Manaaki Whenua
Landcare Research

Willingness to wear masks, self-isolate and test for Covid-19 and implications for compliance

Supplied for: New Zealand government agencies

November 2020

Willingness to wear masks, self-isolate and test for Covid-19 and implications for compliance

Contract Report: LC3867

Dr Geoff Kaine

Manaaki Whenua – Landcare Research

Reviewed by:

Dr Vic Wright
Adjunct Associate Professor of UNE Business School
University of New England

Dr Dean Stronge,
Researcher Environmental Social Science
Manaaki Whenua – Landcare Research

Approved for release by:

Suzie Greenhalgh
Portfolio Leader – Supporting Business & Policy
Manaaki Whenua – Landcare Research

Contents

Summary

The willingness of the public to observe or comply with government measures such as wearing face masks, self-isolating when unwell and seeking testing is critical to the continued elimination of Covid-19 from New Zealand. The purpose of this analysis is to quantitatively assess people's willingness to observe or comply with these measures. The analysis is based on a model of compliance behaviour, the I_3 compliance framework, which is grounded in social psychology and marketing theory.

Framework description and survey

A sample of 1001 Auckland residents was surveyed to determine their willingness to comply with policy measures to eliminate Covid-19. People's responses to policy measures, using the I_3 compliance framework, can be inferred from their:

- involvement with the relevant policy outcome (e.g. eliminating Covid-19)
- involvement with and attitude towards the policy measure itself (e.g. wearing of face masks).

The two dimensions, involvement with the policy outcome and involvement with the policy measure, mean that the responses of people to a policy measure can be classified into four quadrants (see Fig. S1 for an example for wearing face masks). People in these quadrants can be described as follows:

- People in quadrant 1 exhibit low involvement with the policy outcome and the policy measure. These people are likely to have little knowledge or even awareness of the policy outcome (i.e. eliminating Covid-19). They are likely to have limited knowledge of the policy measure and have weak attitudes towards it, if any at all. Non-compliance with the measure is largely unintentional. If the behaviour of people in quadrant 1 presents little risk in terms of achieving the policy outcome, they can be ignored.
- People in quadrant 2 exhibit high involvement with the policy outcome but low involvement with the measure. These people are likely to have some knowledge about the policy outcome and limited knowledge of the policy measure with weak or ambiguous attitudes towards the measure. Compliance with the policy measure may be inconsistent and non-compliance could be largely unintentional. If people in quadrant 2 represent little risk in terms of achieving the policy outcome, they can be ignored.
- People in quadrant 3 exhibit high involvement with the policy outcome and the measure. These people are likely to have extensive and detailed knowledge of the policy outcome. If people in quadrant 3 have an unfavourable attitude towards the policy measure, then they may comply, but reluctantly. Non-compliance with the measure will be intentional.
- People in quadrant 4 exhibit low involvement with the policy outcome but high involvement with the measure. People in this quadrant are likely to have limited

knowledge of the policy outcome. They are likely to have detailed knowledge of the policy measure and have strong attitudes towards it. If their attitude towards the measure is favourable, they will comply with the measure but if their attitude is unfavourable, they will only comply reluctantly, or may intentionally refuse to comply at all.

The analyses that follow draw on the involvement people have with the policy outcome and the policy measures, and their beliefs about the outcome and measures. The involvement analysis tells us if someone is willing (or not) to do something, while the belief analysis explains why people are willing (or not) to do something. To improve compliance policy makers should consider both willingness and beliefs about policy outcomes (eliminating Covid-19) and policy measures (e.g. wearing face masks).

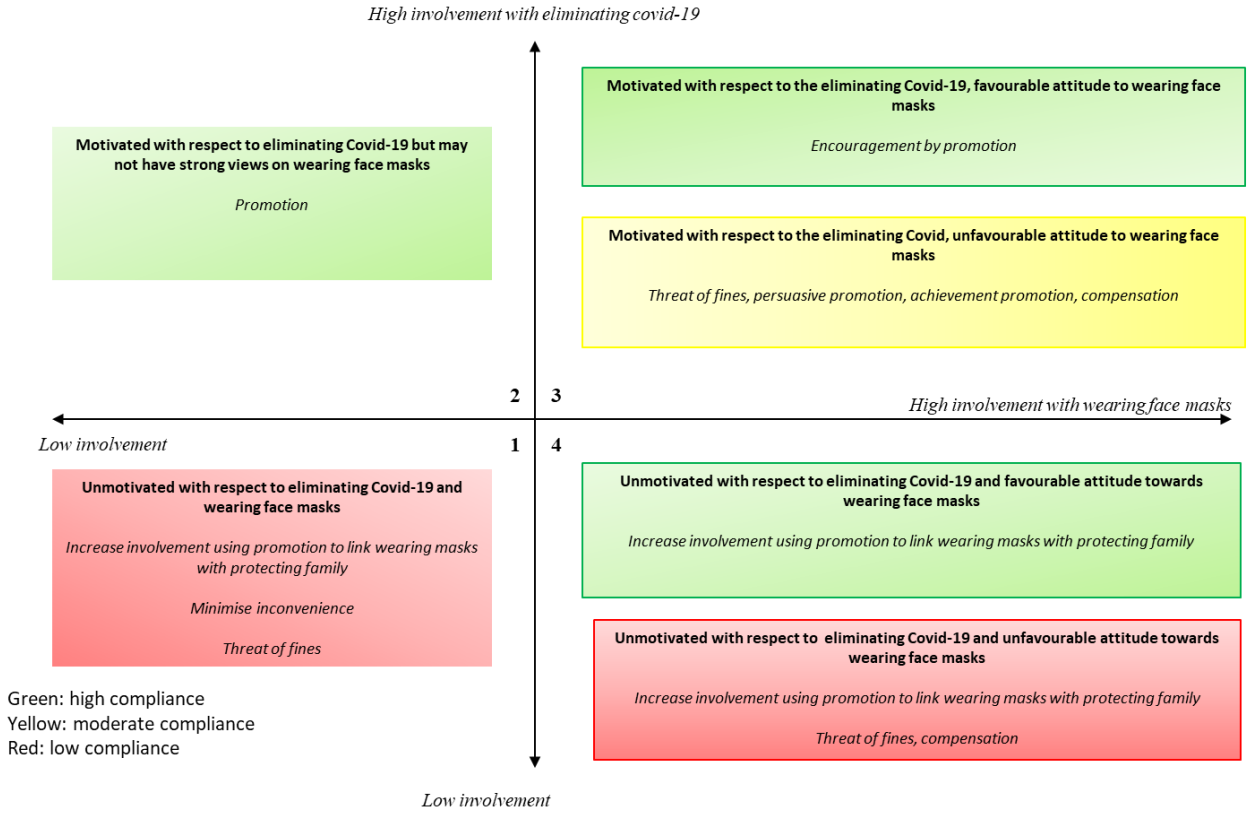

Figure S1. I_3 Response Framework for wearing face masks
Bold text describes the strength of motivation with respect to the policy outcome (e.g. eliminating Covid-19) and the policy measure (e.g. wearing face masks). The text in italics describes potential measures to promote compliance with the measure.

Findings

The likelihood of complying with the policy measures aimed to eliminate Covid-19 in New Zealand are outlined below.

Involvement with eliminating Covid-19

The policy outcome was described as eliminating Covid-19 from New Zealand. The results showed approximately 90% (i.e. respondents in quadrants 2 and 3) were prepared to take responsibility, change their behaviour, and make sacrifices to eliminate Covid-19.

Beliefs about the dangers of Covid-19 and eliminating Covid-19

To understand the reasons for the differences in respondent's involvement with eliminating Covid-19 respondents were classified into belief segments with respect to the dangers of Covid-19 (Fig. S2) and with respect to the strategy of eliminating Covid-19 (Fig. S3). The patterns of beliefs in the various segments provide a basis for explaining respondents' involvement and how they may be influenced to increase support for eliminating Covid-19.

With respect to the dangers of Covid-19, most respondents had beliefs that align with accepted scientific facts. These respondents were classified as 'Covid-19 enthusiasts' or 'Covid-19 moderates' with the difference between them being the intensity of their beliefs. The 'Covid-19 safe healthy' had beliefs that mostly align with accepted scientific facts but believed Covid-19 only posed a danger to the elderly and people with health problems. The 'Covid-19 ambivalents' are unsure what to believe about Covid-19 and the 'Covid-19 sceptics' believed Covid-19 was a hoax, was no worse than the seasonal flu, and fears about Covid-19 are exaggerated.

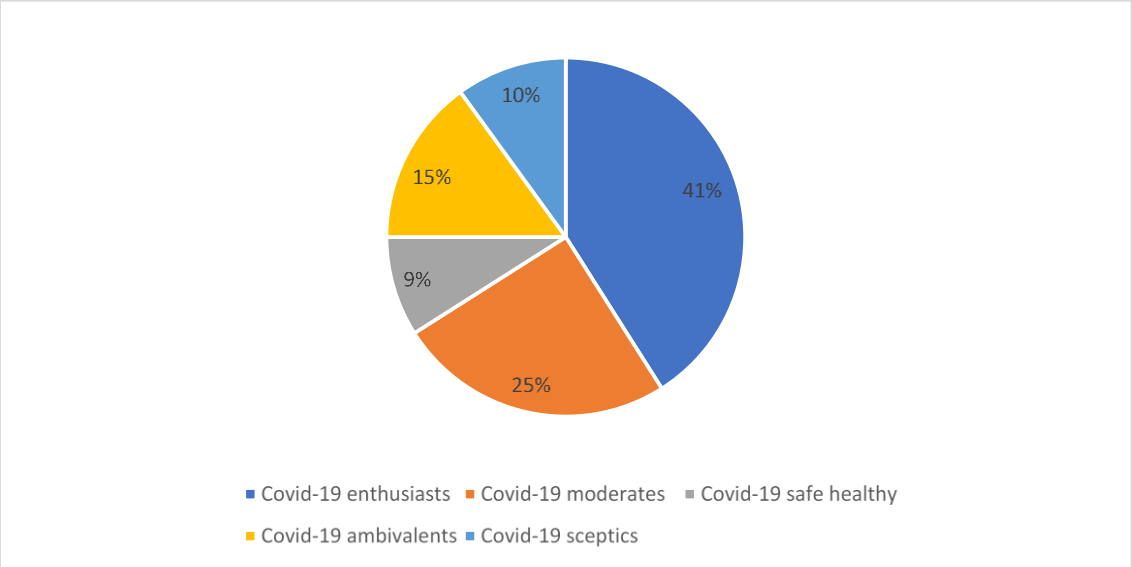

Figure S2. Proportion of respondents in each belief segment around the dangers of Covid-19.

We can also draw on people's beliefs about eliminating Covid-19 to increase support for elimination as strategy. Consequently, we classified respondents into 4 segments based on their beliefs about eliminating Covid-19 as a strategy (Fig. S3). Most respondents had beliefs that align with seeking to eliminate Covid-19 from New Zealand and were classified as 'elimination enthusiasts' or 'elimination moderates'; the difference between these two segments being the intensity of their beliefs. The 'vaccination hopefuls' agree with trying to eradicate Covid-19 but were less sure that Covid-19 could be kept out of New Zealand indefinitely and believe we must live with Covid-19 until a vaccine is available. The 'elimination sceptics' believe we cannot eliminate Covid-19 indefinitely and should try to build herd immunity.

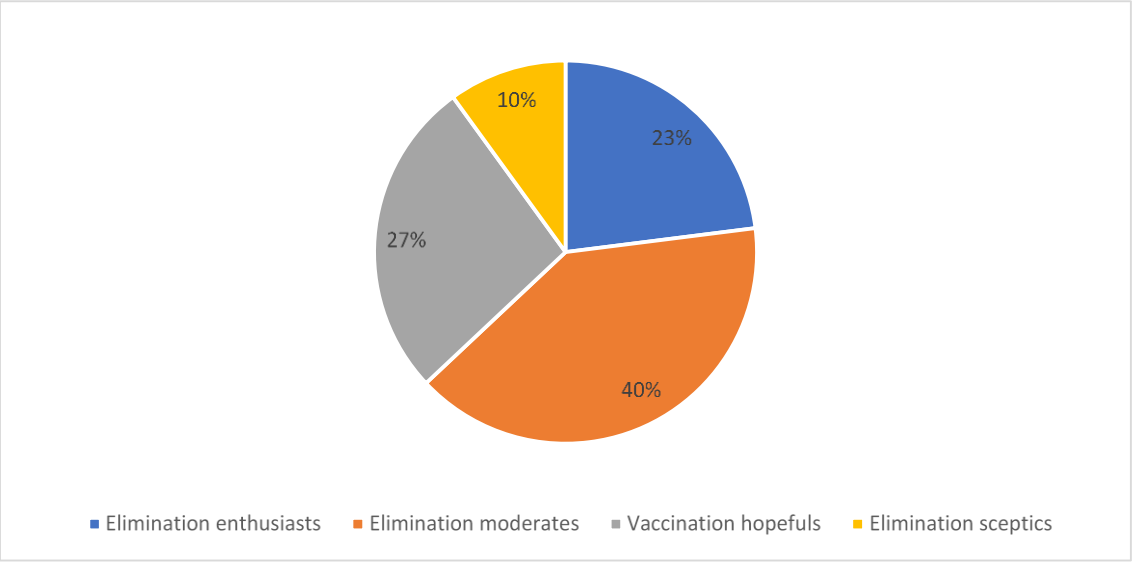

Figure S3. Proportion of respondents in each belief segment for eliminating Covid-19.

Involvement with wearing face masks

The findings for wearing face masks are based on the respondents' involvement with eliminating Covid-19 and with wearing face masks, their attitudes towards wearing face masks, and their beliefs about Covid-19, eliminating Covid-19 and wearing face masks. We found:

- A very small proportion of respondents (6%) expressed an unfavourable opinion about wearing masks, while a reasonable proportion of respondents (24%) exhibited low to mild involvement with wearing masks.
- A small percentage (<11%) of respondents (i.e. respondents in quadrants 1 and 4) may feel Covid-19 poses a lower health risk. Therefore, the personal reward for wearing face masks to eliminate Covid-19 was correspondingly lower for these respondents. These respondents also appeared to be less committed to eliminating Covid-19.

- All respondents agree with the fundamental facts about how Covid-19 spreads. However, approximately 9% of respondents (i.e. respondents in quadrant 1) appeared unsure that misinformation about Covid-19, such as that it is man-made and no worse than the seasonal flu, is mistaken. This same group, however, is also unsure eliminating Covid-19 is practical and appropriate.
- While approximately 73% (i.e. respondents in quadrant 3) agree that wearing face masks is effective in preventing the spread of Covid-19, all other respondents appear unsure masks are effective.

Most respondents are strongly motivated to eliminate Covid-19 from New Zealand and will wear face masks. However, there is small percentage of people (i.e. the ~9% in quadrant 1) who were not convinced that Covid-19 is worse than the seasonal flu or that it poses a risk to any but the elderly and those with existing health problems. They were also unsure of the effectiveness of masks in preventing the spread of Covid-19, and that not wearing masks would have serious consequences. A promotional programme highlighting the potentially serious consequences of not wearing masks, the effectiveness of masks in preventing the transmission of Covid-19, and the important difference every person makes to success by wearing masks, may increase the motivation of these respondents to wear masks. However, the message needs to be nuanced and not focused specifically on mask wearing as these people also have low involvement with wearing masks. As a result, they are not likely to listen to messaging focused only on wearing masks.

The information derived from the Covid-19 belief segments can be used to identity further actions and/or messaging to pursue. For example, most 'Covid-19 safe healthy' respondents fall into quadrants 2 and 3 with respect to wearing face masks. They will notice, and pay attention to, messaging about Covid-19 and may be encouraged to support the elimination of Covid-19 by emphasising that, by doing so, they are helping protect the elderly and those with health problems.

Most 'Covid-19 ambivalents' respondents also fall into quadrants 2 and 3. They too will notice, and pay attention to, messaging about Covid-19. They are likely to be open to changing their beliefs if presented with information about the dangers posed by Covid-19 compared with the seasonal flu and be responsive to appeals from peers. This should encourage them to support eliminating the virus.

Most 'Covid-19 sceptics' are in quadrants 1 and 3. 'Covid-19 sceptics' from quadrant 3 will notice messaging about Covid-19 but since they have firm opinions that deny the danger posed by Covid-19 they are likely to discount information that contradicts their beliefs.

Regarding beliefs about eliminating Covid-19, most 'elimination enthusiasts' and 'elimination moderates' were in quadrants 2 and 3 with respect to wearing face masks. A majority of 'elimination sceptics' were in quadrants 1 and 3 and most 'vaccine hopefuls' were also in quadrant 3. 'Elimination sceptics' in quadrant 3 will notice, and pay attention to, messaging about Covid-19. As they have firm opinions about the lack of merit in elimination as a management strategy, they may discount information that contradicts their beliefs. They may, however, change their views if provided with factual information about the, presumably, dire

consequences of pursuing a herd immunity strategy. Those 'elimination sceptics' who are in quadrant 1 will be less attentive to any messaging about the elimination of Covid-19.

Beliefs about wearing face masks

To understand the reasons for the differences in respondent's involvement with, and attitudes towards, wearing face masks respondents were classified into belief segments with respect to face masks (Fig. S4). The patterns of beliefs in the segments provide a basis for explaining respondents' involvement and attitudes, and how they may be influenced to increase support for eliminating Covid-19 by wearing masks.

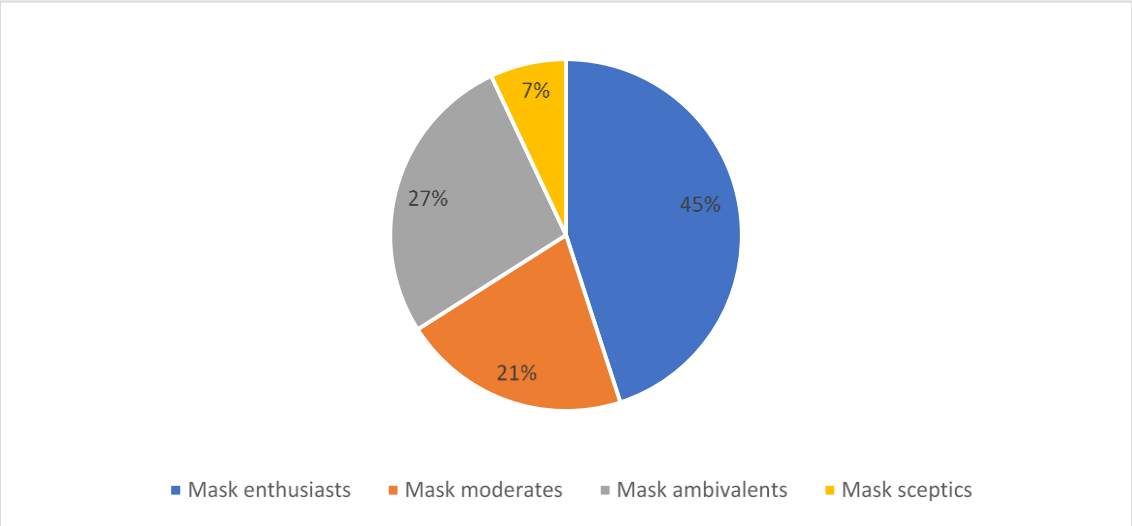

Figure S4. Proportion of respondents in each belief segment for wearing masks.

Most respondents agreed with the idea of wearing masks. These respondents were classified as 'mask enthusiasts' or 'mask moderates' with the difference between them being the intensity of their beliefs. The 'mask ambivalent' were unsure of the effectiveness of home-made masks and inexpensive commercial masks, while the 'mask sceptics' believed masks were ineffective.

A relatively high proportion of 'mask enthusiasts' and 'mask moderates' had worn face masks most of the time when out in public in Auckland, while a relatively high proportion of 'mask ambivalent' and 'mask sceptics' had not.

Based on the beliefs on the dangers of Covid-19, elimination of Covid-19 and the wearing of masks the approaches that could be used to increase the wearing of face masks are outlined in Figure S5.

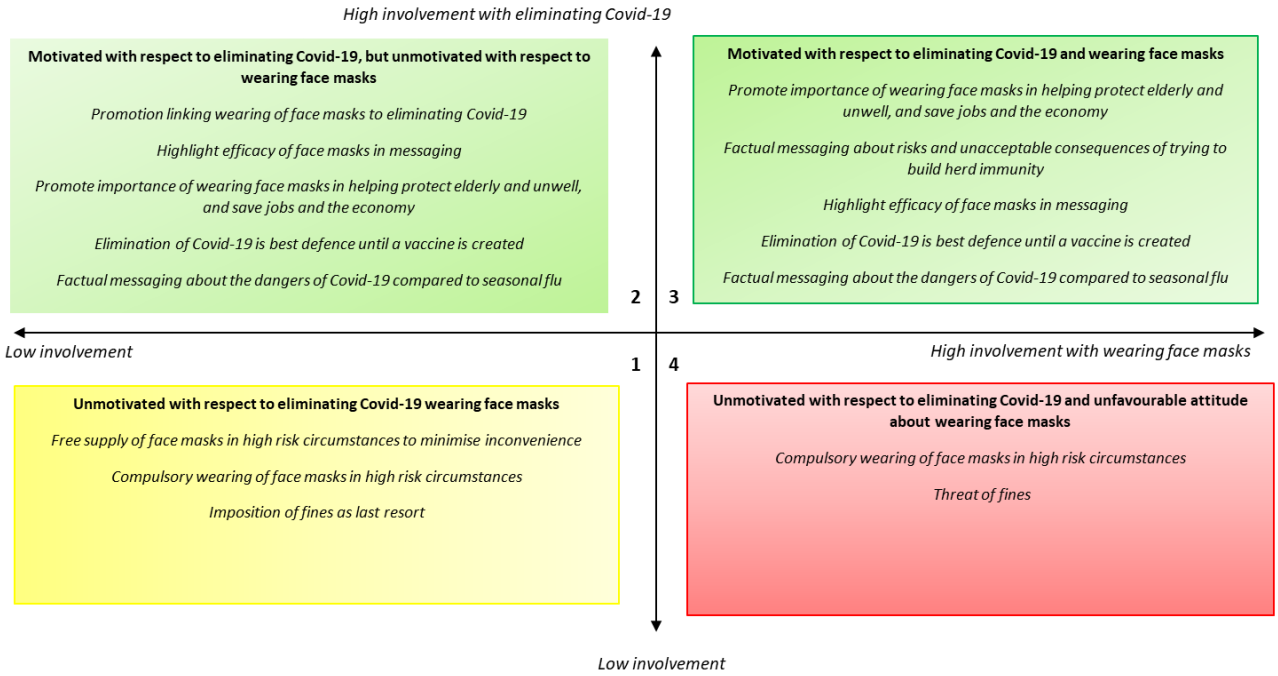

Figure S5. I_3 Response summary for promoting compliance with wearing face masks
Bold text describes the strength of motivation with respect to the policy outcome (e.g. eliminating Covid-19) and the policy measure (i.e. wearing face masks). Text in italics describes potential measures to promote compliance with the measure.

Involvement with self-isolating when unwell

The findings for self-isolating are based on the respondents' involvement with eliminating Covid-19 and with self-isolating, their attitudes towards self-isolating, and their beliefs about Covid-19, eliminating Covid-19 and self-isolating:

- Most respondents had moderate to high involvement with self-isolating if they were unwell. Only about 6% of respondents expressed an unfavourable opinion about self-isolating.
- Approximately 8% of respondents (i.e. respondents in quadrants 1 and 2) have mild involvement with staying at home when they feel unwell. This suggests they may feel Covid-19 poses a lower health risk than other respondents and therefore the personal reward for staying home to eliminate Covid-19 is correspondingly lower.

Most respondents are strongly motivated about eliminating Covid-19 from New Zealand and self-isolating when they are unwell. The 8% of respondents who had low to mild involvement with the idea of self-isolating when they are unwell are, on average, not convinced of the effectiveness or the practicality of self-isolating in preventing the spread of Covid-19. A promotional programme highlighting the serious consequences of spreading Covid-19 by going out in public and to work when feeling unwell may increase the motivation of these respondents to stay home if they feel unwell. Again, an emphasis on the important difference every person can make to eliminating Covid-19 by self-isolating when they feel unwell might

increase their motivation to do so. Like wearing masks, messaging needs to be nuanced and not focus specifically on self-isolating.

Beliefs about self-isolating when unwell

To understand the reasons for the differences in respondent's involvement with, and attitudes towards, self-isolating respondents were classified into belief segments with respect to self-isolating (Fig. S6). The patterns of beliefs in the segments provide a basis for explaining respondents' involvement and attitudes, and how they may be influenced to increase support for eliminating Covid-19 by self-isolating when ill.

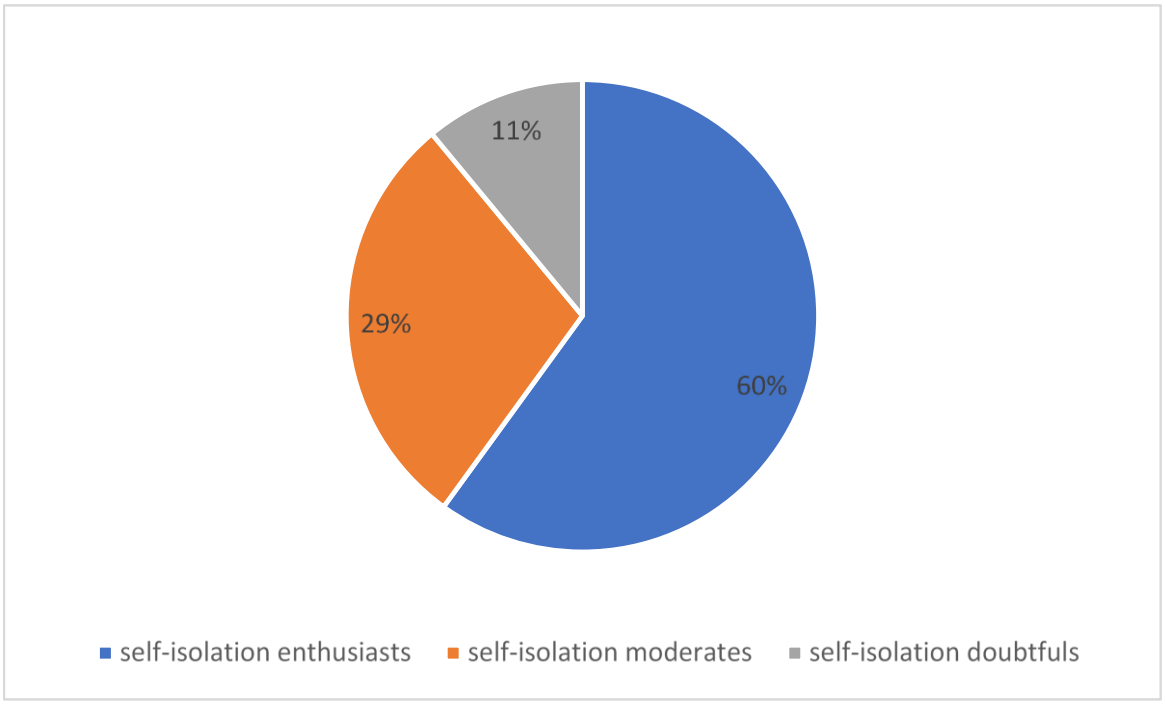

Figure S6. Proportion of respondents in each belief segment for self-isolating.

The 'self-isolation enthusiasts' believe that self-isolating when you felt unwell or had any of the symptoms associated with Covid-19 was effective in helping eliminate Covid-19 from New Zealand. The 'self-isolation moderates' believed that self-isolating was effective in helping eliminate Covid-19 but were unsure about the practicalities of it. The last segment, the 'isolation doubtfuls', believed self-isolating was effective in preventing the spread of Covid-19 but did not believe it was practical and would most likely be a waste of their time. They believed they could not afford the time off work to self-isolate and that you should only have to self-isolate if you were old or already had a health problem.

While a relatively high proportion of 'self-isolation enthusiasts' and 'self-isolation moderates' indicated they would self-isolate when they felt unwell or were instructed to do so, there was a relatively high proportion of 'self-isolation doubtfuls' who indicated they may not.

The approaches that could be used to increase the likelihood of people self-isolating when unwell are outlined in Figure S7. These approaches incorporate respondents' beliefs on the dangers of Covid-19, elimination of Covid-19 and self-isolating when unwell.

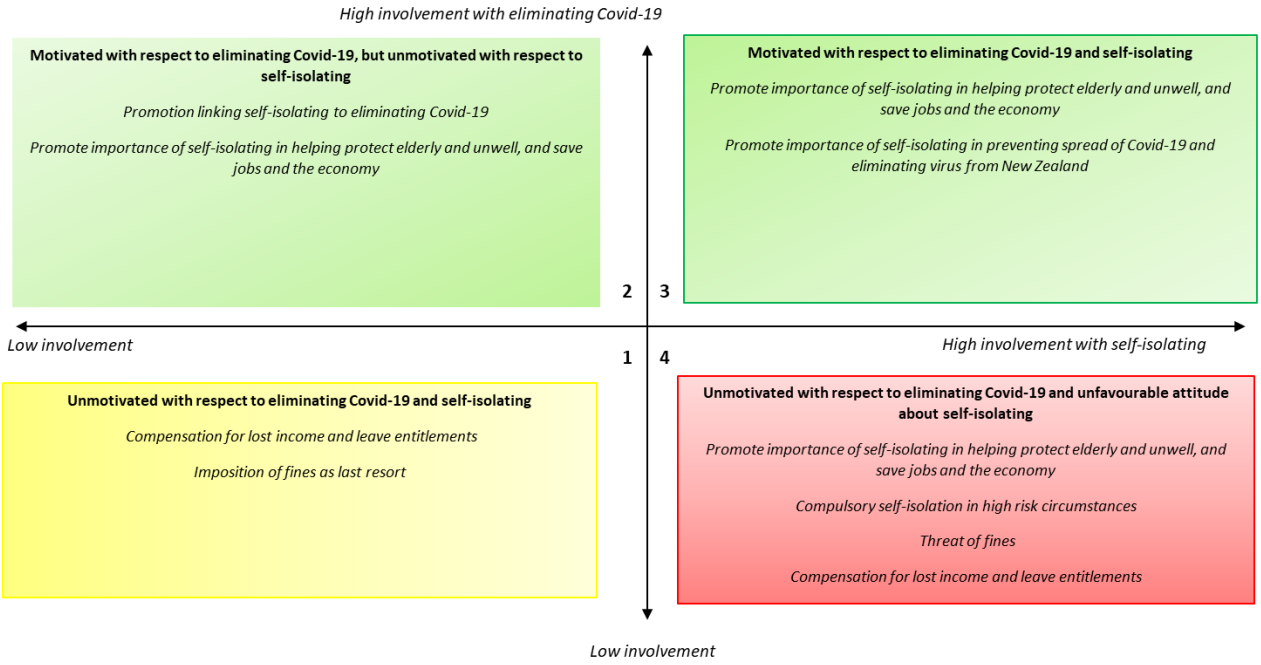

Figure S7. I_3 Response Summary for promoting compliance with self-isolating when unwell Bold text describes the strength of motivation with respect to the policy outcome (e.g. eliminating Covid-19) and the policy measure (i.e. self-isolating if unwell). Text in italics describes potential measures to promote compliance with the measure.

