COVID-19 in Australia: What factors drive pro-vaccination behaviour?
A longitudinal investigation of Australians to better understand who will choose to be vaccinated and why.

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COVID-19 in Australia: What factors drive pro-vaccination behaviour? Executive summary

Experts agree that vaccines do not save lives; vaccination programs save lives[1].

Long-term protection against COVID-19 in Australia depends on the great majority of Australians being willing and perceiving little risk to getting the COVID-19 vaccine.

This report summarises findings from a longitudinal study on Australians' attitudes and behavioural intentions towards vaccination. This study uses a representative sample of Australians who responded to a range of survey questions in May, June/July and September/October 2020.

We focus on two main findings: the evolution of attitudes towards the COVID-19 vaccination (willingness and perceived risks associated with vaccination), and the social and political factors (e.g., social cohesion including confidence in government) that resulted in more positive attitudes towards vaccination in later phases of the pandemic (September/October 2020).

Key findings are as follows:

Willingness of vaccination as soon as possible
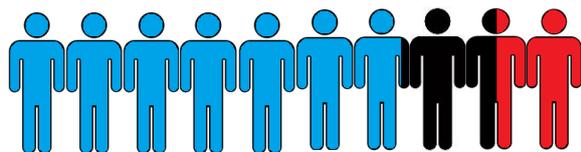
■ Agree ■ Disagree
■ Neither Agree nor Disagree

In June/July 2020, **nearly seven out of ten (67%) Australians agreed** that they would be willing to receive the COVID-19 vaccine as soon as it is possible; **1.5 out of ten (15%) Australians disagreed** when asked if they would be willing to receive the COVID-19 vaccine as soon as it is possible. **Nearly two out of ten (18%) Australians showed neither agreement nor disagreement** in their willingness to get vaccinated as soon as is possible.

These proportions shifted somewhat in September/October 2020. The proportion of those who disagreed to be willing to receive a vaccine rose to 19%, and those who neither agreed nor disagreed increased to 20%.

Over both time measures, those who agreed to be willing to receive a vaccine was higher (64%) than those who neither agreed nor disagreed (19 %) and those who disagree (17%).

 Older Australians (particularly those 65+) were the most willing to receive the vaccine as soon as possible at both time points, June/July and in September/October 2020.

 Respondents born in Australia and those born outside of Australia were similar in their willingness to receive the COVID-19 vaccine as soon as possible at both time points, June/July and in September/October 2020.

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[1] Orenstein, W. A., & Ahmed, R. (2017). Simply put: vaccination saves lives. *PNAS*, *114* (16), 4031-4033.

Women were less willing to receive the vaccine as soon as possible at both time points, June/July and in September/October 2020.

Risk of vaccination
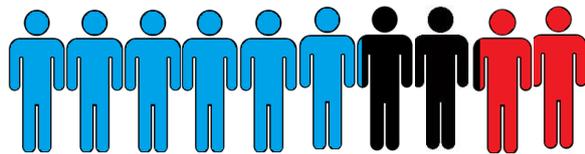
■ No to small risk   ■ High to extreme risk
■ Medium risk

In June/July, **roughly six out of ten (61%) Australians perceived no to minor risks** of getting vaccinated as soon as possible. **Two out of ten (20%) Australians perceived medium levels of risks** associated with the vaccine. **Two out of ten (19%) Australians perceived serious** risks of being vaccinated**.**

These proportions remained relatively stable in September/October, although more Australians perceived there to be serious risks (23%) and fewer Australians perceived there to be minor risks (56%) of getting vaccinated as soon as possible.

Over both time measures, the percentage of those who perceived minor risks associated with vaccination was greater (58.5%) than those who perceived medium risks (20.5%) and those who perceived major risks (21%).

Older Australians (particularly those 65+) perceived the least risk associated with the COVID-19 vaccine in both June/July and in September/October.

Respondents born in Australia and those born outside of Australia were similar in the perceived risk of the COVID-19 vaccine.

Women perceived greater risk of receiving the vaccine as soon as possible at both time points, June/July and in September/October.

Predicting attitudes towards vaccination from social cohesion (a range of social and political views)

Taking into consideration a range of well-known predictors of vaccination behaviour, this survey also examined the role of *social and political attitudes* using the umbrella construct of *social cohesion*.

A highly cohesive group has positive relations amongst members including trust and helping, confidence in its representative bodies (e.g., government and institutions), and a strong sense of belonging. When individuals see their group as highly cohesive there are individual well-being and community benefits (less crime, less polarization, more problem-solving).

Willingness of vaccination as soon as possible

We found that individuals who had **strong local-level social cohesion in May** (had confidence in the state government, felt that they belong/identify with their neighbourhood and believed that people in their neighbourhood are treated fairly) also showed **greater willingness to get vaccinated when they responded in September/October**.

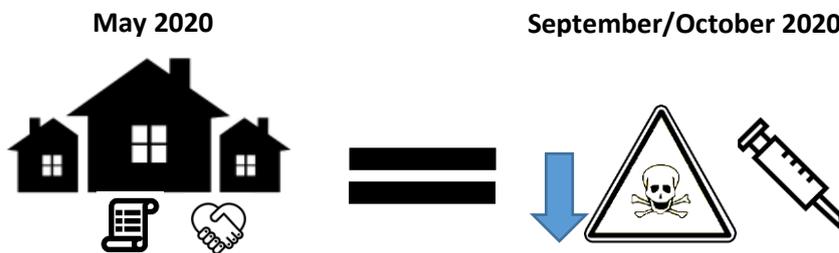**May 2020**   **September/October 2020**
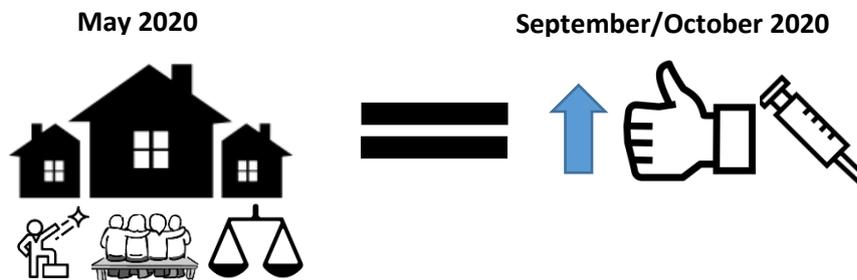
Individuals who had **strong national-level social cohesion in May** (had confidence in the national government; and believed people in Australia follow are treated fairly) also showed **greater willingness to get vaccinated when they responded in September/October.**

**May 2020**   **September/October 2020**
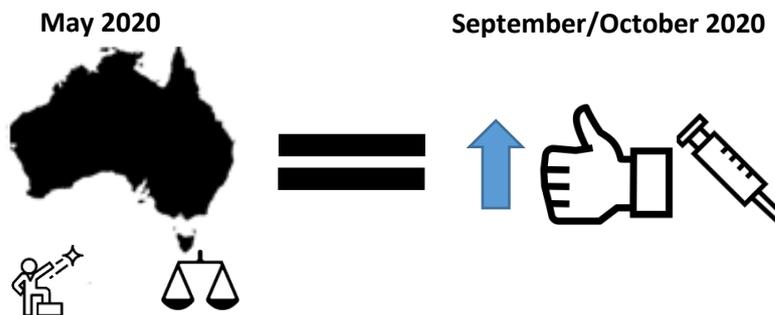
Risk of vaccination

Individuals who had **strong local-level social cohesion in May** (those who believed people in their neighbourhood follow rules and had positive social relations) perceived **lower risk of being vaccinated when they responded in September/October**.

May 2020   **September/October 2020**

Individuals who had **strong national-level social cohesion in May** (who had confidence in the national government; and who believed people in Australia had positive social relations) also perceived **lower risk of being vaccinated when they responded in September/October**.

May 2020   **September/October 2020**
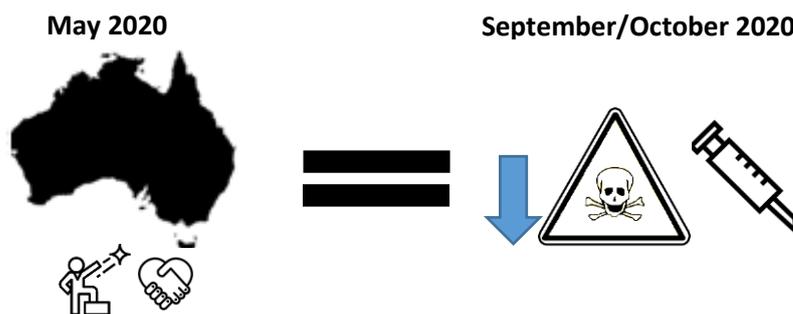
Implications and Insights

Social cohesion is a glue that binds communities and the nation as a shared social group. When these groups are functioning well, there are benefits for individual and community health and well-being.

It is thus important to **strengthen national and neighbourhood social cohesion** as it is associated with **long term willingness to get vaccinated and perceived risk of vaccination** as Australia begins its COVID-19 vaccination campaign.

Based on insights from social cohesion, we need to bolster the following aspects of social life:

- Encouraging and promoting positive relations in the neighbourhood and Australia;
- Taking actions that bolster the confidence in the federal and state government;
- Treating individuals and communities fairly, particularly being fair in the vaccine rollout.

