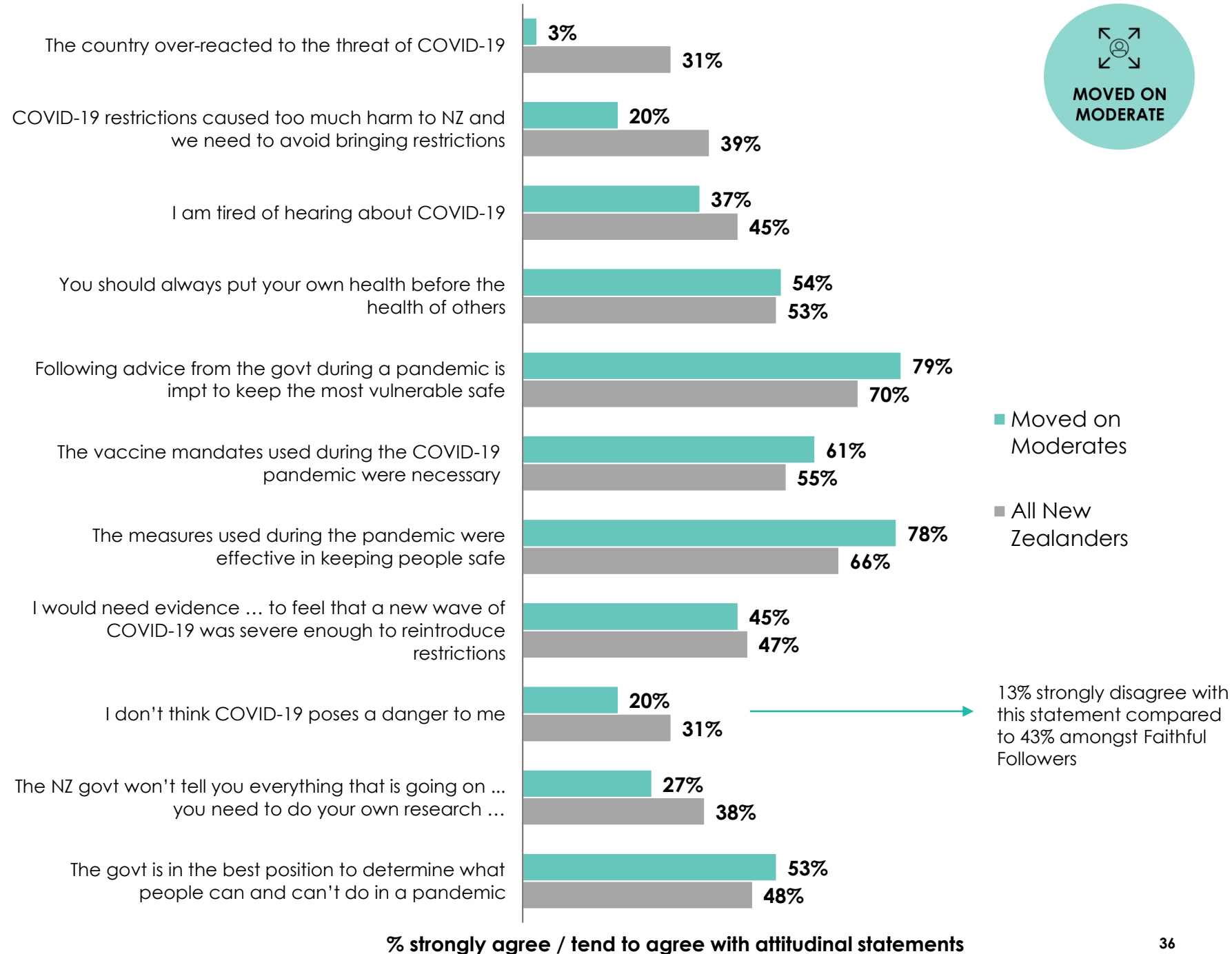
Base: Faithful Follower n=572, All New Zealanders n=1855.

Similar to the Faithful Followers, the Moved on Moderates are very supportive of the measures taken during the pandemic but where they differ is current concern about COVID-19. Their reduced concern is evident in the much greater agreement with the need to see evidence before restrictions were reintroduced and the perceptions about the danger COVID poses to them now.

Note. Attributes presented in a shortened form to make the chart more readable.

Source: Q1. Please indicate how strongly you, personally, agree or disagree with each of the following statements.

Base: Moved on Moderates n=558, All New Zealanders n=1855.

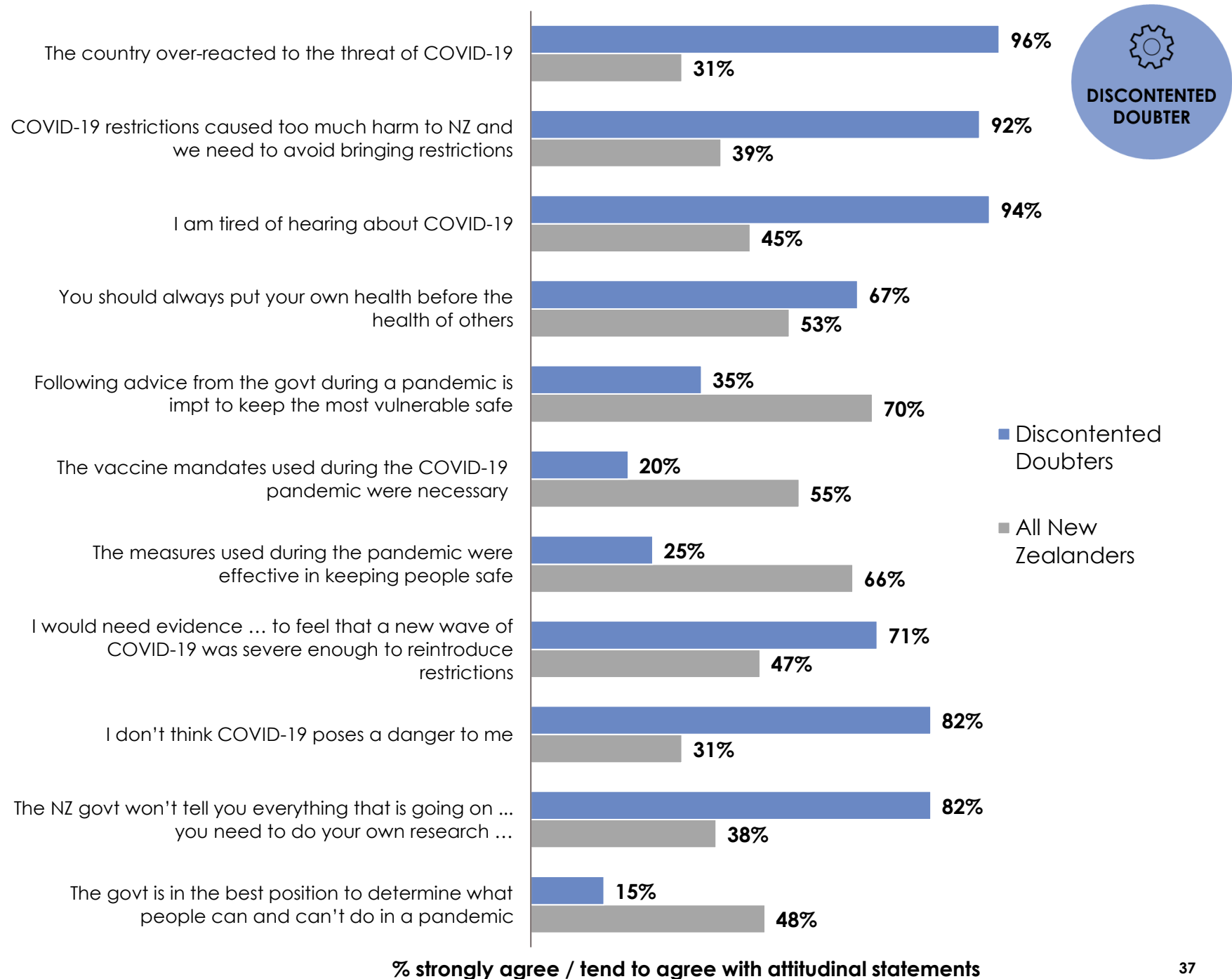


Attitudinally the Discontented Doubters have polar opposite views to the Faithful Followers – they are not concerned about COVID-19 (and believe the country over-reacted) and believe that people need to rely on themselves.

Note. Attributes presented in a shortened form to make the chart more readable.

Source: Q1. Please indicate how strongly you, personally, agree or disagree with each of the following statements.

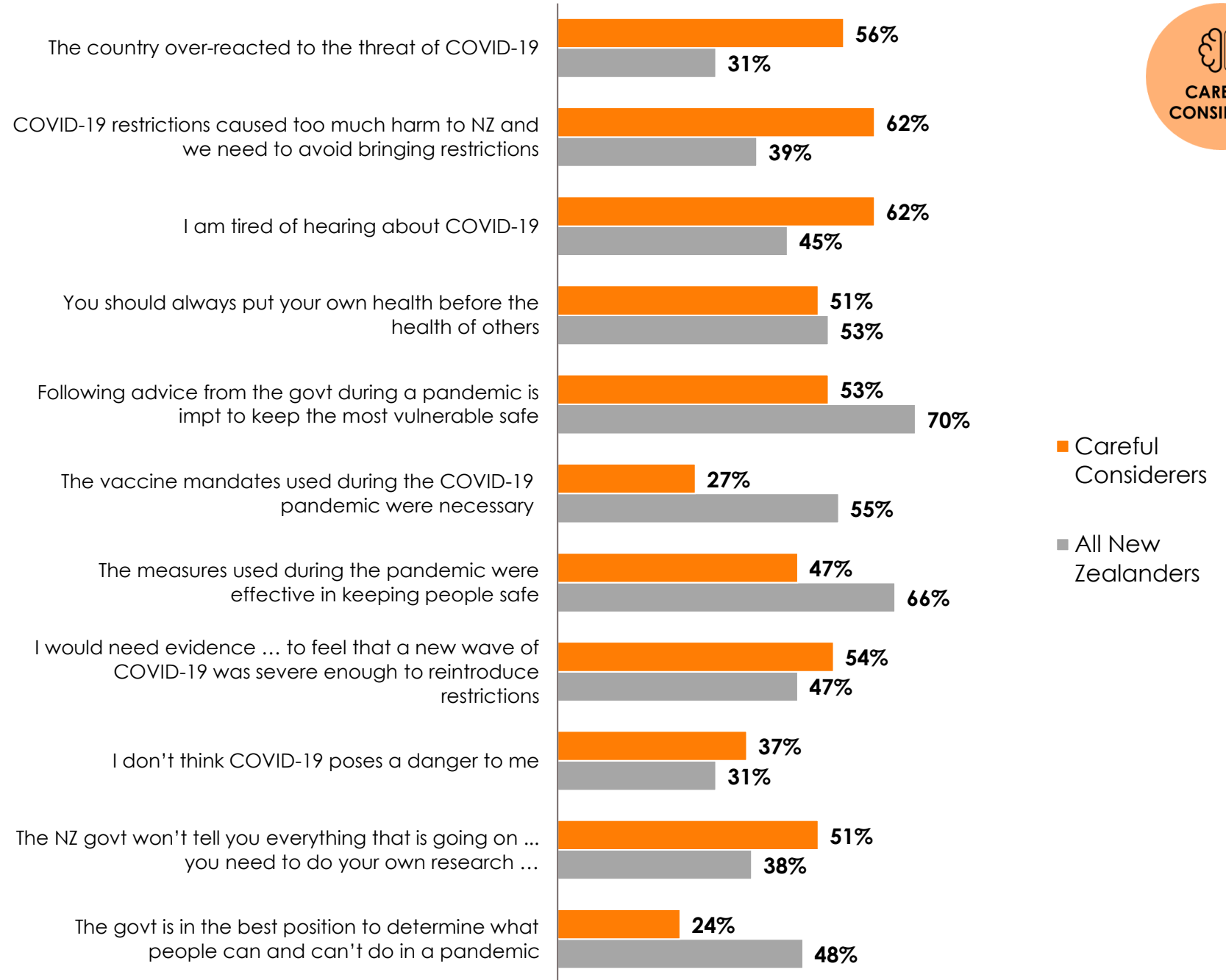
Base: Discontented Doubters n=262, All New Zealanders n=1855.