Involvement with testing

The findings for testing are based on the respondents' involvement with eliminating Covid-19 and with testing, their attitudes towards testing, and their beliefs about Covid-19, eliminating Covid-19 and testing:

- While most respondents had mild to high involvement with testing for Covid-19, approximately 30% of respondents who exhibit low to mild involvement with the idea of being tested for Covid-19. Of these, only a very small proportion of respondents expressed an unfavourable opinion about testing.
- Those 30% of respondents with low involvement in testing for Covid-19 may feel Covid-19 poses a lower health risk than other respondents and therefore the personal reward for being tested to eliminate Covid-19 is correspondingly lower.
- While about 98% of respondents (i.e. respondents in quadrants 1, 2 and 3) agree that testing for Covid-19 is effective in preventing the spread of Covid-19, 2% of respondents (i.e. respondents in quadrant 1) appear unsure that testing is reliable and worthwhile.
- Respondents who were unwell sought testing irrespective of their involvement or attitude towards testing.

A substantial proportion of respondents (30%) exhibit low to mild involvement with the idea of being tested for Covid-19 and are, on average, not convinced of the effectiveness or the practicality of testing in preventing the spread of Covid-19. A promotional programme highlighting the serious consequences of spreading Covid-19 by infecting family and workmates may increase the motivation of these respondents to seek testing if they feel unwell. Again, an emphasis on the important difference every person can make may be worthwhile but, as with wearing masks and self-isolating, nuanced messaging is needed that does not specifically focus on testing.

A high proportion of respondents with high involvement in testing seek testing even though they do not feel unwell. Thus, a promotional programme using peers to encourage these people to avoid testing unless they feel unwell may be influential in increasing test efficiency.

To understand the reasons for the differences in respondent's involvement with, and attitudes towards, testing respondents were classified into testing belief segments (Fig. S8). The patterns of beliefs in the segments provide a basis for explaining respondents' involvement and attitudes, and how they may be influenced to increase support for eliminating Covid-19 by testing.

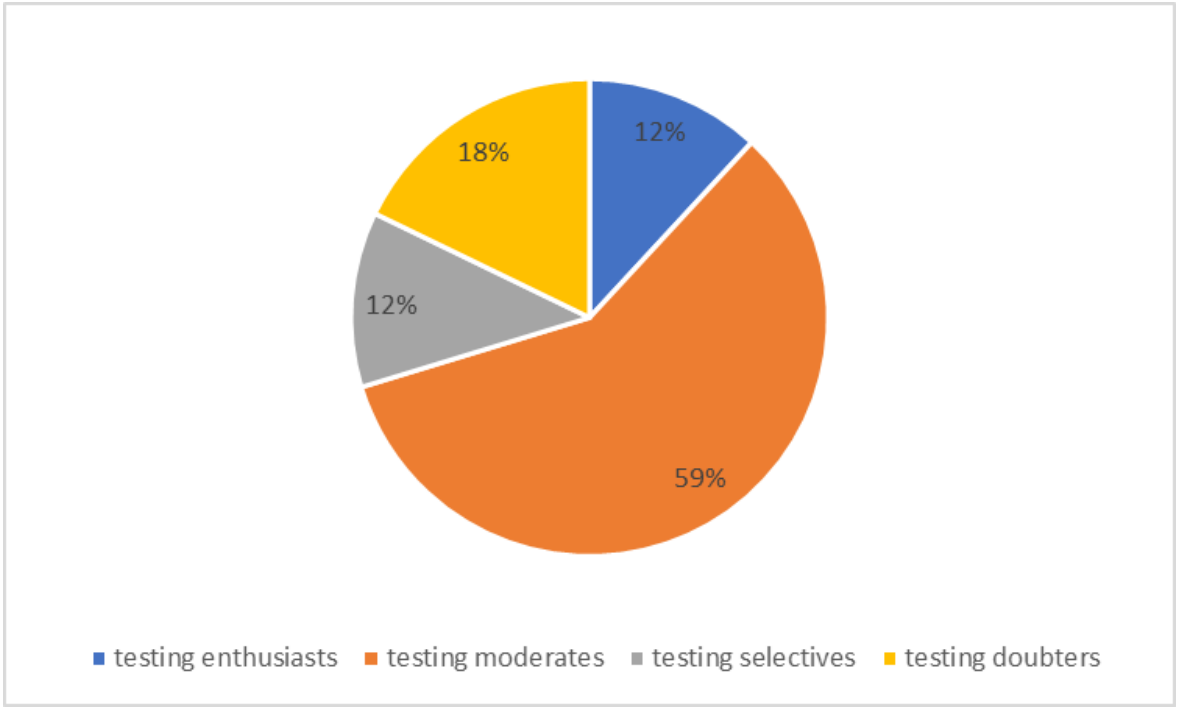

Figure S8. Proportion of respondents in each belief segment for testing for Covid-19.

Nearly all respondents believed that testing for Covid-19 was effective in helping eliminate Covid-19 from New Zealand. However, respondents differed in their beliefs about the efficacy of tests, and who should be tested. Most respondents believed testing was practical and reliable, and testing should include healthy people as well as the elderly, people with health problems or people with Covid-19 symptoms. These were the 'testing enthusiasts' and 'testing moderates', where the difference lay in the intensity of their beliefs.

The 'testing selectives' also believed that testing was effective in helping eradicate Covid-19 but thought testing was useful even if limited to sick people and need not include healthy people. While the 'testing doubters' believed testing was effective in preventing the spread of Covid-19 they did not believe it was practical or reliable, and thought testing should be limited to the elderly, people with health problems, and people with Covid-19 symptoms.

A relatively high proportion of the 'testing enthusiasts', 'testing moderates' and 'testing selectives' had a favourable attitude towards Covid-19 testing. Of the 'testing enthusiasts', a relatively high proportion were higher income and believed they could take time off work if they tested positive for Covid-19. However, most 'testing doubters' were unsure about, or had an unfavourable attitude towards, Covid-19 testing. Many of these respondents had lower incomes and did not believe they could afford time off work to self-isolate if they tested positive to Covid-19.

A higher proportion of Māori and Pacific Islander respondents had been tested for Covid-19 compared to respondents from other ethnic groups, including European New Zealanders. However, a greater proportion of those European New Zealanders who had been tested were unwell at the time of testing compared to other ethnicities.

The approaches that could be used to increase testing for Covid-19 are outlined in Figure S9. These approaches incorporate respondents' beliefs about the dangers of Covid-19, elimination of Covid-19 and testing.

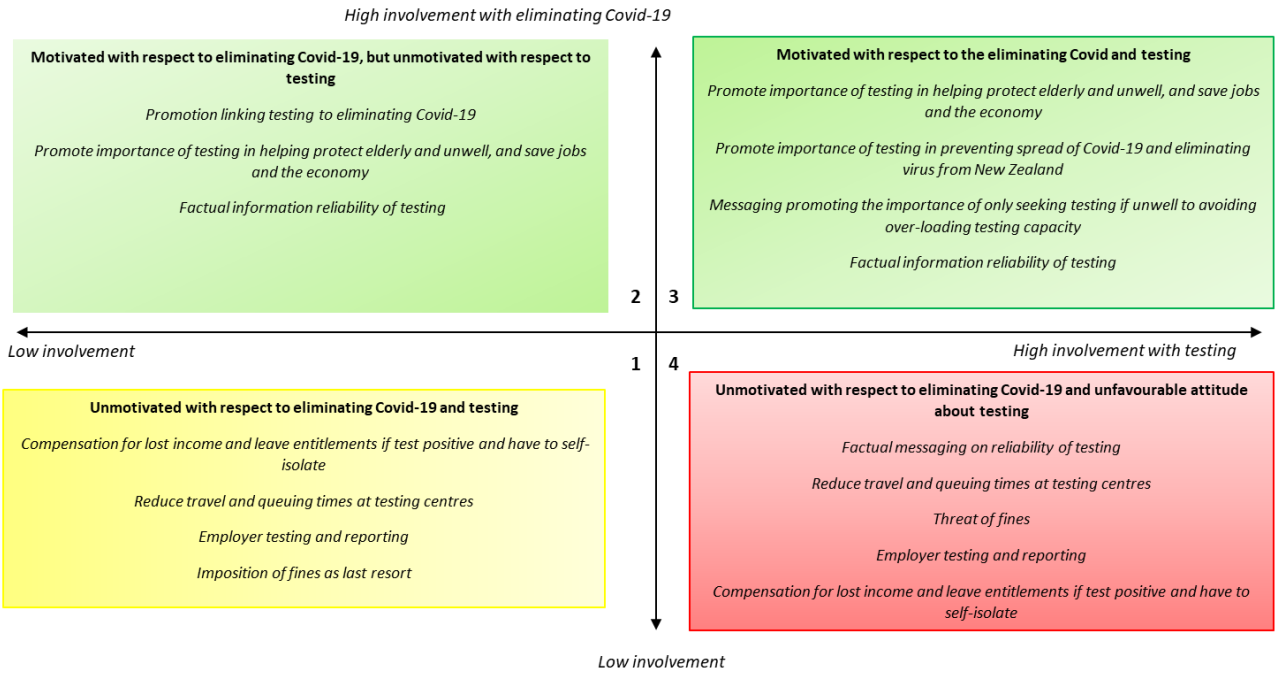

Figure S9. I_3 Response Summary for promoting compliance with testing for Covid-19. Bold text describes the strength of motivation with respect to the policy outcome (e.g. eliminating Covid-19) and the policy measure (i.e. self-isolating if unwell). Text in italics describes potential measures to promote compliance with the measure.

Plank et al. (2020) in their surveillance testing analysis found that testing rates were far lower than that required to detect an outbreak before it exceeds 50 infections. The analysis and approaches (Fig. S9) above can be used to encourage higher testing rates to reduce the likelihood of such outbreaks occurring.

Key messages on complying with policy measures

Some of the key messages from the assessment of people's attitudes and beliefs with the dangers of Covid-19, elimination of Covid-19 and the policy measures of wearing masks, self-isolating when unwell and testing for Covid-19 are:

- More than half the respondents had moderate or lower involvement with the policy outcome of eliminating Covid-19. This suggests cooperation with lockdown and other measures is likely to start declining if lockdowns are repeated or become more severe or lengthy.
- Different factors influence compliance with different measures. This means different mixes of customised promotional messages (including their content) for each policy measure is required.
    - Mask wearing was influenced by respondents' involvement with and beliefs about eliminating Covid-19, beliefs about dangers of Covid-19, and their involvement with and beliefs about mask wearing.
    - Self-isolating when unwell was primarily influenced by respondents' involvement with and beliefs about eliminating Covid-19, and their involvement with and beliefs about self-isolating.
    - Seeking Covid-19 testing depended primarily on involvement with and beliefs about testing.
- Socio-demographic differences strongly related to differences in beliefs about testing for Covid-19. However, they were only weakly related, if at all, to beliefs about Covid-19, eliminating Covid-19, wearing masks and self-isolating.
- Broadly speaking, people's motivation to observe or comply with policy measures (wearing masks, self-isolating and getting tested) appear to be strongly related to their personal perceptions of the health risk Covid-19 poses, and to their personal evaluation of the effectiveness, and personal cost associated with, each of the measures.

Impact of demographics on compliance with policy measures

Demographic factors appear to be only weakly related to involvement and attitudes regarding eliminating Covid-19, wearing masks, self-isolating when unwell and testing. This implies involvement and attitudes are more likely driven by personal values, personality, and perceptions of personal risk than by demographics. There were, however, some statistically significant but weak associations between respondents' demographic characteristics and their beliefs.

Impact of media on compliance with policy measures

The analysis showed that:

- Broadly speaking, respondents who used social media apps (including chatrooms, blogs, and online forums) tended to exhibit higher involvement, on average, with wearing masks, self-isolating and testing than those who did not use them. However, these people also tended to have less favourable opinions/attitudes, on average, about wearing masks, self-isolating and testing than those who did not use them.
- Respondents who used mainstream media and/or discussed Covid-19 topics with their families and friends tended to exhibit higher involvement, on average, with eliminating Covid-19, wearing masks, self-isolating and testing than those who did not. They also tended to exhibit more favourable opinions/attitudes, on average, about wearing masks, self-isolating and testing than those who did not use mainstream media or discussed these matters with family and friends.

Social media initiatives to promote better uptake of measures to reduce transmission of Covid-19 should target people who have high involvement with eliminating Covid-19 but unfavourable attitudes towards wearing masks, self-isolating when unwell or testing. The high involvement of these people with eliminating Covid-19 means they are likely to notice, and pay attention to, promotional messages about wearing masks, self-isolating and testing provided those messages are placed in the context of eliminating the virus.

Efforts to engage people with low to mild involvement with eliminating Covid-19 need to be linked to an issue that these people do find involving. The alternative is to employ measures such as making the wearing of face masks compulsory in public or in the workplace and providing incentives for self-isolating and testing when people are unwell.

1 Introduction

The willingness of the public to observe or comply with government measures such as wearing face masks, self-isolating if unwell, and seeking testing is critical to the continued elimination of Covid-19 from New Zealand. The purpose of this research was to quantitatively assess people's willingness to observe or comply with these measures. The research was based on the I_3 compliance framework, a model of compliance behaviour proposed by Kaine et al. (2010) which is grounded in social psychology and marketing theory.

The Framework is founded on the idea that people's willingness to comply with a policy measure depends on the strength of their motivation to help achieve an outcome as well as their attitude towards the outcome. Consequently, to apply the Framework, both motivation (termed involvement) and attitude are measured separately. This means the effects of beliefs, and socio-economic and demographic factors on motivation can be distinguished from their effects on attitudes, providing deeper insights into how compliance can be influenced, thereby increasing the number of people observing policy measures.

2 I_3 compliance framework

The I_3 compliance framework provides insights into both the propensity of people to comply with policy measures and their attentiveness, or otherwise, to promotional messages about policy measures. These insights, when combined with information on peoples' beliefs, which underpin their attitudes towards policy outcomes and the perceived effectiveness of policy measures, can be employed to formulate effective promotional strategies and refine the design of policy measures.

The Framework is based on social psychology theory which suggests that, given limited capacity to process information, individuals must form priorities so that they can allocate their processing capacity (Derbaix and Vanden Abeele 1985). The theory proposes that deliberate, effortful thinking is reserved for more important decisions, while automatic processes that require less effort, such as habit, are employed to make routine, unimportant decisions. Hence, when a person is presented with a decision-making situation they must, consciously or subconsciously, evaluate the importance of the decision to determine the level of deliberate, effortful thinking they should invest in it (Derbaix and Vanden Abeele 1985).

The importance or personal relevance of a decision is judged by the extent to which it is perceived to enhance a person's capacity to satisfy their needs (Assael 1998; Oliver 1997). A person's perception of the importance of a decision in relation to the satisfaction of their needs represents their 'involvement' with the decision. Hence, involvement is a measure of the intensity of a person's motivation regarding a decision (Verbeke and Vackier 2004). The intensity or level of involvement evoked by the decision depends on a mix of external cues, including context and promotion, and internal cues, such as experience, perception of risk, personal value systems and social norms (Assael 1998).

The degree of involvement a person has in a subject is a key determinant, then, of the effort they will expend in making decisions about that subject, and then acting on them (Celsi & Olson 1988; Poiesz & Cees 1995). Involvement arises from functional needs in relation to comfort and security, experiential needs in relation to feelings of pleasure and reward, and identity needs in relation to self-expression and belonging (Laurent & Kapferer 1985). Involvement tends to be higher the more the subject of interest is novel, complex, and entails substantial social and/or financial risks (Dholakia 2001). Consequently, involvement can be characterised in terms of functional, experiential, identity-based, risk-based and consequence-based components (Laurent & Kapferer 1985).

A person's involvement with a subject will be greater the more they associate each of these component needs with the subject. Farmers, for example, should exhibit very high involvement with farming because it provides them with an income (functional involvement), with the opportunity to be physically active and work outdoors (experiential involvement), and to work independently of others (identity involvement). Farming is characterised by long production cycles that are sensitive to seasonal conditions, and product prices that are highly variable. Consequently, production and revenue performance are inherently unpredictable (risk-based involvement) with serious consequences for business success and family income (consequence-based involvement).

In the context of Covid-19, New Zealanders may have high functional involvement with eliminating Covid-19 as it may damage their health or undermine the security of their job or income. They may have high experiential involvement because fear of contracting the virus (or lockdown) limits their personal freedom to shop, travel and visit loved ones. Experiential involvement will be increased by feelings of pride and achievement by contributing to the elimination of Covid-19. Relatedly, contributing to the elimination of Covid-19 by wearing masks and social distancing gives expression to feelings of belonging, thereby increasing identity-based involvement. Consequence-based involvement comes from the perception that failing to eliminate Covid-19 will have dire personal and social consequences, while risk-based involvement reflects a perception that eliminating the virus is a complex and difficult challenge and the likelihood of failure is high if mistakes are made.

High involvement with a subject is associated with greater time and effort devoted to obtaining information about a subject, the formulation of strongly held beliefs and attitudes about the subject, and greater likelihood of acting regarding the subject. In contrast, low involvement in a subject is associated with little time and effort devoted to obtaining information about the subject, the formulation of weakly held beliefs and attitudes, if any, about the subject, and a lower likelihood of acting regarding the subject.

Kaine et al. (2010) proposed that people's responses to policy measures can be inferred from their:

- involvement with the relevant policy outcome (e.g. eliminating Covid-19)
- involvement with and attitude towards the policy measure itself (e.g. recommended wearing of face masks).

The two dimensions – involvement with the policy outcome and involvement with the policy measure – mean that the responses of people to a policy measure can be classified into four quadrants as shown in Diagram 1. People in quadrant 1 exhibit low involvement with both the policy outcome and the policy measure. These people are likely to have little knowledge or even awareness of the policy outcome, in this case eliminating Covid-19. They are likely to have limited knowledge of the policy measure and have weak attitudes towards it, if any at all. Non-compliance with the measure is largely unintentional (Murdoch et al. 2006).

If the behaviour of people in quadrant 1 presents little risk in terms of achieving the policy outcome, they can be ignored. Otherwise, their compliance with the measure may be encouraged by:

- linking the policy outcome to a subject they find more involving
- reducing the effort required to be compliant, and
- promoting awareness of the policy outcome and the policy measure.

The last strategy, however, is likely to be ineffective as people in this quadrant will tend to overlook or ignore promotional messages about the outcome and measure because of their lack of involvement with them.

People in quadrant 2 exhibit high involvement with the policy outcome but low involvement with the measure. These people are likely to have some knowledge about the policy outcome. They are likely to have limited knowledge of the policy measure and may have weak or ambiguous attitudes towards it. Compliance with the policy measure may be inconsistent, and non-compliance could be largely unintentional (Kaine et al. 2010). If people in quadrant 2 represent little risk in terms of achieving the policy outcome, they can be ignored. If their compliance is important to achieving the policy outcome, then reducing the effort required for compliance (Thaler & Sunstein, 2008) and promoting awareness of the policy measure may be worthwhile by linking it to the policy outcome.

People in quadrant 3 exhibit high involvement with the policy outcome and the measure. These people are likely to have extensive and detailed knowledge of the policy outcome. They are also likely to have extensive knowledge of the policy measure and strong attitudes towards it. If their attitude towards the policy measure is favourable, then they will comply with the measure and may even advocate for it (Murdoch et al. 2006).

If people in quadrant 3 have an unfavourable attitude towards the policy measure, then they may comply, but reluctantly (Kaine et al. 2010). Non-compliance with the measure will be intentional. Most likely they will prefer, and even advocate for, alternative measure designs. Where practical, incorporating alternatives into the design of the policy measure may encourage the compliance of these people. Alternatively, offering incentives to reduce compliance costs may neutralise unfavourable reactions.

People in quadrant 4 exhibit low involvement with the policy outcome but high involvement with the measure. People in this quadrant are likely to have limited knowledge of the policy outcome. They are likely to have detailed knowledge of the policy measure and have strong attitudes towards it. If their attitude towards the measure is favourable, then they will comply

with the measure (Kaine et al. 2010). On the other hand, if they have an unfavourable attitude towards the policy measure, then they will only comply reluctantly, or may intentionally refuse to comply at all. These people will regard the measure as imposing unwarranted costs upon them. Most likely they will agitate against the policy measure (Kaine et al. 2010). Offering incentives to offset compliance costs may neutralise unfavourable reactions.

Knowledge of peoples' beliefs about policy outcomes and policy measures can provide a basis for explaining differences in people's involvement and attitudes. Such explanations, in conjunction with I_3 analysis, can provide rich insights into how peoples' involvement and attitudes, and so compliance, can be influenced (or not). Patterns in, for example, people's beliefs about Covid-19 can explain respondents' involvement with Covid-19. These patterns provide a basis to design precisely targeted promotional messaging (and other policy measures) to increase support for eliminating Covid-19.

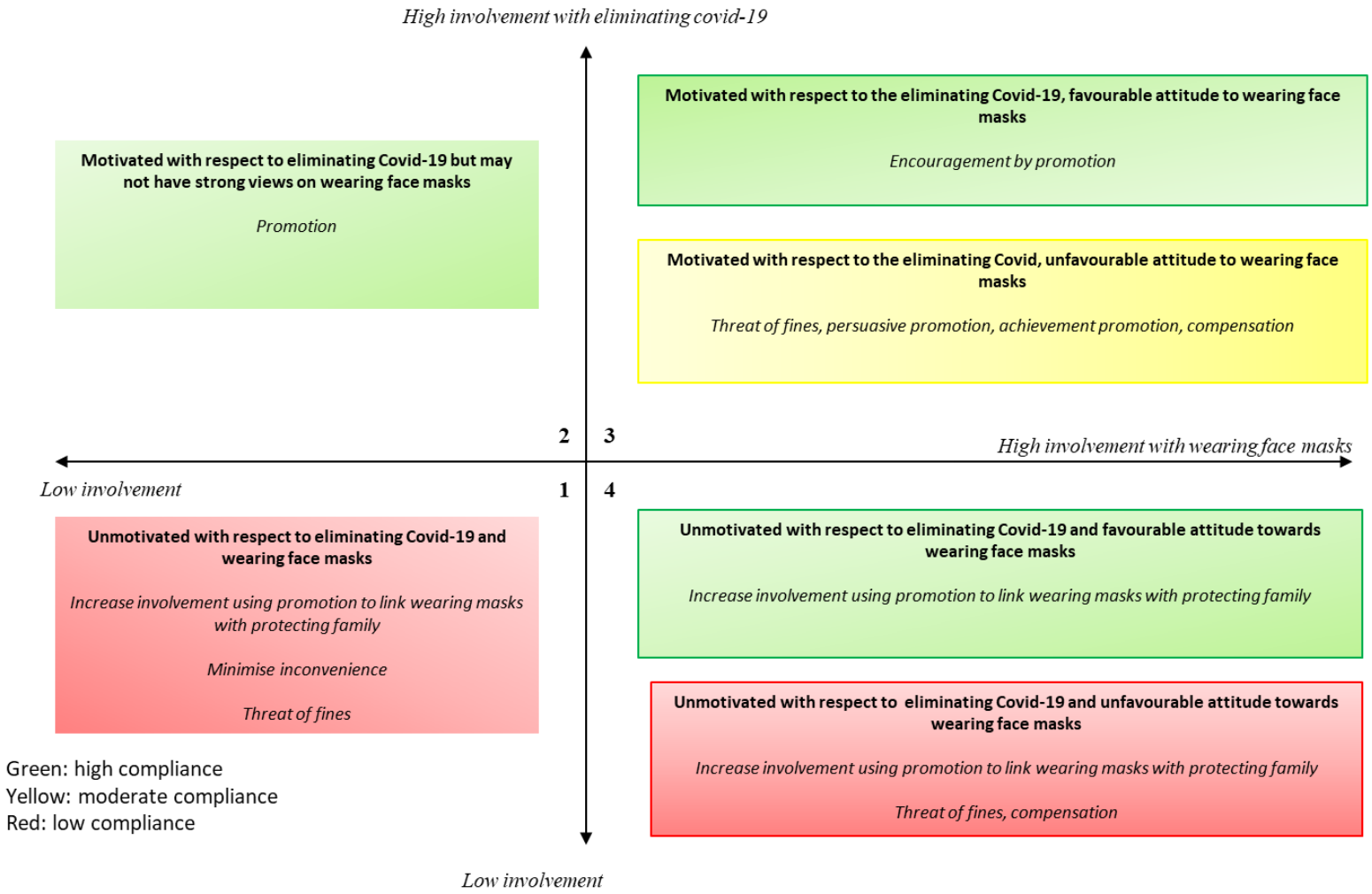

Diagram 1. I_3 Response Framework.
Bold text describes the strength of motivation with respect to the policy outcome (e.g. eliminating Covid-19) and the policy measure (e.g. wearing face masks). Plain text describes potential measures to promote compliance with the measure. (Source: adapted from Kaine et al. 2010)

3 The sample

A questionnaire seeking information from the public on their beliefs about, attitudes towards, and willingness to wear face masks, self-isolate and be tested for Covid-19 was designed based on the I_3 compliance framework (Kaine et al. 2010). The questionnaire was distributed to a random sample of members of a consumer internet panel living in Auckland. 1001 completed responses were obtained, of which 53% were women and 47% were men.

The age distribution aligned closely with the 2018 Census distribution, but Māori and Pacific Island residents were under-represented in the sample while European New Zealand residents were over-represented.[1] Very low-income households (<$20,000) and very high-income households (>$100,000) were under-represented in the sample, while low-, middle- and high-income households were over-represented. [2] Residents with secondary or certificate qualifications were substantially under-represented in the sample, while residents with graduate and post-graduate qualifications were substantially over-represented (see Appendix A).[3]

4 Results: Belief segments for Covid-19 and eliminating Covid-19

To better understand respondents' involvement with, and attitudes towards wearing face masks, self-isolating and testing, we classified respondents into segments according to their beliefs about Covid-19 and eliminating Covid-19.

4.1 Belief segments for Covid-19

- Respondents were classified into five belief segments with respect to Covid-19 (Figure 1). Most respondents had beliefs that align with accepted scientific facts. These respondents were classified as 'Covid-19 enthusiasts' (41%) and as 'moderates' (25%), the difference between these two segments being the intensity of their beliefs. Another segment of respondents
- The 'Covid-19 safe healthy' (9%) had beliefs that mostly align with accepted scientific facts, but these respondents believed Covid-19 only posed a danger to the elderly and people with health problems.
- A fourth segment consisted of respondents, the 'Covid-19 ambivalents' (15%) who are unsure about what to believe about Covid-19. A small segment of respondents, the 'Covid-19 sceptics' (10%) believed Covid-19 was a hoax, was no worse than the seasonal flu and fears about Covid-19 are exaggerated.

[1] http://nzdotstat.stats.govt.nz/WBOS/Index.aspx?DataSetCode=TABLECODE7512#

[2] http://nzdotstat.stats.govt.nz/wbos/Index.aspx?_ga=2.69061078.636843804.1602117753-761746062.1551927941#

[3] http://nzdotstat.stats.govt.nz/WBOS/Index.aspx?DataSetCode=TABLECODE7512#

- A relatively high proportion of residents in the 'Covid-19 enthusiasts' segment were European New Zealanders and over the age of 50. A relatively high proportion of residents in the 'Covid-19 sceptics' segment were Māori and Pacific Islanders and respondents under the age of 50.

4.2 Belief segments for eliminating Covid-19

- Respondents were classified into four belief segments with respect to eliminating Covid-19 (Figure 2). Most respondents had beliefs that align with seeking to eliminate Covid-19 from New Zealand. These respondents were classified as 'elimination enthusiasts' (23%) and 'elimination moderates' (40%), the difference between these two segments being the intensity of their beliefs. Another segment of respondents, the 'vaccination hopefuls' (27%) agreed with trying to eliminate Covid-19 but were less sure that Covid-19 could be kept out of New Zealand indefinitely. They believe we must live with Covid-19 until a vaccine is available. A fourth segment consisted of respondents, the 'elimination sceptics' (10%) who believed we cannot eliminate Covid-19 indefinitely and should try to build herd immunity.
- A relatively high proportion of residents in the 'elimination enthusiasts' and 'elimination moderates' segments were over the age of 50 (Table 1). A relatively high proportion of residents in the 'elimination enthusiasts' and 'elimination moderates' segments were also European New Zealanders (Table 2).
- A relatively high proportion of respondents in the 'vaccine hopefuls' and 'elimination sceptics' segments were in the 30-39 age group (Table 2) and had a graduate or post-graduate qualification (Table 3).
- Men were more likely than women to express strong views in the sense of being members of either the 'elimination enthusiasts' or the 'elimination sceptics' segments (Table 2).