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Introduction

Experts agree that vaccines do not save lives; vaccination programs save lives[2]. The long-term solution to the COVID-19 pandemic in Australia relies on the great majority of Australians being willing and perceiving little risk to taking the COVID-19 vaccine. In line with this, the current report addresses two critical questions: How have attitudes towards the COVID-19 vaccine changed during the pandemic? And what are the social and political factors that impact vaccination attitudes?

We conducted a longitudinal study with a representative sample of 3030 Australians to answer these two questions. To understand how vaccination attitudes have evolved over time, we examine how many individuals were very willing to take and saw little risk in taking the COVID-19 vaccine in June-July versus September-October. We investigated this evolution across age groups, states, and country of birth. To understand **the role of social and political factors on vaccination attitudes**, we examined *social cohesion*, an umbrella concept representing the quality and quantity of relations within social groups. We examined whether having strong social cohesion in the neighbourhood and in the country early in the pandemic (May 2020) predicted vaccination attitudes as the COVID-19 vaccine became tested and approved (September-October 2020).

Social cohesion is the quality and quantity of relations within a group. A highly cohesive group has positive relations within members of the group, confidence in its government and institutions, and a strong sense of belonging. When individuals see their group as highly cohesive, they trust it, are psychologically close it, and believe it functions well. Social cohesion has been associated with better health outcomes, including lower drinking rates among adolescents[3] and less smoking[4]. The importance of social cohesion in a health crisis has been demonstrated in work conducted with the Ebola virus outbreak, where distrust in government was associated with reduced help-seeking behaviour[5]. In early work during the COVID-19 pandemic, social identification was associated with increased adherence to hand washing and social distancing government recommendations[6]. We examined social cohesion at two levels: at the national and at the local (state and neighbourhood) levels. In addition, we looked at the impact of social cohesion over time. That is, we examined whether a cohesive social community early during the pandemic at both the national and local levels had a positive impact on vaccine attitudes later during the pandemic.

Describing the study

Respondents and Procedure:

Respondents were sampled with the goal of obtaining a nationally representative sample of Australians at Wave 1, based on income, age, gender and state distribution. A total of 3030 respondents completed to our survey at Wave 1, with these numbers decreasing through expected

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[2] Orenstein, W. A., & Ahmed, R. (2017). Simply put: vaccination saves lives. *PNAS, 114* (16), 4031-4033.

[3] Martin, G., Inchley, J., Marshall, A., Shortt, N., & Currie, C. (2019). The neighbourhood social environment and alcohol use among urban and rural Scottish adolescents. *International Journal of Public Health, 64*(1), 95-105.

[4] Alcalá, H. E., Sharif, M. Z., & Albert, S. L. (2016). Social cohesion and the smoking behaviors of adults living with children. *Addictive Behaviors, 53*, 201–205.

[5] Christensen, D., Dube, O., Haushofer, J., Siddiqi, B., & Voors, M. (2020). Community-based crisis response: Evidence from Sierra Leone's Ebola outbreak. *AEA Papers and Proceedings*, 110, 260-264.

[6] Cardenas, D., Orazani, N., Stevens, M., Cruwys, T., Platow, M., Zekulin, M., & Reynolds, K. J. (2020). *United We Stand, Divided We Fall: Socio-Political Predictors of Physical Distancing and Hand Hygiene during the COVID-19 Pandemic*. Unpublished Manuscript. Australian National University

attrition for Wave 2 (2034) and Wave 3 (1723). Recruitment was conducted using Qualtrics Research Service, a large marketing research company that has contact with various participant pools. Quotas based on gender, age, income and state/territory were created based on the Australian Census to obtain the nationally representative sample (see Appendix 1 for the quotas and actual responses).

Details for the sample can be found in Appendix 2. We found that oversampling occurred for certain categories (e.g., from ACT respondents; from respondents aged 65 and older). The results are thus statistically weighted to better match the Australian population (based on income, age, gender and state distribution).

Timeline of the measurements:

The Wave 1 survey was answered between the 9th and 27th of May, at a time when the Australian state and federal governments were beginning to reduce the strict restrictions that had been established during lockdown (which occurred during March and April). This included allowing up to 10 individuals (or two households) to meet for reunions, weddings and funerals. Outdoor non-contact exercise training and activities between people from different households were also once more permitted. Most shops and restaurants began to open for a small number of patrons.

Wave 2 was distributed between 16th June and 16th July, and 2,035 returning respondents from Wave 1 completed this survey. During the beginning of this period, restrictions associated with COVID-19 were further eased in all states (i.e., more patrons were allowed in restaurants, a greater number of individuals were allowed to meet). Later in this period, there was also an increase in COVID-19 cases in Australia, and particularly in Victoria, where new restrictions were established in late July to stop the spread.

Wave 3 was answered by 1,723 of the 3,030 respondents from Wave 1. This survey was distributed from September 16th to October 16th. During this period, most states continued easing restrictions (mostly in reference to the number of individuals allowed in spaces such as theatres and restaurants), and travel between most states was allowed. The exception to this is Victoria, as they experienced a second wave of COVID-19 cases and a severe lockdown, the later running from July to late October.

Change of vaccination attitudes over time

Measures:

Two measures assessed participants' attitude and behavioural intention towards vaccination at Waves 2 and 3. The first was **willingness to get the COVID-19 vaccine** as soon as it is available using a 7 point Likert-scale (ranging from 1 = Strongly Disagree to 7= Strongly Agree). The second was the **perceived health risk of getting the COVID-19 vaccine** using a 7 point Likert-scale (ranging from 1 = Not risky at all to 7= Extremely risky). For a detailed explanation of all measures please see Appendix 3.

Key findings:

- Nearly seven out of ten Australians at Wave 2 agreed that they would be willing to receive the COVID-19 vaccine as soon as it is possible. This number decreased slightly at Wave 3 such that the number of Australian willing to receive the vaccine was closer to 6 out of 10 people.
- There were differences between age groups, with older Australians (65+) being much more willing to receive the vaccine and perceiving very little risk in receiving it.
- While respondents across all states reported greater willingness get the vaccination as soon as it is available and low perceived risk, there were some important variations. Tasmanians showed most willingness and Northern Territorians showed the least.
- Respondents born in Australia responded in a highly similar way to those respondents not born in Australia in both willingness to receive the COVID-19 vaccine and perceived risk of vaccination.

Detailed findings:

Overall, there is greater agreement (combining Strongly agree, Agree, and Somewhat Agree) towards getting a vaccine as soon as possible, with 67% (Wave 2) to 61% (Wave 3) agreeing to do so. Of the remaining categories, respondents selected Neither agree nor disagree (18% at Wave 2 and
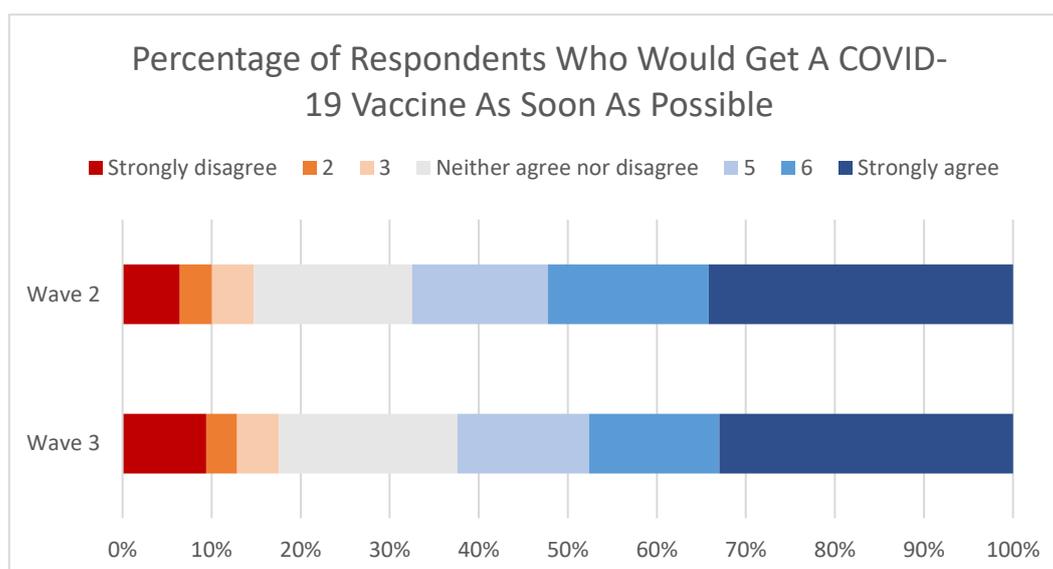

Figure 1. Percentage of respondents who are willing to receive the COVID-19 vaccine as soon as possible

20% in Wave 3) more than the Disagreement categories (combining Strongly disagree, Disagree, and Somewhat disagree; 15% at Wave 2 and 19% at Wave 3).