The Careful Considerers hold the same attitudes to the COVID-19 response as the Discontented Doubters but much less strongly – e.g., think the country over-reacted, the restrictions caused too much harm etc. The Careful Considerers also differ from the Discontented Doubters in their current concern about COVID – they are more concerned than the Discontented Doubters. The Careful Considerers also have more concern for the welfare of others than the Discontented Doubters.

Note. Attributes presented in a shortened form to make the chart more readable.
 Source: Q1. Please indicate how strongly you, personally, agree or disagree with each of the following statements.
 Base: Careful Considerer n=463, All New Zealanders n=1855.



% strongly agree / tend to agree with attitudinal statements

Demographically the segments differ mainly by age/gender (this slide) and vaccination status (next slide).

How to read the table
 The %s in the table are column %s and should be down rather than across. For example, '19% of women 18 to 34 are Faithful Followers'.

Demographic profile of the segments

	All people	Age by gender								Ethnicity				Disability	
		Women 18-34	Women 35-49	Women 50-64	Women 65+	Men 18-34	Men 35-49*	Men 50-64	Men 65+	European	Māori	Pacific peoples	Asian peoples	Disabled people	Non-disabled people
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Faithful Follower	29%	19% ↓	31%	39%	41%	17% ↓	28%	26%	41%	29%	30%	28%	29%	32%	29%
Discontented Doubter	14%	17%	13%	9%	11%	19%	16%	14%	10%	14%	14%	19%	15% ↓	14%	14%
Careful Considerer	26%	33%	21%	19% ↓	21%	35%	31%	25%	23%	26%	27%	28%	29%	31%	25%
Moved on Moderate	30%	31%	35%	33%	27%	29%	26%	35%	25%	30%	29%	26%	26%	23% ↓	32%

Defining demographic features of each segment**
 Non-defining demographic features of each segment
 ↑ Defining because the segment is higher than the population average
 ↓ Defining because the segment is lower than the population average

**Four forward stepwise logistic regressions (one for each segment) were conducted to identify the demographic variables that define each of the four segments. The regressions explained 19.7% of the likelihood of being a Faithful Follower, 21.6% of being a Discontented Doubter, 7.6% of being a Careful Considerer, 3.5% of being a Moved on Moderate (Nagelkerke R-squared). The demographic variables highlighted in the table are those that significantly contribute to the explanation (at the <0.01 level). Those demographic groups labelled with a * were used as the reference categories for the categorical variables in the logistic regressions and as such can't be defining demographic features.

Note: Categories with less than 50 people are not shown above. See appendix for sample sizes of each demographic group.

Demographically the segments differ mainly by age/gender (previous slide) and vaccination status (this slide).

Demographic profile of the segments

	All people	Number of doses of COVID-19 vaccination			Household size		Children		Region					
		0 doses	1-2 doses	3+ doses*	1 to 2	3+	Have children	No children	Auckland	Other North Island*	Wellington	Canterbury	Other South Island	
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Faithful Follower	29%	6% ↓	14% ↓	41%	36% ↓	22%	21%	33% ↑	28%	27%	43% ↑	27%	31%	
Discontented Doubter	14%	57% ↑	21% ↑	6%	12%	16%	18%	12%	16%	15%	9%	10%	15%	
Careful Considerer	26%	29%	34% ↑	21%	24%	29%	29%	25%	28%	27%	21%	28%	25%	
Moved on Moderate	30%	9% ↓	31%	32%	28%	33%	32%	30%	29%	32%	27%	35%	29%	

Defining demographic features of each segment**
 Non-defining demographic features of each segment
 ↑ Defining because the segment is higher than the population average
 ↓ Defining because the segment is lower than the population average

**Four forward stepwise logistic regressions (one for each segment) were conducted to identify the demographic variables that define each of the four segments. The regressions explained 19.7% of the likelihood of being a Faithful Follower, 21.6% of being a Discontented Doubter, 7.6% of being a Careful Considerer, 3.5% of being a Moved on Moderate (Nagelkerke R-squared). The demographic variables highlighted in the table are those that significantly contribute to the explanation (at the <0.01 level). Those demographic groups labelled with a * were used as the reference categories for the categorical variables in the logistic regressions and as such can't be defining demographic features.

Note: Categories with less than 50 people are not shown above. See appendix for sample sizes of each demographic group.

Demographically the segments differ mainly by age/gender and vaccination status (see previous two slides).

Demographic profile of the segments

	All people	Household income						Employment				Education				
		\$30k or less	\$30k to \$70k	\$70k to \$100k*	\$100k to \$150k	\$150k+	Prefer not to say	In paid work*	Studying	Not working	Retired	No / high school	Trade or polytech	Under-grad*	Postgrad	Other
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Faithful Follower	29%	34%	35%	25%	27%	26%	31%	26%	24%	30%	42%	28%	29%	30%	37%	20%
Discontented Doubter	14%	13%	15%	14%	12%	15%	13%	15%	8%	13%	10%	14%	14%	13%	13%	16%
Careful considerer	26%	25%	24%	32%	25%	26%	26%	27%	33%	28%	21%	27%	26%	26%	17%	45% ↑
Moved on Moderate	30%	28%	27%	28%	35%	33%	30%	31%	34%	30%	27%	31%	31%	30%	33%	19%

 Defining demographic features of each segment**

 Non-defining demographic features of each segment

↑ Defining because the segment is higher than the population average

↓ Defining because the segment is lower than the population average

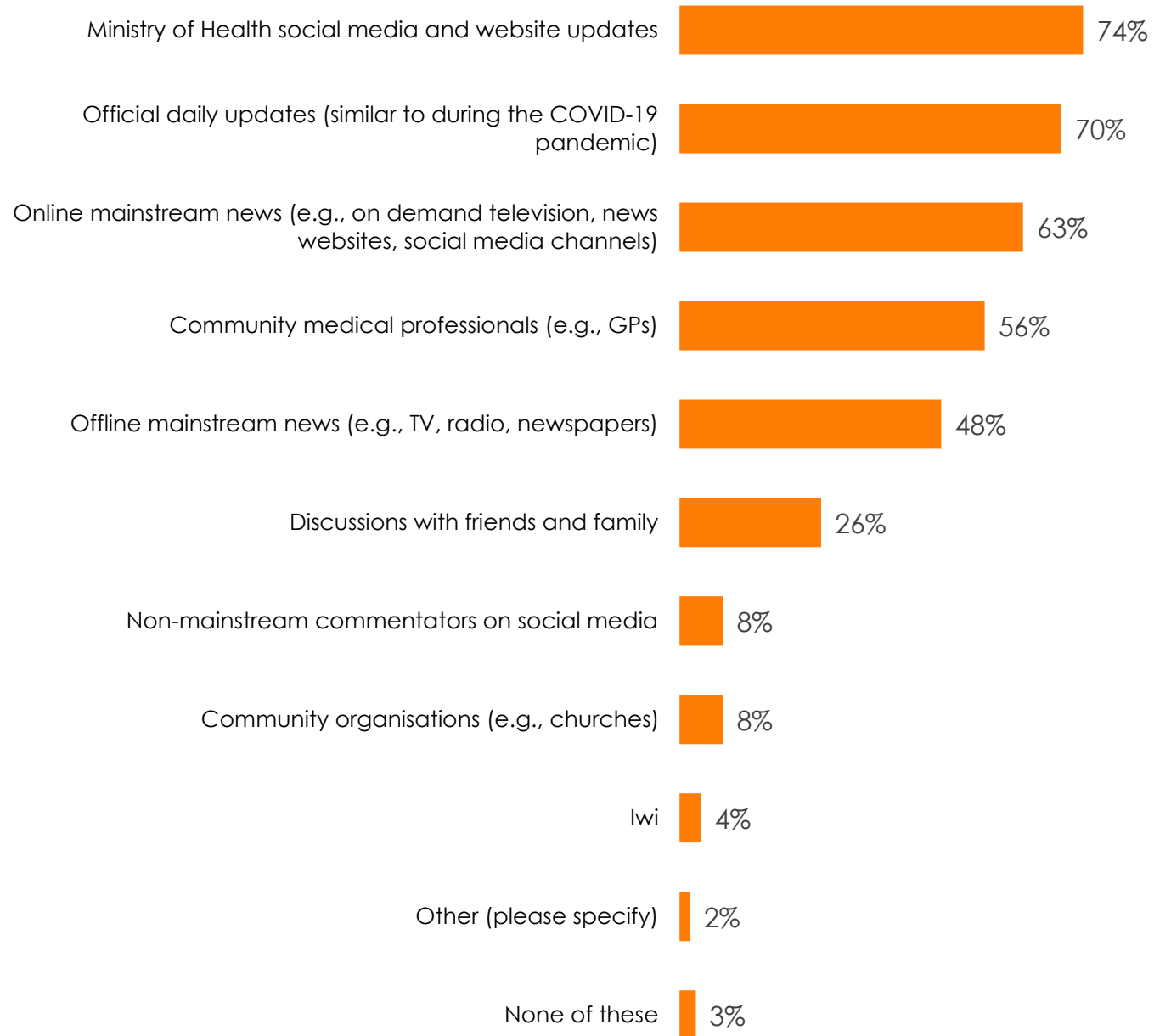
**Four forward stepwise logistic regressions (one for each segment) were conducted to identify the demographic variables that define each of the four segments. The regressions explained 19.7% of the likelihood of being a Faithful Follower, 21.6% of being a Discontented Doubter, 7.6% of being a Careful Considerer, 3.5% of being a Moved on Moderate (Nagelkerke R-squared). The demographic variables highlighted in the table are those that significantly contribute to the explanation (at the <0.01 level). Those demographic groups labelled with a * were used as the reference categories for the categorical variables in the logistic regressions and as such can't be defining demographic features.

Note: Categories with less than 50 people are not shown above. See appendix for sample sizes of each demographic group.

6:

What would people want to know in a new pandemic and where would they look for it?

If there was a new pandemic, most people would look to the Ministry's website and social media and as well as to the COVID-style daily updates.



Source: Q5. Still imagining that there is a new pandemic, like the one you've just seen, where would you look to find information?

Base: All respondents, n=1,855.

The preferred sources of information largely have the same rank order across the segments – where they differ is in the absolute percentages of who would use each source. Of note is the much greater preference amongst Discontented Doubters for discussions with friends and family and non-mainstream commentators.