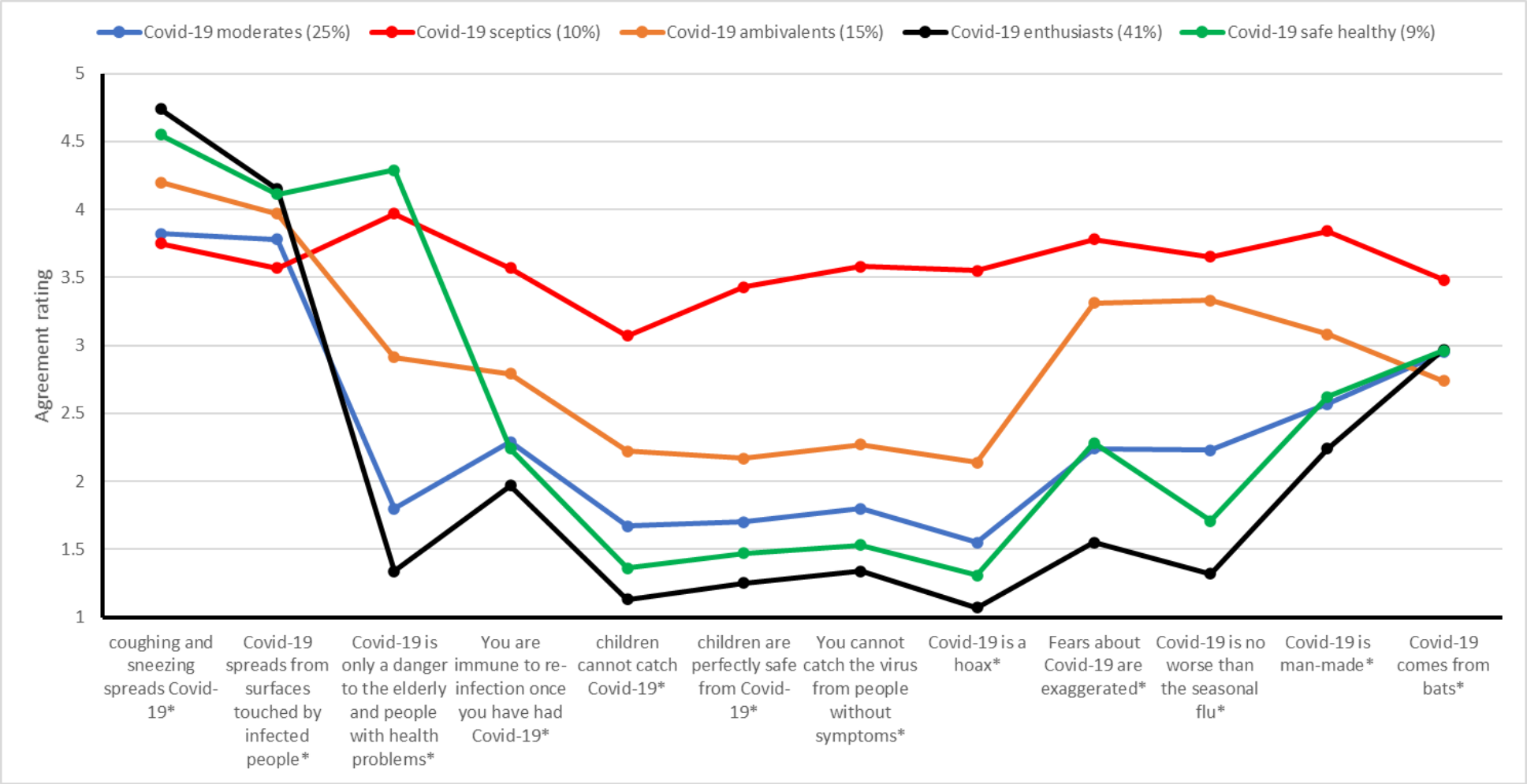

Figure 1. Belief segments for Covid-19.
Asterisk indicates significant difference in means across quadrants ($p<0.01$). (Strongly disagree =1, Strongly agree = 5)

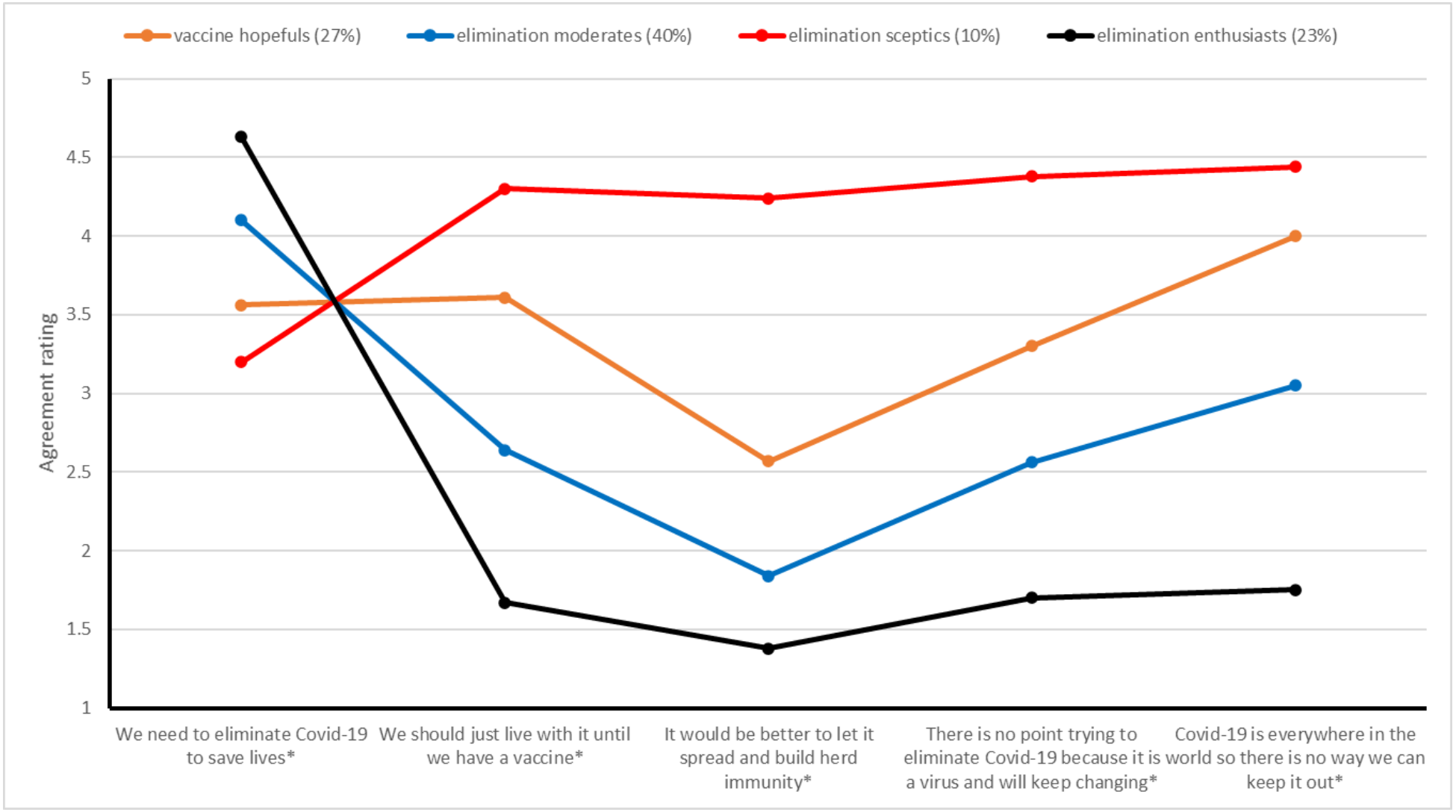

Figure 2. Covid-19 elimination belief segments.
Asterisk indicates significant difference in means across quadrants ($p<0.01$). (Strongly disagree =1, Strongly agree = 5)

Table 1. Elimination belief segments by age category

Segment	18-29 years	30-39 years	40-49 years	50-59 years	60-69 years	70 years and over
Elimination enthusiasts	22.5	15.0	15.0	13.7	14.1	19.8
Elimination moderates	25.8	19.3	19.8	13.3	12.0	10.0
Vaccine hopefuls	20.1	25.5	18.2	12.4	14.2	9.5
Elimination sceptics	19.2	37.4	21.2	13.1	6.1	3.0

Note: Values are proportion of respondents in each segment. Test for differences in proportions across segments (χ^2=50.5, p<0.01)

Table 2. Elimination belief segments by ethnicity and gender

Segment	European	Māori	Pacific Islander	Other	Men	Women
Elimination enthusiasts	62.6	3.1	3.1	31.3	53.3	46.7
Elimination moderates	54.3	4.0	6.5	35.3	40.7	59.3
Vaccine hopefuls	49.5	5.5	4.0	41.1	45.3	54.7
Elimination sceptics	39.4	6.1	3.0	51.5	60.4	39.6

Note: Values are proportion of respondents in each segment. Test for differences in proportions by ethnicity across segments (χ^2=24.3, p<0.01). Test for differences in proportions by gender across segments (χ2=17.2, p<0.01)

Table 3. Elimination belief segments by education

Segment	Some or all secondary school	Certificate (1-6)	Diploma (5-7)	Graduate or post-graduate
Elimination enthusiasts	11.6	17.8	15.1	55.6
Elimination moderates	18.4	11.0	14.8	55.8
Vaccine hopefuls	12.6	12.2	12.6	62.6
Elimination sceptics	8.2	6.2	15.5	70.1

Note: Values are proportion of respondents in each segment. Test for differences in proportions across segments (χ^2=22.4, p<0.01).

5 Results: Involvement with eliminating Covid-19 and wearing face masks

- Respondents were classified into I_3 quadrants based on their involvement with eliminating Covid-19 and with wearing face masks. Most respondents have moderate to high involvement with eliminating Covid-19 from New Zealand (Figure 3).
- Respondents in quadrants 1 and 4 only have mild functional, experiential and identity involvement with eliminating Covid-19. Relatedly, these respondents also exhibit mild consequence and risk involvement. This suggests these respondents may feel Covid-19 poses a lower health risk than other respondents (Figure 4).
- Respondents in all quadrants agree with the fundamental facts about how Covid-19 spreads. However, respondents in quadrant 1 appear unsure that misinformation about Covid-19 is incorrect, such as that it is man-made and no worse than the seasonal flu (Figure 5).
- Most respondents agree with the strategy of eliminating Covid-19 from New Zealand. However, respondents in quadrant 1 appear unsure that eliminating Covid-19 is practical and appropriate (Figure 6).
- Respondents in quadrants 2 and 3 are prepared to take responsibility, change their behaviour, and make sacrifices to eliminate Covid-19. Respondents in quadrants 1 and 4 appear less committed to eliminating Covid-19 (Figure 7).

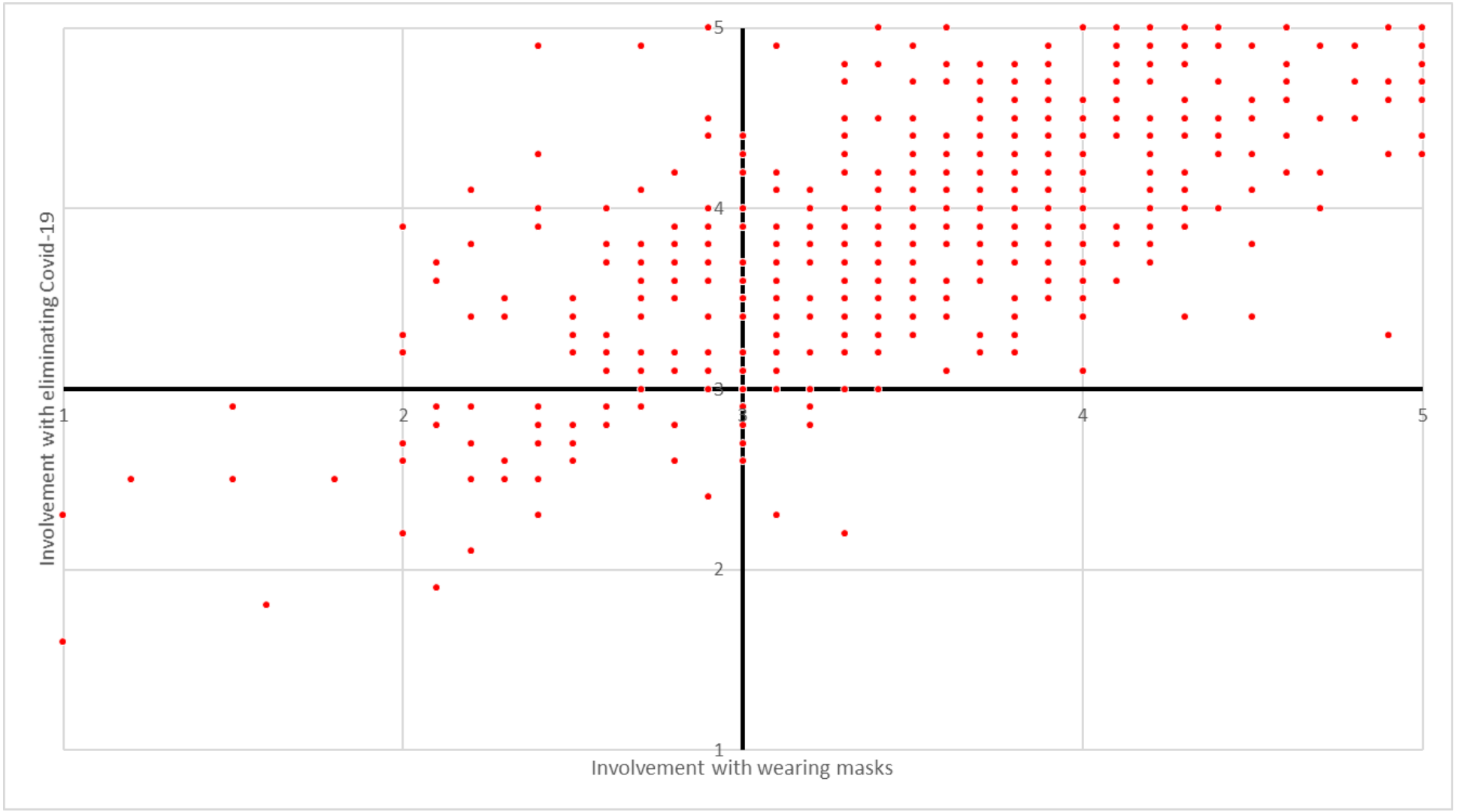

Figure 3. I_3 map for eliminating Covid-19 and wearing face masks.
(Lowest involvement =1, highest involvement = 5)

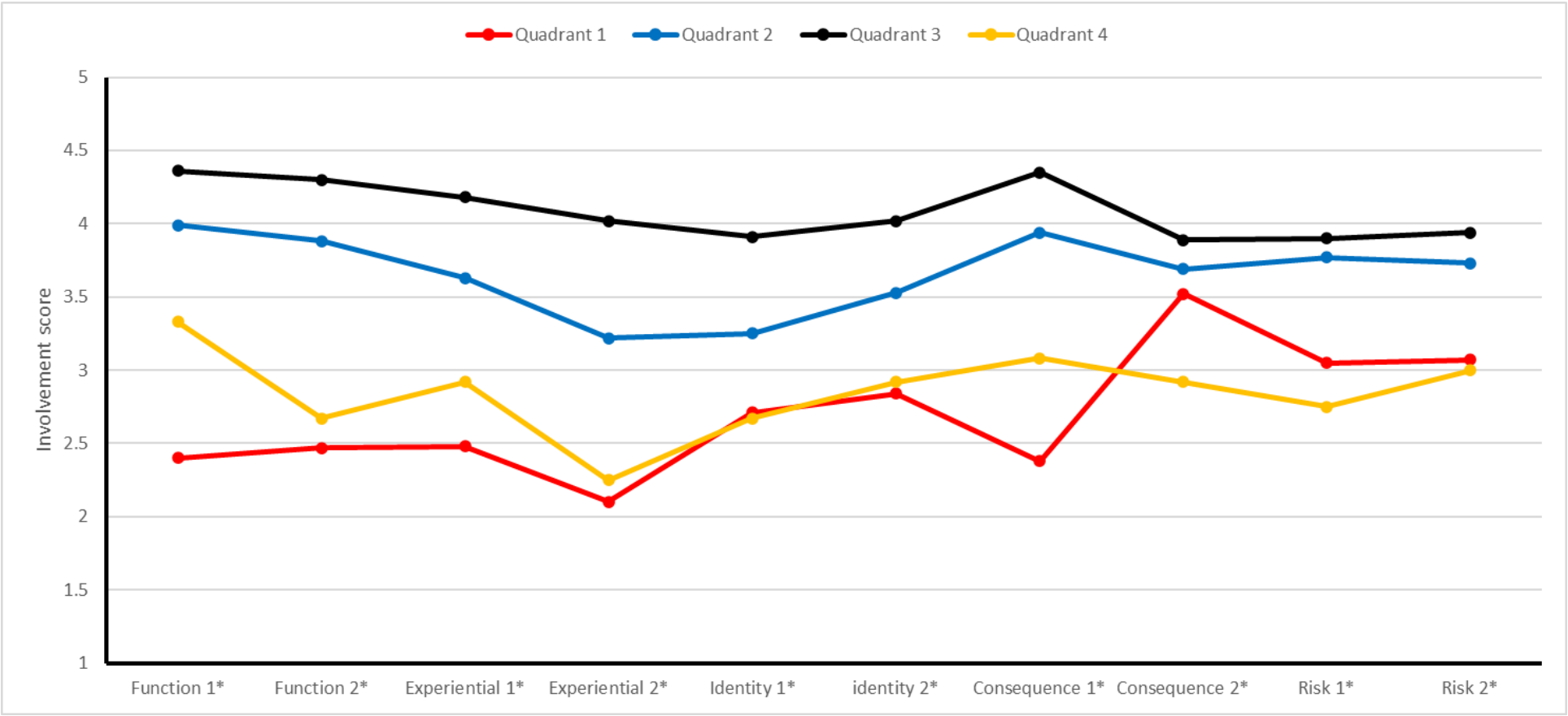

Figure 4. Source of involvement with eliminating Covid-19 by I_3 mask quadrant.
Asterisk indicates significant difference in means across quadrants ($p<0.01$). The statements concerned the importance of (functional 1) and caring about (functional 2) eliminating Covid-19; the reward from (experiential 1) and passion about (experiential 2) eliminating Covid-19; opinion about eliminating Covid-19 reflecting on you (identity 1) and others (identity 2) as a person; the seriousness (consequence 1) or importance (consequence 2) of consequences arising from making a mistake in relation to eliminating Covid-19; and the complexity (risk 1) or difficulty (risk 2) of making decisions about eliminating Covid-19 (Lowest involvement =1, highest involvement = 5).

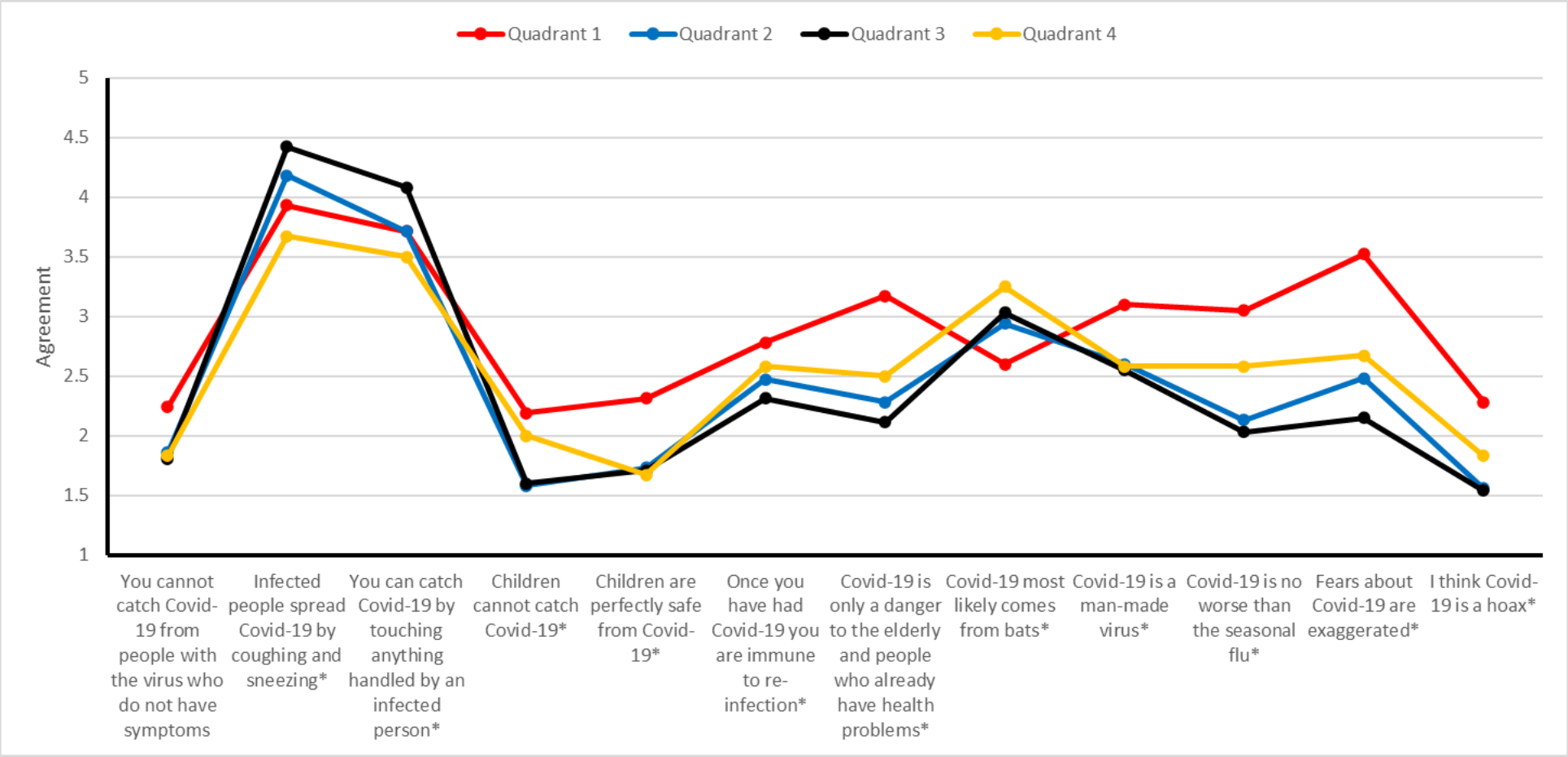

Figure 5. Beliefs about Covid-19 by I_3 mask quadrant.
Asterisk indicates significant difference in means across quadrants ($p<0.01$)
(Strongly disagree =1, Strongly agree = 5)

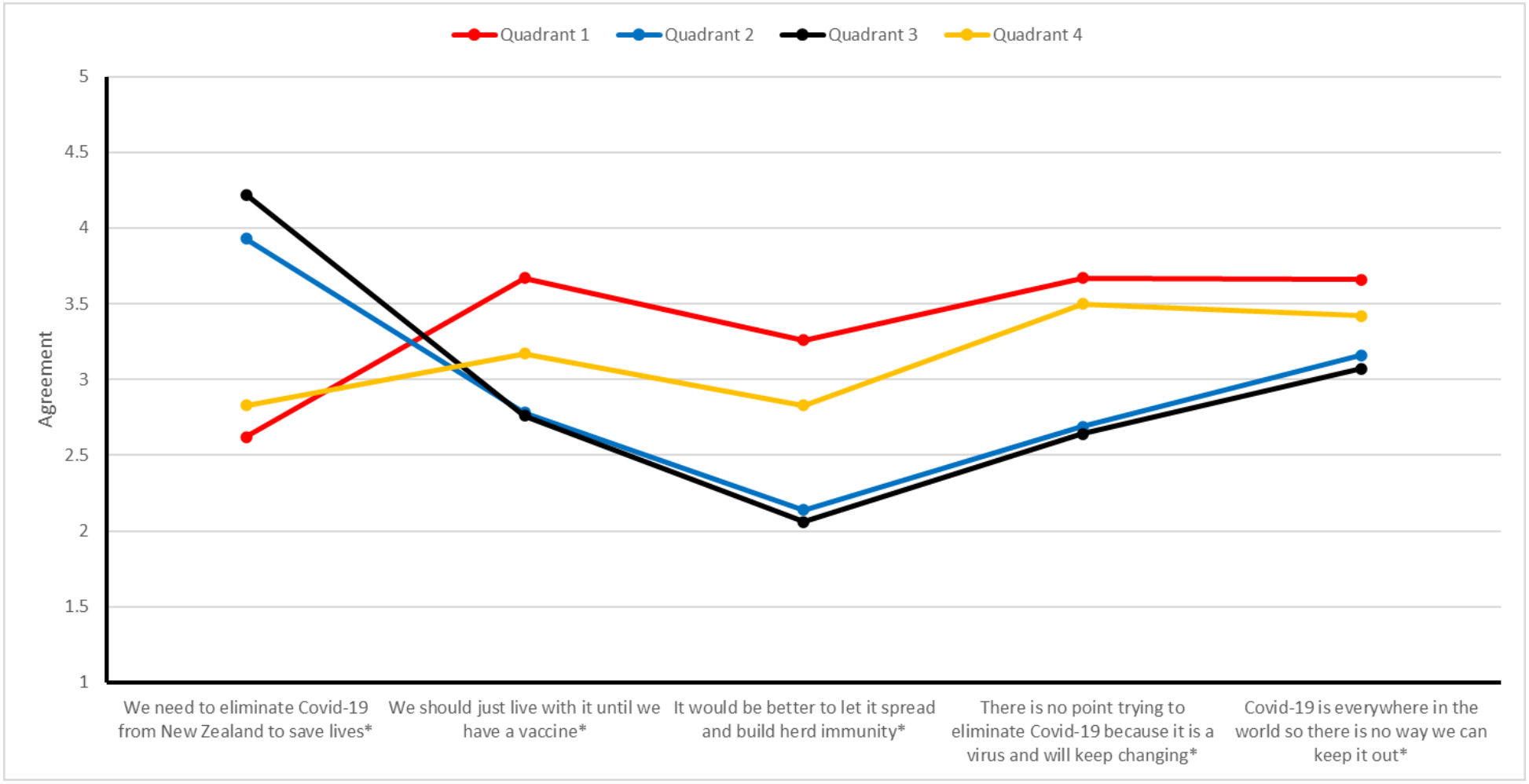

Figure 6. Beliefs about eliminating Covid-19 by I_3 mask quadrant.
Asterisk indicates significant difference in means across quadrants ($p<0.01$)
(Strongly disagree =1, Strongly agree = 5)

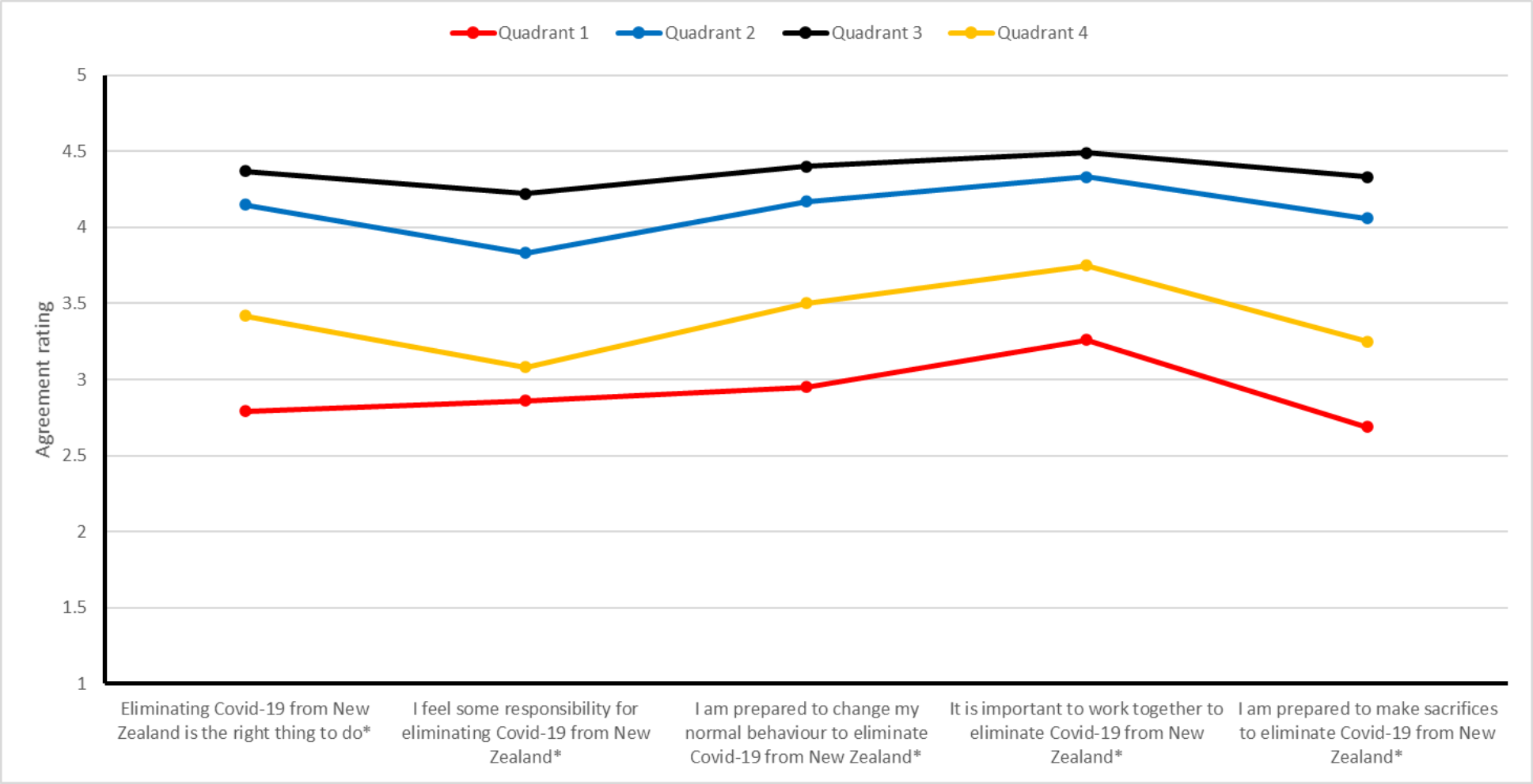

Figure 7. Preparedness to eliminate Covid-19 by I_3 mask quadrant.
Asterisk indicates significant difference in means across quadrants ($p<0.01$)
(Strongly disagree =1, Strongly agree = 5

5.1 Key findings about wearing face masks

- A reasonable proportion of respondents (24%) exhibited low to mild involvement with wearing masks (Table 4). A very small proportion of respondents (6%) expressed an unfavourable opinion about wearing masks (Figure 8).
- Recall that respondents in quadrants 1 and 4 only have mild functional, experiential and identity involvement with eliminating Covid-19. Relatedly, these respondents also exhibit mild consequence and risk involvement. This suggests these respondents may feel Covid-19 poses a lower health risk than other respondents and therefore the personal reward for wearing face masks to eliminate Covid-19 is correspondingly lower.
- Respondents in quadrants 1 and 2 only have mild functional, experiential and identity involvement with wearing face masks (Figure 9).
- While respondents in quadrant 3 agree that wearing face masks is effective in preventing the spread of Covid-19, respondents in the other quadrants appear unsure that this is the case (Figure 10 and Figure 11).
- Higher involvement is associated with expressing a favourable attitude towards wearing face masks. Lower involvement is associated with being uncertain or unsure about wearing face masks or expressing an unfavourable opinion about face masks (Table 5 and Table 6).
- Higher involvement is associated with wearing a face mask in public and at work. Lower involvement is associated with not wearing a face mask in public or at work (Table 7 and Table 8).

5.2 Implications for wearing masks

- Most respondents are strongly motivated to eliminate Covid-19 from New Zealand and will wear face masks.
- Respondents with relatively low levels of functional, experiential and consequence involvement with wearing face masks were not convinced that Covid-19 is worse than the seasonal flu or that it poses a risk to any but the elderly and those that already have health problems. These respondents were inclined to be unsure of the effectiveness of masks in preventing the spread of Covid-19, and they were not convinced that any mistakes they might make with not wearing masks would have serious consequences.
- A promotional programme highlighting the potentially serious consequences of not wearing masks, the effectiveness of masks in preventing the transmission of Covid-19, and the important difference every person makes to success by wearing masks, may increase the motivation of these respondents to wear masks. However, their low involvement with the idea of wearing face masks means they are unlikely to notice, or pay attention to, promotional messages specifically about wearing masks.
- The mild identity involvement of respondents in quadrants 1 and 2 with wearing face masks suggests that a promotional programme encouraging these respondents to wear masks because their friends and neighbours do is, in isolation, unlikely to be influential.