Respondents also assessed how risky they thought "Getting the COVID-19 vaccine as soon as it is available" would be to their health. As can be seen in Figure 2, the majority of respondents saw minor risk of vaccination (combining categories Not risky at all, A little risky, Somewhat risky) at Wave 2 (61%) and Wave 3 (56%). Major risks to health (combining categories Extremely risky, Severely risky, and Highly risky) were perceived by 19% of respondents at Wave 2 and 23% of respondents at Wave 3 (with those perceiving the vaccine as "Extremely risky" being 5% and 6% at Wave 2 and 3, respectively). These proportions were similar among those who reported "Risky" levels of the vaccine (20% at Wave 2 and 21% at Wave 3 ; category 4 in Figure 2).

Figure 2. Percentage of respondents that perceived risk of receiving vaccination as soon as it is available

We also examined the distribution **per age group**. Older respondents were more likely to be willing to get vaccinated as soon as possible, with younger people indicating less willingness (lowest among 45-54 at Wave 2 and 18-24 at Wave 3). Across all age groups, 60% of respondents generally agreed that they were willing to get vaccinated as soon as possible (the combined categories of Strongly agree, Agree, and Somewhat agree). The proportions of those in the combined category of disagreement (Strongly disagree, Disagree, and Somewhat disagree), and those who selected Neither agree nor disagree was very similar across age groups (less than 5% difference between these categories).
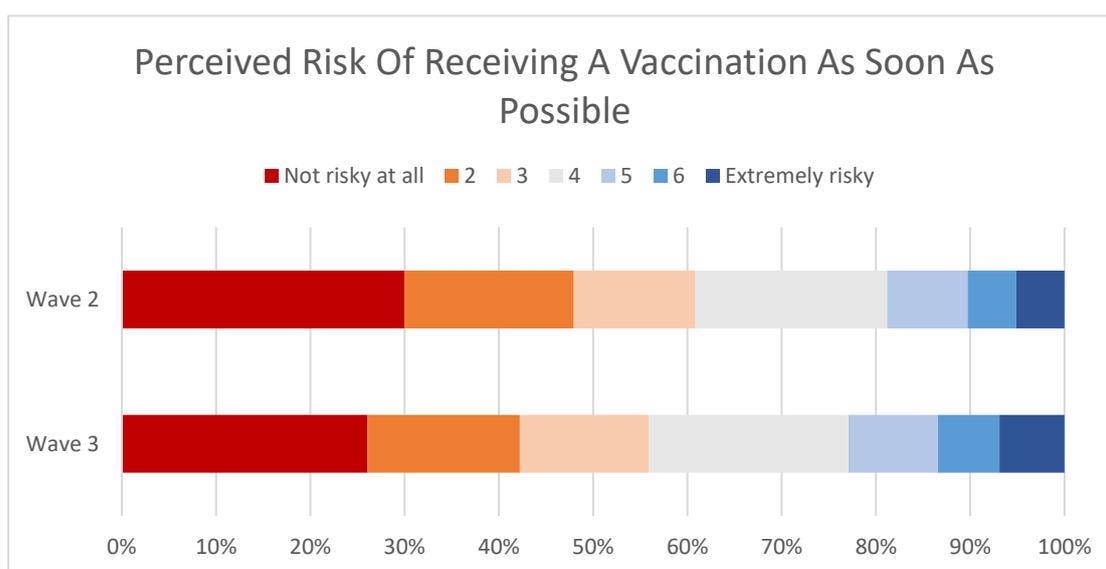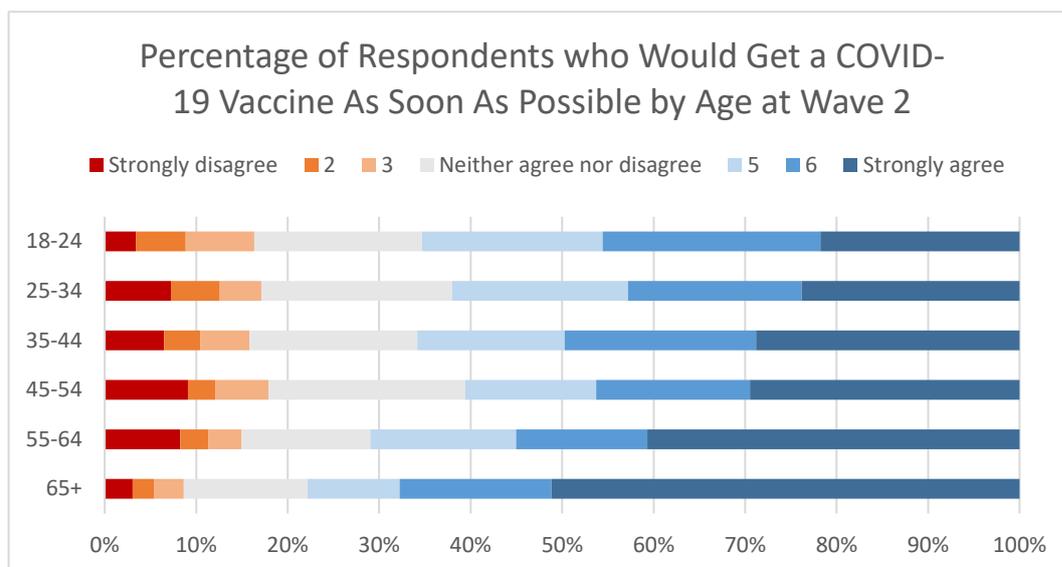
Figure 3. Percentage of respondents that perceived risk of receiving vaccination as soon as it is available by age group at Wave 2

At Wave 3, the proportion of older Australians (65+) who were willing to get vaccinated as soon as possible remained similar to that of Wave 2. In all other groups, however, the percentage of people who agreed to getting vaccinated as soon as it is available decreased. The proportions of those who generally disagreed (the combined category of Strongly disagree, Disagree, and Somewhat disagree) and those who selected Neither agree nor disagree was very similar (less than 5% difference between these categories). The exception to this was for younger Australians, where there was a greater proportion on respondents who selected Neither agree nor disagree (31%) than those who generally disagreed (17%).
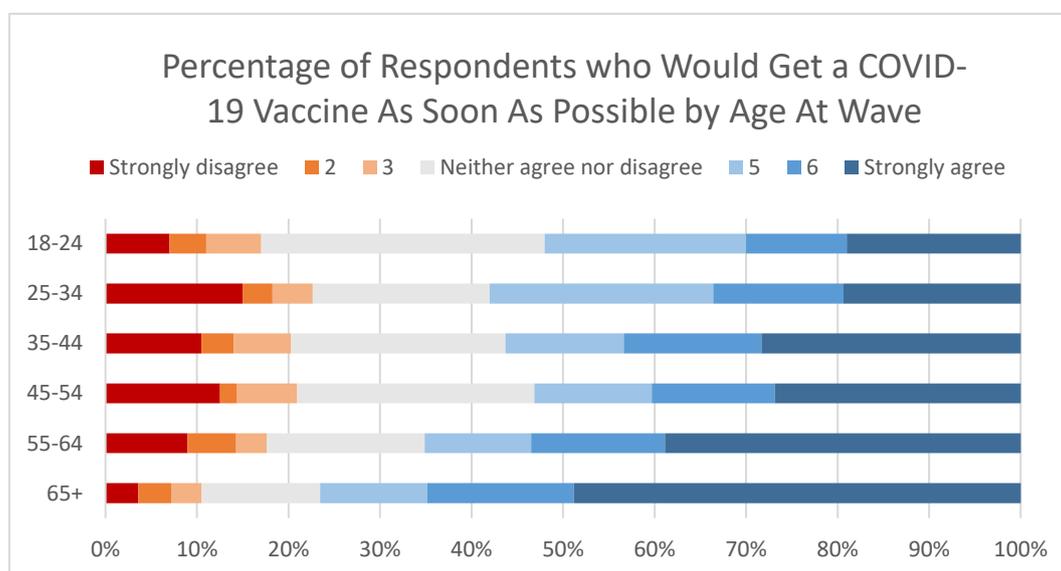
Figure 4. Percentage of Australians who are willing to receive the COVID-19 vaccine as soon as possible per Age Wave 3

Similarly, concerning the risk of vaccination at Wave 2, across all ages, the majority (i.e., more than 50%) of respondents perceived minor risks to vaccination (combining categories Not risky at all, A little risky, Somewhat risky). Respondents aged 55-64 and 65+ generally perceived minor risk to vaccination (66% and 77%, respectively). In particular, a great percentage of respondents aged 65+

felt that getting a vaccine as soon as possible to be "Not risky at all" (46%). In terms of major risk, 23%-26% of respondents in the age brackets 18-24, 25-34, and 35-44 reported major risk (combining categories Extremely risky, Severely risky, and Highly risky), compared to older respondents (8%).

Figure 5. Percentage of Australians that perceived risk of receiving vaccination as soon as it is available per Age wave 2

At Wave 3, the perceived risk of vaccination increased across all ages, with less than 50% of younger respondents (younger than 44) perceiving minor risks to vaccination (combining categories Not risky at all, A little risky, Somewhat risky). Respondents aged 65+ most commonly indicated that receiving a vaccination was "Not risky at all". In terms of major risk perception (combining categories Extremely risky, Severely risky, and Highly risky), respondents in the age bracket 25-34 reported the highest perception or major risk perceptions (30%), followed by the age categories 35-44 (28%) and 45-54 (24%).