Preferred sources of information in a new pandemic – by segment

	All people	Faithful Follower	Moved on Moderate	Careful Considerer	Discontented Doubter
Ministry of Health social media and website updates	74%	88%	80%	69%	47%
Official daily updates	70%	85%	80%	60%	39%
Online mainstream news	63%	68%	70%	60%	39%
Community medical professionals	56%	67%	58%	53%	36%
Offline mainstream news	48%	57%	49%	48%	30%
Discussions with friends and family	26%	17%	26%	27%	38%
Non-mainstream commentators on social media	8%	3%	6%	9%	22%
Community organisations (e.g., churches)	8%	7%	9%	8%	9%
Iwi	4%	5%	2%	4%	4%
Other	2%	1%	1%	1%	7%
None of these	3%	0%	0%	4%	9%

■ Preferred by 50%+ of people
 ■ Preferred by 35-49%
 ■ Preferred by less than 35%

Source: Q5. Still imagining that there is a new pandemic, like the one you've just seen, where would you look to find information?

Base: All respondents n=1,855, Faithful followers n=572, Moved on Moderate n=558, Careful Considerer n=463, Discontented Doubter n=262.

The preferred sources of information also tend to have the same rank order across ethnicity and disability status. Again, there are differences in the absolute percentages who would use each source – Māori, Pacific peoples, and disabled people are less likely to use the four main sources than the total population. Māori are much more likely to use iwi and Pacific peoples are much more likely to use community organisations than the total population.

Preferred sources of information in a new pandemic – by ethnicity and disability status

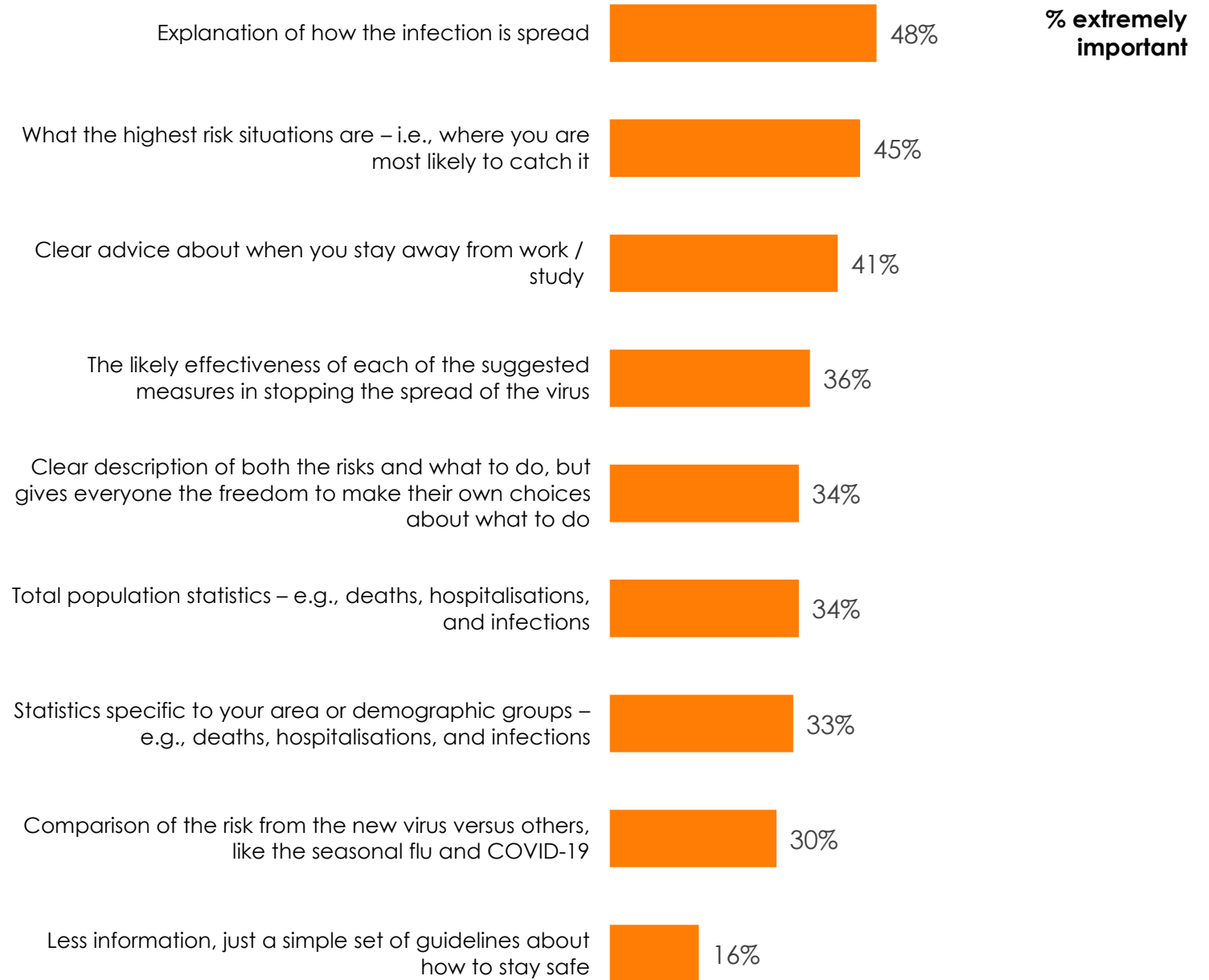
	All people	Māori	Pacific peoples	Asian peoples	European	Disabled people	Non-disabled people
Ministry of Health social media and website updates	74%	64%	65%	80%	76%	66%	77%
Official daily updates	70%	57%	59%	73%	73%	63%	72%
Online mainstream news	63%	55%	59%	67%	63%	57%	64%
Community medical professionals	56%	48%	47%	49%	59%	56%	56%
Offline mainstream news	48%	47%	47%	51%	49%	46%	49%
Discussions with friends and family	26%	29%	27%	30%	25%	25%	26%
Non-mainstream commentators on social media	8%	11%	13%	9%	7%	10%	8%
Community organisations (e.g., churches)	8%	12%	20%	10%	6%	13%	7%
Iwi	4%	17%	8%	2%	3%	8%	3%
Other	2%	3%	4%	1%	1%	1%	2%
None of these	3%	3%	2%	1%	2%	3%	2%

■ Preferred by 50%+ of people
 ■ Preferred by 35-49%
 ■ Preferred by less than 35%

Source: Q5. Still imagining that there is a new pandemic, like the one you've just seen, where would you look to find information?

Base: All respondents n=1,855, Māori n=429, Pacific peoples n=294, Asian peoples n=379, European n=1113, disabled people n=306, non-disabled people n=1549.

Three types of information from the government are extremely important to more than 40% of New Zealanders: explanations of how the infection is spread, what the highest risk situations are, and clear advice about when to stay away from work/study.



Source: Q4. If there was a new pandemic, how important do you think it is for the government to include each of the following in communications?

Base: All respondents, n=1,669. Note question removed from the telephone survey after the pilot to reduce the length of the survey.

The importance of type of information differs by segment – the Faithful Followers are hungrier for information than other segments, the Moved on Moderates and the Discontented Doubters want to understand how it spreads, the risks, and to have choices.

Preferred type of information in a new pandemic – by segment

% extremely important

	All people	Faithful Follower	Moved on Moderate	Careful Considerer	Discontented Doubter
Explanation of how the infection is spread	48%	72%	48%	32%	27%
What the highest risk situations are	45%	71%	46%	26%	25%
Clear advice about when you stay away from work / study	41%	66%	40%	23%	23%
The likely effectiveness of each of the suggested measures	36%	57%	34%	21%	22%
Clear description of both the risks and what to do, but gives everyone the freedom to make their own choices about what to do	34%	39%	28%	30%	48%
Total population statistics	34%	52%	32%	21%	26%
Statistics specific to your area or demographic groups	33%	52%	31%	19%	23%
Comparison of the risk from the new virus versus others	30%	45%	29%	18%	24%
Less information, just a simple set of guidelines about how to stay safe	16%	21%	14%	11%	17%

■ 40%+ think it is extremely important
 ■ 30-39% think it is extremely important
 ■ Less than 30% think it is extremely important

Source: Q4. If there was a new pandemic, how important do you think it is for the government to include each of the following in communications?

Base: All respondents n=1,669, Faithful followers n=496, Moved on Moderate n=518, Careful Considerer n=425, Discontented Doubter n=230. Note question removed from the telephone survey after the pilot to reduce the length of the survey.

Information preferences are similar across ethnic groups and disability status – with the exception of Asian peoples considering more information types to be extremely important than all people.

Preferred type of information in a new pandemic – by ethnicity and disability status % extremely important

	All people	Māori	Pacific peoples	Asian peoples	European	Disabled people	Non-disabled people
Explanation of how the infection is spread	48%	48%	51%	51%	47%	47%	48%
What the highest risk situations are	45%	45%	46%	49%	40%	44%	45%
Clear advice about when you stay away from work / study	41%	40%	41%	45%	38%	42%	40%
The likely effectiveness of each of the suggested measures	36%	34%	37%	44%	37%	35%	36%
Clear description of both the risks and what to do, but gives everyone the freedom to make their own choices about what to do	34%	32%	45%	42%	33%	37%	33%
Total population statistics	34%	33%	35%	44%	34%	32%	34%
Statistics specific to your area or demographic groups	33%	32%	33%	41%	32%	33%	33%
Comparison of the risk from the new virus versus others	30%	28%	31%	33%	31%	32%	29%
Less information, just a simple set of guidelines about how to stay safe	16%	15%	16%	23%	15%	21%	15%

■ 40%+ think it is extremely important
 ■ 30-39% think it is extremely important
 ■ Less than 30% think it is extremely important

Source: Q4. If there was a new pandemic, how important do you think it is for the government to include each of the following in communications?

Base: All respondents n=1,855, Māori n=429, Pacific peoples n=294, Asian peoples n=379, European n=1113, disabled people n=306, non-disabled people n=1549.

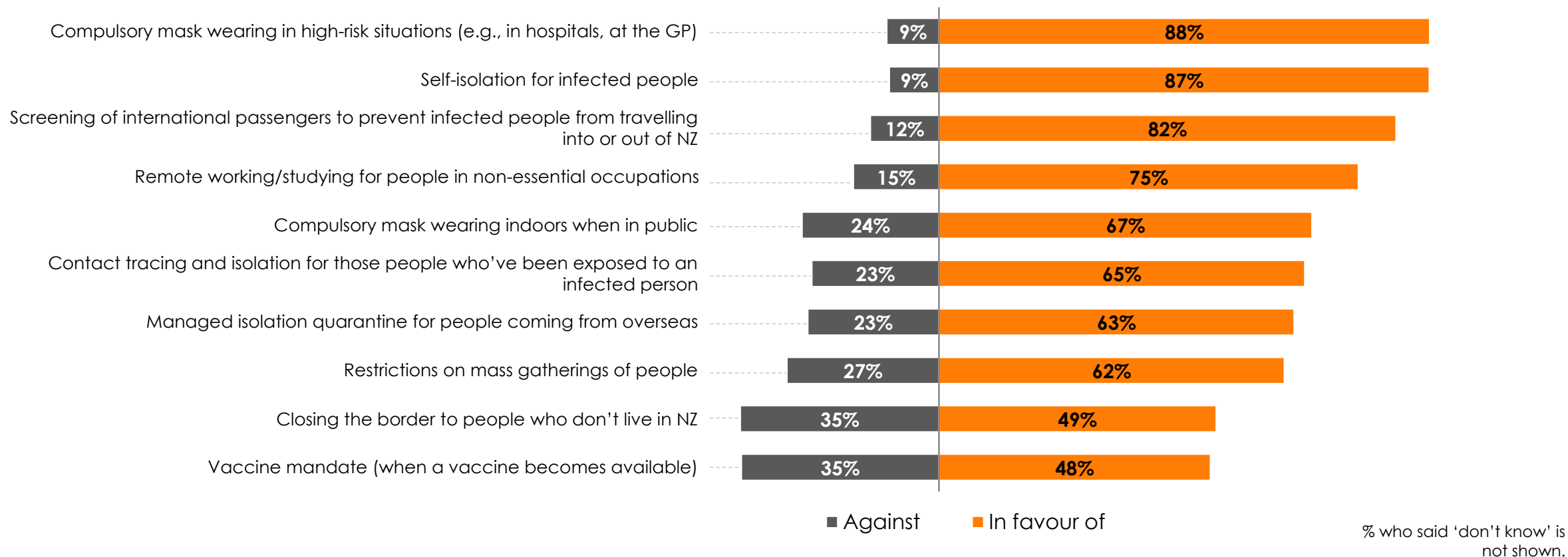
7:

What public health measures would be acceptable in a new pandemic?