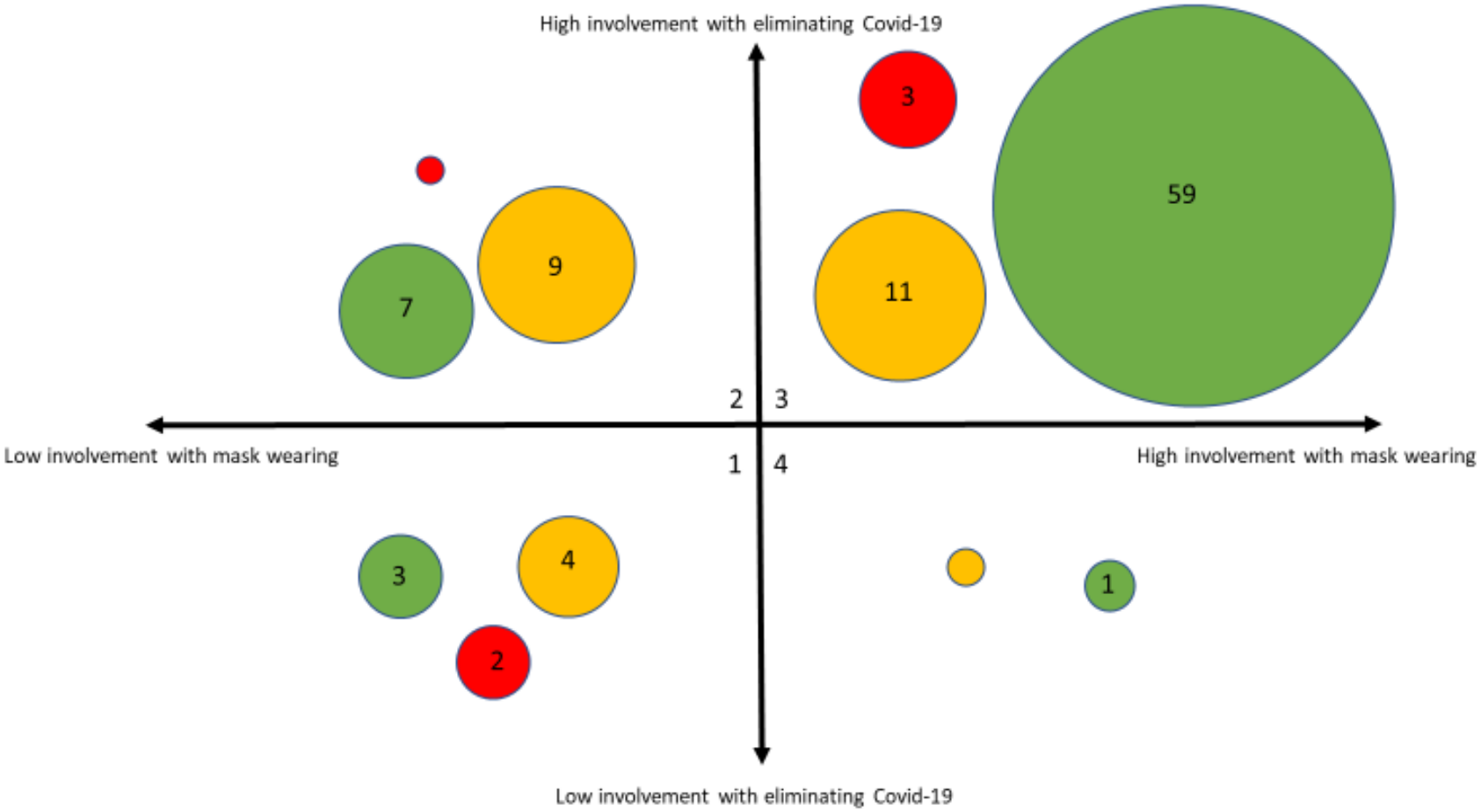

Figure 8 Summary I_3 map for eliminating Covid-19 and wearing face masks.
Red=unfavourable attitude, Yellow = ambivalent, Green = favourable attitude
Circle size is proportionate to the percentage of respondents in the sample
Values are percentage of the sample. Circles without a value represent less than 1% of the sample.

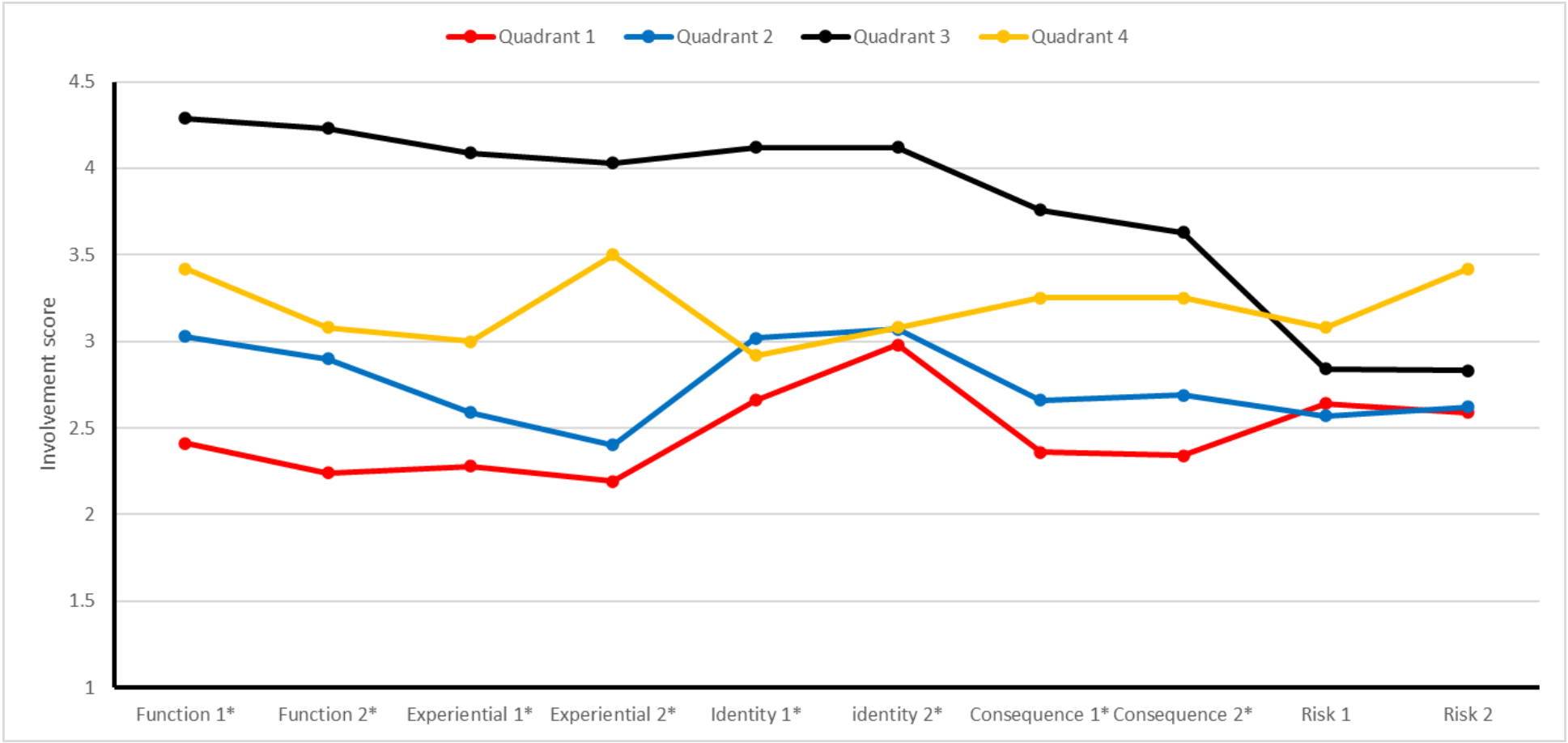

Figure 9. Source of involvement with wearing face masks by quadrant.
Asterisk indicates significant difference in means across quadrants ($p<0.01$) The statements concerned the importance of (functional 1) and caring about (functional 2) wearing face masks; the reward from (experiential 1) and passion about (experiential 2) wearing face masks; opinion about wearing face masks reflecting on you (identity 1) and others (identity 2) as a person; the seriousness (consequence 1) or importance (consequence 2) of consequences arising from making a mistake in relation to wearing face masks; and the complexity (risk 1) or difficulty (risk 2) of making decisions about wearing face masks (Lowest involvement =1, highest involvement = 5).

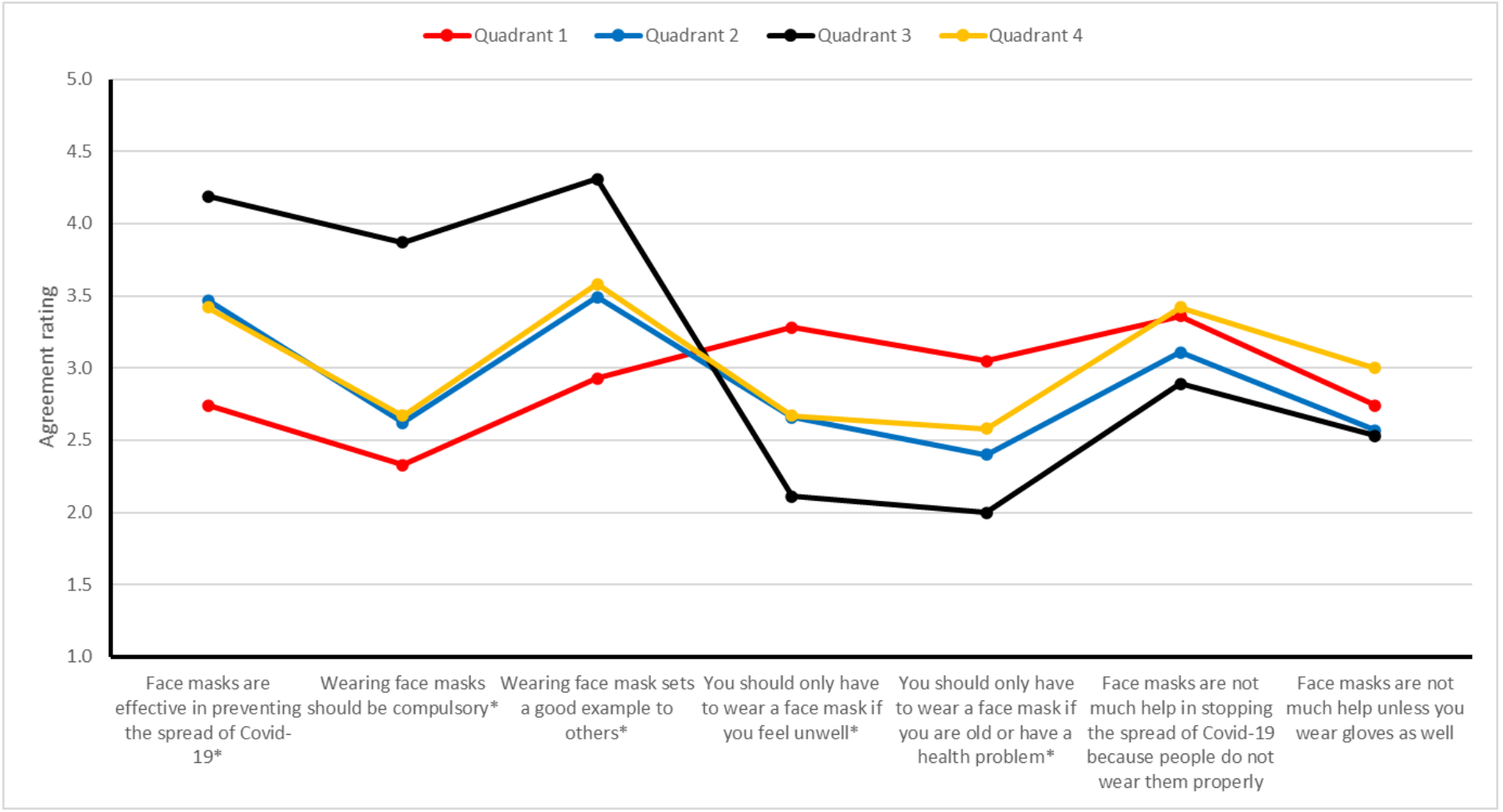

Figure 10. Beliefs about wearing face masks by quadrant (a).
Asterisk indicates significant difference in means across quadrants ($p<0.01$)
(Strongly disagree =1, Strongly agree = 5)

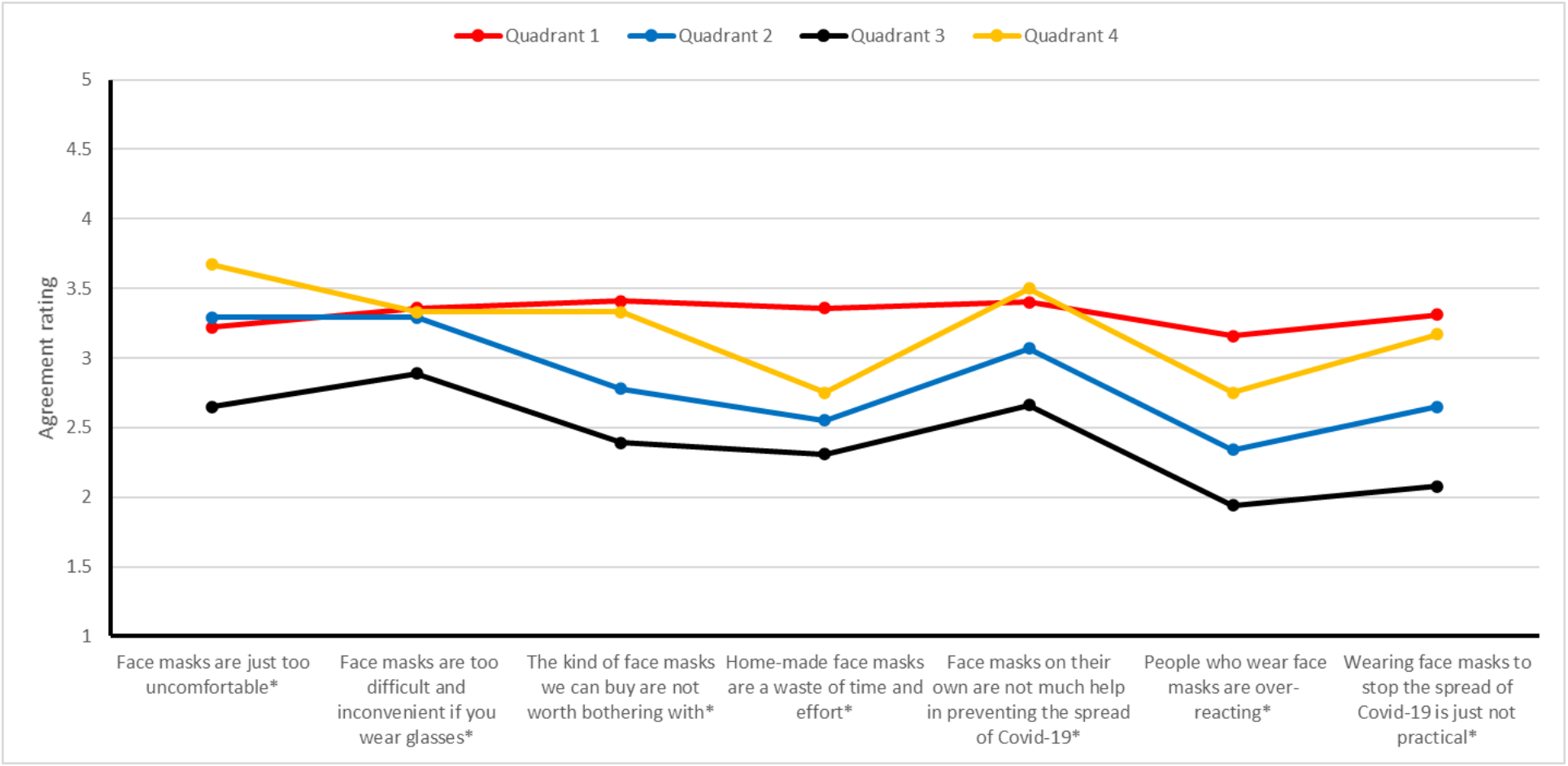

Figure 11. Beliefs about wearing face masks by quadrant (b).
Asterisk indicates significant difference in means across quadrants ($p<0.01$)
(Strongly disagree =1, Strongly agree = 5)

Table 4. I_3 mapping for wearing face masks

	Proportion of respondents
Quadrant 1	8.5
Quadrant 2	15.8
Quadrant 3	73.9
Quadrant 4	1.8

Table 5. Involvement and attitude towards eliminating Covid-19

Attitude	Involvement with eliminating Covid-19[1]	Involvement with wearing face masks[2]
Right thing to do	4.02	3.68
Doesn't matter to me	3.40	2.91
Not sure	3.69	3.19
Haven't given it much thought	3.70	3.30
Bad thing to do	3.45	3.19

Notes: (1) Test for difference in means across quadrants (F=28.4, p<0.01)
(2) Test for difference in means across quadrants (F=33.8, p<0.01)
A higher value indicates higher involvement

Table 6. I_3 mask classification and attitude towards wearing face masks

Attitude	Quadrant 1	Quadrant 2	Quadrant 3	Quadrant 4
Right thing to do	31.0	41.7	80.4	58.3
Doesn't matter to me	24.1	25.9	4.6	8.3
Not sure	15.5	16.7	6.5	25.0
Haven't given it much thought	5.2	13.9	4.0	8.3
Bad thing to do	24.1	1.9	4.6	0.0

Note: Values are proportion of respondents in each quadrant. Test for differences in proportions across quadrants (χ^2=159.8, p<0.01)

Table 7. I_3 mask classification and how often residents wear face masks in public

	Quadrant 1	Quadrant 2	Quadrant 3	Quadrant 4
Always	17.2	13.1	50.7	36.4
Often	15.5	29.9	32.5	27.3
Sometimes	12.1	24.3	11.6	27.3
Rarely	19.0	17.8	3.6	9.1
Never	36.2	15.0	1.6	0.0

Note: Values are proportion of respondents in each quadrant. Test for differences in proportions across quadrants (χ^2=199.1, p<0.01)

Table 8. I_3 mask classification and how often residents wear face masks at work

	Quadrant 1	Quadrant 2	Quadrant 3	Quadrant 4
Always	26.1	13.9	51.4	10.0
Often	13.0	12.5	21.4	20.0
Sometimes	15.2	12.5	13.4	20.0
Rarely	8.7	18.1	4.6	20.0
Never	37.0	43.1	9.1	30.0

Note: Values are proportion of respondents in each quadrant. Test for differences in proportions across quadrants (χ^2=99.1, p<0.01)

5.3 Belief segments results for wearing face masks

Knowledge of people's beliefs about policy outcomes and policy measures can provide a basis for explaining differences in people's involvement and attitudes. Coupled with the I_3 analysis richer insights can be identified for how compliance can be influenced (or not). The analysis for influencing the wearing of masks is provided in this section with the implications of these analyses for promoting compliance with wearing face masks summarised in Diagram 2.

5.3.1 Wearing face masks and Covid-19 belief segments

Key findings for wearing face masks from Covid-19 belief segments

- The distribution of these segments among the I_3 quadrants for wearing masks is broadly consistent with beliefs in each segment. For example, a relatively high proportion of respondents in quadrants 2 and 3 were 'Covid-19 enthusiasts' and 'Covid-19 moderates' while a relatively high proportion of respondents in quadrants 1 and 4 were 'Covid-19 ambivalents' and 'Covid-19 sceptics' (Table 9).
- A relatively high proportion of 'Covid-19 enthusiasts' and 'Covid-19 moderates' had a favourable attitude towards wearing face masks while a relatively high proportion of 'Covid-19 ambivalents' and 'Covid-19 sceptics' were unsure about, or had an unfavourable attitude towards, wearing face masks (Table 10).
- A relatively high proportion of 'Covid-19 enthusiasts' and 'Covid-19 moderates' had worn face masks most of the time when out in public, while a relatively high proportion of 'Covid-19 ambivalents' and 'Covid-19 sceptics' had not (Table 11).

Implications for wearing face masks using Covid-19 belief segments

- Nearly all respondents in the 'Covid-19 safe healthy' segment are members of quadrants 2 and 3 (Table 12). Consequently, the respondents in this segment will notice, and pay attention to, messaging about Covid-19. These respondents may be encouraged to wear masks by emphasising that, by doing so, they are helping protect the elderly and those with health problems.
- Most respondents in the 'Covid-19 ambivalents' segment are members of quadrants 2 and 3 (Table 12). Consequently, the respondents in this segment will notice, and pay attention to, messaging about Covid-19. In principle, these respondents are open to changing their beliefs if presented with information about the dangers posed by Covid-19 compared to the seasonal flu which should encourage them to wear face masks. They are also likely to be responsive to appeals from peers.
- Most respondents in the 'Covid-19 sceptics' segment are members of quadrants 1 and 3 (Table 12). The respondents from quadrant 3 in this segment will notice messaging about Covid-19. However, since they have firm opinions that deny the danger posed by Covid-19, they are likely to discount information that contradicts their beliefs. They may, begrudgingly, wear masks but are likely to be inconsistent in this regard. This suggests that they may only wear masks consistently if it was compulsory. This means the wearing of face masks in high risk circumstances should

be compulsory with the threat of fines. Supplying free face masks in such circumstances may assist compliance.

- The respondents from quadrant 1 in the 'Covid-19 sceptics' segment will be less attentive to messaging about Covid-19. Hence, promotional efforts encouraging the wearing of masks are unlikely to succeed with these respondents as such efforts will be ignored. As they deny the danger posed by Covid-19 they would only wear masks consistently if it were compulsory. This suggests the wearing of face masks in high risk circumstances should be compulsory with the threat of fines. Supplying free face masks in such circumstances may assist to compliance.
- A very small proportion of the respondents in the 'Covid-19 sceptics' segment were placed in quadrant 4 (Table 12). These respondents will be less attentive to messaging about Covid-19 and wearing face masks. As they have firm opinions that deny the danger posed by Covid-19 and are not motivated to eradicate Covid-19 or wear face masks, they are the most likely to avoid wearing face masks and would resist wearing them if it was compulsory.

Table 9. I_3 mask classification and Covid-19 belief segments

Segment	Quadrant 1	Quadrant 2	Quadrant 3	Quadrant 4	Proportion of sample
Covid-19 enthusiasts	13.8	30.6	46.1	25.0	40.6
Covid-19 moderates	12.1	29.6	25.3	25.0	24.8
Covid-19 safe healthy	10.3	15.7	8.1	0.0	9.4
Covid-19 ambivalents	37.9	15.7	12.1	25.0	15.1
Covid-19 sceptics	25.9	8.4	8.4	25.0	10.1
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Note: Values are proportion of respondents in each quadrant. Test for differences in proportions across quadrants (χ^2=71.8, p<0.01)

Table 10. Covid-19 belief segments and attitude towards wearing masks

Segment	Right thing to do	Doesn't matter to me	Not sure	Haven't given it much thought	Bad thing to do
Covid-19 enthusiasts	85.9	3.6	5.1	3.2	2.2
Covid-19 moderates	72.4	9.4	9.4	5.3	3.5
Covid-19 safe healthy	68.8	15.6	7.8	6.3	1.6
Covid-19 ambivalents	54.4	18.4	10.7	6.8	9.7
Covid-19 sceptics	21.7	15.9	24.6	14.5	23.2

Note: Values are proportion of respondents in each segment. Test for differences in proportions across segments (χ^2=146.0, p<0.01)

Table 11. Covid-19 belief segments and willingness to wear face masks in public

Segment	Always	Often	Sometimes	Rarely	Never
Covid-19 enthusiasts	50.5	31.6	12.4	2.9	2.5
Covid-19 moderates	40.4	33.7	12.0	6.6	7.2
Covid-19 safe healthy	39.1	29.7	7.8	17.2	6.3
Covid-19 ambivalents	38.2	19.6	17.6	11.8	12.7
Covid-19 sceptics	16.2	35.3	25.0	10.3	13.2

Note: Values are proportion of respondents in each segment. Test for differences in proportions across segments (χ^2=67.9, p<0.01)

Table 12. Covid-19 belief segments by I_3 mask classification

Segment	Quadrant 1	Quadrant 2	Quadrant 3	Quadrant 4	Total
Covid-19 enthusiasts	2.9	11.9	84.1	1.1	100.0
Covid-19 moderates	12.1	18.8	75.3	1.8	100.0
Covid-19 safe healthy	9.4	26.6	64.1	0.0	100.0
Covid-19 ambivalents	21.4	16.5	59.2	2.9	100.0
Covid-19 sceptics	21.7	13.0	60.9	4.3	100.0

Note: Values are proportion of respondents in each segment. Test for differences in proportions across segments (χ^2=71.8, p<0.01)

5.3.2 Wearing face masks and elimination belief segments

Key findings for wearing face masks from elimination belief segments

- The distribution of these segments among the I_3 quadrants for wearing masks is broadly consistent with the beliefs in each segment. For example, a relatively high proportion of respondents in quadrants 2 and 3 were members of the 'elimination enthusiasts' and 'elimination moderates' segments while a relatively high proportion of respondents in quadrant 1 were members of the 'elimination sceptics' segment (Table 13)
- A relatively high proportion of respondents in the 'elimination enthusiasts' and 'elimination moderates' segments had a favourable attitude towards wearing face masks, while a relatively high proportion of respondents in the 'vaccine hopefuls' and 'elimination sceptics' segments were unsure about, or had an unfavourable attitude towards, wearing face masks (Table 14).
- A relatively high proportion of 'elimination enthusiasts' and 'elimination moderates' respondents had worn face masks most of the time when out in public or at work, while a relatively high proportion of 'vaccine hopefuls' and 'elimination sceptics' had not (Table 15 and Table 16).

Implications for wearing face masks using elimination belief segments

- Nearly all respondents in the 'vaccine hopefuls' segment are members of quadrants 2 and 3 (Table 17). Consequently, most of the respondents in this segment will notice, and pay attention to, messaging about Covid-19. These respondents may be encouraged to wear masks by emphasising that, by doing so until a vaccine is created, they are helping to protect the elderly and those with health problems, and to preserve jobs.
- Most respondents in the 'elimination sceptics' segment are members of quadrants 1 and 3 (Table 17). The respondents in this segment who are members of quadrant 3 will notice, and pay attention to, messaging about Covid-19. While they have firm opinions about the lack of merit in elimination as a management strategy, and may discount information that contradicts their beliefs, they might change their views if provided with factual information about the, presumably, dire consequences of pursuing a herd immunity strategy. They may, begrudgingly, wear masks but are likely to be inconsistent in this regard. This suggests that they might only wear masks consistently if it was compulsory.
- The respondents from quadrant 1 in the 'elimination sceptics' segment will be less attentive to messaging about Covid-19 and about wearing masks. Hence, promotional efforts encouraging the wearing of masks are unlikely to succeed with these respondents as such efforts will be ignored. As they have opinions that deny the danger posed by Covid-19 and deny the merit of elimination as a management strategy, they would only wear masks consistently if it were compulsory. This suggests the wearing of face masks in high risk circumstances should be compulsory, with the threat of fines. Supplying free face masks in such circumstances may help compliance.

Table 13. I_3 mask classification and Covid-19 elimination segments

Segment	Quadrant 1	Quadrant 2	Quadrant 3	Quadrant 4	Proportion of sample
Elimination enthusiasts	3.4	19.4	26.7	16.7	25.9
Elimination moderates	25.9	47.2	42.0	16.7	41.0
Vaccine hopefuls	41.4	26.9	23.4	50.0	9.4
Elimination sceptics	29.3	6.5	7.9	16.6	9.7
Total	100.0	100.0	100.0	100.0	100.0

Note: Values are proportion of respondents in each quadrant. Test for differences in proportions across quadrants (χ^2=55.2, p<0.01)

Table 14. Elimination belief segments and attitude towards wearing masks

Segment	Right thing to do	Doesn't matter to me	Not sure	Haven't given it much thought	Bad thing to do
Elimination enthusiasts	88.1	3.8	5.0	0.6	2.5
Elimination moderates	76.4	6.4	8.6	5.7	2.9
Vaccine hopefuls	58.2	16.4	7.3	8.5	9.6
Elimination sceptics	27.3	19.7	27.3	10.6	15.2

Note: Values are proportion of respondents in each segment. Test for differences in proportions across segments (χ^2=115.5, p<0.01)

Table 15. Elimination belief segments and willingness to wear face masks in public

Segment	Always	Often	Sometimes	Rarely	Never
Elimination enthusiasts	52.2	33.8	8.3	4.5	1.3
Elimination moderates	44.4	30.5	14.7	7.2	3.2
Vaccine hopefuls	35.5	26.6	17.9	7.5	12.7
Elimination sceptics	21.2	33.3	13.6	13.6	18.2

Note: Values are proportion of respondents in each segment. Test for differences in proportions across segments (χ^2=60.2, p<0.01)

Table 16. Elimination belief segments and willingness to wear face masks at work

Segment	Always	Often	Sometimes	Rarely	Never
Elimination enthusiasts	55.1	16.3	13.3	5.1	10.2
Elimination moderates	48.4	19.5	11.1	6.8	14.2
Vaccine hopefuls	30.1	18.8	16.5	9.8	24.8
Elimination sceptics	29.8	24.6	15.8	7.0	22.8

Note: Values are proportion of respondents in each segment. Test for differences in proportions across segments (χ^2=26.5, p<0.01)

Table 17. Covid-19 elimination segments by I_3 mask classification

Segment	Quadrant 1	Quadrant 2	Quadrant 3	Quadrant 4	Total
Elimination enthusiasts	1.3	13.1	84.4	1.3	100.0
Elimination moderates	5.4	18.2	75.7	0.7	100.0
Vaccine hopefuls	13.6	16.4	66.7	3.4	100.0
Elimination sceptics	25.8	10.6	60.6	3.0	100.0

Note: Values are proportion of respondents in each segment. Test for differences in proportions across segments (χ^2=55.2, p<0.01)

5.3.3 Wearing face masks and mask belief segments

Key findings for wearing face masks from mask belief segments

- Respondents were classified into four belief segments with respect to wearing face masks (Figure 12 and Figure 13). Most respondents believed that wearing face masks was effective in helping eradicate Covid-19 from New Zealand. These respondents were classified as 'mask enthusiasts' (45%) and 'mask moderates' (21%) for wearing face masks, the difference between these two segments being the intensity of their beliefs. Another segment of respondents, the 'mask ambivalent' (27%) agreed masks could be effective but were less sure about the need to wear masks if you were young and healthy, the usefulness of masks on their own, and doubted the effectiveness of masks that were home-made or available for purchase. A fourth segment consisted of respondents, the 'mask sceptics' (7%) who were not convinced masks were effective. These respondents believed you were over-reacting if you wore a mask unless you were elderly or had a health problem. They also believed that masks were of limited usefulness on their own and doubted the quality of masks that were home-made or could be purchased.
- The distribution of these segments among the I_3 quadrants for wearing masks is consistent with results reported earlier. For example, a relatively high proportion of respondents in quadrants 2 and 3 were members of the 'mask enthusiast' and 'mask moderates' segments, while a relatively high proportion of respondents in quadrants 1 and 2 were members of the 'mask ambivalent' segment (Table 18). A relatively high proportion of respondents in the 'mask enthusiasts' and 'mask moderates' segments had a favourable attitude towards wearing face masks while a relatively high proportion of respondents in the 'mask ambivalent' and 'mask sceptics' segments were unsure about, or had an unfavourable attitude towards, wearing face masks (Table 19). A relatively high proportion of 'mask enthusiasts' and 'mask moderates' respondents had worn face masks most of the time when out in public or at work, while a relatively high proportion of 'mask ambivalent' and 'mask sceptics' had not (Table 20 and Table 21).
- A relatively high proportion of residents in the 'mask enthusiasts' and 'mask moderates' segments were over the age of 50, while a relatively high proportion of respondents in the 'mask ambivalent' and 'mask sceptics' segments were in the 30-39 age group (Table 22).

Implications for wearing face masks using mask belief segments

- Nearly all respondents in the 'mask ambivalent' segment are members of quadrants 2 and 3 (Table 23). Consequently, most of the respondents in this segment will notice, and pay attention to, messaging about Covid-19. These respondents may be encouraged to wear masks by reassuring them that home-made and inexpensive, commercial masks are effective. Such encouragement could be linked with the idea that, by wearing masks, they are protecting the elderly and those with health problems as well as themselves, and they are preserving jobs by avoiding high-level lockdown.
- Most respondents in the 'mask sceptics' segment are members of quadrants 1 and 3 (Table 23). The respondents in this segment who are members of quadrant 3 will notice, and pay attention to, messaging about Covid-19. While they have firm

opinions about the ineffectiveness of masks, they may change their views if provided with information about the efficacy of home-made and masks available to consumers. They may also be encouraged to wear masks by being reminded that, in doing so, they are protecting the elderly and those with health problems, and they are helping preserve jobs by avoiding high-level lockdowns.

- The respondents from quadrant 1 in the 'mask sceptics' segment will be less attentive to messaging about Covid-19 and about wearing masks. Hence, promotional efforts encouraging the wearing of masks are unlikely to succeed with these respondents and as such efforts will be ignored. As they have the belief masks are ineffective, they would only wear masks consistently if it were compulsory. This suggests the wearing of face masks in high risk circumstances should be compulsory, with the threat of fines. Supplying free face masks in such circumstances may help compliance.