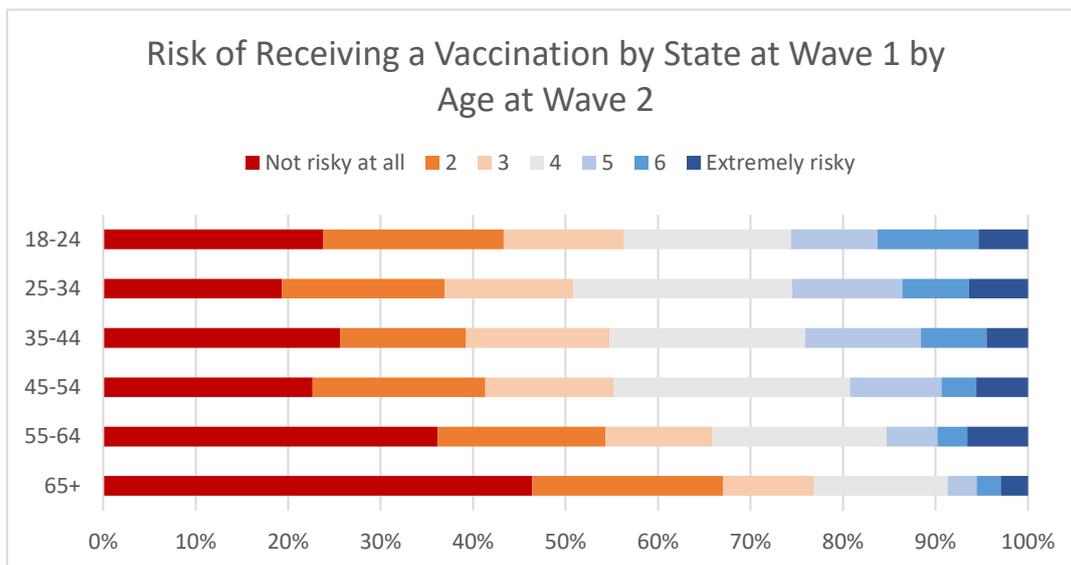
Figure 6. Percentage of Australians that perceived risk of receiving vaccination as soon as it is available per Age Wave 3

When examining the pattern of distribution **across states** at Wave 2, about 70% of respondents generally agreed (combined categories of Strongly agree, Agree, and Somewhat Agree) to being willing to receive the COVID-19 vaccine as soon as possible in most states. However, there are some variations. Tasmania had the most respondents who generally agreed (77%) to being willing to be vaccinated as soon as possible, followed by the ACT (72%). The Northern Territory showed the least general agreement (45%; followed by Queensland, 61%), as well as the greatest general disagreement (combined category of Strongly disagree, Disagree, and Somewhat disagree; 31%). The proportion of people who generally disagreed or selected Neither agree nor disagree was similar (within 5% of each other) for most states except for the Norther Territory (9% difference) and South Australia (8% difference).
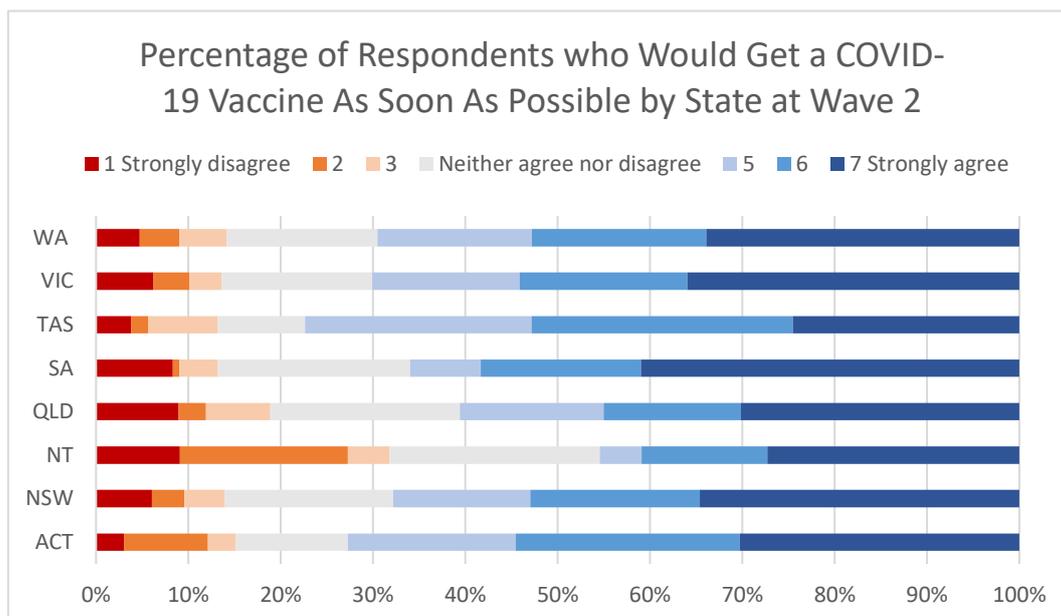
Figure 7. Percentage of Australians who are willing to receive the COVID-19 vaccine as soon as possible at wave 2

At Wave 3, the number of people willing to take the vaccine as soon as possible generally decreased, though Tasmania still reported the highest combined category of agreement (75%) and Northern Territory the least (36%). There was also high agreement to be vaccinated in the two states that continued showing community transmission during this period, Victoria (65%) and NSW (66%).
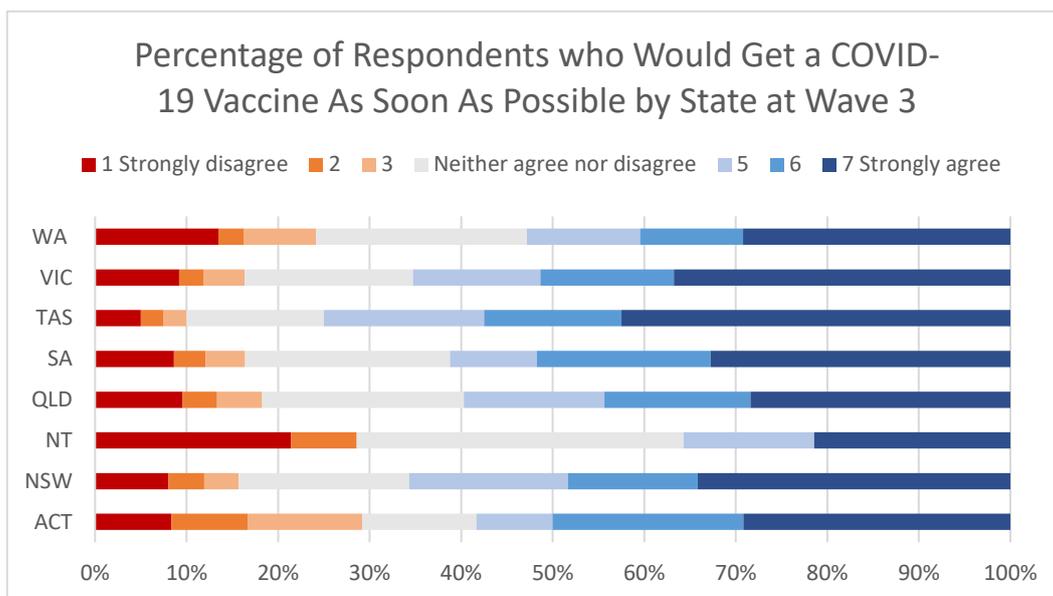
Figure 8. Percentage of Australians who are willing to receive the COVID-19
vaccine as soon as possible Wave 3

In respect to the perceived risk of vaccination, the most selected option was "Not risky at all" at
Wave 2 (ranging from 26% in the ACT to 34% in Queensland) and Wave 3 (ranging from 21% in the
ACT to 28% in Western Australia). For Wave 2, proportions in the categories of major risk (combined
categories of Extremely risky, Severely risky, and Highly risky) were similar across states.