As part of the future pandemic response questions (outlined in Section 3), people were asked how acceptable they thought different public health measures would be under each scenario.

In Scenario A (high transmission/low mortality pandemic) the most acceptable measures are those which are applicable to very specific or high-risk situations. Closing the border and a vaccine mandate are the least acceptable measures.

Acceptability of public health measures in Scenario A (a high transmission/low mortality pandemic)



Source: Q2a. Imagine there is a new pandemic beginning and that we know the following about the virus: it spreads quickly if left uncontrolled – every person infected spreads it to four other people; it is not particularly severe – out of every thousand people infected, one person will die; there is no vaccine available yet. Which of the following measures would you be in favour of the government using to help manage the pandemic and which would you be against?

Base: All respondents n=1,855.

In Scenario A (a high transmission/low mortality pandemic), compulsory mask wearing in high-risk situations, self-isolation for infected people, and screening of international passengers are the only measures acceptable to 75%+ of people who say they are somewhat likely to comply with public health and 45%+ of those not likely to comply.

Acceptability of public health measures in Scenario A (high transmission/low mortality) by overall likelihood of complying with public health advice – % acceptable

	All people	Extremely/very likely to comply with public health advice	Somewhat likely to comply with public health advice	Not likely to comply with public health advice
Compulsory mask wearing in high-risk situations (e.g., in hospitals, at the GP)	88%	96%	85%	48%
Self-isolation for infected people	87%	95%	84%	56%
Screening of international passengers to prevent infected people from travelling into or out of NZ	82%	90%	76%	51%
Remote working/studying for people in non-essential occupations	75%	84%	69%	37%
Compulsory mask wearing indoors when in public	67%	83%	49%	12%
Contact tracing and isolation for those people who've been exposed to an infected person	65%	78%	52%	23%
Managed isolation quarantine for people coming from overseas	63%	72%	56%	30%
Restrictions on mass gatherings of people	62%	76%	47%	13%
Closing the border to people who don't live in NZ	49%	56%	41%	29%
Vaccine mandate (when a vaccine becomes available)	48%	64%	26%	8%

■ Acceptable to 67%+ of people
 ■ Acceptable to 50-66%
 ■ Acceptable to less than 50%

Source: Q2a. Imagine there is a new pandemic beginning and that we know the following about the virus ... Which of the following measures would you be in favour of the government using to help manage the pandemic and which would you be against? Q2b. How likely would you be to follow government public advice intended to help manage the pandemic?

Base: All respondents n=1,855, people extremely/very likely to comply n=1,216, people somewhat likely to comply n=403, people not likely to comply n=200.

In Scenario A (a high transmission/low mortality pandemic), compulsory mask wearing in high-risk situations, self-isolation for infected people, screening of international passengers, and remote working/studying are acceptable to 50%+ of each segment.

Acceptability of public health measures in Scenario A (high transmission/low mortality) by segment – % acceptable

	All people	Faithful Follower	Moved on Moderate	Careful Considerer	Discontented Doubter
Compulsory mask wearing in high-risk situations (e.g., in hospitals, at the GP)	88%	98%	97%	82%	56%
Self-isolation for infected people	87%	98%	94%	79%	69%
Screening of international passengers to prevent infected people from travelling into or out of NZ	82%	90%	87%	75%	63%
Remote working/studying for people in non-essential occupations	75%	87%	81%	67%	51%
Compulsory mask wearing indoors when in public	67%	88%	77%	53%	24%
Contact tracing and isolation for those people who've been exposed to an infected person	65%	85%	74%	50%	34%
Managed isolation quarantine for people coming from overseas	63%	75%	69%	56%	41%
Restrictions on mass gatherings of people	62%	81%	72%	46%	29%
Closing the border to people who don't live in NZ	49%	60%	51%	44%	36%
Vaccine mandate (when a vaccine becomes available)	48%	75%	52%	34%	13%

■ Acceptable to 67%+ of people
 ■ Acceptable to 50-66%
 ■ Acceptable to less than 50%

Source: Q2a. Imagine there is a new pandemic beginning and that we know the following about the virus ... Which of the following measures would you be in favour of the government using to help manage the pandemic and which would you be against? Q2b. How likely would you be to follow government public advice intended to help manage the pandemic?

Base: All respondents n=1,855, Faithful followers n=572, Moved on Moderate n=558, Careful Considerer n=463, Discontented Doubter n=262.

In Scenario A (a high transmission/low mortality pandemic), Māori and disabled people are more likely than the rest of the population to find border restrictions acceptable.

Acceptability of public health measures in Scenario A (high transmission/low mortality) by ethnicity and disability status – % acceptable

	All people	Māori	Pacific peoples	Asian peoples	European	Disabled people	Non-disabled people
Compulsory mask wearing in high-risk situations (e.g., in hospitals, at the GP)	88%	87%	88%	88%	87%	84%	88%
Self-isolation for infected people	87%	86%	83%	84%	89%	84%	88%
Screening of international passengers to prevent infected people from travelling into or out of NZ	82%	83%	79%	82%	81%	83%	81%
Remote working/studying for people in non-essential occupations	75%	74%	72%	74%	74%	73%	75%
Compulsory mask wearing indoors when in public	67%	64%	62%	76%	63%	66%	67%
Contact tracing and isolation for those people who've been exposed to an infected person	65%	69%	69%	71%	62%	72%	64%
Managed isolation quarantine for people coming from overseas	63%	73%	71%	65%	61%	72%	61%
Restrictions on mass gatherings of people	62%	59%	63%	70%	58%	62%	61%
Closing the border to people who don't live in NZ	49%	60%	57%	47%	48%	61%	47%
Vaccine mandate (when a vaccine becomes available)	48%	45%	48%	59%	45%	49%	48%

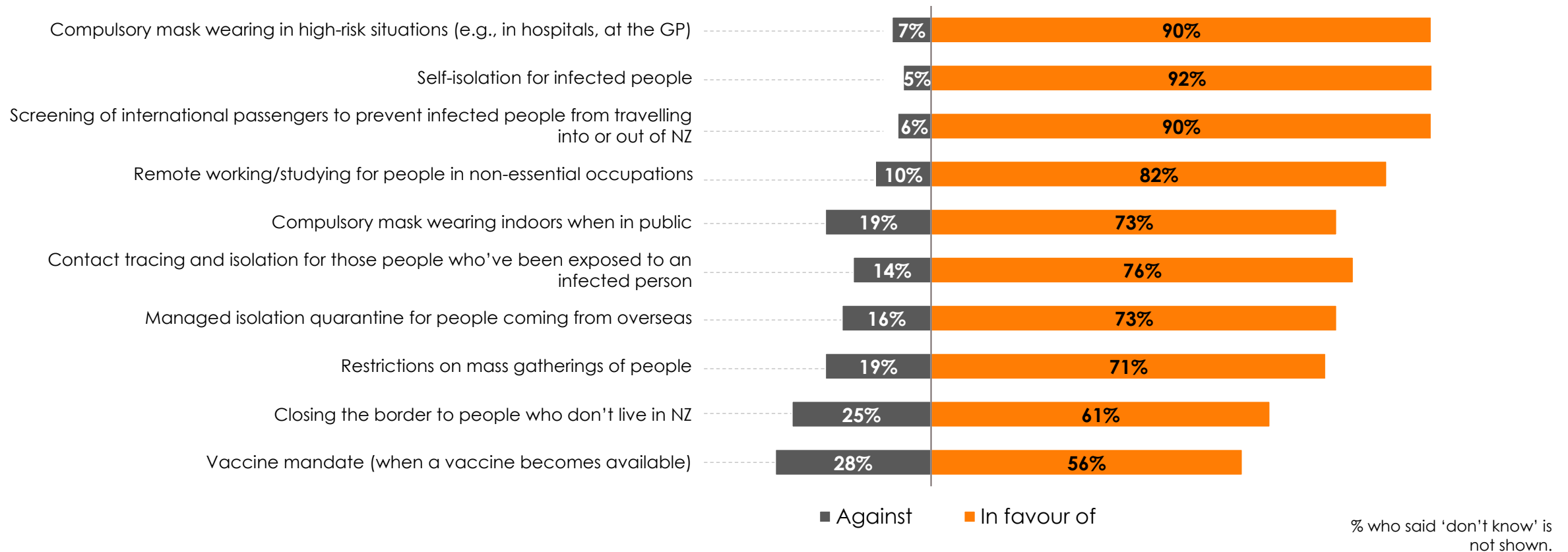
■ Acceptable to 67%+ of people
 ■ Acceptable to 50-66%
 ■ Acceptable to less than 50%

Source: Q2a. Imagine there is a new pandemic beginning and that we know the following about the virus ... Which of the following measures would you be in favour of the government using to help manage the pandemic and which would you be against? Q2b. How likely would you be to follow government public advice intended to help manage the pandemic?

Base: All respondents n=1,855, Māori n=429, Pacific peoples n=294, Asian peoples n=379, European n=1113, disabled people n=306, non-disabled people n=1549.

In Scenario B (low transmission/high mortality) the most acceptable public health measures are similar to those most acceptable in Scenario A – i.e., those applicable to very specific or high-risk situations. The least acceptable measures are closing the border and a vaccine mandate.

Acceptability of public health measures in Scenario B (a low transmission/high mortality pandemic)



Source: Q3a. Imagine there is a new pandemic beginning and that we know the following about the virus: it doesn't spread quickly, every person infected spreads it to 1.5 other people; it is severe – out of every thousand people infected, twenty people will die; there is no vaccine available yet. Which of the following measures would you be in favour of the government using to help manage the pandemic and which would you be against?

Base: All respondents n=1,855.

In Scenario B (low transmission/high mortality), two measures are acceptable to 66%+ of people who say they are generally not likely to comply with public health advice – self-isolation for infected people and screening of international passengers.

Acceptability of public health measures in Scenario B (low transmission/high mortality) by overall likelihood of complying with public health advice – % acceptable

	All people	Extremely/very likely to comply with public health advice	Somewhat likely to comply with public health advice	Not likely to comply with public health advice
Compulsory mask wearing in high-risk situations (e.g., in hospitals, at the GP)	90%	98%	87%	45%
Self-isolation for infected people	92%	97%	91%	67%
Screening of international passengers to prevent infected people from travelling into or out of NZ	90%	95%	87%	66%
Remote working/studying for people in non-essential occupations	82%	91%	70%	47%
Compulsory mask wearing indoors when in public	73%	88%	55%	12%
Contact tracing and isolation for those people who've been exposed to an infected person	76%	87%	61%	30%
Managed isolation quarantine for people coming from overseas	73%	82%	61%	41%
Restrictions on mass gatherings of people	71%	84%	53%	22%
Closing the border to people who don't live in NZ	61%	67%	54%	37%
Vaccine mandate (when a vaccine becomes available)	56%	72%	31%	7%

■ Acceptable to 67%+ of people
 ■ Acceptable to 50-66%
 ■ Acceptable to less than 50%

Source: Q3a. Imagine there is a new pandemic beginning and that we know the following about the virus ... Which of the following measures would you be in favour of the government using to help manage the pandemic and which would you be against? Q3b. How likely would you be to follow government public advice intended to help manage the pandemic?