The implications of the belief segmentation analyses for promoting compliance with wearing face masks are summarised in Diagram 2.

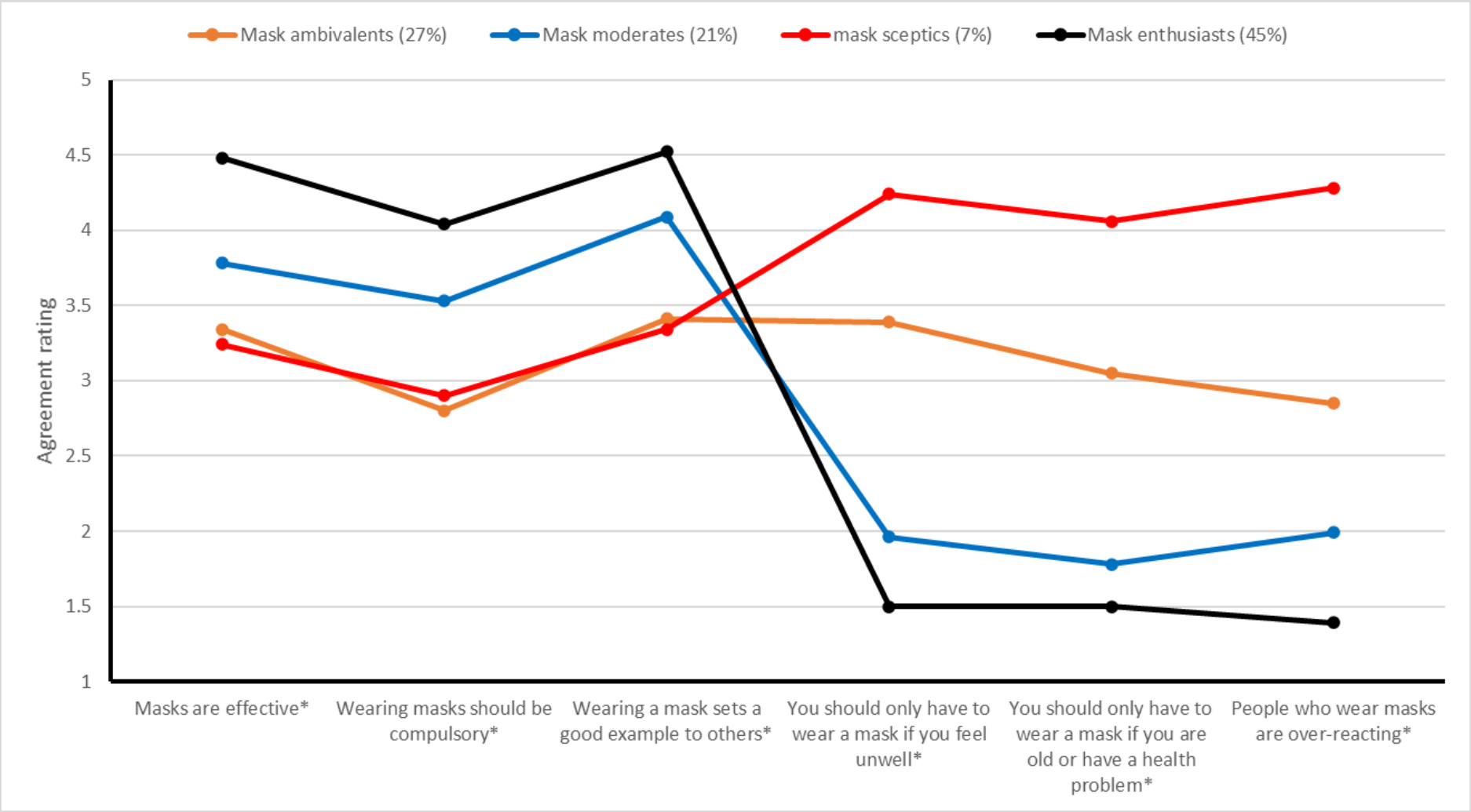

Figure 12. Face mask belief segments (a).
Asterisk indicates significant difference in means across quadrants ($p<0.01$).
(Strongly disagree = 1, Strongly agree = 5)

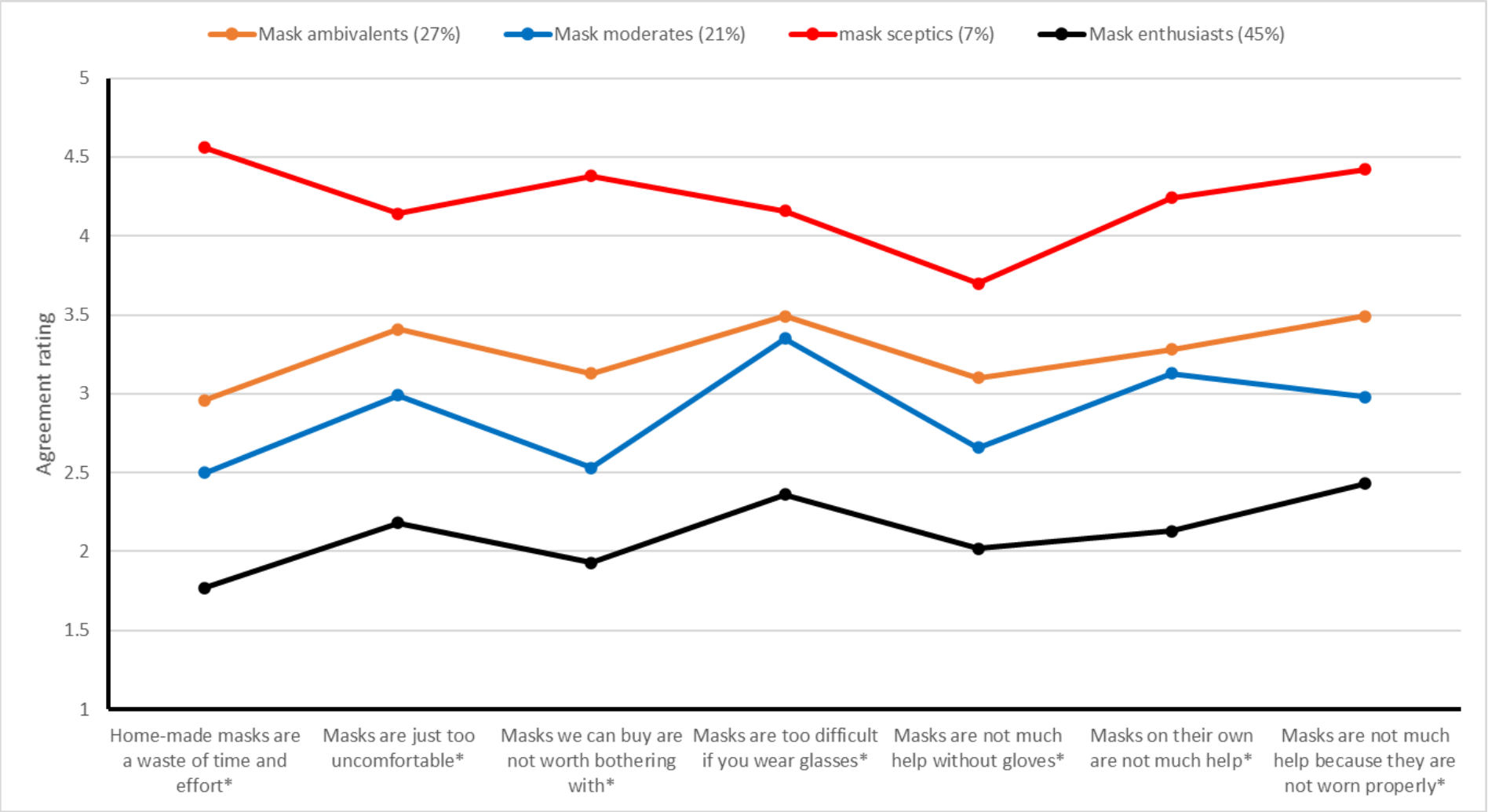

Figure 13. Face mask belief segments (b).
Asterisk indicates significant difference in means across quadrants ($p<0.01$).
(Strongly disagree = 1, Strongly agree = 5)

Table 18. I_3 mask classification and face mask belief segments

Segment	Quadrant 1	Quadrant 2	Quadrant 3	Quadrant 4	Proportion of sample
Mask enthusiasts	12.1	23.1	54.7	8.3	45.2
Mask moderates	5.2	21.3	22.2	16.7	20.5
Mask ambivalent	53.4	50.9	17.8	66.7	26.9
Mask sceptics	29.3	4.6	5.3	8.3	7.3
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Note: Values are proportion of respondents in each quadrant. Test for differences in proportions across quadrants (χ^2=149.6, p<0.01)

Table 19. Face mask belief segments and attitude towards wearing masks

Segment	Right thing to do	Doesn't matter to me	Not sure	Haven't given it much thought	Bad thing to do
Mask enthusiasts	95.8	0.3	1.6	0.6	1.6
Mask moderates	75.7	10.0	6.4	5.0	2.9
Mask ambivalent	36.4	22.3	19.6	13.6	8.2
Mask sceptics	14.0	20.0	26.0	10.0	30.0

Note: Values are proportion of respondents in each segment. Test for differences in proportions across segments (χ^2=303.6, p<0.01)

Table 20. Face mask belief segments and willingness to wear face masks in public

Segment	Always	Often	Sometimes	Rarely	Never
Mask enthusiasts	61.4	31.0	6.5	1.0	0.0
Mask moderates	42.4	38.8	12.2	2.2	4.3
Mask ambivalent	17.1	25.4	24.9	19.9	12.7
Mask sceptics	6.1	22.4	24.5	14.3	32.7

Note: Values are proportion of respondents in each segment. Test for differences in proportions across segments (χ^2=253.1, p<0.01)

Table 21. Face mask belief segments and willingness to wear face masks at work

Segment	Always	Often	Sometimes	Rarely	Never
Mask enthusiasts	59.5	15.9	12.3	5.1	7.2
Mask moderates	48.4	18.9	7.4	7.4	17.9
Mask ambivalent	22.6	21.9	17.1	11.0	27.4
Mask sceptics	19.0	26.2	21.4	4.8	28.6

Note: Values are proportion of respondents in each segment. Test for differences in proportions across segments (χ^2=69.5, p<0.01)

Table 22. Face mask belief segments by age category

Segment	18-29 years	30-39 years	40-49 years	50-59 years	60-69 years	70 years and over
Mask enthusiasts	23.6	16.2	13.3	12.3	16.8	17.8
Mask moderates	25.7	20.7	22.9	7.1	14.3	9.3
Mask ambivalent	21.2	28.8	22.8	15.8	6.5	4.9
Mask sceptics	18.0	40.0	14.0	10.0	12.0	6.0

Note: Values are proportion of respondents in each segment. Test for differences in proportions across segments (χ^2=59.5, p<0.01)

Table 23. Face mask belief segments by I_3 mask classification

Segment	Quadrant 1	Quadrant 2	Quadrant 3	Quadrant 4	Total
Mask enthusiasts	2.3	8.1	89.3	0.3	100.0
Mask moderates	2.2	16.4	80.0	1.4	100.0
Mask ambivalent	16.8	29.9	48.9	4.4	100.0
Mask sceptics	34.0	10.0	54.0	2.0	100.0

Note: Values are proportion of respondents in each segment. Test for differences in proportions across segments (χ^2=149.6, p<0.01)

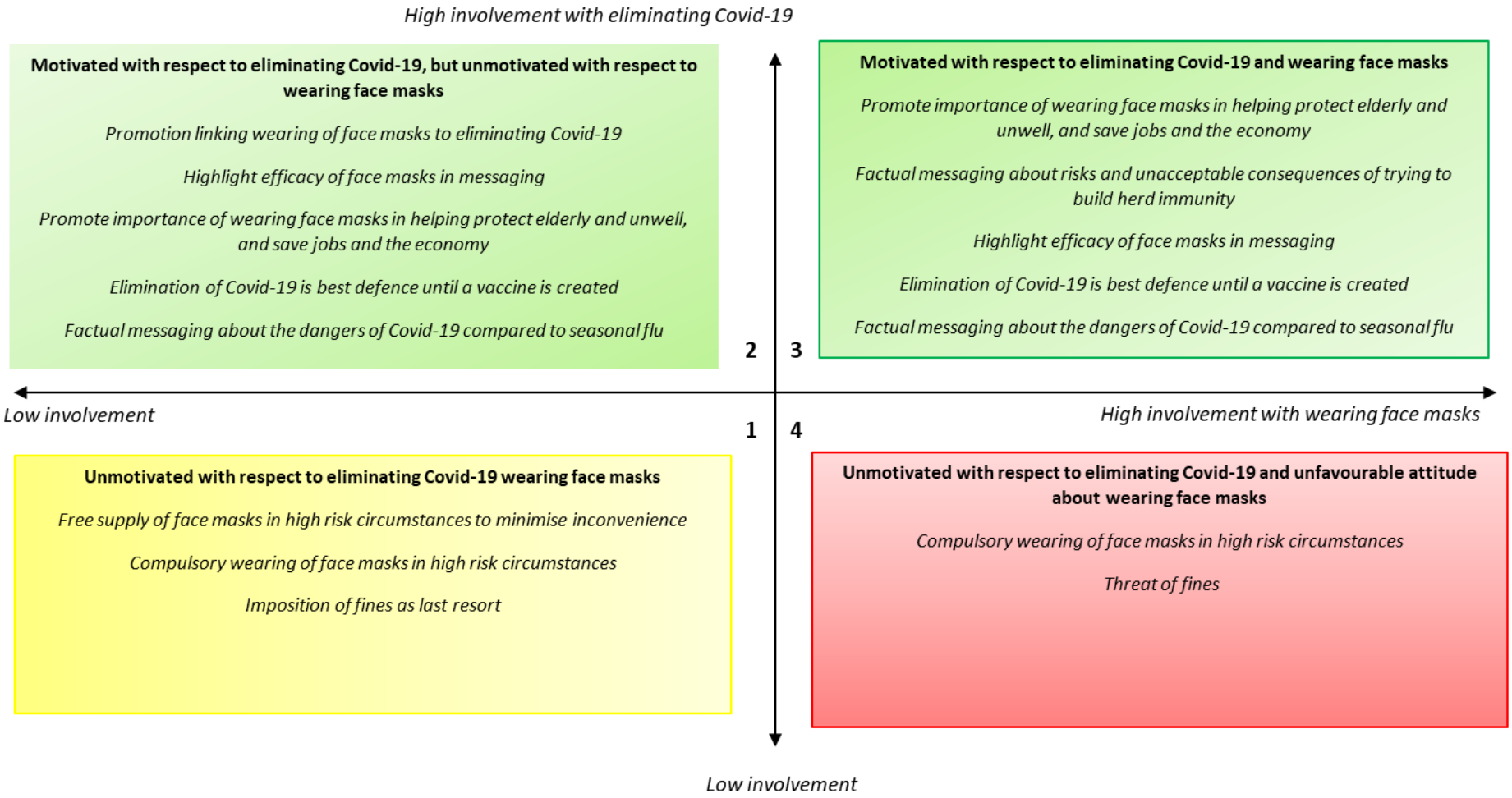

Diagram 2. I_3 Response Summary for promoting compliance with wearing face masks.
Bold text describes the strength of motivation with respect to the policy outcome (e.g. eliminating Covid-19) and the policy measure (e.g. wearing face masks). Text in italics describes potential measures to promote compliance with the measure. (Source: adapted from Kaine et al. 2010)

6 Results: self-isolating when unwell

6.1 Key findings for self-isolating

- Most respondents also had moderate to high involvement with self-isolating if they were unwell (Figure 14).
- A very small proportion of respondents (6%) expressed an unfavourable opinion about self-isolating (Figure 15)
- A very small proportion (8%) exhibited low to mild involvement with self-isolating (Table 24). Respondents in quadrants 1 and 2 only have mild functional, experiential and identity involvement with staying at home if they feel unwell. These respondents also exhibit mild consequence and risk involvement. Again, this suggests these respondents may feel Covid-19 poses a lower health risk than other respondents feel, and therefore the personal reward for staying home to eliminate Covid-19 is correspondingly lower (Figure 16).
- While respondents in most quadrants agree that staying at home if you are unwell is effective in preventing the spread of Covid-19, respondents in quadrant 1 appear unsure that this is the case (Figure 17).
- Higher involvement is associated with expressing either a favourable or unfavourable attitude towards self-isolating. Lower involvement is associated with being unsure about self-isolating (Table 25 and Table 26).
- Higher involvement is associated with being willing to self-isolate if feeling unwell or having Covid-19 symptoms, or if instructed to do so by a health professional or public health authority. Lower involvement is associated with being unwilling to self-isolate if feeling unwell or having Covid-19 symptoms, or if instructed to do so by a health professional or public health authority (Table 27 and Table 28).

6.2 Implications for self-isolating

- Most respondents are strongly motivated about eliminating Covid-19 from New Zealand and self-isolating if they are unwell.
- Only a very small proportion of respondents (8%) exhibit low to mild involvement with the idea of self-isolating if they are unwell. These respondents exhibited relatively low levels of functional, experiential and consequence involvement with self-isolating. On average, they are not convinced of the effectiveness or the practicality of self-isolating in preventing the spread of Covid-19.
- A promotional programme highlighting the serious consequences of spreading Covid-19 by going out in public and to work when feeling unwell may increase the motivation of these respondents to stay home if they feel unwell. Again, an emphasis on the important difference every person can make to success by self-isolating if they feel unwell might increase their motivation to do so. However, their low involvement with the idea of staying home if they feel unwell means they are unlikely to notice, or pay attention to, promotional messages specifically about self-isolating.
- The mild identity involvement of respondents in quadrants 1 and 2 with self-isolating suggests a promotional programme encouraging these respondents to stay home when they are unwell because others do so is unlikely, in isolation, to be influential.

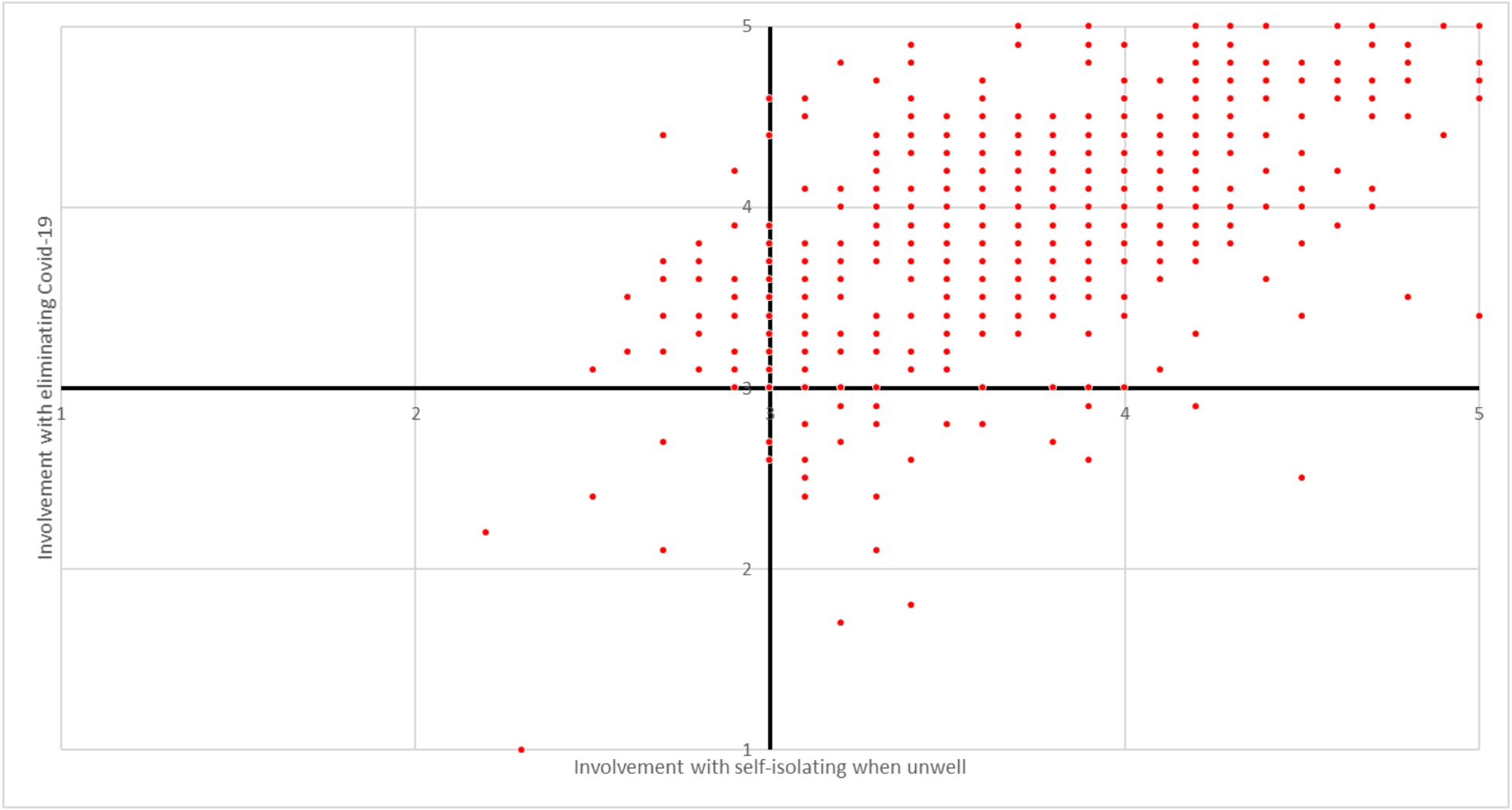

Figure 14. I_3 mapping for eliminating Covid-19 and isolating when feeling unwell.
(Lowest involvement =1, highest involvement = 5)

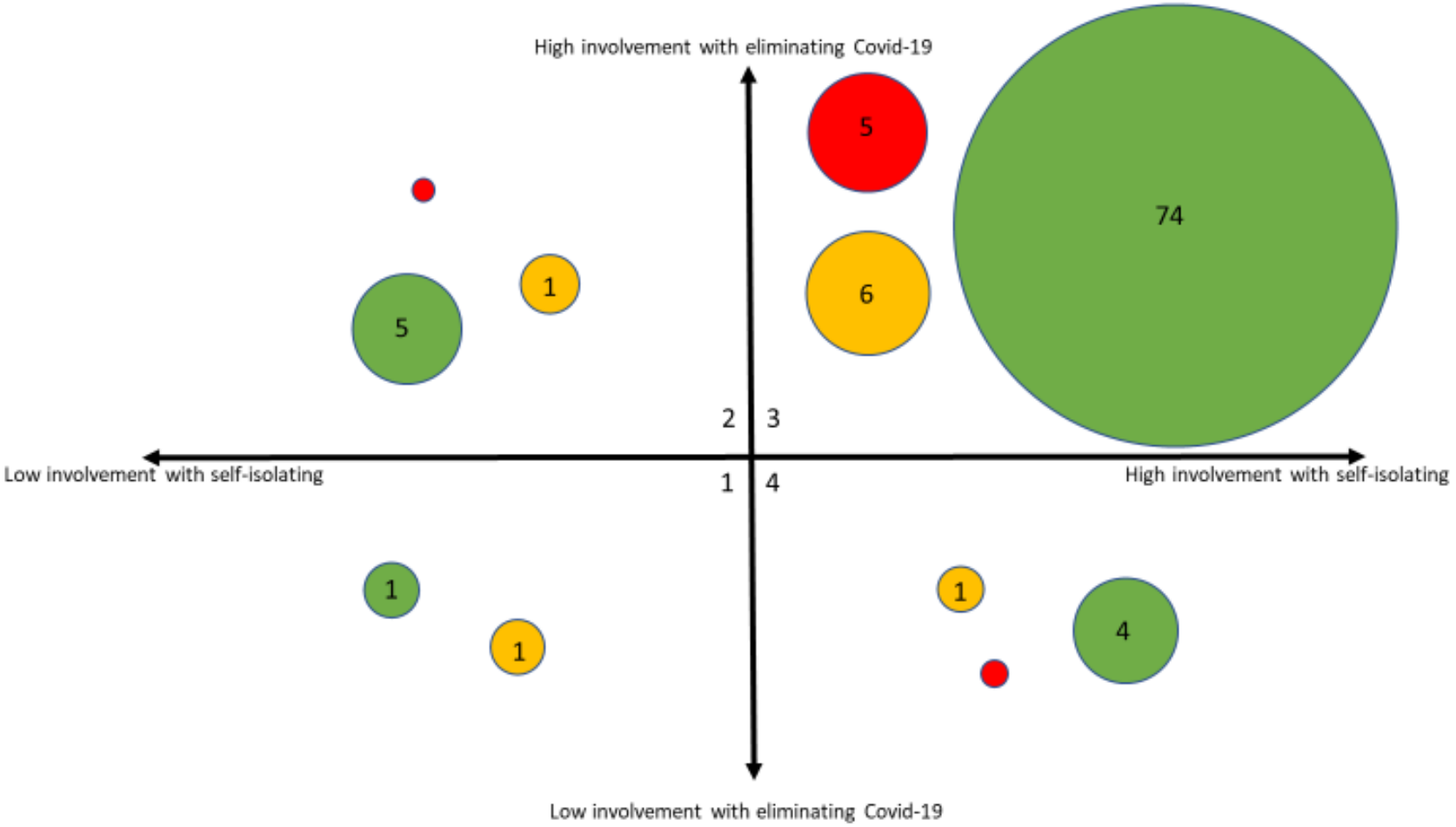

Figure 15. Summary I_3 map for eliminating Covid-19 and self-isolating.
Red=unfavourable attitude, Yellow = ambivalent, Green = favourable attitude
Circle size is proportionate to the percentage of respondents in the sample
Values are percentage of the sample. Circles without a value represent less than 1% of the sample.

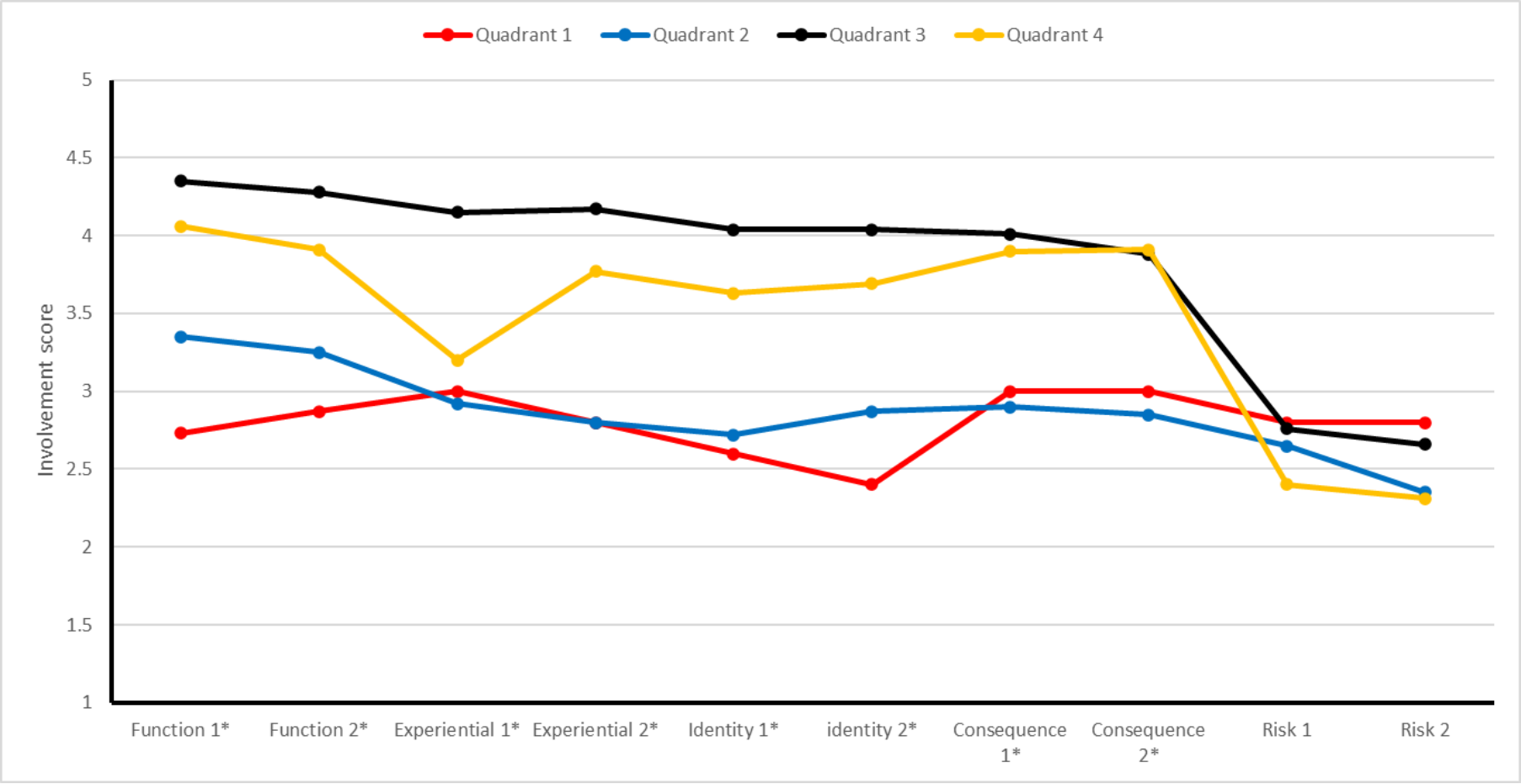

Figure 16. Source of involvement with self-isolating when unwell by self-isolation quadrant.
Asterisk indicates significant difference in means across quadrants ($p<0.01$). The statements concerned the importance of (functional 1) and caring about (functional 2) self-isolating; the reward from (experiential 1) and passion about (experiential 2) self-isolating; opinion about self-isolating reflecting on you (identity 1) and others (identity 2) as a person; the seriousness (consequence 1) or importance (consequence 2) of consequences arising from making a mistake in relation to self-isolating; and the complexity (risk 1) or difficulty (risk 2) of making decisions about self-isolating
(Lowest involvement =1, highest involvement = 5).