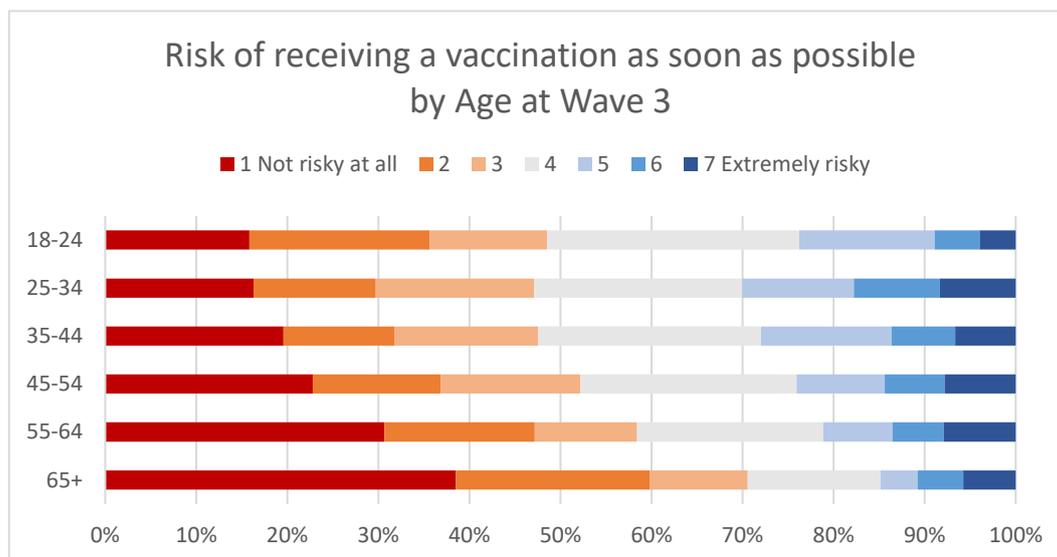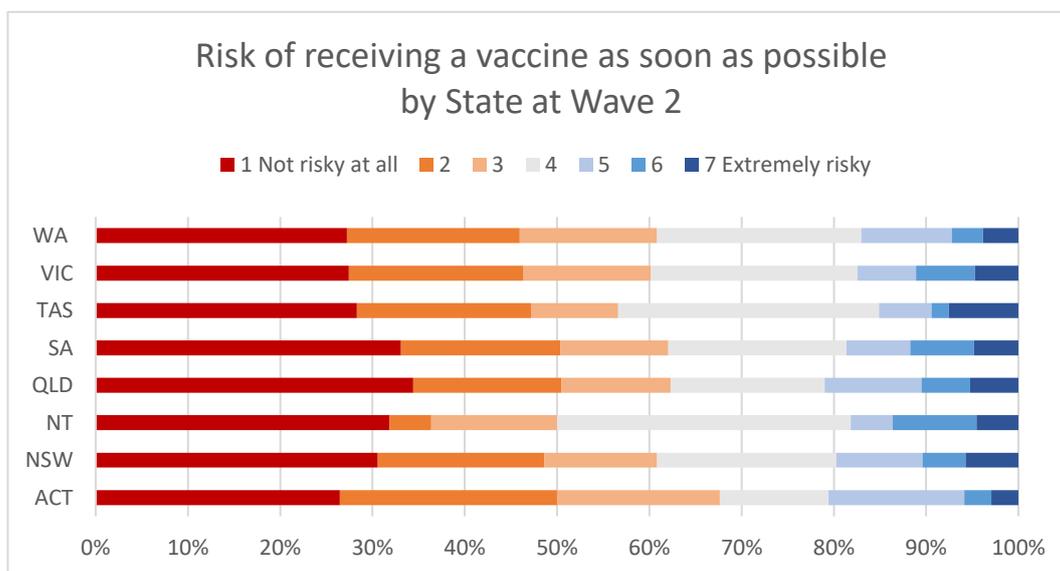
Figure 9. Percentage of Australians that perceived risk of receiving vaccination as
soon as it is available by state Wave 2

Like Wave 2, for Wave 3, the most selected option was "Not risky at all" (ranging from 21% in the
ACT to 28% in Western Australia) except for the Northern Territory, where "Severely risky" (category
6) had the highest proportion (33%). The proportion of respondents that selected "Extremely risky"
was below 8% across all states except for the Northern Territory (13%).
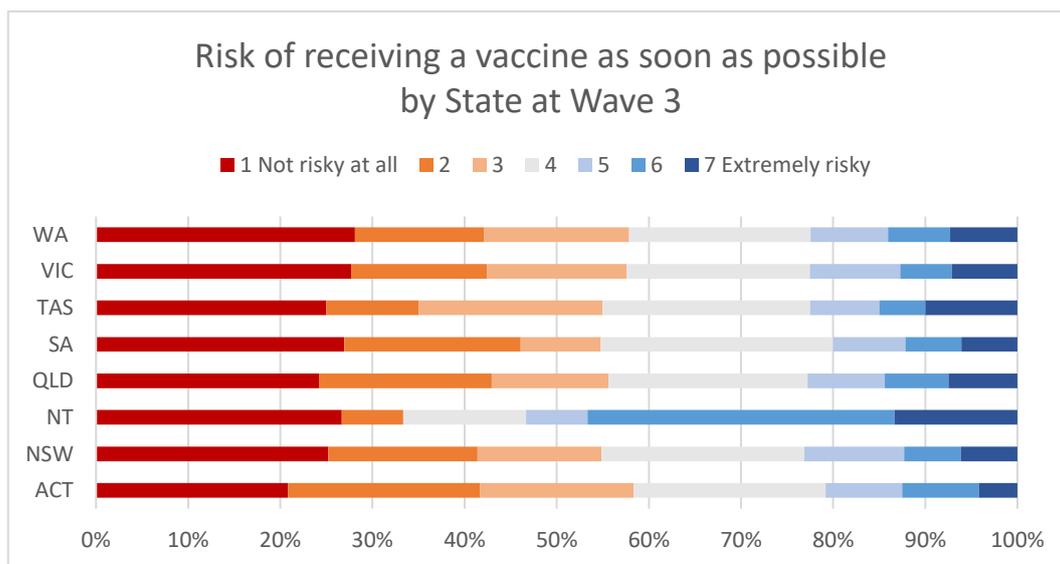
Figure 10. Percentage of Australians that perceived risk of receiving vaccination as soon as it is available by state Wave 3

When examining willingness to receive a COVID-19 vaccine separated **by country of birth,** there are very few differences in patterns between those born in versus outside of Australia, and this is consistent across waves. Most respondents agreed that they were willing to receive the COVID-19 vaccine as soon as a vaccine was available (ranging from 61% to 67%).
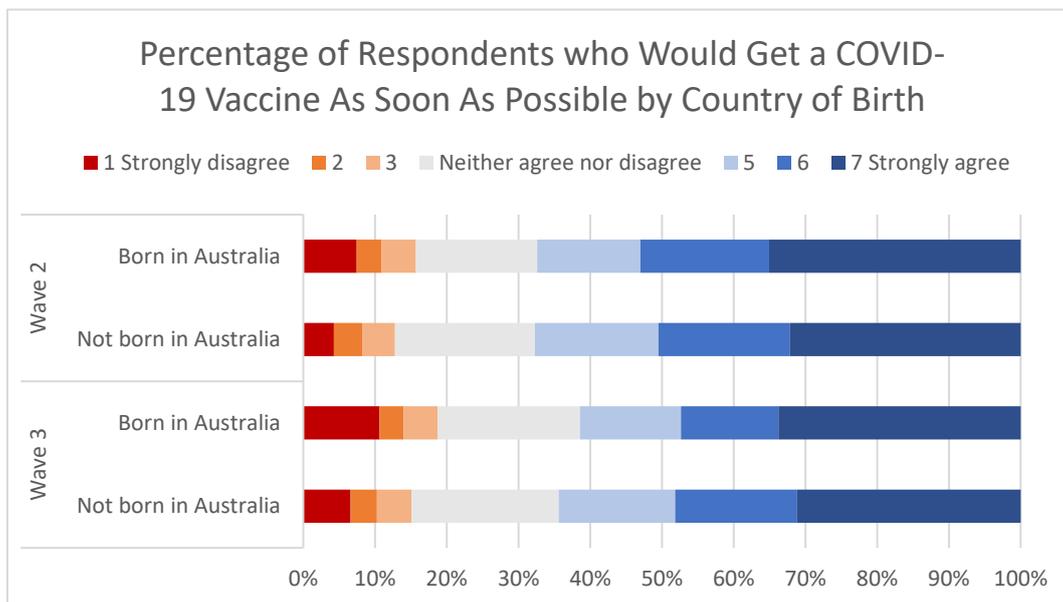
Figure 11. Percentage of respondents who are willing to receive the COVID-19 vaccine by Country of birth

A similar pattern is observed for risk of vaccination. Most respondents (ranging from 55% to 62%) perceived minor risks (combined categories of Not risky at all, A little risky, Somewhat risky) in vaccination, regardless of country of birth and wave.
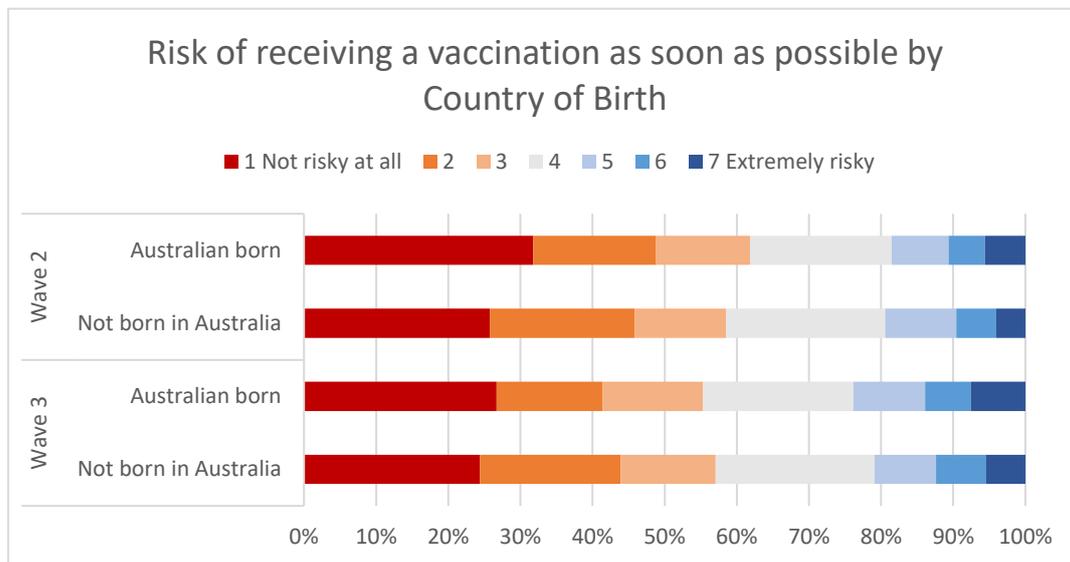
Figure 12. Percentage of respondents that perceived risk of receiving vaccination as soon as it is available by Country of birth