Base: All respondents n=1,855, people extremely/very likely to comply n=1,293, people somewhat likely to comply n=367, people not likely to comply n=159.

In Scenario B (low transmission/high mortality) pandemic, four measures are acceptable to 60%+ of each segment – self-isolation for infected people, screening of international passengers, compulsory mask wearing in high-risk situations, and remote working.

Acceptability of public health measures in Scenario B (low transmission/high mortality) by segment – % acceptable

	All people	Faithful Follower	Moved on Moderate	Careful Considerer	Discontented Doubter
Compulsory mask wearing in high-risk situations (e.g., in hospitals, at the GP)	90%	100%	97%	86%	62%
Self-isolation for infected people	92%	98%	97%	86%	80%
Screening of international passengers to prevent infected people from travelling into or out of NZ	90%	97%	94%	84%	75%
Remote working/studying for people in non-essential occupations	82%	94%	88%	74%	60%
Compulsory mask wearing indoors when in public	73%	93%	84%	62%	28%
Contact tracing and isolation for those people who've been exposed to an infected person	76%	94%	83%	63%	42%
Managed isolation quarantine for people coming from overseas	73%	88%	78%	65%	47%
Restrictions on mass gatherings of people	71%	91%	81%	59%	30%
Closing the border to people who don't live in NZ	61%	73%	61%	56%	42%
Vaccine mandate (when a vaccine becomes available)	56%	86%	62%	40%	13%

■ Acceptable to 67%+ of people
 ■ Acceptable to 50-66%
 ■ Acceptable to less than 50%

Source: Q3a. Imagine there is a new pandemic beginning and that we know the following about the virus ... Which of the following measures would you be in favour of the government using to help manage the pandemic and which would you be against?

Base: All respondents n=1,855, Faithful follower n=572, Moved on Moderate n=558, Careful Considerer n=463, Discontented Doubter n=262.

Looking at acceptability of measures for Scenario B (low transmission/high mortality) by ethnicity and disability and disability – seven measures are acceptable to at least two-thirds of each group.

Acceptability of public health measures in Scenario B (low transmission/high mortality) by ethnicity and disability status – % acceptable

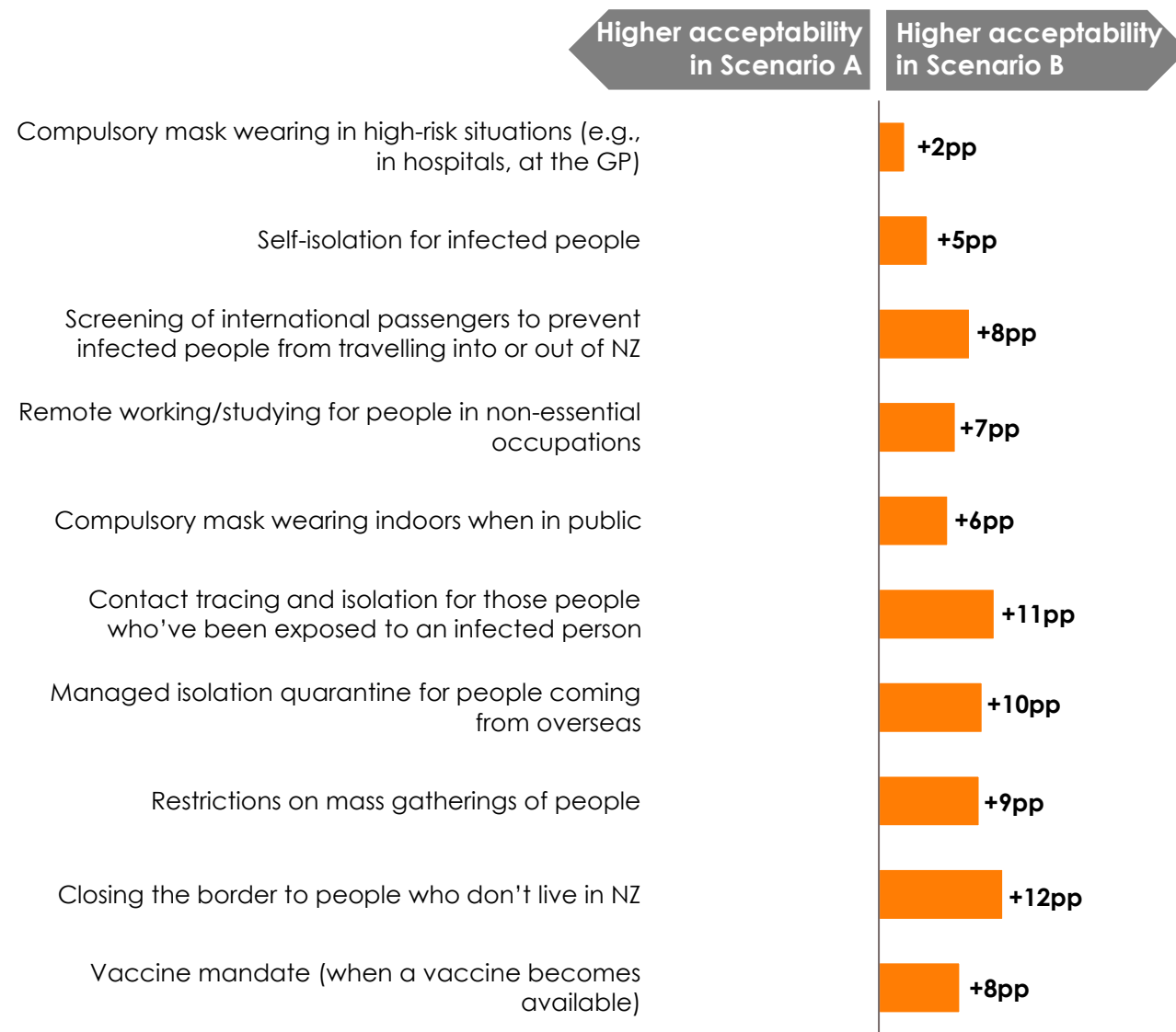
	All people	Māori	Pacific peoples	Asian peoples	European	Disabled people	Non-disabled people
Compulsory mask wearing in high-risk situations (e.g., in hospitals, at the GP)	90%	86%	87%	90%	90%	83%	91%
Self-isolation for infected people	92%	89%	87%	89%	94%	86%	93%
Screening of international passengers to prevent infected people from travelling into or out of NZ	90%	89%	86%	86%	91%	87%	90%
Remote working/studying for people in non-essential occupations	82%	78%	76%	82%	83%	78%	83%
Compulsory mask wearing indoors when in public	73%	69%	70%	83%	70%	70%	74%
Contact tracing and isolation for those people who've been exposed to an infected person	76%	77%	74%	81%	74%	78%	75%
Managed isolation quarantine for people coming from overseas	73%	77%	77%	73%	72%	77%	72%
Restrictions on mass gatherings of people	71%	62%	68%	80%	70%	68%	72%
Closing the border to people who don't live in NZ	61%	63%	67%	53%	61%	69%	59%
Vaccine mandate (when a vaccine becomes available)	56%	51%	56%	66%	53%	54%	57%

■ Acceptable to 67%+ of people
 ■ Acceptable to 50-66%
 ■ Acceptable to less than 50%

Source: Q3a. Imagine there is a new pandemic beginning and that we know the following about the virus ... Which of the following measures would you be in favour of the government using to help manage the pandemic and which would you be against?

Base: All respondents n=1,855, Māori n=429, Pacific peoples n=294, Asian peoples n=379, European n=1113, disabled people n=306, non-disabled people n=1549.

Comparing the acceptability of public health responses between Scenario A and Scenario B shows that more people find the public health measures acceptable in a low transmission/high mortality pandemic (Scenario B) than a high transmission/low mortality pandemic. The difference in acceptability between Scenario A and Scenario B is greatest amongst measures with the lowest overall levels of acceptability.



The difference between Scenario A and Scenario B is shown in percentage points (pp), i.e. if 48% of people find a measure acceptable in Scenario A and 56% find it acceptable in Scenario B – that is a difference of 8 percentage points.

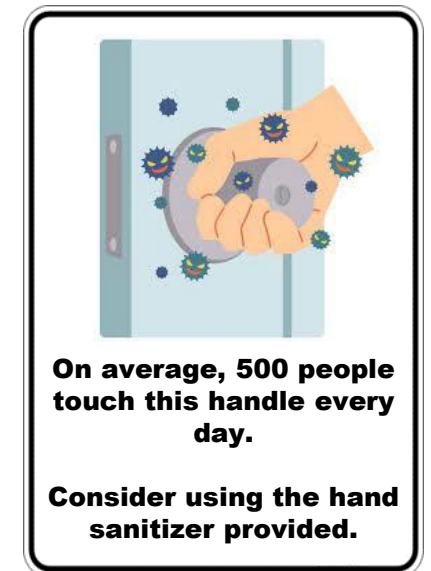
8:
How can people be encouraged to comply with public health advice?

The qualitative stage identified that COVID-19 has led to several aversion to germ situation heuristics – e.g.:

- An automatic recoiling or moving away response when someone coughs
- An urge to sanitise or wash hands after touching germ surfaces
- Breathing more lightly in a room full of people.

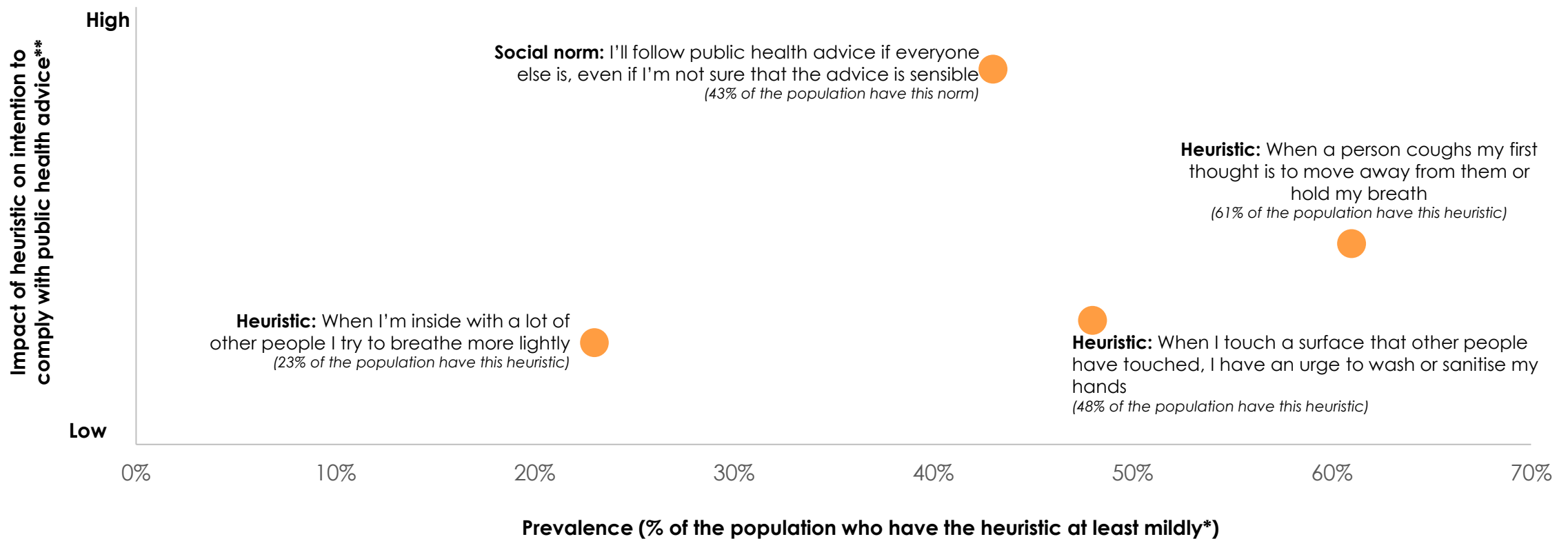
These heuristics could be used to make public health messaging more persuasive (examples from the qualitative report to the right) and so the prevalence and potential impact of these are explored in this section.