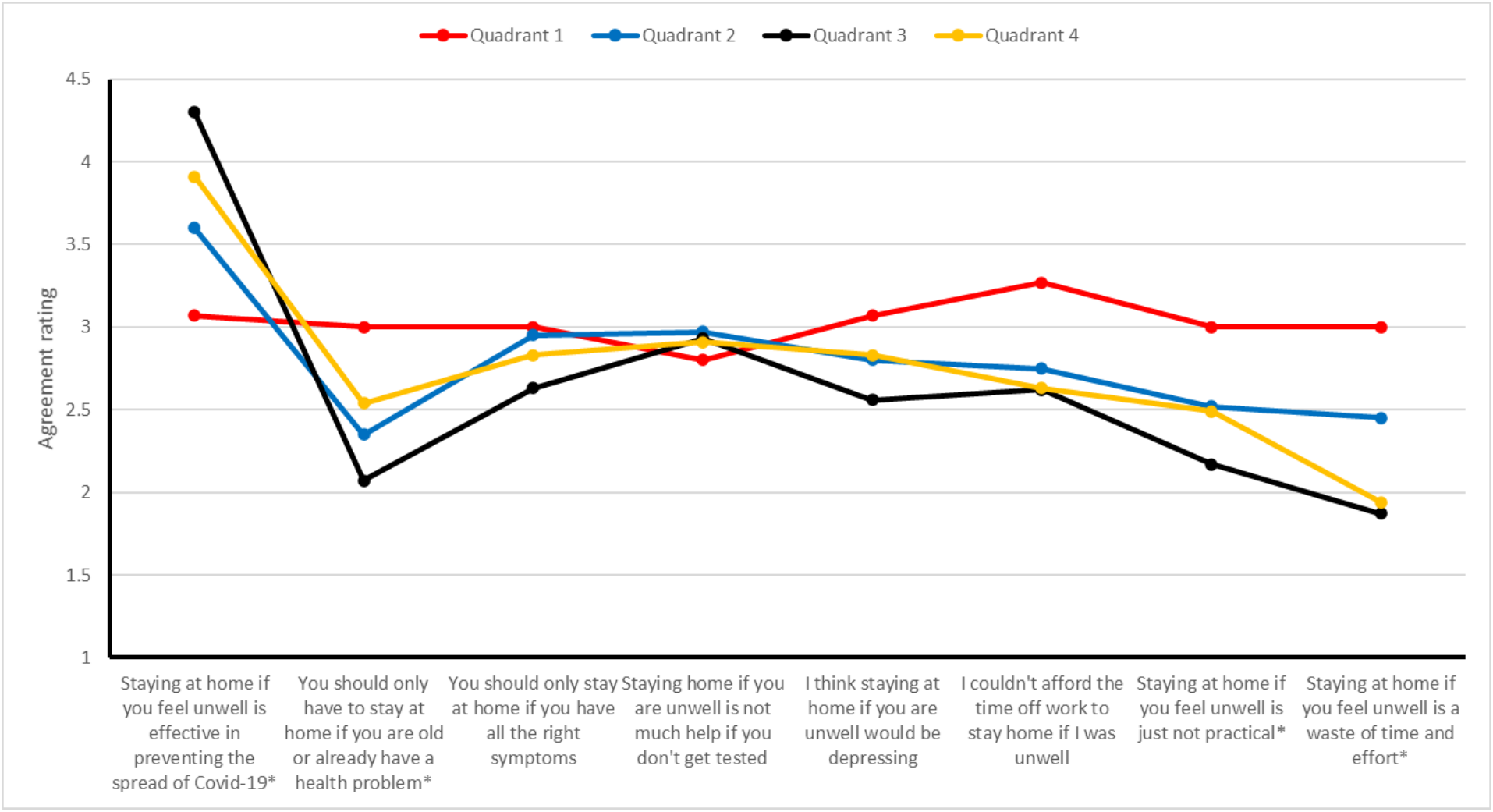

Figure 17. Beliefs about self-isolating by self-isolation quadrant.
Asterisk indicates significant difference in means across quadrants ($p<0.01$)
(Strongly disagree =1, Strongly agree = 5)

Table 24. I_3 mapping for self-isolating if unwell

	Proportion of respondents
Quadrant 1	2.3
Quadrant 2	6.1
Quadrant 3	86.3
Quadrant 4	5.3

Table 25. Involvement and attitude towards eliminating Covid-19

Attitude	Involvement with eliminating Covid-19[1]	Involvement with self-isolating[2]
Right thing to do	3.94	3.74
Doesn't matter to me	3.60	3.76
Not sure	3.65	3.28
Haven't given it much thought	3.75	3.69
Bad thing to do	3.97	3.88

Notes: (1) Test for difference in means across quadrants ($F=3.4$, $p<0.01$)
(2) Test for difference in means across quadrants ($F=6.9$, $p<0.01$)
A higher value indicates higher involvement

Table 26. I_3 self-isolation classification and attitude towards self-isolating

Attitude	Quadrant 1	Quadrant 2	Quadrant 3	Quadrant 4
Right thing to do	53.3	77.5	86.2	80.0
Doesn't matter to me	6.7	2.5	1.8	11.4
Not sure	26.7	15.0	2.8	2.9
Haven't given it much thought	13.3	2.5	3.2	0.0
Bad thing to do	0.0	2.5	6.0	5.7

Note: Values are proportion of respondents in each quadrant. Test for differences in proportions across quadrants ($\chi^2=56.1$, $p<0.01$)
A higher value indicates a more favourable attitude

Table 27. I_3 self-isolation classification and willingness to stay at home if you feel unwell or have Covid-19 symptoms

	Quadrant 1	Quadrant 2	Quadrant 3	Quadrant 4
Definitely	20.0	42.5	74.9	48.6
Probably	20.0	30.0	16.4	34.3
Maybe	33.3	15.0	5.5	17.1
Probably not	26.7	7.5	0.7	0.0
Definitely not	0.0	5.0	2.5	0.0

Note: Values are proportion of respondents in each quadrant. Test for differences in proportions across quadrants (χ^2=117.2, p<0.01)

Table 28. I_3 self-isolation classification and willingness to self-isolate if advised to do so by a healthcare professional or public health authority

Attitude	Quadrant 1	Quadrant 2	Quadrant 3	Quadrant 4
Always	40.0	65.0	85.7	68.6
Often	13.3	20.0	9.9	14.3
Sometimes	20.0	7.5	3.5	14.3
Rarely	26.7	5.0	0.7	2.9
Never	0.0	2.5	0.2	0.0

Note: Values are proportion of respondents in each quadrant. Test for differences in proportions across quadrants (χ^2=95.6, p<0.01)

6.3 Belief segments results for self-isolating when ill

Knowledge of people's beliefs about policy outcomes and policy measures can provide a basis for explaining differences in people's involvement and attitudes. Coupled with the I_3 analysis, richer insights can be identified for how compliance can be influenced (or not). The analysis for influencing people to self-isolate when ill is provided in this section with the implications of these analyses for promoting compliance with self-isolating when ill summarised in Diagram 3.

6.3.1 Self-isolating when ill and Covid-19 belief segments

Key findings for self-isolating when ill from Covid-19 belief segments

- The distribution of Covid-19 belief segments among the I_3 quadrants for self-isolating is consistent with results reported earlier. For example, a relatively high proportion of respondents in quadrants 2 and 3 were 'Covid-19 enthusiasts' and 'Covid-19 moderates' while a relatively high proportion of respondents in quadrants 1 and 4 were 'Covid-19 ambivalents' and 'Covid-19 sceptics' (Table 39).
- A relatively high proportion of 'Covid-19 enthusiasts', 'Covid-19 moderates' and 'Covid-19 safe healthy' had a favourable attitude towards self-isolating while a relatively high proportion of 'Covid-19 sceptics' had an unfavourable attitude towards self-isolating (Table 30).
- A relatively high proportion of 'Covid-19 enthusiasts' and 'Covid-19 moderates' would self-isolate if they were unwell (or instructed to do so), while a relatively high proportion of 'Covid-19 ambivalents' and 'Covid-19 sceptics' would not (Table 31 and Table 32).

Implications for self-isolating when ill from Covid-19 belief segments

- A very small proportion of respondents indicated they were unwilling to self-isolate if they felt unwell or had any of the Covid-19 symptoms. Most of these respondents were from the 'Covid-19 sceptics', 'Covid-19 ambivalents' and 'Covid-19 safe healthy' segments.
- Nearly all respondents in the 'Covid-19 safe healthy' segment are members of quadrants 2 and 3 (Table 33). Consequently, the respondents in these segments will notice, and pay attention to, messaging about Covid-19. These respondents may be encouraged to self-isolate by emphasising that, by doing so, they are helping protect the elderly and those with health problems.
- Most respondents in the 'Covid-19 ambivalents' segment were also members of quadrants 2 and 3 (Table 33). Consequently, the respondents in this segment will notice, and pay attention to, messaging about Covid-19. In principle, these respondents are open to changing their beliefs if presented with information about the dangers posed by Covid-19 compared to the seasonal flu, which should encourage them to self-isolate if they are unwell.
- Most respondents in the 'Covid-19 sceptics' segment are members of quadrants 3 and 4 (Table 33). The respondents from quadrant 3 in this segment will notice messaging about Covid-19. However, since they have firm opinions that deny the

danger posed by Covid-19, they are likely to discount information that contradicts their beliefs. They may self-isolate but are likely to be inconsistent in this regard. This suggests they may only self-isolate consistently if it was compulsory or compensation was available for any loss of income or leave entitlement.

- The respondents from quadrant 4 in the 'Covid-19 sceptics' segment will be less attentive to messaging about Covid-19 but will notice messaging about self-isolating. Promotional efforts encouraging self-isolation are likely to have little influence on these respondents as they deny the danger posed by Covid-19. They would only self-isolate consistently if it were compulsory. These respondents may self-isolate but are likely to be inconsistent in this regard. Some may strongly resist self-isolating. This suggests they may only self-isolate consistently if it was compulsory or compensation was available for any loss of income or leave entitlement. The threat of fines, and being reported by employers, colleagues and peers may encourage compliance.

Table 29. I3 self-isolation classification and Covid-19 belief segments

Segment	Quadrant 1	Quadrant 2	Quadrant 3	Quadrant 4	Proportion of sample
Covid-19 enthusiasts	26.7	27.5	44.7	17.1	41.8
Covid-19 moderates	26.7	27.5	28.3	20.0	27.7
Covid-19 safe healthy	13.3	7.5	7.1	8.6	7.3
Covid-19 ambivalents	26.7	25.0	12.2	31.4	14.4
Covid-19 sceptics	6.7	12.5	7.8	22.9	8.8
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Note: Values are proportion of respondents in each quadrant. Test for differences in proportions across quadrants (χ^2=33.6, p<0.01)

Table 30. Covid-19 belief segments and attitude towards self-isolating

Segment	Right thing to do	Doesn't matter to me	Not sure	Haven't given it much thought	Bad thing to do
Covid-19 enthusiasts	89.4	0.0	5.1	1.5	4.0
Covid-19 moderates	90.7	2.2	1.6	2.2	3.3
Covid-19 safe healthy	89.6	2.1	0.0	2.1	6.3
Covid-19 ambivalents	77.7	4.3	7.4	5.3	5.3
Covid-19 sceptics	50.0	12.1	5.2	12.1	20.7

Note: Values are proportion of respondents in each segment. Test for differences in proportions across segments (χ^2=93.8, p<0.01)

Table 31. Covid-19 belief segments and willingness to self-isolate if unwell or have any symptoms*

Segment	Definitely	Probably	Maybe	Probably not	Definitely not
Covid-19 enthusiasts	76.6	15.3	5.1	0.4	2.6
Covid-19 moderates	75.3	17.0	5.5	2.2	0.0
Covid-19 safe healthy	68.8	12.5	8.3	2.1	8.3
Covid-19 ambivalents	59.6	24.5	10.6	2.1	3.2
Covid-19 sceptics	43.1	31.0	17.2	5.2	3.4

Note: Values are proportion of respondents in each segment. Test for differences in proportions across segments (χ^2=50.5, p<0.01)

*Symptoms: a dry cough, fever, loss of sense of smell, loss of sense of taste, shortness of breath or difficulty breathing

Table 32. Covid-19 belief segments and willingness to self-isolate if advised to do so by a healthcare professional or public health authority

Segment	Definitely	Probably	Maybe	Probably not	Definitely not
Covid-19 enthusiasts	91.6	4.0	3.6	0.7	0.0
Covid-19 moderates	87.4	9.9	1.6	1.1	0.0
Covid-19 safe healthy	87.5	8.3	2.1	2.1	0.0
Covid-19 ambivalents	71.3	17.0	6.4	3.2	2.1
Covid-19 sceptics	37.9	37.9	19.0	5.2	0.0

Note: Values are proportion of respondents in each segment. Test for differences in proportions across segments (χ^2=123.5, p<0.01)

Table 33. Covid-19 belief segments by I_3 self-isolation classification

Segment	Quadrant 1	Quadrant 2	Quadrant 3	Quadrant 4	Total
Covid-19 enthusiasts	1.5	4.0	92.3	2.2	100.0
Covid-19 moderates	2.2	6.0	87.9	3.8	100.0
Covid-19 safe healthy	4.2	6.3	83.3	6.3	100.0
Covid-19 ambivalents	4.3	10.6	73.4	11.7	100.0
Covid-19 sceptics	1.7	8.6	75.9	13.8	100.0

Note: Values are proportion of respondents in each segment. Test for differences in proportions across segments (χ^2=33.6, p<0.01)

6.3.2 Self-isolating when ill and elimination belief segments

Key findings for self-isolating from elimination belief segments

- The distribution of these segments among the I_3 quadrants for self-isolation is consistent with results reported earlier. For example, a relatively high proportion of respondents in quadrants 2 and 3 were members of the 'elimination enthusiasts' and 'elimination moderates' segments while a relatively high proportion of respondents in quadrant 1 were members of the 'vaccine hopefuls' and 'elimination sceptics' segment (Table 34).
- A relatively high proportion of respondents in the 'elimination enthusiasts' and 'elimination moderates' segments had a favourable attitude towards wearing face masks while a relatively high proportion of respondents in the 'elimination sceptics' segment were unsure about, or had an unfavourable attitude towards, wearing face masks (Table 35).
- A relatively high proportion of 'elimination enthusiasts' and 'elimination moderates' indicated they would self-isolate if they felt unwell or were instructed to do so. In contrast, a relatively high of 'vaccine hopefuls' and 'elimination sceptics' indicated they would not self-isolate if they felt unwell or were instructed to do so (Table 36 and Table 37).

Implications for self-isolating from elimination belief segments

- Nearly all respondents in the 'vaccine hopefuls' segment are members of quadrants 3 and 4 (Table 38). Consequently, most of the respondents in this segment will notice, and pay attention to, messaging about self-isolating if they feel unwell or have any symptoms associated with Covid-19. These respondents may be encouraged to self-isolate by emphasising that, by doing so until a vaccine is created, they are helping to protect the elderly and those with health problems and to preserve jobs.
- Most respondents in the 'elimination sceptics' segment are also members of quadrants 3 and 4 (Table 38). The respondents in this segment who are members of quadrant 3 will notice, and pay attention to, messaging about Covid-19 and self-isolating. As noted previously, while they have firm opinions about the lack of merit in elimination as a management strategy, and may discount information that contradicts their beliefs, they may change their views if provided with factual information about the, presumably, dire consequences of pursuing a herd immunity strategy. They may, begrudgingly, self-isolate but are likely to be inconsistent in this regard. This suggests that they may only fully self-isolate if it was compulsory. Their willingness to self-isolate may be encouraged if compensation was available for any loss of income or leave entitlement.
- The respondents from quadrant 4 in the 'elimination sceptics' segment will be less attentive to messaging about Covid-19 but will be sensitive to messages about self-isolating. As they have opinions that deny the danger posed by Covid-19 and deny the merit of elimination as a management strategy, they would most likely only fully self-isolate if it were compulsory and compensation was available for any loss of income or leave entitlement. The threat of fines, and being reported by employers, colleagues and peers may also assist compliance.

Table 34. I_3 self-isolation classification and elimination belief segments

Segment	Quadrant 1	Quadrant 2	Quadrant 3	Quadrant 4	Proportion of sample
Elimination enthusiasts	6.7	22.5	23.7	2.9	22.1
Elimination moderates	26.7	32.5	42.4	5.7	39.5
Vaccine hopefuls	40.0	30.0	25.6	54.3	27.7
Elimination sceptics	26.7	15.0	8.3	37.1	10.7
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Note: Values are proportion of respondents in each quadrant. Test for differences in proportions across quadrants (χ^2=61.5, p<0.01)

Table 35. Elimination belief segments and attitude towards self-isolating

Segment	Right thing to do	Doesn't matter to me	Not sure	Haven't given it much thought	Bad thing to do
Elimination enthusiasts	88.3	0.7	2.1	2.1	6.9
Elimination moderates	88.4	1.2	4.6	1.5	4.2
Vaccine hopefuls	81.9	4.4	4.9	4.4	4.4
Elimination sceptics	70.0	5.7	4.3	8.6	11.4

Note: Values are proportion of respondents in each segment. Test for differences in proportions across segments (χ^2=29.9, p<0.01)

Table 36. Elimination belief segments and willingness to self-isolate if unwell or have any symptoms*

Segment	Definitely	Probably	Maybe	Probably not	Definitely not
Elimination enthusiasts	75.5	14.5	5.5	0.0	5.5
Elimination moderates	71.8	18.1	6.2	2.3	1.5
Vaccine hopefuls	69.8	16.5	11.0	1.6	1.1
Elimination sceptics	57.1	31.4	5.7	2.9	2.9

Note: Values are proportion of respondents in each segment. Test for differences in proportions across segments (χ^2=26.5, p<0.01)

*Symptoms: a dry cough, fever, loss of sense of smell, loss of sense of taste, shortness of breath or difficulty breathing

Table 37. Elimination belief segments and willingness to self-isolate if advised to do so by a healthcare professional or public health authority

Segment	Definitely	Probably	Maybe	Probably not	Definitely not
Elimination enthusiasts	93.1	3.4	2.1	1.4	0.0
Elimination moderates	84.9	9.3	4.2	1.2	0.4
Vaccine hopefuls	76.4	14.3	7.1	2.2	0.0
Elimination sceptics	67.1	22.9	5.7	2.9	1.4

Note: Values are proportion of respondents in each segment. Test for differences in proportions across segments (χ^2=34.2, p<0.01)

Table 38 Elimination belief segments by I_3 self-isolation classification

Segment	Quadrant 1	Quadrant 2	Quadrant 3	Quadrant 4	Total
Elimination enthusiasts	0.7	6.2	92.4	0.7	100.0
Elimination moderates	1.5	5.0	92.7	0.8	100.0
Vaccine hopefuls	3.3	6.6	79.7	10.4	100.0
Elimination sceptics	5.7	8.6	67.1	37.1	100.0

Note: Values are proportion of respondents in each segment. Test for differences in proportions across segments (χ^2=33.6, p<0.01)

6.3.3 Self-isolating when ill and self-isolation belief segments

Key findings for self-isolating when ill from self-isolation belief segments

- Respondents were classified into three belief segments with respect to self-isolating (Figure 18). A majority of respondents believed that self-isolating, if you felt unwell or had any of the symptoms associated with Covid-19, was effective in helping eradicate Covid-19 from New Zealand. These respondents were classified as 'self-isolation enthusiasts' (60%). Another large group of respondents, the 'self-isolation ambivalent' (29%) also believed that self-isolating was effective in helping eradicate Covid-19 but were unsure about the practicalities of it. A third, smaller, segment consisted of respondents, the 'self-isolation doubtfuls' (11%), who believed self-isolating was effective in preventing the spread of Covid-19 but did not believe it was practical and would most likely be a waste of their time. These respondents believed they could not afford the time off work to self-isolate and that you should only have to self-isolate if you were old or already had a health problem. They also believed that you should have to have all the right symptoms and should get tested.
- The distribution of these segments among the I_3 quadrants for self-isolation is consistent with results reported earlier. For example, a relatively high proportion of respondents in quadrants 3 and 4 were members of the 'self-isolation enthusiasts' segment while a relatively high proportion of respondents in quadrant 1 were members of the 'self-isolation moderates' and 'elimination 'self-isolation doubtfuls' segments (Table 39).
- A relatively high proportion of respondents in the 'self-isolation enthusiasts' and 'self-isolation ambivalent' segments had a favourable attitude towards self-isolating while a relatively high proportion of respondents in the 'elimination doubtfuls' segment were unsure about, or had an unfavourable attitude towards, self-isolating (Table 40).
- A relatively high proportion of 'self-isolation enthusiasts' and 'self-isolation ambivalent' indicated they would self-isolate if they felt unwell or were instructed to do so. In contrast, a relatively high proportion of 'self-isolation doubtfuls' indicated they might not self-isolate if they felt unwell or were instructed to do so (Table 41 and Table 42).
- A relatively high proportion of respondents in the 'self-isolation doubtfuls' segment were in the 30-39 age group (Table 43). A relatively low proportion of residents in this segment were European New Zealanders (Table 44).

Implications for self-isolating when ill from self-isolation belief segments

- Nearly all respondents in the 'self-isolation ambivalent' segment are members of quadrants 3 and 4 (Table 45). Consequently, most of the respondents in this segment will notice, and pay attention to, messaging about self-isolating as they have moderate-to-high involvement with the subject. These respondents may be encouraged to self-isolate by emphasising that, by doing so, they are helping to protect the elderly and those with health problems, and to preserve jobs.
- Most respondents in the 'self-isolation doubtfuls' segment are also members of quadrants 3 and 4 (Table 45). The respondents in this segment who are members of

quadrant 3 will notice, and pay attention to, messaging about Covid-19 and self-isolating. As noted previously, while they doubt the practicalities of self-isolating they may change their views if provided with factual information emphasising that, by doing so, they are helping to protect the elderly and those with health problems, and to preserve jobs.

- The respondents from quadrant 4 in the 'self-isolation doubtfuls' segment will be less attentive to messaging about Covid-19 but will be sensitive to messages about self-isolating. While they doubt the practicality of self-isolating, they would most likely only fully self-isolate if it were either compulsory or compensation was available for any loss of income or leave entitlement. The threat of fines, and being reported by employers, colleagues and peers may also assist compliance among those in this segment who believe self-isolating to be a 'bad thing' (Table 40).

The implications of the belief segmentation analyses for promoting compliance with self-isolating are summarised in Diagram 3.

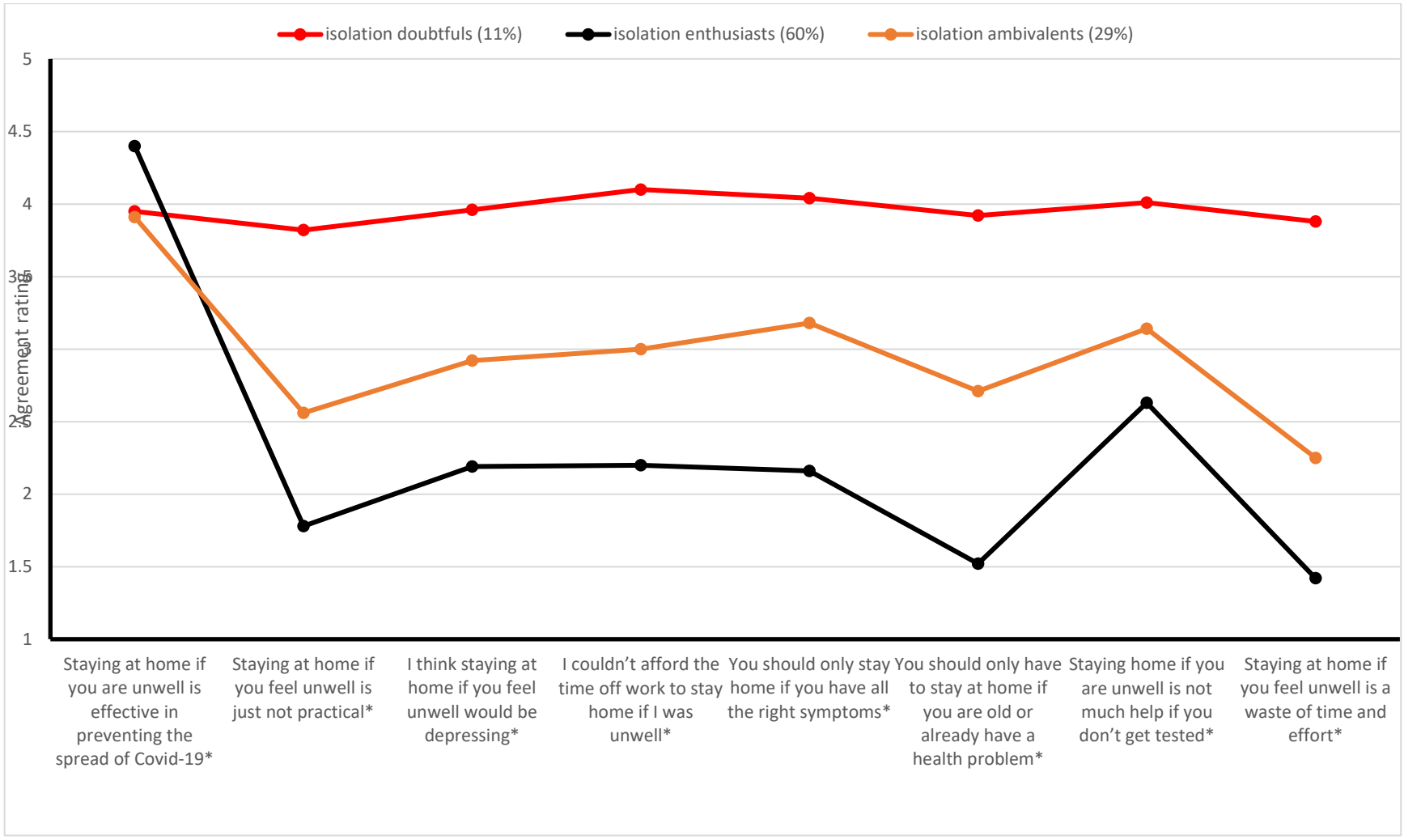

Figure 18. Belief segments for self-isolating when feeling unwell or having any Covid-19 symptoms. Asterisk indicates significant difference in means across quadrants (p<0.01). (Strongly disagree =1, Strongly agree = 5)

Table 39. I_3 self-isolation classification and self-isolation belief segments

Segment	Quadrant 1	Quadrant 2	Quadrant 3	Quadrant 4	Proportion of sample
Self-isolation enthusiasts	13.3	30.0	63.8	48.6	59.8
Self-isolation ambivalent	73.3	65.0	24.6	42.9	29.1
Self-isolation doubtfuls	13.3	5.0	11.7	8.6	11.1
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Note: Values are proportion of respondents in each quadrant. Test for differences in proportions across quadrants (χ^2=49.4, p<0.01)

Table 40. Elimination belief segments and attitude towards self-isolating

Segment	Right thing to do	Doesn't matter to me	Not sure	Haven't given it much thought	Bad thing to do
Self-isolation enthusiasts	93.4	1.0	1.5	0.3	3.8
Self-isolation ambivalent	81.7	2.1	7.3	4.2	4.7
Self-isolation doubtfuls	45.2	11.0	9.6	16.4	17.8

Note: Values are proportion of respondents in each segment. Test for differences in proportions across segments (χ^2=131.6, p<0.01)

Table 41 Self-isolation belief segments and willingness to self-isolate if unwell or have any symptoms*

Segment	Definitely	Probably	Maybe	Probably not	Definitely not
Self-isolation enthusiasts	83.9	11.5	2.6	0.3	1.8
Self-isolation ambivalent	53.9	24.1	14.1	4.2	3.7
Self-isolation doubtfuls	39.7	39.7	15.1	2.7	2.7

Note: Values are proportion of respondents in each segment. Test for differences in proportions across segments (χ^2=103.7, p<0.01)

*Symptoms: a dry cough, fever, loss of sense of smell, loss of sense of taste, shortness of breath or difficulty breathing

Table 42. Self-isolation belief segments and willingness to self-isolate if advised to do so by a healthcare professional or public health authority

Segment	Definitely	Probably	Maybe	Probably not	Definitely not
Self-isolation enthusiasts	93.6	3.8	2.0	0.5	0.0
Self-isolation ambivalent	77.5	12.6	5.8	3.7	0.5
Self-isolation doubtfuls	35.6	43.8	16.4	2.7	1.4

Note: Values are proportion of respondents in each segment. Test for differences in proportions across segments (χ^2=157.7, p<0.01)

Table 43. Elimination belief segments by age category

Segment	18-29 years	30-39 years	40-49 years	50-59 years	60-69 years	70 years and over
Self-isolation enthusiasts	22.2	17.1	17.9	16.3	14.5	12.0
Self-isolation ambivalent	26.8	20.0	20.0	10.0	13.7	9.5
Self-isolation doubtfuls	19.2	49.3	20.5	6.8	2.7	1.4

Note: Values are proportion of respondents in each segment. Test for differences in proportions across segments (χ^2=52.3, p<0.01)

Table 44. Elimination belief segments by ethnicity and gender

Segment	European	Māori	Pacific Islander	Other	Men	Women
Self-isolation enthusiasts	57.4	3.3	3.8	35.5	46.5	53.5
Self-isolation ambivalent	51.8	2.6	5.8	39.8	44.1	55.9
Self-isolation doubtfuls	31.5	6.8	4.1	57.5	63.4	36.6

Note: Values are proportion of respondents in each segment. Test for differences in proportions by ethnicity across segments (χ^2=24.3, p<0.01). Test for differences in proportions by gender across segments (χ2=19.4, p<0.01)

Table 45. Self-isolation belief segments by I_3 self-isolation classification

Segment	Quadrant 1	Quadrant 2	Quadrant 3	Quadrant 4	Total
Self-isolation enthusiasts	0.5	3.1	92.1	4.3	100.0
Self-isolation ambivalent	5.8	13.6	72.8	7.9	100.0
Self-isolation doubtfuls	2.7	2.7	90.4	4.2	100.0

Note: Values are proportion of respondents in each segment. Test for differences in proportions across segments (χ^2=49.4 p<0.01)

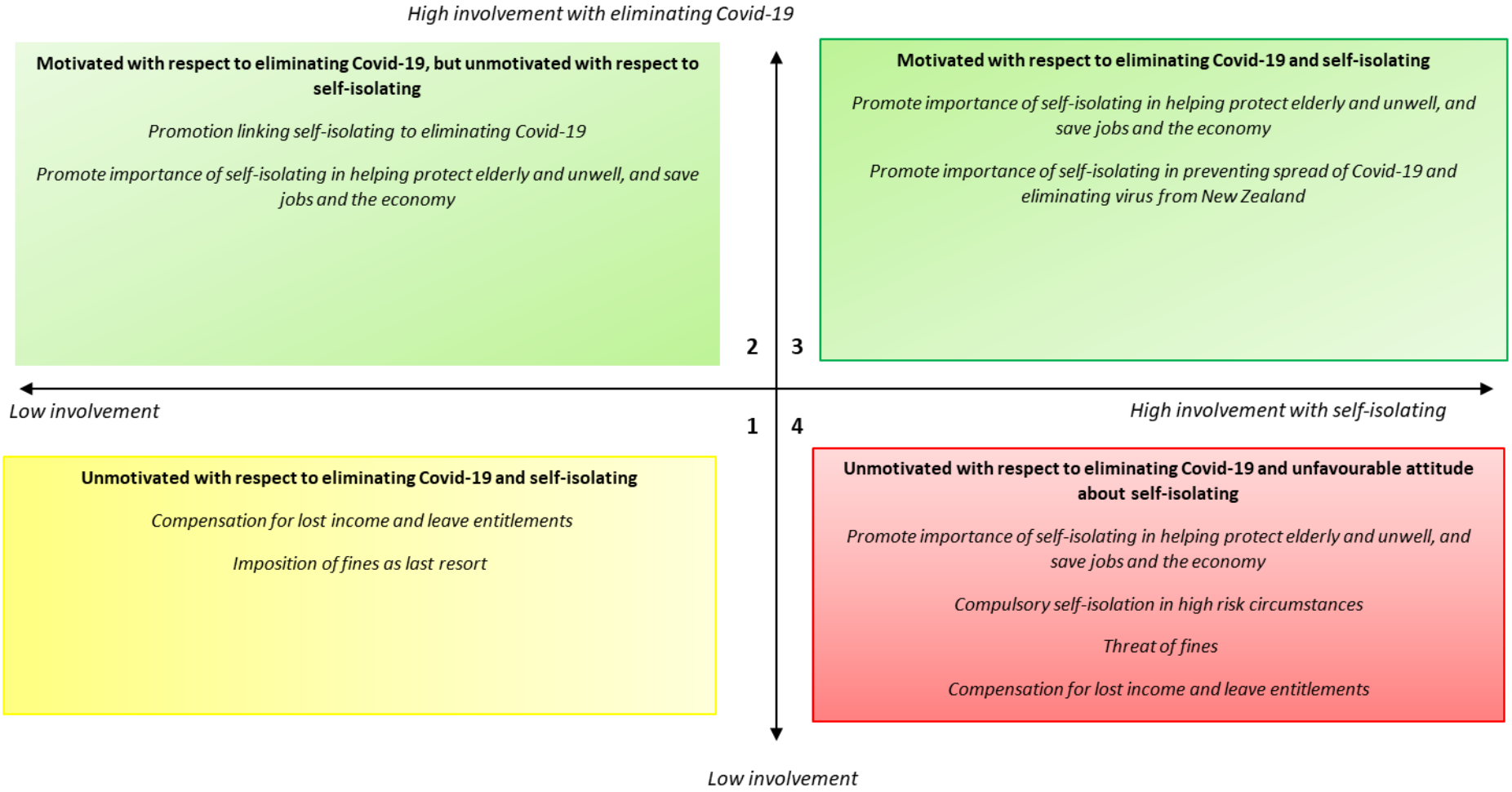

Diagram 3. I_3 Response Summary for promoting compliance with self-isolating
Bold text describes the strength of motivation with respect to the policy outcome (e.g. eliminating Covid-19) and the policy measure (e.g. self-isolating when feeling unwell). Text in italics describes potential measures to promote compliance. (Source: adapted from Kaine et al. 2010).