When examining willingness to receive a COVID-19 vaccine separated **by gender,** we see that women were less willing to take the vaccine than men. In Wave 2, 63% of women generally agreed (combined categories of Strongly agree, Agree, and Somewhat Agree) versus 72% for men respondents. Similarly, in Wave 3, 56% of women generally agreed (combined categories of Strongly agree, Agree, and Somewhat Agree) versus 68% for men.
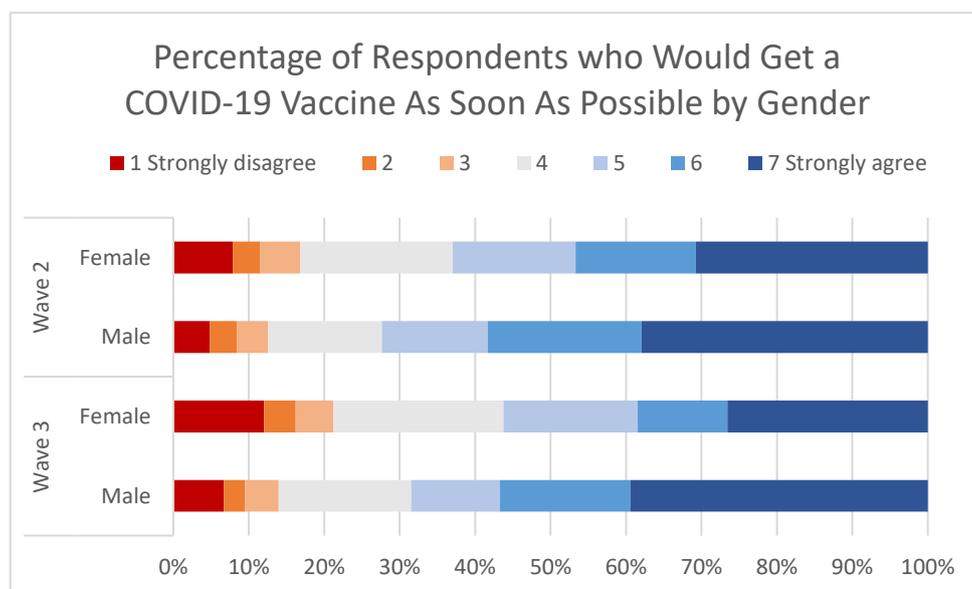
Figure 13. Percentage of respondents who are willing to receive the COVID-19 vaccine by gender.

 In respect to perceived risk, we see a similar pattern, men perceiving minor risks (combined categories Not risky at all, A little risky, Somewhat risky) in Wave 2 (65%) and Wave 3 (62%) compared to women (Wave 2 = 57%; Wave 3 Wave 50%). In particular, in Wave 3, over 20% of women respondents reported major risks.
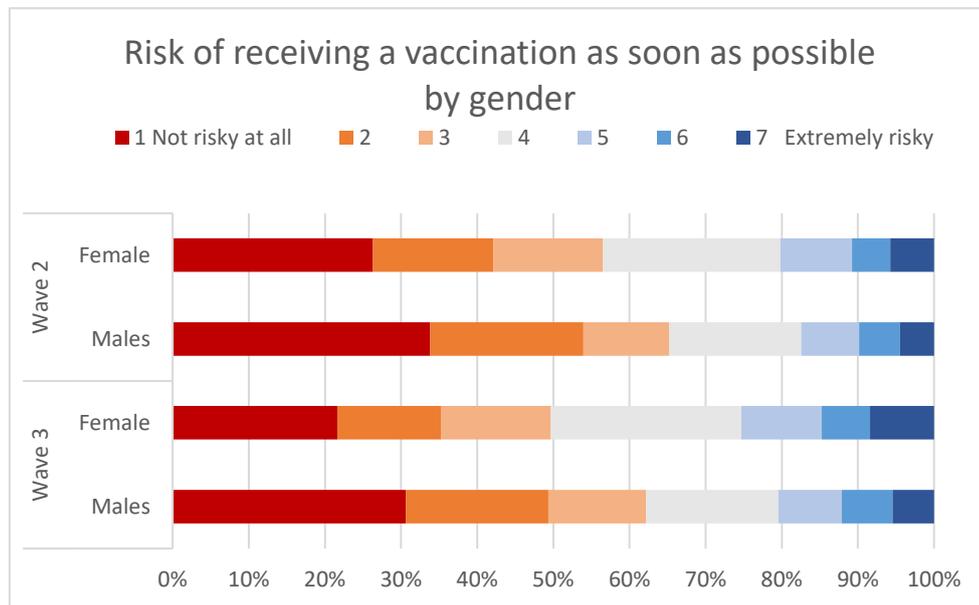
Figure 14. Percentage of respondents perceived risk to receiving the COVID-19 vaccine by gender.

In addition, of the six participants who reported not being either Female or Male in Wave 1, four were retained in Wave 2 and two in Wave 1. Given the small sample size, we did not have enough respondents to examine the pattern of results for those participants who reported "Other".

Predicting vaccination attitudes and intentions to get vaccinated

We used regression analyses to test whether willingness to receive the vaccine and risk of vaccination when responding in September/October were statistically predicted by having strong social cohesion (positive relations, trust in government and social identification) early during the pandemic. These analyses are important as social cohesion, unlike demographic variables such as age and gender, can be modified – that is, there is a role to be played by government and community organizations that might enhance the uptake of vaccinations. Accordingly, a systematic, longitudinal analysis (as presented here) that identifies the strongest social predictors of vaccination attitudes, and therefore the areas worthy of consideration in policy and messaging, would be helpful in effectively responding to the pandemic.

Measures:

In addition to **willingness to get the COVID-19 vaccine** as soon as possible and **perceived health risk of getting the COVID-19 vaccine** we also measured social cohesion.

As social cohesion is a complex and multidimensional concept, we measured three typically assessed aspects of social cohesion: social relations, confidence in government and social identification. This report uses <u>social cohesion measures at Wave 1 </u>to examine how social cohesion early during the pandemic predicts attitudes towards vaccinations measured later during the pandemic.

Social relations at Wave 1 were measured in relation to respondents' neighbourhood and to Australia with 11 items. Items were answered using a Likert-scale (ranging from 1 = Strongly Disagree to 7= Strongly Agree).

Confidence in government at Wave 1 was calculated by averaging the response to three questions/items regarding the individual's level of trust in government. The three items were answered for both state and federal government (using a Likert-scale ranging from 1 = Strongly Disagree to 7= Strongly Agree).

Social identification with the neighbourhood was assessed with a single item ("I identify as a member of my neighbourhood"). Social identification with Australians was measured by averaging the response to three questions/items regarding the individual's level of identity, pride and belonging to other Australians. All questions were answered using a Likert-scale (ranging from 1 = Strongly Disagree to 7= Strongly Agree).

A range of **control variables** were included to ensure that the impact of social cohesion goes beyond basic demographic and health-related concerns. Specifically, we controlled for age, weekly income, gender, subjective health, perceived risk of walking with others in the community, testing positive for COVID and knowing someone who has tested positive for COVID.

Analysis plan:

We conducted four step-wise regression analyses, two per social cohesion level (at the national level/at the local level), and two per attitude towards vaccination (willingness to receive vaccine and risk of vaccination; see Table 1). In the first step of the regression, we introduced personal characteristics (age, weekly income, gender and country of birth) and health related variables (having been infected with COVID-19, subjective health rating and perceived risk to their health of walking with others). In the second step, we added the three elements of social cohesion (quality of relations, social identification and trust in government) that were measured at Wave 1. This stepwise procedure enables us to test whether social cohesion predicts vaccination attitudes while accounting for (controlling for) individuals' personal and health characteristics. These analyses were conducted with weights (to better represent the Australian population; see part 1) and after conducting multiple imputation (with 40 datasets). Detailed findings for all analyses can be found in Appendix 4.

Table 1

Table	Regression analyses	Attitude towards vaccination	Level of social cohesion
Table 2	1st Analysis	Willingness to receive the COVID-19 vaccine	Neighbourhood level
	2nd Analysis		National level
Table 3	3rd Analysis	Perceived risk of the COVID-19 vaccine	Neighbourhood level
	4rd Analysis		National level

We additionally examine (with two mixed ANOVAs) the role that gender and age play together in predicting confidence in government in Wave 2 (thus in the long term) as well as willingness to get vaccinated in Wave 3 (in the long term). These are the 5th and 6th analyses presented below.