The qualitative stage also identified a number of beliefs about vaccines that are inhibiting the uptake of vaccines. For instance, a belief that older types of vaccine are safer than newer types of vaccines. The prevalence and impact of these are also explored in this section.



Of the three germy situation heuristics, both the automatic cough recoil and the urge to wash/sanitise heuristics are highly prevalent in the population and have a moderate influence on behaviour. Social norms have more power to influence behaviour than the heuristics but less reach than the cough recoil and wash/sanitise.

Prevalence and impact of the avoidance of germy situations heuristics



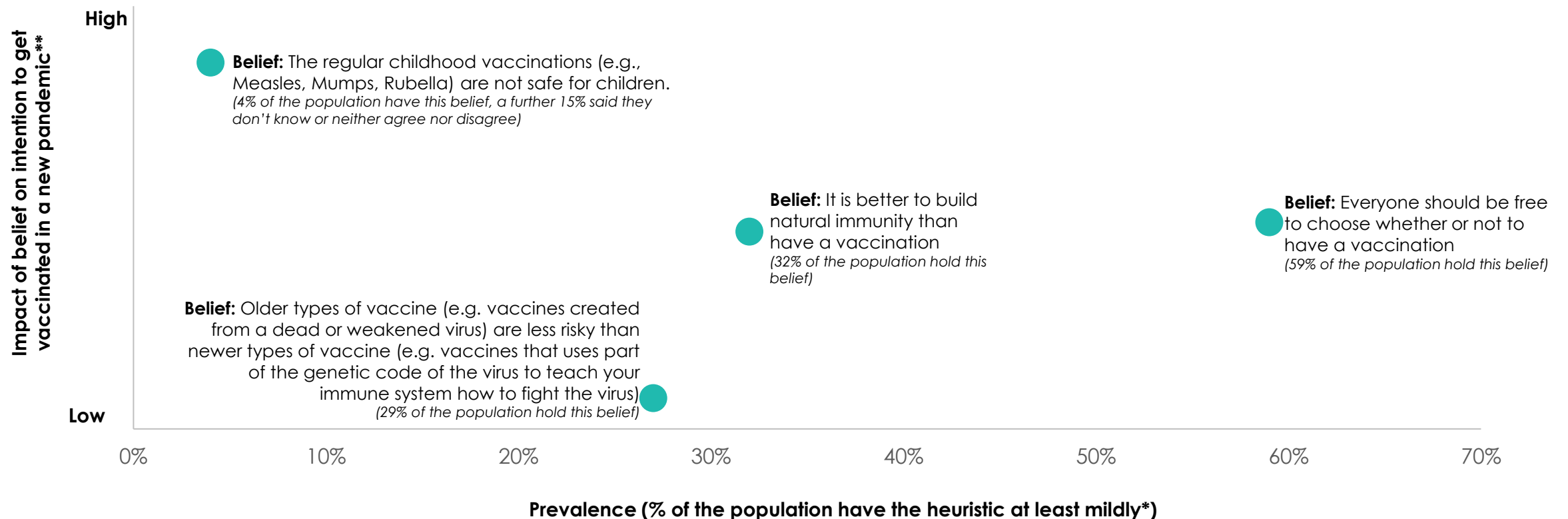
*% strongly agree/tend to agree. **Impact score is derived from a series of univariate regressions where the heuristic is regressed against the likelihood to comply with public health advice (Q2b and Q3b combined using a factor analysis to produce a single outcome variable). The impact score is the unstandardised beta * standardised beta (providing both the strength and slope of the relationship).

Source: Q8. Thinking about the views you hold today, please indicate how strongly you agree or disagree with each of the following statements.

Base: All respondents, n=1,855.

A third of the population hold the belief (at least weakly) that it is better to build natural immunity than have a vaccination and this belief is a moderate influence on behaviour.

Prevalence and impact of beliefs about vaccines



*% strongly agree/tend to agree. **Impact score is derived from a series of univariate regressions where the heuristic is regressed against the likelihood to get vaccinated in a new pandemic (Q2c and Q3c combined using a factor analysis to produce a single outcome variable) or, in the case of the childhood vaccination belief, the likelihood of getting your child the recommended vaccinations. The impact score is the unstandardised beta * standardised beta (providing both the strength and slope of the relationship).

The cough recoil and urge to sanitise are present in at least a third of the people in each segment – suggesting they could be used across segments to encourage people to adopt public health behaviours. The natural immunity belief is particularly strong amongst the Discontented Doubters.

Prevalence of heuristics and beliefs by segment

	All people	Faithful Follower	Moved on Moderate	Careful Considerer	Discontented Doubter
Heuristic: Cough recoil	61%	74%	60%	57%	42%
Heuristic: Urge to wash/sanitise response after touching surface	48%	54%	50%	45%	37%
Heuristic: Breathe more lightly in a crowded room	23%	30%	20%	22%	18%
Social norm: follow advice even if not sure about it	43%	55%	47%	37%	21%
Belief: Childhood vaccinations are not safe	4%	2%	1%	4%	14%
Belief: Older types of vaccine are less risky than newer types	27%	18%	24%	30%	45%
Belief: Better to build natural immunity	32%	13%	24%	39%	75%
Belief: Everyone should be free to choose whether or not to have a vaccination	59%	35%	56%	73%	94%

■ Prevalent in 50%+ of people
 ■ Prevalent in 35-49%
 ■ Prevalent in less than 35%

Source: Q8. Thinking about the views you hold today, please indicate how strongly you agree or disagree with each of the following statements

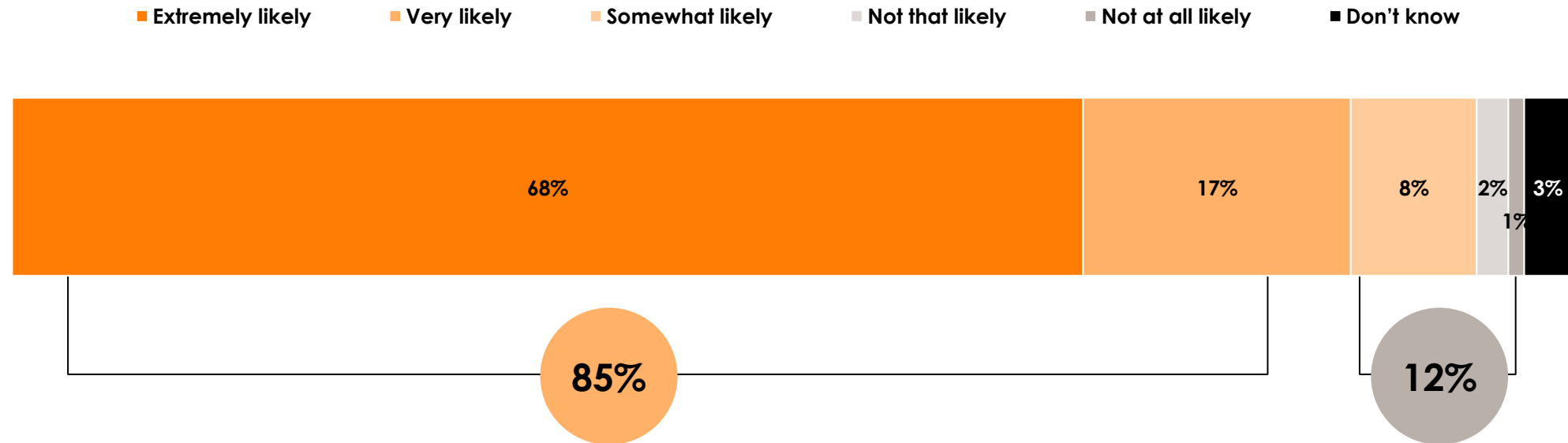
Base: All respondents n=1,855, Faithful followers n=572, Moved on Moderate n=558, Careful Considerer n=463, Discontented Doubter n=262.

9: What could encourage childhood vaccination?

To answer the questions about childhood vaccinations, all respondents were asked to imagine they have a child who is at an age where vaccinations for diseases like measles, mumps, rubella, polio, and chickenpox are recommended. There are two reasons respondents were asked to imagine they had a child rather than just ask those with a child the right age: (1) the incidence of people with a children about the right age for the vaccinations of interest is relatively small, so asking everyone increased the sample size for the questions, and (2) people without a child or without a child the right age can still influence others in their life, so their options/attitudes are of interest.

Adults' intention to get their hypothetical child the recommended vaccinations is much higher than the intention to get themselves vaccinated if there was a new pandemic (68% extremely likely versus 36% to 41% (see section 3)). There is some reluctance, however, with 12% being only somewhat likely or not likely.

Likelihood of getting a hypothetical child the recommended vaccinations



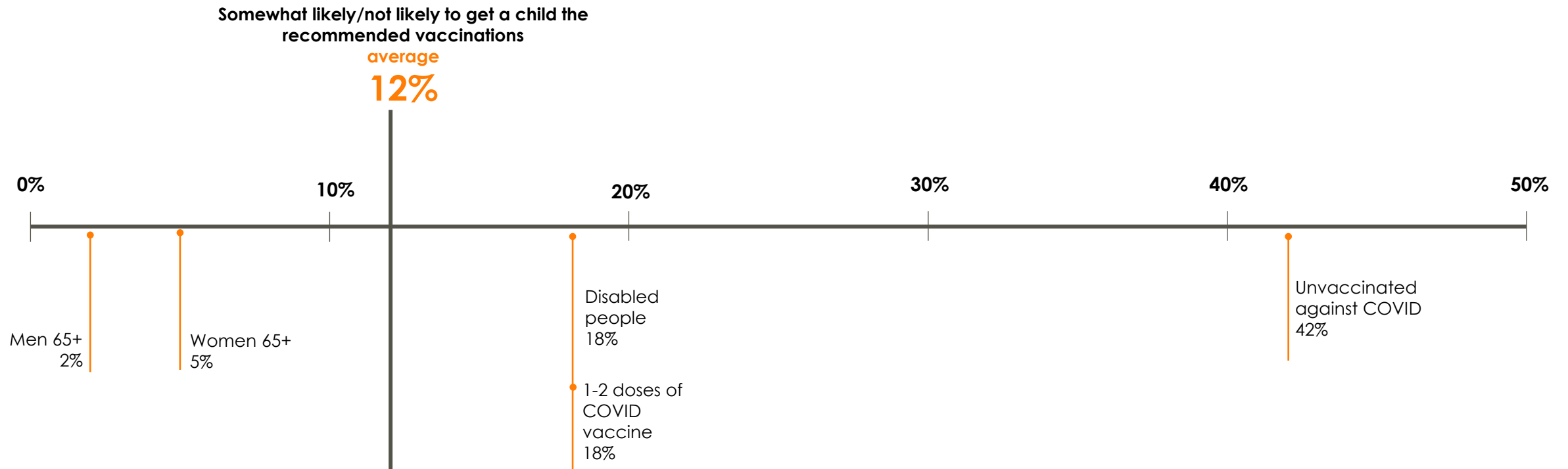
*Note all respondents were asked to imagine they had a child for this question and the subsequent ones in this section.