7 Results: testing for Covid-19

7.1 Key findings about testing for Covid-19

- Most respondents had mild to high involvement with testing for Covid-19 (Figure 19).
- A substantial proportion of respondents (30%) exhibit low to mild involvement with the idea of being tested for Covid-19 but only a very small proportion of respondents expressed an unfavourable opinion about testing (Figure 20)
- Respondents in quadrants 1 and 2 only have mild functional, experiential and identity involvement with testing for Covid-19. These respondents also exhibit mild consequence and risk involvement. As before, this suggests these respondents may feel Covid-19 poses a lower health risk than other respondents and therefore the personal reward for being tested to eliminate Covid-19 is correspondingly lower (Figure 21).
- A substantial proportion (28%) exhibited low to mild involvement with testing (Table 46).
- While respondents in quadrants 1, 2 and 3 agree that testing for Covid-19 is effective in preventing the spread of Covid-19, respondents in quadrant 1 appear unsure that this is the case and that testing is reliable and worthwhile (Figure 22).
- Higher involvement is associated with expressing either a favourable or unfavourable attitude towards testing. Lower involvement is associated with being unsure about testing (Table 47 and Table 48).
- Higher involvement is associated with being tested for Covid-19 (Table 49). However, this association disappears for respondents who were tested because they felt unwell (Table 50), which suggests respondents who were unwell sought testing irrespective of their involvement or attitude towards testing.

7.2 Implications for testing for Covid-19

- A substantial proportion of respondents (30%) exhibit low to mild involvement with the idea of being tested for Covid-19. These respondents exhibited relatively low levels of functional, experiential and consequence involvement with being tested. On average, they are not convinced of the effectiveness or the practicality of testing in preventing the spread of Covid-19.
- A promotional programme highlighting the serious consequences of spreading Covid-19 by infecting family and workmates may increase the motivation of these respondents to seek testing if they feel unwell. Again, an emphasis on the important difference every person can make may be worthwhile. However, their low involvement with the idea of testing means they are unlikely to notice, or pay attention to, promotional messages specifically about testing.
- A high proportion of respondents in quadrant 3 seek testing even though they do not feel unwell. The high identity involvement with testing of respondents in this quadrant suggests a promotional programme using peers to encourage these respondents to avoid testing unless they feel unwell so that testing is more efficient may be influential. The high involvement of these respondents with testing and with eliminating Covid-19 means they are likely to notice, and pay attention to, promotional messages specifically about testing.

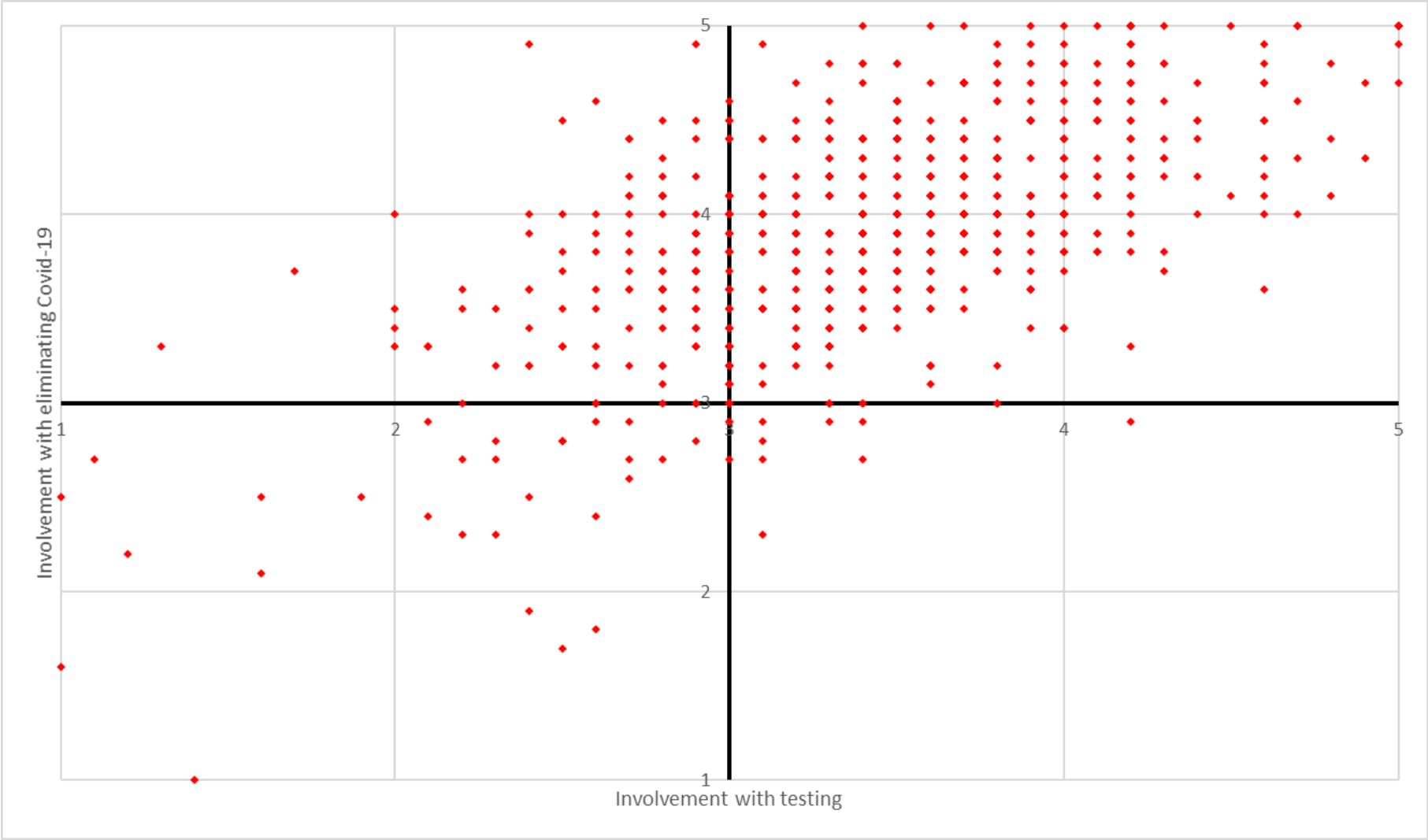

Figure 19. I_3 mapping for eliminating Covid-19 and testing for Covid-19.
(Lowest involvement =1, highest involvement = 5)

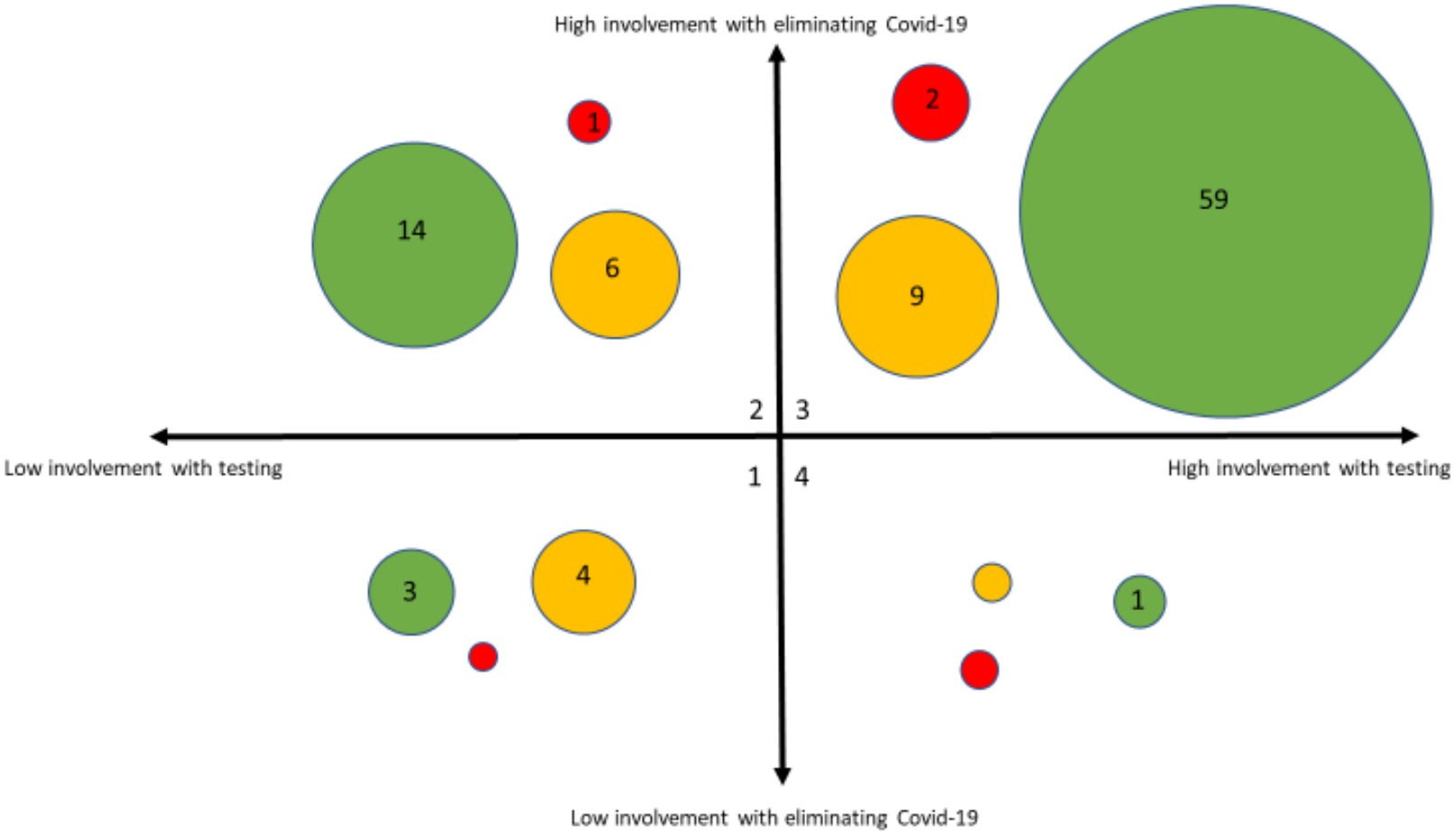

Figure 20. Summary I_3 map for eliminating Covid-19 and testing for Covid-19.
Red=unfavourable attitude, Yellow = ambivalent, Green = favourable attitude
Circle size is proportionate to the percentage of respondents in the sample
Values are percentage of the sample. Circles without a value represent less than 1% of the sample.

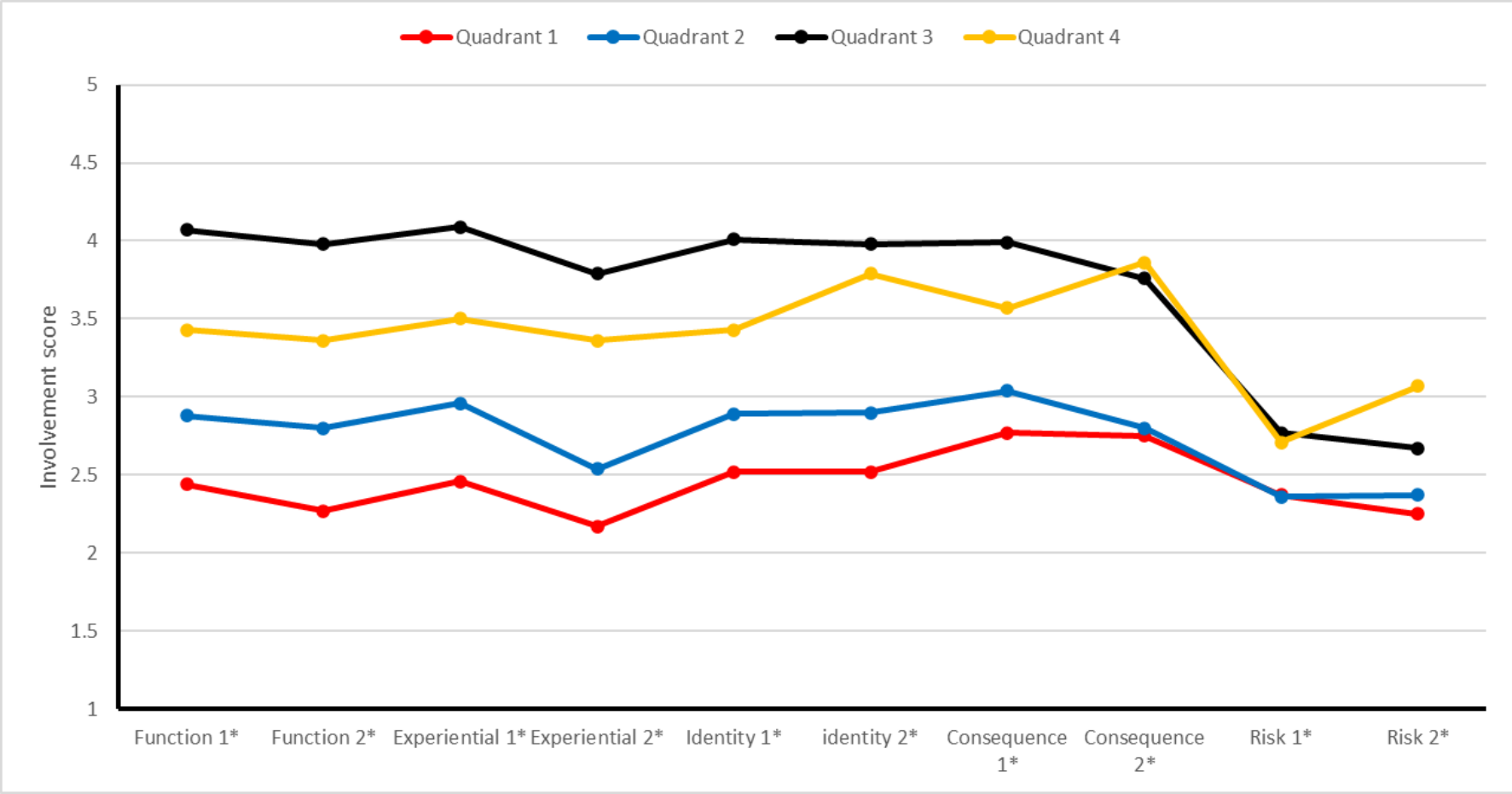

Figure 21. Source of involvement with testing for Covid-19 by quadrant.
Asterisk indicates significant difference in means across quadrants ($p<0.01$). The statements concerned the importance of (functional 1) and caring about (functional 2) being tested; the reward from (experiential 1) and passion about (experiential 2) being tested; opinion about being tested reflecting on you (identity 1) and others (identity 2) as a person; the seriousness (consequence 1) or importance (consequence 2) of consequences arising from making a mistake with being tested; and the complexity (risk 1) or difficulty (risk 2) of making decisions about being tested
(Lowest involvement = 1, highest involvement = 5).

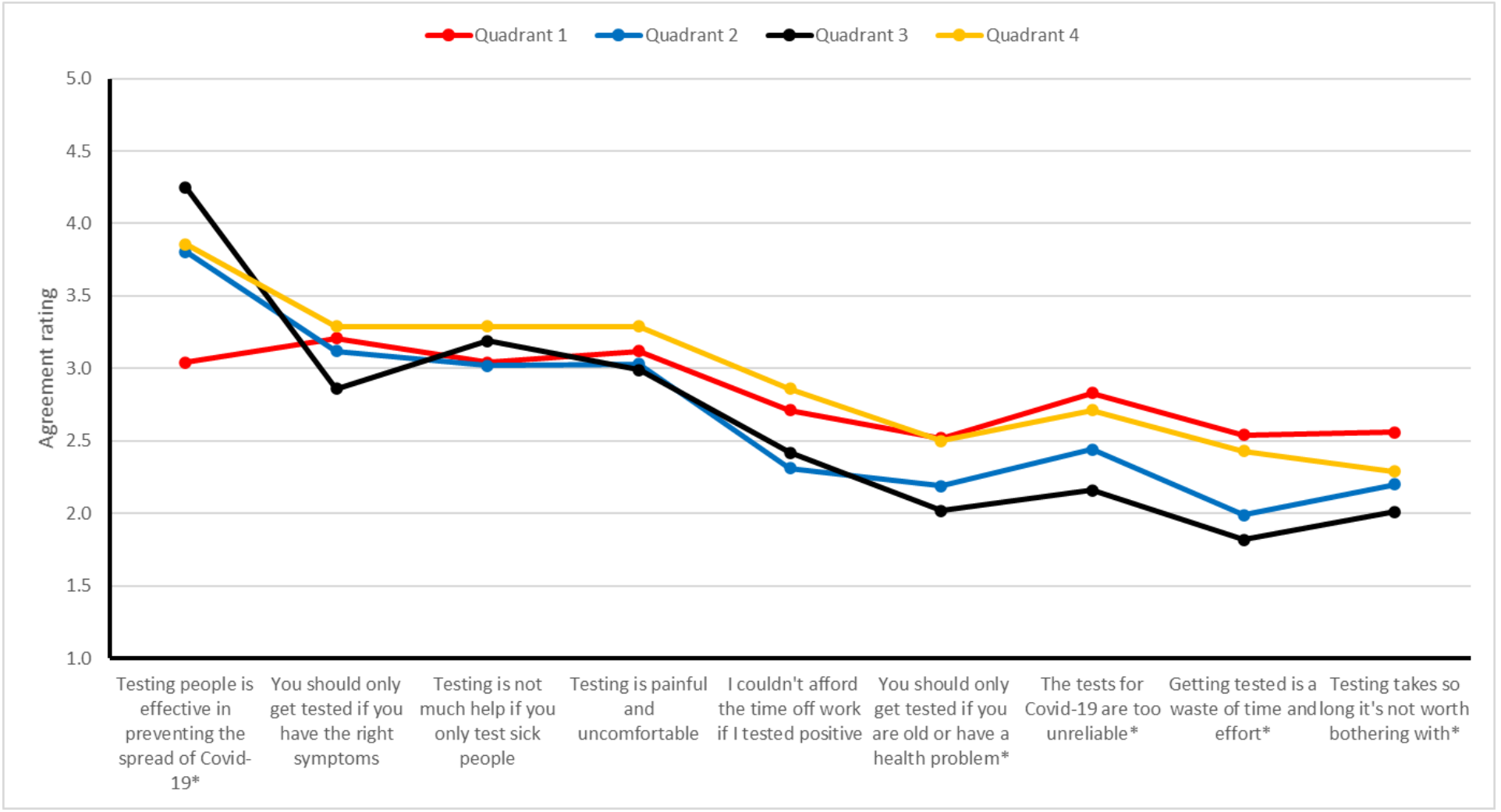

Figure 22. Beliefs about testing by quadrant.
Asterisk indicates significant difference in means across quadrants ($p<0.01$)
(Strongly disagree =1, Strongly agree = 5)

Table 46. I_3 mapping for Covid-19 testing

	Proportion of respondents
Quadrant 1	7.2
Quadrant 2	20.8
Quadrant 3	69.8
Quadrant 4	2.1

Table 47. Involvement and attitude towards testing for Covid-19

Attitude	Involvement with eliminating Covid-19[1]	Involvement with testing for Covid-19[2]
Right thing to do	3.98	3.48
Doesn't matter to me	3.45	3.15
Not sure	3.65	3.29
Haven't given it much thought	3.71	3.06
Bad thing to do	3.65	3.40

Notes: (1) Test for difference in means across quadrants ($F=12.7$, $p<0.01$)
(2) Test for difference in means across quadrants ($F=7.4$, $p<0.01$)
A higher value indicates higher involvement

Table 48. I_3 testing classification and attitude towards testing

Attitude	Quadrant 1	Quadrant 2	Quadrant 3	Quadrant 4
Right thing to do	41.7	69.6	84.0	57.1
Doesn't matter to me	22.9	8.0	3.2	14.3
Not sure	16.7	7.2	5.6	7.1
Haven't given it much thought	14.6	12.3	4.3	0.0
Bad thing to do	4.2	2.9	2.8	21.4

Note: Values are proportion of respondents in each quadrant. Test for differences in proportions across quadrants ($\chi^2=82.5$, $p<0.01$)
A higher value indicates more favourable attitude

Table 49 I_3 testing classification and had been tested for Covid-19

	Quadrant 1	Quadrant 2	Quadrant 3	Quadrant 4
Yes	14.6	10.9	24.2	21.4
No	84.5	89.1	75.8	78.6

Note: Values are proportion of respondents in each quadrant. Test for differences in proportions across quadrants (χ^2=12.7, p<0.01)

Table 50 I_3 testing classification and had been tested for Covid-19 when feeling unwell

Feeling unwell	Quadrant 1	Quadrant 2	Quadrant 3	Quadrant 4
Yes	57.1	73.3	47.3	33.3
No	42.9	26.7	52.7	66.7

Note: Values are proportion of respondents in each quadrant. Test for differences in proportions across quadrants (χ^2=4.1, p<0.25)

7.3 Belief segments results for testing for Covid-19

Knowledge of people's beliefs about policy outcomes and policy measures can provide a basis for explaining differences in people's involvement and attitudes. Coupled with the I_3 analysis, richer insights can be identified for how compliance can be influenced (or not). The analysis for influencing people to get tested for Covid-19 is provided in this section with the implications of these analyses for promoting compliance with testing for Covid-19 summarised in Diagram 4.

7.3.1 Testing for Covid-19 and Covid-19 belief segments

Key findings for testing from Covid-19 belief segments

- The distribution of Covid-19 belief segments among the I_3 quadrants for self-isolating is consistent with results reported earlier. For example, a relatively high proportion of respondents in quadrants 2 and 3 were 'Covid-19 enthusiasts' and 'Covid-19 moderates', while a relatively high proportion of respondents in quadrants 1 and 4 were 'Covid-19 ambivalents' and 'Covid-19 sceptics' (Table 51).
- A relatively high proportion of 'Covid-19 enthusiasts', 'Covid-19 moderates and ' Covid-19 safe healthy' had a favourable attitude towards self-isolating, while a relatively high proportion of 'Covid-19 sceptics' had an unfavourable attitude towards self-isolating (Table 52).
- The proportion of respondents that had been tested for Covid-19 was similar across the Covid-19 belief segments. There were no differences in the proportion of respondents who had been tested in each segment who had felt unwell when they were tested (Table 53).

Implications for testing from Covid-19 belief segments

- Most respondents (77%) had a favourable attitude towards testing for Covid-19. However, a relatively high proportion of respondents in the 'Covid-19 ambivalents' and 'Covid-19 sceptics' segments were most likely to be unsure about, or have an unfavourable opinion of, testing for Covid-19.
- While the proportion of respondents that had been tested for Covid-19 was different across the I_3 Covid-19 testing quadrants (Section 7.2), the proportion of respondents that had been tested for Covid-19 was similar across the Covid-19 belief segments. These results suggest that involvement with testing influences residents' willingness to be tested but beliefs about Covid-19 do not. This suggests efforts to promote testing should concentrate on changing involvement with, and beliefs about, testing rather than beliefs about Covid-19.
- The members of the 'Covid-19 ambivalents' and 'Covid-19 sceptics' segments are spread among quadrants 1, 2 and 3 (Table 54). Those in quadrant 3 will attend to messages about testing, while those in quadrant 2 will attend to messages about testing framed in the context of eliminating Covid-19.
- Respondents in the 'Covid-19 ambivalents' and 'Covid-19 sceptics' segments who have low involvement with testing (those in quadrants 1 and 2) may be more likely to seek testing if it is convenient. This suggests efforts to reduce the time spent traveling to testing centres and queuing for tests would encourage members of these

segments to seek testing. Some respondents in both segments who have low involvement with eliminating Covid-19 and with testing (quadrant 1) may only seek testing when they are unwell if they are required to do so by their employer.

Table 51. I_3 testing classification and Covid-19 belief segments

Segment	Quadrant 1	Quadrant 2	Quadrant 3	Quadrant 4	Proportion of sample
Covid-19 enthusiasts	14.6	37.0	46.0	14.3	41.2
Covid-19 moderates	20.8	31.2	24.2	21.4	25.3
Covid-19 safe healthy	8.3	10.9	8.2	7.1	8.7
Covid-19 ambivalents	35.4	14.5	12.3	21.4	14.6
Covid-19 sceptics	20.8	6.5	9.3	35.7	10.1
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Note: Values are proportion of respondents in each quadrant. Test for differences in proportions across quadrants (χ^2=50.3, p<0.01)

Table 52. Covid-19 belief segments and attitude towards Covid-19 testing

Segment	Right thing to do	Doesn't matter to me	Not sure	Haven't given it much thought	Bad thing to do
Covid-19 enthusiasts	90.5	1.8	2.9	4.0	0.7
Covid-19 moderates	81.5	3.6	5.4	7.7	1.8
Covid-19 safe healthy	81.0	5.2	8.6	5.2	0.0
Covid-19 ambivalents	63.9	9.3	11.3	7.2	8.2
Covid-19 sceptics	29.9	23.9	17.9	14.9	13.4

Note: Values are proportion of respondents in each segment. Test for differences in proportions across segments (χ^2=144.9, p<0.01)

Table 53. Covid-19 belief segments and having been tested*

Segment	Have been tested	Tested when feeling unwell
Covid-19 enthusiasts	22.0	56.7
Covid-19 moderates	17.3	62.1
Covid-19 safe healthy	17.2	30.0
Covid-19 ambivalents	19.6	31.6
Covid-19 sceptics	28.4	42.1

Note: (1) Values are proportion of respondents in each segment.

(2) Values are proportions of those tested in each segment.

* Differences in proportions tested across segments was statistically insignificant (χ^2=4.4, p=0.36) and differences in proportions of those feeling unwell when tested was also statistically insignificant (χ^2=7.4, p=0.12)

Table 54. Covid-19 belief segments by I_3 testing classification

Segment	Quadrant 1	Quadrant 2	Quadrant 3	Quadrant 4	Total
Covid-19 enthusiasts	2.6	18.7	78.0	0.7	100.0
Covid-19 moderates	6.0	25.6	66.7	1.8	100.0
Covid-19 safe healthy	6.9	25.9	65.5	1.7	100.0
Covid-19 ambivalents	17.5	20.6	58.8	3.1	100.0
Covid-19 sceptics	14.9	13.4	64.2	7.5	100.0

Note: Values are proportion of respondents in each segment. Test for differences in proportions across segments (χ^2=50.3, p<0.01)

7.3.2 Covid-19 testing from elimination belief segments

Key findings for Covid-19 testing from elimination belief segments

- The distribution of these segments among the I_3 quadrants for Covid-19 testing is consistent with results reported earlier. For example, a relatively high proportion of respondents in quadrants 2 and 3 were members of the 'elimination enthusiasts' and 'elimination moderates' segments, while a relatively high proportion of respondents in quadrants 1 and 4 were members of the 'vaccine hopefuls' and 'elimination sceptics' segment (Table 55).
- A relatively high proportion of respondents in the 'elimination enthusiasts' and 'elimination moderates' segments had a favourable attitude towards testing, while a relatively high proportion of respondents in the 'elimination sceptics' segment were unsure about, or had an unfavourable attitude towards, testing (Table 56).
- The proportion of respondents that had been tested for Covid-19 was similar across the elimination belief segments. There were no differences in the proportion of respondents that had been tested in each segment who had felt unwell when they were tested (Table 57).

Implications for Covid-19 testing from elimination belief segments

- While most respondents had a favourable attitude towards testing for Covid-19, a relatively high proportion of respondents in the 'vaccine hopefuls' and 'elimination sceptics' segments were most likely to be unsure about, or have an unfavourable opinion of, testing for Covid-19.
- While the proportion of respondents that had been tested for Covid-19 was different across the I_3 Covid-19 testing quadrants (Section 7.2), the proportion of respondents that had been tested for Covid-19 was similar across the elimination belief segments. As was the case with the Covid-19 belief segments, these results suggest that involvement with testing influences residents' willingness to be tested but beliefs about eliminating Covid-19 do not. Again, this suggests efforts to promote testing should concentrate on changing involvement with, and beliefs about, testing rather than beliefs about eliminating Covid-19.
- The members of the 'vaccine hopefuls' and 'elimination sceptics' segments are spread among quadrants 1, 2 and 3 (Table 58). Those in quadrant 3 will attend to messages about testing, while those in quadrant 2 will attend to messages about testing framed in the context of eliminating Covid-19.
- Respondents in the 'vaccine hopefuls' and 'elimination sceptics' segments who have low involvement with testing (those in quadrants 1 and 2) may be more likely to seek testing if it is convenient. This suggests efforts to reduce the time spent traveling to testing centres and the time spent queuing for tests would encourage member of these segments to seek testing. Some respondents in both segments who have low involvement with eliminating Covid-19 and with testing (those in quadrant 1) may only seek testing when they are unwell or if they are required to do so by their employer.

Table 55. I_3 Covid-19 testing classification and elimination belief segments

Segment	Quadrant 1	Quadrant 2	Quadrant 3	Quadrant 4	Proportion of sample
Elimination enthusiasts	6.3	20.3	25.3	7.1	22.5
Elimination moderates	29.2	44.9	39.3	21.4	39.4
Vaccine hopefuls	39.6	29.0	27.2	42.9	28.8
Elimination sceptics	25.0	5.8	8.2	28.6	9.4
Total	100.0	100.0	100.0	100.0	100.0

Note: Values are proportion of respondents in each quadrant. Test for differences in proportions across quadrants (χ^2=36.4, p<0.01)

Table 56. Elimination belief segments and attitude towards Covid-19 testing

Segment	Right thing to do	Doesn't matter to me	Not sure	Haven't given it much thought	Bad thing to do
Elimination enthusiasts	91.9	2.0	2.7	2.7	0.7
Elimination moderates	81.2	3.4	4.2	6.9	4.2
Vaccine hopefuls	67.5	10.5	9.9	8.9	3.1
Elimination sceptics	56.5	11.3	17.7	8.1	6.5

Note: Values are proportion of respondents in each segment. Test for differences in proportions across segments (χ^2=57.7, p<0.01)

Table 57. Elimination belief segments and having been tested*

Segment	Have been tested	Tested when feeling unwell
Elimination enthusiasts	20.8	67.7
Elimination moderates	21.1	47.3
Vaccine hopefuls	19.9	44.7
Elimination sceptics	21.0	38.5

Note: (1) Values are proportion of respondents in each segment.