1st and 2nd Analyses: National and local-level social cohesion at Wave 1 predicting willingness to get vaccinated at Wave 3

Table 3 shows the significant predictors of vaccination attitudes when including local-level social cohesion. We observe that:

- **Four social cohesion** elements predicted greater willingness to get vaccinated as soon as possible: individuals who perceived (1) **fairness in their neighbourhood and in Australia** (a belief that **everyone generally receives what they deserve**). In addition, those who (2) **identified strongly as part of their neighbourhood** and (3) reported greater **confidence in the state and federal government** also reported greater willingness to get vaccinated as soon as is possible. Surprisingly, (4) those who perceived that Australians are helpful early during the pandemic to one another where less willing to get vaccinated.
- Three personal characteristics predicted willingness to receive the COVID-19 vaccine: **older people, males, and those who are politically oriented towards the left** were most willing to get vaccinated.
- One health characteristics predicted willingness to get vaccinated: **perceiving greater risk to health of walking with others.**

Table 2: Social cohesion at the national and local level, personal characteristics and health variables that significantly predict willingness to get vaccinated

| | Willingness to get vaccinated as soon as possible W3 | | | |
| | Social cohesion at the **local** level | | Social cohesion at the **national** level | |
W1	b (effect)	significance	b (effect)	significance
Age	0.02	****	0.02	****
Gender	-0.28	****	-0.26	***
Risk Perception W1	0.08	***	0.09	****
Political orientation	-	-	-0.18	****
Social Relations: Helpful W1			-0.10	*
Social Relations: Perceived fairness W1	0.07	**	0.09	***
Identification with the neighbourhood/Australia W1	0.05	*		
Confidence in the state (local level)/Australian (national level) government W1	0.14	****	0.15	****
Explained variance (R^2)	.09	****	.12	****

Effects that are statistically significant at the 10 percent level of significance are labelled *; those significant at the 5 percent level of significance are labelled **; those significant at the 1 percent level of significance are labelled ***; and those significant at the .1 percent level are labelled ****
Gender =1 Male; Gender = 2 Female. For these analyses, the individuals that reported Other gender were removed.

In summary, social cohesion predicted greater willingness to receive the COVID-19 vaccine as soon as possible four months later, above and beyond (less controllable) personal and health variables.

3rd and 4th Analyses: National and local-level social cohesion at Wave 1 predicting perceived risk of vaccination at Wave 3

Table 3 shows the significant predictors of vaccination attitudes when including local-level social cohesion. We observe that:

- Four elements of social cohesion predicted perceived risk of vaccination: Individuals who early in the pandemic agreed that (1) **Australians and their neighbours had positive social interactions with one another** and that (2) their **neighbours follow rules** were less likely to perceive a risk of vaccination. Additionally, those who (3) reported greater **confidence in the state government** perceived less risk of vaccination. Surprisingly, (4) perceived positive relations between ethnic groups early in the pandemic was associated with *greater* risk of vaccination later during the pandemic. This latter finding may be because believing that Australians can solve problems together may indicate a belief that getting vaccinated is unnecessarily risky given Australians capacity to work through COVID-19.
- Two personal characteristics predicted perceived risk of vaccination **older people, males and those politically oriented towards the left** perceived the least risk of being vaccinated.
- Two health characteristics predicted perceived risk of vaccination: **perceiving greater risk to health of walking with others** and **having tested positive for COVID-19**.

Table 3: Social cohesion at the national and local level, personal characteristics and health variables that significantly predict perceived risk of vaccination

| | Perceived risk associated with getting vaccinated as soon as possible W3 | | | |
| | Social cohesion at the **local** level | | Social cohesion at the **national** level | |
W1	*b* (effect)	significance	*b* (effect)	significance
Age	-0.01	****	-0.02	****
Gender	0.23	***	0.20	**
Tested COVID Self W1 (1 = Yes; 2 = No)	-0.73	**	-0.76	**
Risk Perception W1	0.06	**	0.05	**
Political orientation	-	-	0.08	**
Social Relations: Rules W1	-0.09	**		
Social Relations: Positive ethnic relations W1			0.13	*
Social Relations: Positive social interactions W1	-0.16	****	-0.17	***
Confidence in the state (local level)/Australian (national level) government W1			-0.12	****
Explained variance (R^2)	.07	****	.08	****

Effects that are statistically significant at the 10 percent level of significance are labelled *; those significant at the 5 percent level of significance are labelled **; those significant at the 1 percent level of significance are labelled ***; and those significant at the .1 percent level are labelled ****
Gender =1 Male; Gender = 2 Female. For these analyses, the individuals that reported Other gender were removed.

In summary, social cohesion predicted lower risk of vaccination four months later, above and beyond (less controllable) personal and health variables.

5th and 6th Analyses: Gender and age predicting confidence in federal government in Wave 2 and willingness to get vaccinated in Wave 3

For **confidence in the federal government**, table 4 shows the effects of age categories (aged 24 or younger; aged 25 to 64; aged 65 or older), gender and their interaction in predicting confidence in the government at Wave 2 (while controlling for being born in Australia and political orientation).

The results show that there are differences in confidence in the federal government based on age, but this depends on the interaction between age and gender. In other words, **age and gender act together in a unique way in predicting levels of confidence in the Federal government**.

Table 4: Gender and age predicting confidence in federal government in Wave 2 and Wave 3

Source	df	Mean Square	F	Sig.
Gender (1 = Men, 2 = Women)	1	4.70	1.91	ns
Age (1 = 24 or younger; 2 = 25 to 64; 3 = or 65+)	2	13.08	5.31	***
Gender X Age	2	8.45	3.44	**
Born in Australia (0 = No, 1 = Yes)	1	6.99	2.84	ns
Political Orientation	1	730.25	296.64	****
Error	1968	2.46		

R Squared = .15

Effects that are statistically significant at the 10 percent level of significance are labelled *; those significant at the 5 percent level of significance are labelled **; those significant at the 1 percent level of significance are labelled ***; and those significant at the .1 percent level are labelled ****. Effects labelled as "ns" are not significant. For these analyses, the individuals that reported Other gender were removed.

Post-hoc analysis show that there are differences in terms of confidence in the federal government **among young men and women** ($F(1, 133) = 17.21$, $p < .001$), with **younger women reporting lower confidence in the government** ($M = 4.44$, $SD = 1.50$) **than young men** ($M = 5.02$, $SD = 1.67$). There were no gender differences among older participants (aged 25 to 64, $F(1, 1362) = 0.11$, $p = .743$; aged 65+ = $F(1, 479) = 0.26$, $p = .609$).
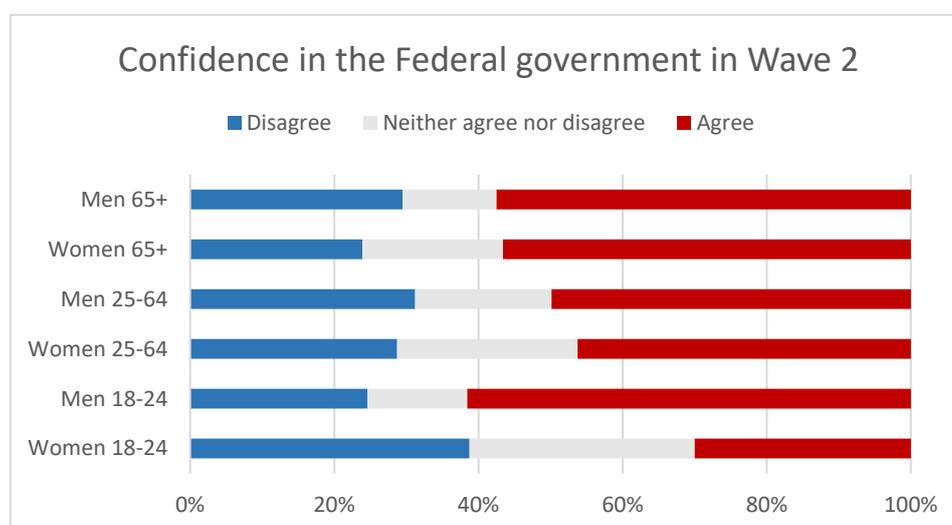

Figure 15. Percentage of respondents that had confidence in the Federal government at Wave 2 per age and gender.

The figure above serve to illustrate this effect. It shows the extent to which the different age and gender groups agree that they had confidence in the federal government at Wave 2. While most of the sample *agreed* (combined categories of Strongly agree, Agree, and Somewhat agree) that they had confidence in the Federal government in Waves 2 (54%), less than a third of young women agreed that they had confidence in the federal government (30% in Wave 2). This also stands in contrast to young men, 61% of which agreed that they had confidence in the federal government. In addition, 39% of young women disagree (combine Strongly disagree, Disagree, and Somewhat disagree) that they have confidence in the federal government (28% in the rest of the sample), and 31.25% of young women neither agree nor disagree (compared to 18% in the rest of the sample).

Similarly, in Wave 3, most of the sample reported general agreement with their confidence in the Federal government (47%). In contrast, less than a third of young women agreed that they had confidence in the federal government (32).

Regarding **willingness to receive the COVID-19 vaccine at Wave 3**, Table 5 shows the predictors of willingness to get vaccinated while controlling for being born in Australia, political orientation and perceived risk at Wave 1. As can be seen below, age and gender had independent effects willingness to get vaccinated. The main effect of gender tells us **that women are less willing to get vaccinated as soon as possible** (M = 4.76, SD = 1.96) compared to men (M = 5.38, SD = 1.81). In addition, post-hoc analyses on age show that **older participants are more willing to get the vaccine as soon as possible** (M = 5.68, SD = 1.69) compared to those aged between 25 and 64 (M = 4.85, SD = 1.96) and those younger than 25 (M = 4.62, SD = 1.71).