Source: Q12. Imagine you have a child who is at an age where vaccinations for diseases like measles, mumps, rubella, polio, and chickenpox are recommended. How likely would you be to get your child the recommended vaccinations?

Base: All respondents, n=1,855.

An adult's COVID vaccination status and whether they have a disability are the best demographic predictors of reluctance to get a child the recommended vaccinations.

Demographic explainers of reluctance to get a hypothetical child the recommended vaccinations*



*A logistic (forward stepwise) regression was done to determine which demographic variables help explain the likelihood of getting a child the recommended vaccinations. The regression showed that demographic variables explain 24.9% of the variance in the likelihood of getting a child the recommended vaccinations (Nagelkerke R-squared). The demographic variables shown in the chart above are those that significantly contribute to the explanation (at the <0.01 level). The 'don't know' category was excluded from the regression, but not excluded in the calculation of the somewhat/not that/not at all likely percentages shown.

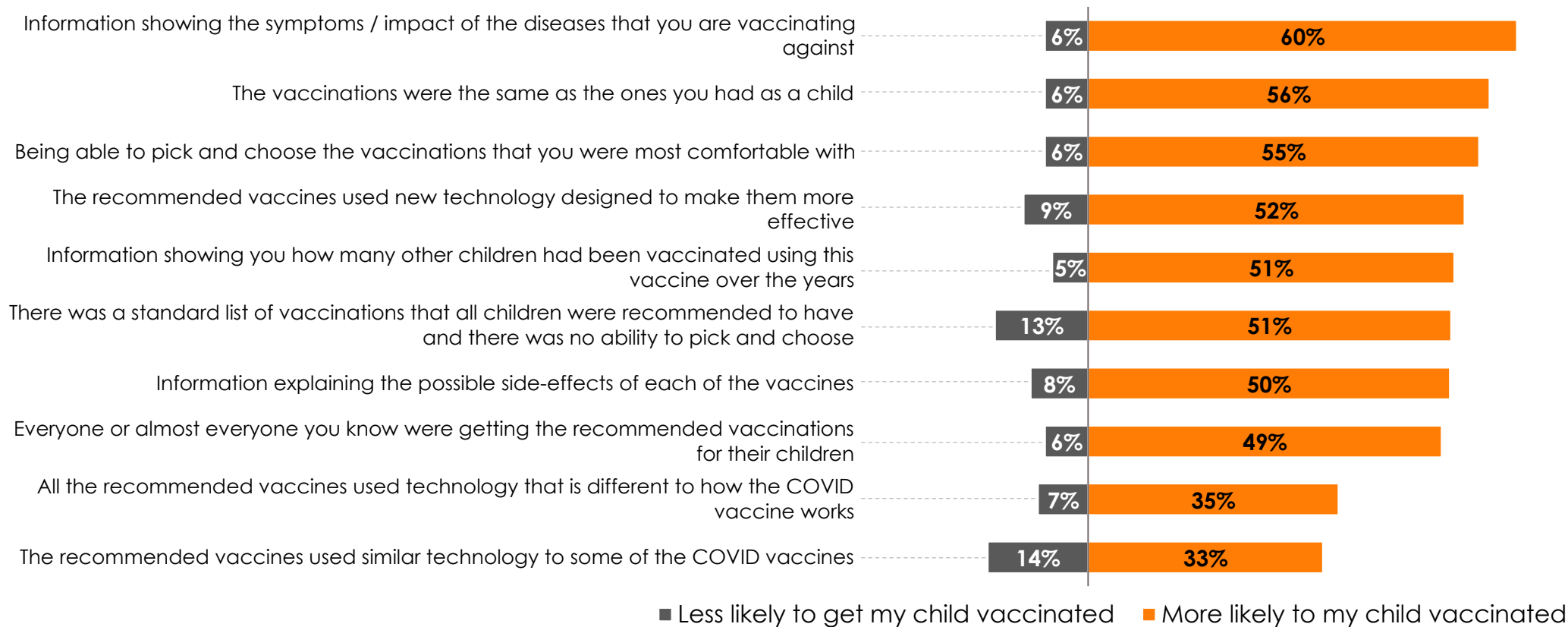
Source: Q12. Imagine you have a child who is at an age where vaccinations for diseases like measles, mumps, rubella, polio, and chickenpox are recommended. How likely would you be to get your child the recommended vaccinations?

Note: Categories with less than 50 people are not shown above. See appendix for sample sizes of each demographic group.

Most of the potential vaccination encouragers included in the survey have a positive effect on the intention to get a child the recommended vaccinations – with between 60% and 49% saying the encouragers make them more likely to get their child vaccinated. The two encouragers outside this range both use COVID vaccines as a comparison, suggesting that the use of COVID comparisons may need to be avoided.

Potential child vaccination encouragers

% who said 'no difference' or 'don't know' is not shown.



Source: Q13. Again, imagine you have a child who is at an age where vaccinations like the ones mentioned in the previous question are recommended. Would you be more or less likely to get your child the recommended vaccinations if ...

Base: All respondents n=1,855.

Being able to pick and choose vaccinations is the encourager most likely to influence those who are reluctant to get their child the recommended vaccinations.

Potential child vaccination encouragers - % more likely to get my hypothetical child vaccinated

	All people	Extremely/very likely to get recommended vaccinations	Somewhat or not likely to get recommended vaccinations
Information showing the symptoms / impact of the diseases that you are vaccinating against	60%	66%	31%
The vaccinations were the same as the ones you had as a child	56%	61%	32%
Being able to pick and choose the vaccinations that you were most comfortable with	55%	57%	47%
The recommended vaccines used new technology designed to make them more effective	52%	59%	22%
Info showing you how many other children had been vaccinated using this vaccine over the years	51%	56%	30%
Standard list of vaccinations that were recommended and there was no ability to pick and choose	51%	55%	27%
Information explaining the possible side-effects of each of the vaccines	50%	54%	30%
Everyone or almost everyone you know were getting the recommended vaccinations for their children	49%	55%	24%
All the recommended vaccines used technology that is different to how the COVID vaccine works	35%	38%	23%
The recommended vaccines used similar technology to some of the COVID vaccines	33%	36%	15%

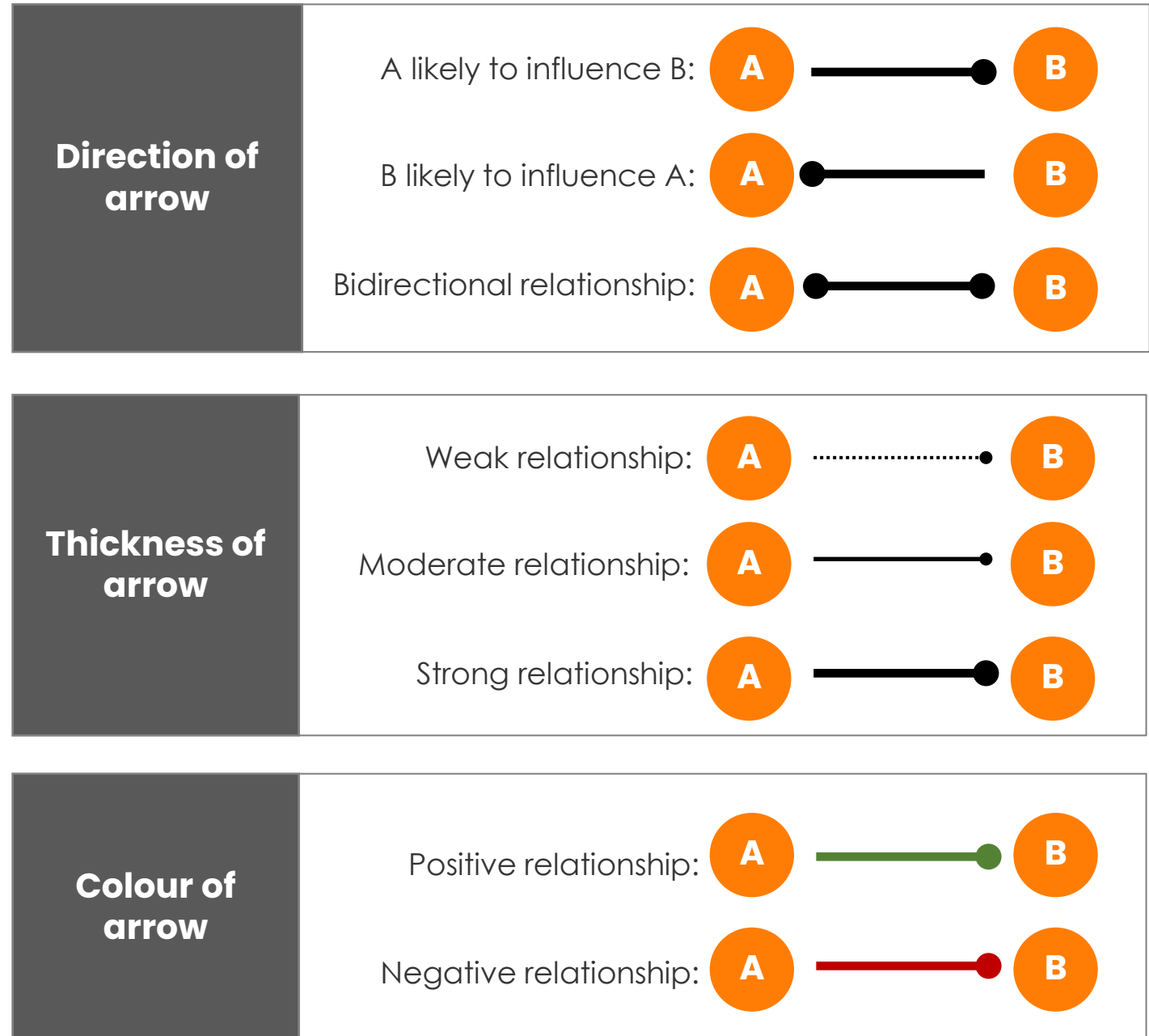
■ 45%+ are more likely
 ■ 30-45% are more likely
 ■ Less than 30% are more likely

Source: Q13. Again, imagine you have a child who is at an age where vaccinations like the ones mentioned in the previous question are recommended. Would you be more or less likely to get your child the recommended vaccinations if ... Q12. Imagine you have a child who is at an age where vaccinations for diseases like measles, mumps, rubella, polio, and chickenpox are recommended. How likely would you be to get your child the recommended vaccinations?

Base: All respondents n=1,855, people extremely/very likely n=1,293, somewhat/not that/not at all likely n=367.

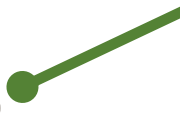
To understand how the encouragers can work together to promote childhood vaccination, the encouragers were included in a Bayesian Belief Network which looked to predict the likelihood of getting a child vaccinated.

The diagram to the right illustrates how to interpret the relationship between the likelihood of vaccination and the encouragers shown on the following slides.



Two encouragers, ‘information showing the impact of the diseases’ and ‘the recommended vaccines used new technology designed to make them more effective’ have direct positive effects on the intention to get children vaccinated. We think the reason ‘the recommended vaccines used new technology to make them more effective’ has a direct effect, while the other vaccine statements don’t, is this statement includes an efficacy component, while the others don’t.