(2) Values are proportions of those tested in each segment.

* Differences in proportions tested across segments was statistically insignificant (χ^2=0.1, p=0.99) and differences in proportions of those feeling unwell when tested was also statistically insignificant (χ^2=5.2, p=0.16)

Table 58. Elimination belief segments by I_3 Covid-19 testing classification

Segment	Quadrant 1	Quadrant 2	Quadrant 3	Quadrant 4	Total
Elimination enthusiasts	2.0	18.8	78.5	0.7	100.0
Elimination moderates	5.4	23.8	69.7	1.1	100.0
Vaccine hopefuls	9.9	20.9	66.0	3.1	100.0
Elimination sceptics	19.4	12.9	61.3	6.5	100.0

Note: Values are proportion of respondents in each segment. Test for differences in proportions across segments (χ^2=36.4, p<0.01)

7.3.3 Covid-19 testing and testing belief segments

Key findings for Covid-19 testing from testing belief segments

- Respondents were classified into four belief segments with respect to testing for Covid-19 (Figure 23). Nearly all respondents believed that testing for Covid-19 was effective in helping eradicate Covid-19 from New Zealand. However, respondents differed in their beliefs about the efficacy of tests, and who should be tested.
- Most respondents believed testing was practical, reliable, and should include the healthy as well as the elderly, people with health problems or people with Covid-19 symptoms. These respondents were classified as 'testing enthusiasts' (12%) and 'testing moderates' (59%); the difference between these two segments being the intensity of their beliefs. Another segment of respondents, the 'testing selectives' (12%), were like the 'testing enthusiasts' in believing testing was practical and reliable but they believed testing could be limited to sick people. A fourth segment consisted of respondents, the 'testing doubters' (18%) who believed testing was effective in preventing the spread of Covid-19 but did not believe it was practical or reliable, and that testing should be limited to the elderly, people with health problems and people with Covid-19 symptoms.
- The distribution of these segments among the I3 quadrants for testing is consistent with results reported earlier. For example, a relatively high proportion of respondents in quadrants 3 and 4 were members of the 'testing enthusiasts' and 'testing moderates' segment, while a relatively high proportion of respondents in quadrant 1 were members of the 'testing doubters' segment (Table 59).
- A relatively high proportion of respondents in the 'testing enthusiasts', 'testing moderates' and 'testing selectives' segments had a favourable attitude towards Covid-19 testing while a relatively high proportion of respondents in the 'testing doubters' segment were unsure about, or had an unfavourable attitude towards, Covid-19 testing (Table 60).
- Compared to the other testing segments, a relatively high proportion of 'testing enthusiasts' indicated that they had been tested for Covid-19. There were no differences among the segments in the proportion of respondents that had been tested in each segment who had felt unwell when they were tested (Table 61). Assuming the probability of exposure to Covid-19 and the probability of feel unwell is similar across the segments, one explanation for this result is that respondents in this segment are more likely than those in other segments to seek testing, whether they are well or unwell.
- A relatively high proportion of respondents in the 'testing enthusiasts' and 'testing selectives' segments were in the over-50s age groups (Table 62). A relatively high proportion of residents in these segments were women and were European New Zealanders (Table 63). A relatively high proportion of respondents in the 'testing enthusiasts' segment had higher incomes and believed that they could afford the time off work to self-isolate if they tested positive to Covid-19 (Table 64 and Table 65).
- A relatively high proportion of respondents in the 'testing moderates' and 'testing doubters' segment were in the under-50s age groups (Table 62). A relatively high proportion of residents in this segment were men and were Māori, Pacific Islanders or from another ethnic group, while a relatively low proportion were European New Zealanders (Table 63). A relatively high proportion of respondents in the 'testing

doubters' segment had lower incomes and believed that they could not afford the time off work to self-isolate if they tested positive to Covid-19 (Table 64 and Table 65).

- A relatively high proportion of Māori and Pacific Islander respondents in the sample had been tested for Covid-19 while a relatively low proportion of respondents from other ethnic groups, including European New Zealanders, had been tested (Table 66). A relatively high proportion of respondents who were European New Zealanders who had been tested were unwell at the time of testing, while a relatively low proportion of respondents who were Māori or Pacific Islanders were unwell when tested (Table 67).
- There were no other socio-demographic differences between respondents in the sample of those who had been tested for Covid-19 and those that had not.

Implications for Covid-19 testing from testing belief segments

- While most respondents had a favourable attitude towards testing for Covid-19, a relatively high proportion of respondents in the 'testing doubters' segment were unsure about, or have an unfavourable opinion of, testing for Covid-19.
- The proportion of respondents that had been tested for Covid-19 differed across the testing belief segments, the most notable difference being the relatively high proportion of respondents in the 'testing enthusiasts' segment who had been tested for Covid-19. These results mean that involvement with testing, along with beliefs about testing, influence residents' willingness to be tested. This suggests efforts to promote testing should concentrate on changing involvement with, and beliefs about, testing.
- The members of the 'testing doubters' segment are spread among quadrants 1, 2 and 3 (Table 68). Those in this segment who are in quadrants 2 and 3 will attend to messages about testing framed in the context of eliminating Covid-19. Hence, a promotional programme highlighting the serious consequences of spreading Covid-19 by infecting family and workmates may increase the motivation of these respondents to seek testing if they feel unwell.
- Respondents in the 'testing doubters' segment who have low involvement with testing (those in quadrants 1 and 2) may be more likely to seek testing if it is convenient. This suggests efforts to reduce the time spent traveling to testing centres and the time spent queuing for tests would encourage member of these segments to seek testing. Those respondents in this segment who have low involvement with eliminating Covid-19 and with testing (those in quadrant 1) may only seek testing when they are unwell or if they are required to do so by their employer.
- A high proportion of respondents in the 'testing enthusiasts' segment may seek testing even though they do not feel unwell. The high involvement of these respondents with testing and with eliminating Covid-19 means they are likely to notice, and pay attention to, promotional messages specifically about testing. Most of these respondents have high identity involvement with eliminating Covid-19 and with testing. A promotional programme using peers to encourage these respondents to avoid testing unless they feel unwell (so that testing is more efficient) may be

influential. Note that, the less time-consuming and more convenient testing becomes, the more likely these respondents will seek testing.

The implications of the belief segmentation analyses for promoting compliance with Covid-19 testing are summarised in Diagram 4.

7.4 Some conclusions about compliance for Covid-19

1 Approximately 50% of the respondents in the sample had moderate or lower involvement with eliminating Covid-19. This suggests cooperation with lockdown and other measures is likely to start declining if lockdowns are repeated, become more severe or lengthy.

2 The sample did not include under-20s, which may have biased the proportion of respondents in each of the involvement quadrants, though the likely direction of bias is unclear.

3 The factors influencing compliance vary depending on the measure. For example, mask wearing was influenced by respondents' involvement with and beliefs about eliminating Covid-19, beliefs about Covid-19, and involvement with beliefs about mask wearing. In contrast, the propensity to seek Covid-19 testing depends largely on involvement with, and beliefs about, testing. Beliefs about Covid-19 and the elimination of Covid-19 do not appear to influence the propensity to be tested for Cobvid-19. This means different mixes of customised promotional messages (including their content) and other policy measures are required to encourage mask wearing, self-isolating and Covid-19 testing.

4 Differences in socio-demographics are strongly related to differences in beliefs about testing for Covid-19 but only weakly related, if at all, to beliefs about Covid-19, eliminating Covid-19, wearing masks and self-isolating.

5 Broadly speaking, respondents' motivation to observe or comply with policy measures such as wearing masks, self-isolating and getting tested appear to be strongly related to their personal perceptions of the risk Covid-19 poses to their health and the health of others, and to their personal evaluation of the effectiveness, and personal cost associated with, each of the measures.

6 Data on the suburban location of respondents, potentially salient characteristics of their families, media use, and employment is yet to be analysed in detail.

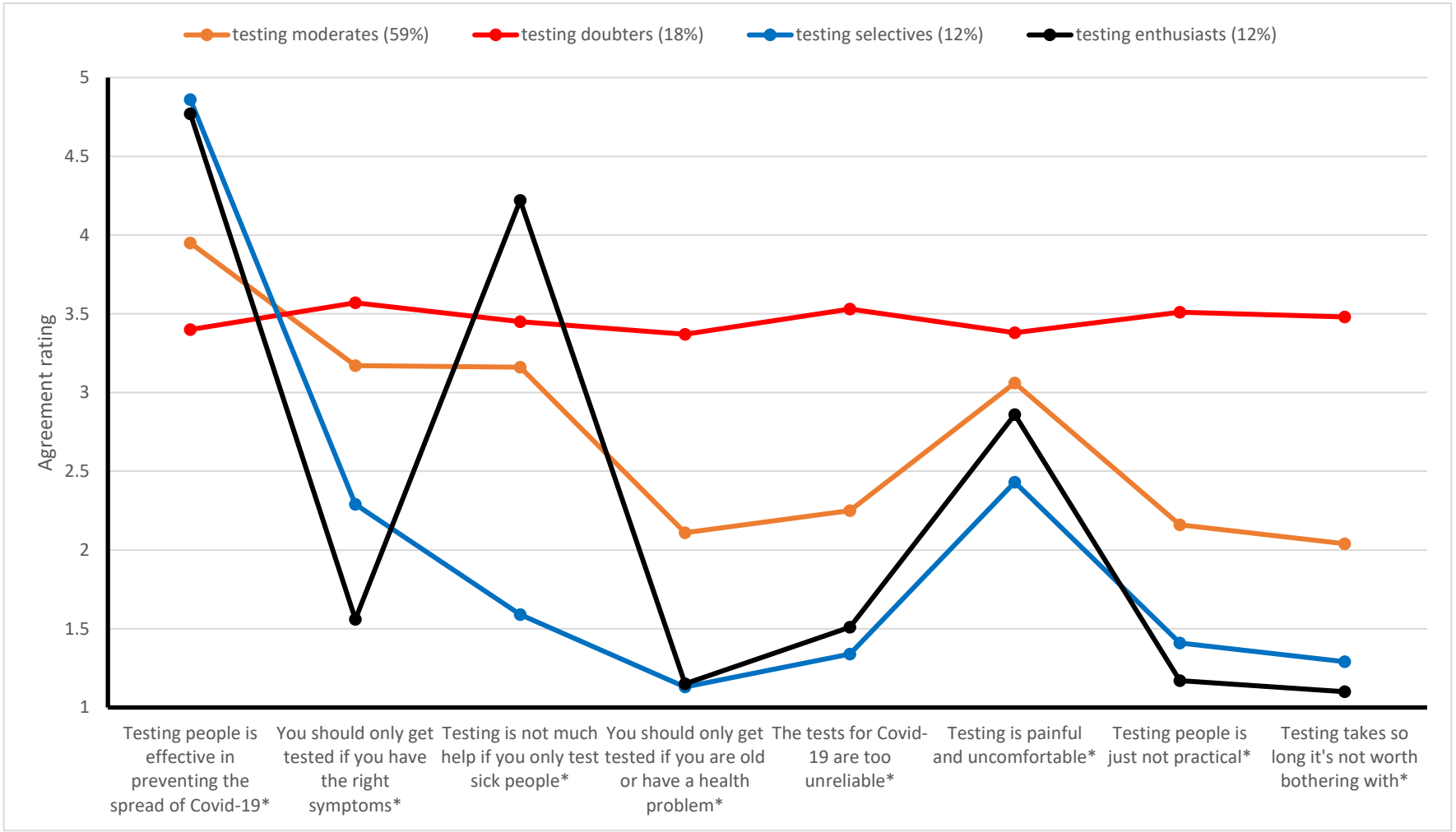

Figure 23. Belief segments for Covid-19 testing.
Asterisk indicates significant difference in means across quadrants ($p<0.01$).
(Strongly disagree =1, Strongly agree = 5)

Table 59. I_3 Covid-19 testing classification and Covid-19 testing belief segments

Segment	Quadrant 1	Quadrant 2	Quadrant 3	Quadrant 4	Proportion of sample
Testing enthusiasts	4.2	3.6	15.1	7.1	11.8
Testing moderates	50.0	71.7	55.5	64.3	58.7
Testing selectives	0.0	8.0	14.7	0.0	11.9
Testing doubters	45.8	16.7	14.7	28.6	17.6
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Note: Values are proportion of respondents in each quadrant. Test for differences in proportions across quadrants (χ^2=57.4, p<0.01)

Table 60. Covid-19 testing belief segments and attitude towards Covid-19 testing

Segment	Right thing to do	Doesn't matter to me	Not sure	Haven't given it much thought	Bad thing to do
Testing enthusiasts	97.4	1.3	0.0	1.3	0.0
Testing moderates	82.5	3.1	4.9	7.2	2.3
Testing selectives	94.9	0.0	3.8	0.0	1.3
Testing doubters	35.0	22.2	19.7	12.8	10.3

Note: Values are proportion of respondents in each segment. Test for differences in proportions across segments (χ^2=175.6, p<0.01)

Table 61. Covid-19 testing belief segments and having been tested

Segment	Have been tested	Tested when feeling unwell*
Testing enthusiasts	33.3	57.7
Testing moderates	17.0	50.0
Testing selectives	22.8	50.0
Testing doubters	23.1	44.4

Note: (1) Values are proportion of respondents in each segment. Test for differences in proportions tested across segments (χ^2=11.5, p<0.01)

(2) values are proportions of those tested in each segment.

*Differences in proportions of those feeling unwell when tested was statistically insignificant (χ^2=0.9, p=0.82)

Table 62. Covid-19 testing belief segments by age category

Segment	18-29 years	30-39 years	40-49 years	50-59 years	60-69 years	70 years and over
Testing enthusiasts	14.1	16.7	15.4	17.9	17.9	17.9
Testing moderates	21.9	23.5	18.8	12.9	11.3	11.6
Testing selectives	26.6	11.4	11.4	16.5	11.4	22.8
Testing doubters	25.6	25.6	24.8	12.8	6.8	4.3

Note: Values are proportion of respondents in each segment. Test for differences in proportions across segments (χ^2=36.9, p<0.01)

Table 63. Covid-19 testing belief segments by ethnicity and gender

Segment	European	Māori	Pacific Islander	Other	Men	Women
Testing enthusiasts	61.5	5.1	0.0	33.3	42.9	57.1
Testing moderates	55.0	4.1	5.4	35.5	42.3	57.7
Testing selectives	64.6	2.5	3.8	29.1	41.8	58.2
Testing doubters	38.5	8.5	4.3	48.7	62.1	37.9

Note: Values are proportion of respondents in each segment. Test for differences in proportions by ethnicity across segments (χ^2=23.0, p<0.01). Test for differences in proportions by gender across segments (χ2=15.1, p<0.01)

Table 64. Covid-19 testing belief segments by income category

Segment	Less than $20,000	$20,000 to $50,000	$50,000-$70,000	$70,000 – $100,000	More than $100,000
Testing enthusiasts	1.4	24.3	12.9	22.9	38.6
Testing moderates	2.7	22.1	19.1	20.6	33.7
Testing selectives	6.2	15.4	9.2	32.3	36.9
Testing doubters	12.7	18.6	27.5	20.6	20.6

Note: Values are proportion of respondents in each segment. Test for differences in proportions across segments (χ^2=37.7, p<0.01)

Table 65. Covid-19 testing belief segments by cannot afford time of work

Segment	Strongly agree	Agree	Unsure/neutral	Disagree	Strongly disagree
Testing enthusiasts	1.3	5.1	11.5	26.9	55.1
Testing moderates	4.1	14.7	16.2	48.1	17.0
Testing selectives	3.8	2.5	12.7	24.1	57.0
Testing doubters	18.8	22.1	45.3	12.0	1.7

Note: Values are proportion of respondents in each segment. Test for differences in proportions across segments (χ^2=238.7, p<0.01)

Table 66 Covid-19 testing by ethnicity

	European	Māori	Pacific Islander	Other
Tested	19.6	46.9	31.0	17.6
Not tested	80.4	53.1	69.0	82.4

Note: Values are proportion of respondents in each segment. Test for differences in proportions across categories (χ^2=16.9, p<0.01).

Table 67. Covid-19 testing when feeling unwell by ethnicity

Segment	European	Māori	Pacific Islander	Other
Feeling unwell when tested	64.3	40.0	11.1	39.5
Feeling well when tested	35.7	60.0	88.9	60.5

Note: Values are proportion of those tested in each category. Test for differences in proportions across categories (χ^2=13.6, p<0.01).

Table 68. Covid-19 testing belief segments by I_3 Covid-19 testing classification

Segment	Quadrant 1	Quadrant 2	Quadrant 3	Quadrant 4	Total
Testing enthusiasts	2.6	6.4	89.7	1.3	100.0
Testing moderates	6.2	25.4	66.1	2.3	100.0
Testing selectives	0.0	13.9	86.1	0.0	100.0
Testing doubters	18.8	19.7	58.1	3.4	100.0

Note: Values are proportion of respondents in each segment. Test for differences in proportions across segments (χ^2=57.4 p<0.01)

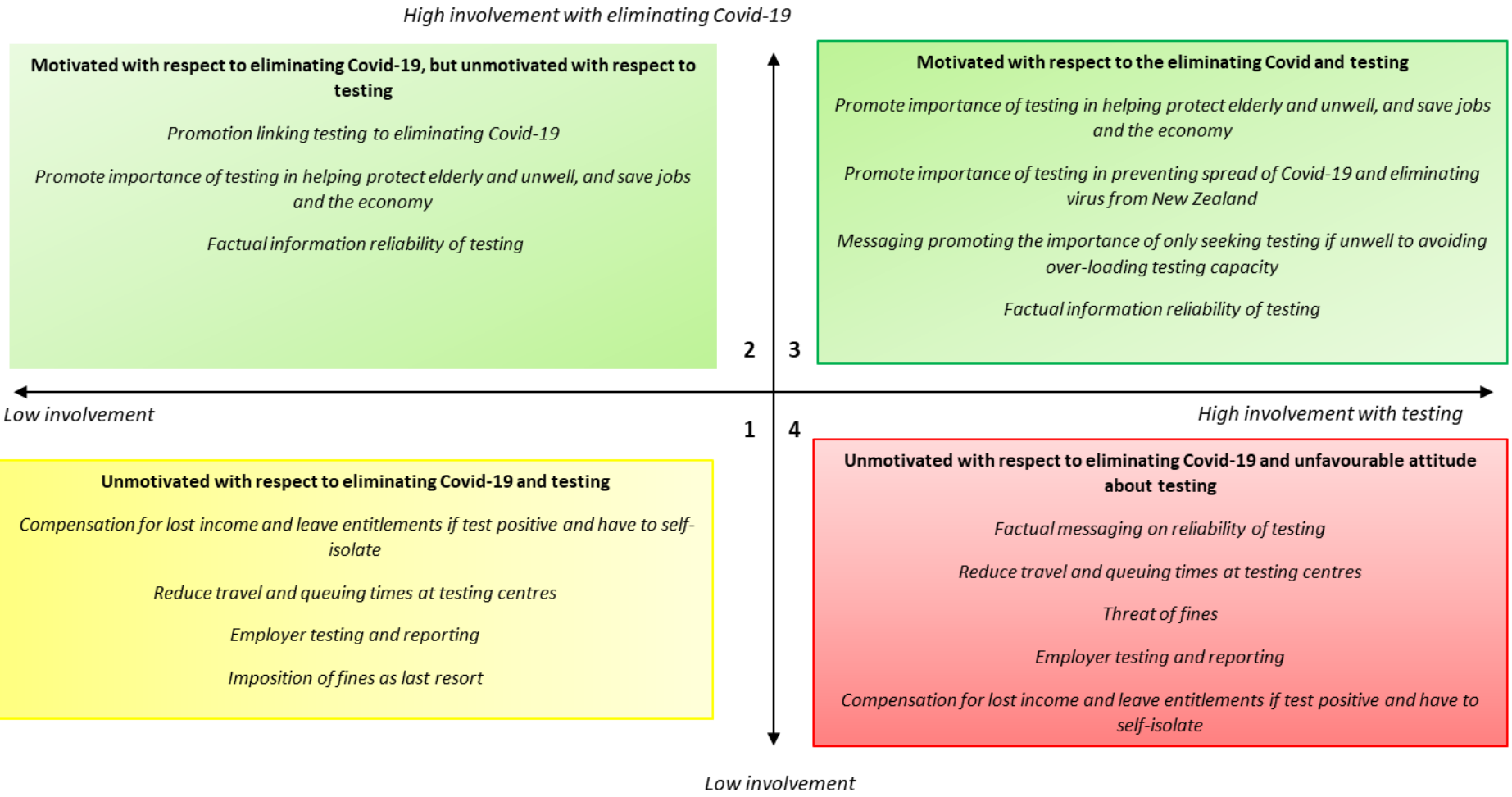

Diagram 4. I_3 Response Summary for promoting compliance with Covid-19 testing
Bold text describes the strength of motivation with respect to the policy outcome (e.g. eliminating Covid-19) and the policy measure (e.g. seeking testing for Covid-19). Text in italics describes potential measures to promote compliance with the measure. (Source: adapted from Kaine et al. 2010)

8 Results for involvement, attitudes and demographics

8.1 Key findings about involvement, attitudes and demographics

- The propensity to wear a face mask in public is influenced by involvement with, and attitude towards, wearing face masks. European New Zealander respondents were marginally (but statistically significantly) less likely to wear a face mask in public than respondents from other ethnic groups (Table 69). The same is the case in relation to wearing a face mask at work.
- The propensity to stay at home when feeling unwell is influenced by involvement with, and attitude towards, self-isolating when unwell. Older respondents were marginally (but statistically significantly) more likely to stay at home if they are unwell than are younger respondents (Table 69).
- The propensity to stay at home if instructed to do so by a health authority was influenced by involvement with eliminating Covid-19 from New Zealand and by attitude towards self-isolating when unwell. Again, older respondents were marginally (but statistically significantly) more likely to stay at home if instructed to do so than were younger respondents (Table 69).
- The propensity to be tested for Covid-19 was, after allowing for feeling unwell, influenced by attitude towards testing. Māori respondents were marginally (but statistically significantly) more likely to have been tested than respondents from other ethnic groups (Table 69).
- Income, gender, and education did not appear to influence propensity to wear face masks, self-isolate or seek testing.
- Respondents who were employed full-time in the retail sector exhibited higher involvement, on average, with wearing face masks than other respondents. They also tended to exhibit less favourable opinions, on average, about wearing masks and self-isolating than other respondents (Table 70).
- Respondents who were unemployed exhibited more favourable opinions, on average, about wearing masks, self-isolating and testing than other respondents (Table 70).
- Respondents who had become unemployed or closed their businesses following the introduction of Level 4 lockdown in March 2020 exhibited higher involvement, on average, with testing than other respondents (Table 70).

8.2 Implications based on involvement, attitudes and demographics

- Demographic factors appear to be only weakly related to involvement and attitudes regarding eliminating Covid-19, wearing masks, self-isolating and testing. This implies involvement and attitudes are more likely driven by personal values, personality, and perceptions of personal risk.

9 Results for involvement, attitudes and media

9.1 Key findings about involvement, attitudes and media

- Broadly speaking, respondents who used social media apps (including chatrooms, blogs, and online forums) tended to exhibit higher involvement, on average, with wearing masks, self-isolating and testing than those who did not use them. They also tended to exhibit less favourable opinions, on average, about wearing masks, self-isolating and testing than those who did not use them (Table 71).
- Respondents who used mainstream media tended to exhibit higher involvement, on average, with eliminating Covid-19, wearing masks, self-isolating and testing than those who did not use them. They also tended to exhibit more favourable opinions, on average, about wearing masks, self-isolating and testing than those who did not use mainstream media (Table 71).
- Respondents who discussed Covid-19 topics with their families and friends tended to exhibit higher involvement, on average, with the eliminating Covid-19 than those who did not. They also tended to exhibit more favourable opinions, on average, about wearing masks, self-isolating and testing than those who did not discuss these matters with their family or friends (Table 71).

9.2 Implications based on involvement, attitudes and media

- Focus promotional programmes on social media to target people that have high involvement with eliminating Covid-19 but unfavourable attitudes towards wearing masks, self-isolating and testing. The high involvement of these people with eliminating Covid-19 means they are likely to notice, and pay attention to, promotional messages about wearing masks, self-isolating and testing provided those messages are placed in the context of eliminating the virus.
- Efforts to engage people with low to mild involvement with eliminating Covid-19 need to be linked to an issue that these people do find involving. The alternative is to employ measures such as making the wearing of face masks compulsory in public or in the workplace and providing incentives for self-isolating and testing when people are unwell.

Table 69. Predicting compliance from involvement, attitudes and socio-demographics

Independent variable	Face mask in public	Face mask at work	Stay home if sick	Stay home if ordered	Getting tested
Intercept	6.26*	6.44*	4.20*	3.71*	2.07*
Covid-19 involvement				-0.15*	
Mask involvement	-0.39*	-0.57*			
Mask attitude	-0.72*	-0.55*			
Isolation involvement			-0.17*		
Isolation attitude			-0.43*	-0.39*	
Testing involvement					-0.05*
Testing attitude					0.0
European NZ	0.22*	0.34*			
Māori					-0.19*
Age			-0.07*	-0.04*	
Feeling unwell					-0.87*
F-test	171.2	58.8	36.7	60.6	142.0
Adjusted R-squared	0.43	0.27	0.14	0.21	0.46

Notes: * indicates parameter estimate is significant with $p<0.01$

Involvement scored as a rating from 1-5 (low to high involvement)

Attitude scored as a rating from 1-5 (unfavourable to favourable)

European NZ, Māori and feeling unwell are 0-1 dummy variables (1 indicating presence)

Age scored as a categorical variable from 1-6 (youngest to oldest)

Face mask wearing scored as a rating from 1-5 (Always to Never)

Staying at home scored as a rating from 1-5 (Definitely would to definitely not)

Testing scored as 1-2 (tested, not tested)

Table 70. Involvement, attitudes and employment

Media	Involvement with eliminating Covid-19	Involvement with wearing face masks	Attitude towards wearing face masks	Involvement with self-isolating	Attitude towards self-isolating	Involvement with testing	Attitude towards testing
Business owner - retail							
Business owner - manufacturing			0.010				
Business owner - other		0.011			(0.017)		
Full time employee - retail		0.011	(0.008)		(0.017)		
Full time employee - manufacturing							
Full time employee - other							
Part time employee - retail	0.006						
Part time employee - manufacturing					(0.013)		(0.016)
Part time employee - other							
Casual employee - retail							
Casual employee - manufacturing							
Casual employee - other							
Unemployed			0.010		0.011		0.009
Became unemployed during or after level 4 lockdown						0.043	

Notes: [1] Values are eta-squared (η^2), the proportion of the variance in involvement or attitude explained by the variance in the socio-demographic variable. For example, the being a full-time employee in retail (or not) explains 1.1% of the variation in involvement with the idea of wearing face masks ($\eta^2 = 0.011$).

Values of η^2 are only reported for statistically significant differences in means for involvement or attitude ($p < 0.01$).

Values in parentheses indicate a negative association between employment or business ownership and involvement or attitude.

Table 71. Involvement, attitudes and media use

Media	Involvement with eliminating Covid-19	Involvement with wearing face masks	Attitude towards wearing face masks	Involvement with self-isolating	Attitude towards self-isolating	Involvement with testing	Attitude towards testing
Twitter						0.009	
Facebook	0.006					0.010	
Instagram		0.012		0.022	(0.009)	0.014	
YouTube		0.019		0.020		0.029	
Snapchat			(0.010)	0.012	(0.013)		
WeChat							
Other applications		0.010					
Online chat room		0.015		0.013	(0.016)	0.012	
Online blog or forum				0.009		0.009	(0.010)
Television	0.010		0.009	0.014	0.025		0.019
Radio	0.006	0.011	0.016				0.014
Newspapers	0.013		0.017			0.010	0.027
Magazine		0.016		0.014		0.015	
Other mainstream media							
Family and friends	0.009		0.056		0.076		0.048
Co-workers							
Doctor or chemist	0.012						

Notes: [1] Values are eta-squared (η^2), the proportion of the variance in involvement or attitude explained by the variance in the socio-demographic variable. For example, watching, reading, or listening for news about Covid-19 on Instagram (or not) explains 1.2% of the variation in involvement with the idea of wearing face masks ($\eta^2 = 0.012$). Values of η^2 are only reported for statistically significant differences in means for involvement or attitude ($p < 0.01$).
Values in parentheses indicate a negative association between media use and involvement or attitude.

10 Acknowledgements

This research was undertaken with Manaaki Whenua – Landcare Research Strategic Science Investment Funding and in collaboration with Te Pūnaha Matatini. Our thanks to Vic Wright and Dean Stronge for reviewing this paper.

11 References

Assael H 1998. Consumer behaviour and marketing action. Cincinnati, OH: South Western College Publishing.

Celsi RL, Olson JC 1988. The role of involvement in attention and comprehension processes. The Journal of Consumer Research 15: 210–224.

Derbaix C, Vanden Abeele P 1985. Consumer inferences and consumer preferences. The status of cognition and consciousness in consumer behavior theory. International Journal of Research in Marketing 2: 157–174.

Dholakia UM 2001. A motivational process model of product involvement and consumer risk perception. European Journal of Marketing 35: 1340–1360.

Kaine G, Murdoch H, Lourey R, Bewsell D 2010. A framework for understanding individual response to regulation. Food Policy 35: 531–537.

Laurent G, Kapferer J-N 1985. Measuring consumer involvement profiles. Journal of Marketing Research 22: 41–53.

Murdoch H, Bewsell D, Lourey R, Kaine G 2006. Understanding people's response to biosecurity regulation. Paper presented to New Zealand Society for Risk Management Inc: Decision Making in Uncertain Time, 3rd National Conference on Risk Management, Auckland.

Oliver, RL 1997. Need fulfilment in a consumer satisfaction context. In: Oliver, R.L. (Ed.), Satisfaction: A Behavioural Perspective on the Consumer. Irwin/McGraw-Hill, New York, pp. 135–161.

Plank, MJ, Binny RN, Hendy SC, Lustig A, James A, Steyn N 2020. Surveillance testing for COVID-19. Analysis provided in confidence to the New Zealand Government.

Poiesz TBC, Cees JPM de Bont 1995. Do we need involvement to understand consumer behavior? Advances in Consumer Research 22: 448–452.

Verbeke W, Vackier I 2004. Profile and effects of consumer involvement in fresh meat. Meat Science 67: 159–168.

Appendix A – Sample demographics

Table A1. Age distribution of respondents

Age category	Proportion of respondents	Proportion of Auckland residents
18-29 years	22.8	22.4
30-39 years	21.8	20.3
40-49 years	18.4	18.0
50-59 years	13.1	16.7
60-69 years	12.5	11.9
70 years and over	11.4	10.8

Table A2. Education distribution of respondents

Education category	Proportion of respondents	Proportion of Auckland residents
Some or all of secondary school	14.2	23.6
Certificate (1-6)	12.4	35.8
Diploma (5-7)	14.3	9.6
Graduate or post-graduate	59.0	31.1

Table A3. Ethnicity distribution of respondents

Ethnic category	Proportion of respondents	Proportion of Auckland residents
European	53.3	47.5
Māori	4.4	10.3
Pacific Islander	4.7	14.1
Other	37.6	28.1

Table A4. Income distribution of respondents

Income category	Proportion of respondents	Proportion of Auckland residents
Less than $20,000	4.3	8.1
$20,000 to $50,000	21.2	18.7
$50,000 to $70,000	18.6	11.3
$70,000 to 4100,000	22.0	14.7
More than $100,000	33.8	47.0