You're provided with information showing the symptoms / impact of the diseases that you are vaccinating against



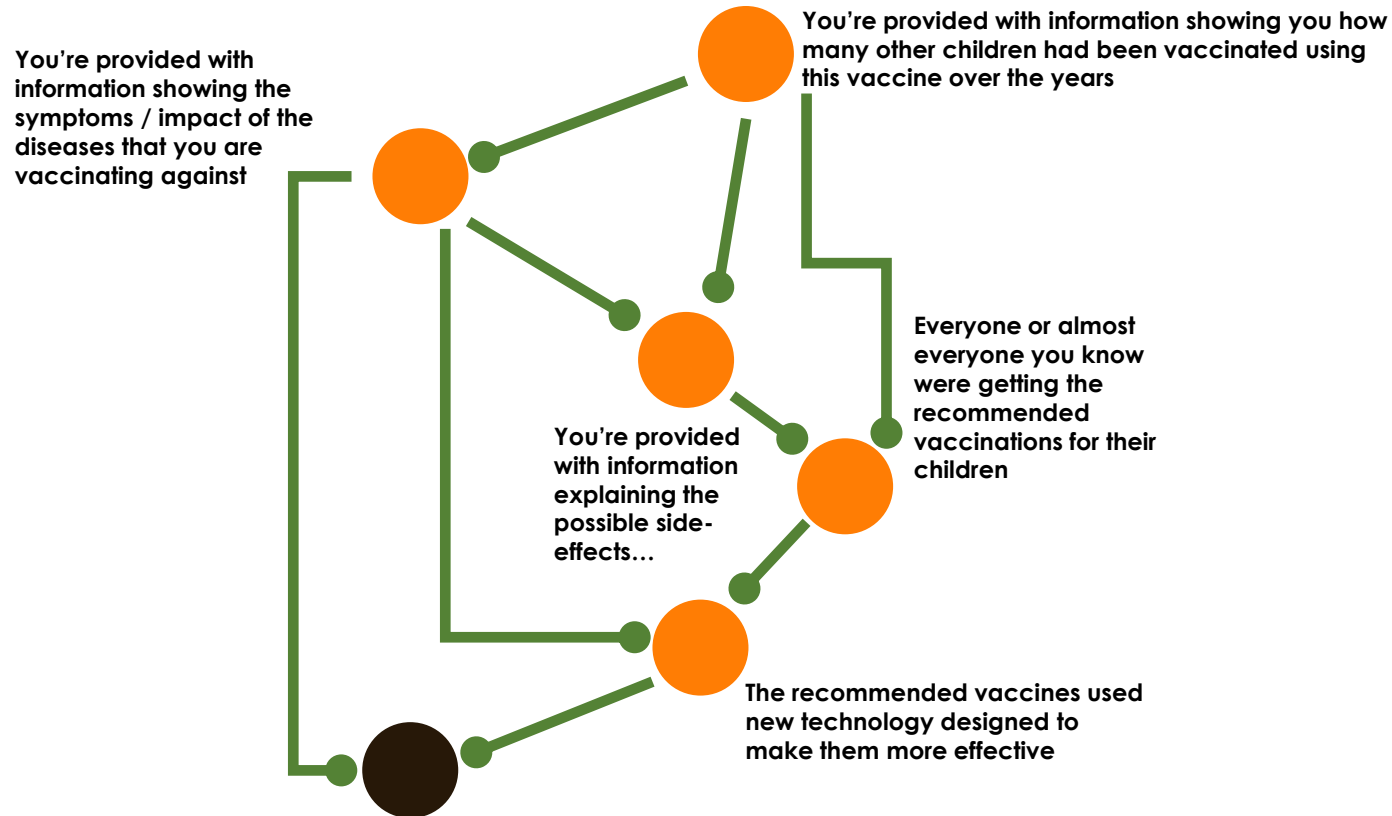
The recommended vaccines used new technology designed to make them more effective

How likely would you be to get your child the recommended vaccinations?

Note: Threshold value, 0.85

Base: All respondents who did not have a missing response to the independent and dependent measures, n=1,271

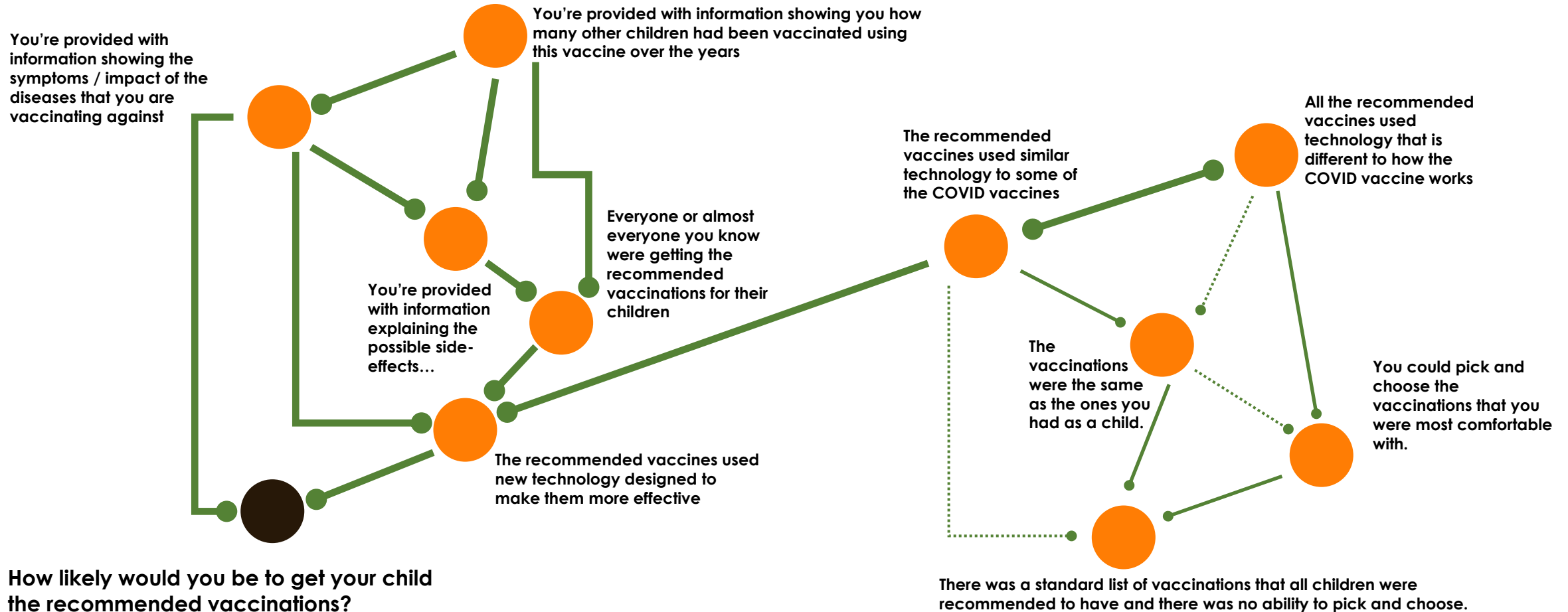
Layering in secondary influences show that broad social norms ('how many other children had been vaccinated using this vaccine') is a root attitude: influencing other attitudes such as openness to information regarding symptoms, side effects and close social norms.



Note: Threshold value, 0.85

Base: All respondents who did not have a missing response to the independent and dependent measures, n=1,271

Layering in the remaining encouragers show that the knowledge of the technology used (whether similar or different to the COVID vaccines) influence the vaccine technology/efficacy encourager.



Note: Threshold value, 0.85

Base: All respondents who did not have a missing response to the independent and dependent measures, n=1,271

10: Appendix

Demographic profile of the sample.

	Unweighted sample size	Weighted sample size
Total	1855	1855
Women 18-34	382	267
Women 35-49	233	230
Women 50-64	210	230
Women 65+	202	215
Men 18-34	243	276
Men 35-49	197	226
Men 50-64	215	217
Men 65+	167	189
Another gender	6	6

	Unweighted sample size	Weighted sample size
Total	1855	1855
European	1113	1288
Māori	429	269
Pacific peoples	294	132
Asian peoples	379	323
Auckland	656	607
Wellington	220	201
Other North Island	569	607
Canterbury	198	240
Other South Island	212	201
Rural	115	131
Small / med town	497	515
Large town / city	1202	1158
Not sure	41	52

	Unweighted sample size	Weighted sample size
Total	1855	1855
Household size 1-2 people	875	946
Household size 3+ people	980	909
No dependent children	1250	1291
Dependent children	605	564
Working	1220	1189
Studying	106	100
Not employed	208	207
Retired	310	351
Unsure / prefer not to say	11	9

Note: Categories with less than 50 people are not shown in the demographic profiles presented in the body of the report.

Demographic profile of the sample, cont.

	Unweighted sample size	Weighted sample size
Total	1855	1855
Household income \$30,000 or under	192	203
\$30,001 to \$70,000	402	425
\$70,001 to \$100,000	297	294
\$100,001 to \$150,000	352	368
\$150,001 or over	407	360
Prefer not to say	205	206
No qualif. / high school	618	773
Trade or Polytech	362	502
Bachelor's degree	442	264
Postgraduate degree	363	223
Other	70	94

	Unweighted sample size	Weighted sample size
Total	1855	1855
Disabled people	306	319
Non-disabled people	1549	1536
Health worker	186	145
Not a health worker	1669	1672
Unvaccinated	85	89
Vaccinated	1737	1732
Vaccinated (1-2 doses)	652	647
Vaccinated (3+ doses)	1085	1085
Prefer not to say	33	33

Note 1: Categories with less than 50 people are not shown in the demographic profiles presented in the body of the report.

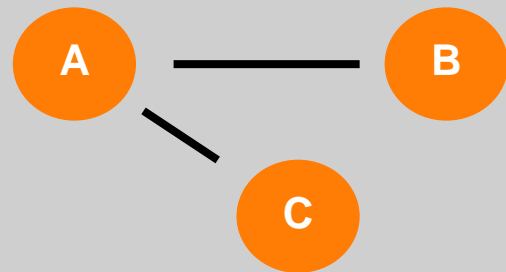
Note 2: Vaccination status is self-reported.

Technical details regarding Bayesian Belief Networks.

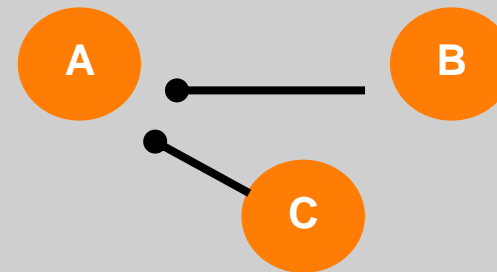
There are four key stages in generating the Bayesian Belief Network maps:

- 1) **Determination of relationships between map variables:** Connections between variables are determined based on tests of independence conducted within a learning algorithm
- 2) **Determination of indicative directionality of relationships:** Indication of causal direction is determined by the pattern of conditional dependence and independence between variables.

A simple example of this can be seen below.



Three variables, two of which (B and C) are conditionally independent



Given conditional independence of B and C, causal direction has to occur as on left

3) **Running tests across the dataset:** Multiple tests of independence between all independent/dependent variables are conducted.

4) **Determining the most stable solution:** Steps 1-3 are run for at least 200 bootstrap samples. The average of these maps is presented as the final map, resulting in a more robust and stable model. The threshold value presented with the model represents the number of bootstraps the relationships shown are present in.