Table 5: Gender and age predicting willingness to receive vaccination in Wave 3

Source	df	Mean Square	F	Sig.
Gender (1 = Men, 2 = Women)	1	41.89	12.07	***
Age (1 = 24 or younger; 2 = 25 to 64; 3 = 65+)	2	101.83	29.84	****
Gender X Age	2	0.02	0.01	ns
Born in Australia (0 = No, 1 = Yes)	1	0.04	0.01	ns
Political Orientation	1	8.38	2.46	**
Risk perception Wave 1	1	4.45	1.30	*
Error	1612	3.46		

R Squared = .10

Effects that are statistically significant at the 10 percent level of significance are labelled *; those significant at the 5 percent level of significance are labelled **; those significant at the 1 percent level of significance are labelled ***; and those significant at the .1 percent level are labelled ****. Effect labelled as "ns" are not significant. For these analyses, the individuals that reported Other gender were removed.

The effects of gender and age are illustrated in this graph. It showing that younger participants are less willing to get vaccinated as soon as possible in Wave 3. It also shows that women are less willing to get vaccinated as soon as possible in Wave 3.
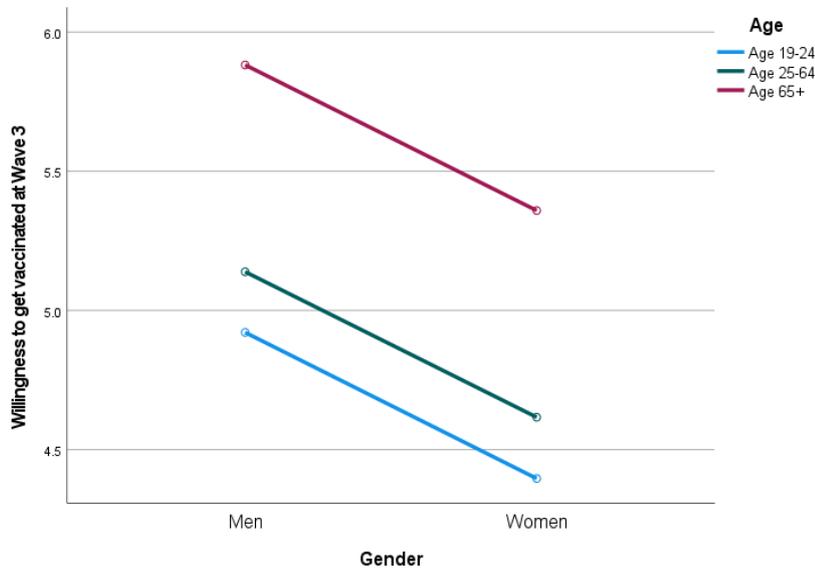
Figure 16. The main effects of age and gender on willingness to get vaccinated at Wave 3.

When examining the proportions of individuals that *Agree* (combined categories of Strongly agree, Agree, and Somewhat agree) to get willing to get vaccinated as soon as possible as a function of age and gender, a similar pattern of results emerges. Older participants show the greater agreement, particularly older men (with 80% agreeing at both Wave 2 and 3) and younger women showing the lowest agreement (43% at Wave 3 compared to the rest of the sample, 63%). A total of 62% of young men agreed to get vaccinated as soon as possible.

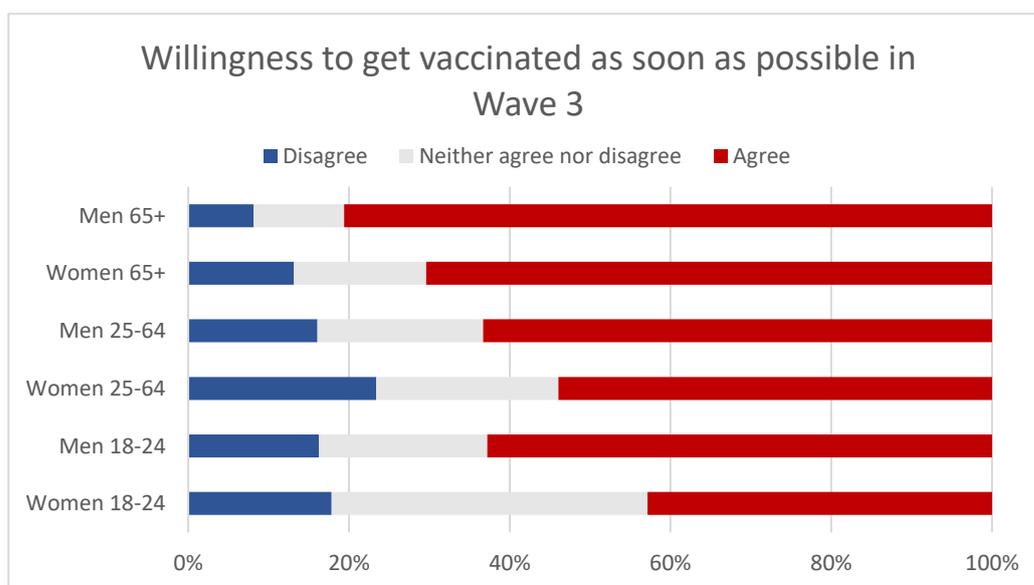Figure 17. Percentage of respondents who agreed to be willing to get vaccinated as soon as possible at Wave 3 per age and gender.

Discussion

This report examined how Australians varied in their vaccination willingness and risk perception during the COVID-19 pandemic, and tested how social cohesion influences these factors. In doing so, this report provides insight that will allow for more accurate predictions of vaccination attitudes and behavioural intensions.

First, we observed slightly more negative attitudes towards vaccinations at Wave 3 than at Wave 2. As vaccination becomes more of a reality, fewer Australians were generally agreed to be willing to be vaccinated as soon as a safe vaccine was available at Wave 3, with more respondents falling in the "Neither agree nor disagree" and the "Strongly disagree" categories. It should be noted that the question asks about being willing to get vaccinated "as soon as possible". Therefore, it is unclear whether those who disagree are less willing to get vaccinated in general, or whether they do not wish to do so as soon as the vaccine is available. It is also possible that the differences between Wave 2 and Wave 3 (lower willingness to get vaccinated and greater risk of vaccination) may reflect a natural tendency for scores to return towards the mean (i.e., regression towards the mean).

In addition, people in different age categories differed in their willingness to receive the COVID-19 vaccine and in risk of vaccination, with respondents aged 65+ being the most willing to be vaccinated and perceiving the least risk. The remaining age groups were similar to one another. There were some differences between states both in terms of willingness and risk of vaccination. Interestingly, while Victoria was the state with the most COVID-19 cases during the period of this survey, it had similar patterns to other states in terms of willingness and risk associated with vaccination. There was no difference between individuals born in Australia and those born outside of Australia.

In terms of predicting **willingness to receive vaccination as soon as it is available** from social cohesion at the local and national level, we observed some interesting findings. Specifically, after accounting for personal characteristics (age, income, gender, country of birth) and health-related perceptions (self or close other being diagnosed with COVID-19, perceived health, perceived risk), individuals who had **greater confidence in the state and the federal government** earlier during the pandemic were more willing to be vaccinated. Therefore, confidence in both state and federal government are key in promoting individuals' willingness for vaccination.

Concerning the quality of social relations, we found that **perceived fairness** (everyone receives what they deserved) **at the national and local level** predicted greater willingness to receive the COVID-19 vaccine four months later. Being in a social environment that is fair may reassure individuals that they need not be concerned about vaccination, or perhaps that vaccination rollout will be done with fairness. **Perceiving that others in the neighbourhood follow rules** early during the pandemic also predicted greater willingness to be vaccinated. This willingness to do the right thing may extend to an expectation for wide-spread community vaccination behaviour.

Lastly, stronger **identification with the neighbourhood** early in the pandemic predicted greater willingness to receive the COVID-19 vaccine when responding four months later. Individuals who strongly identify with their neighbourhood may be aware of other's willingness to receive the vaccine and follow this norm. Those who identify strongly with their neighbourhood may also be more willing to protect others in the neighbourhood, which includes receiving a vaccine as soon as possible.

Concerning **perceived risk of vaccination**, **greater confidence in the federal government** was associated with fewer perceived risks associated with getting vaccinated. Therefore, confidence in the federal government reassures the population as to the risks of vaccines. In addition, **positive social interactions at the neighbourhood and national level** in May 2020 predicted lower risk perception associated with vaccination when measured four months later. A social environment characterised by positive social interactions may reassure participants and counter misinformation concerning vaccination risks. In addition, at the neighbourhood level, individuals who reported that **their neighbours follow rules** earlier during the pandemic also perceived lower risk of vaccination when measured four months later, possibly because others following rules reassures individuals concerning risk. We also observed that **collective problem solving at the national level** is associated with greater risk perception when measured four months later. Believing that Australians can solve problems together may indicate a belief that vaccines may be an unnecessary risk given Australians successful capacity to work through COVID-19.

Conclusion

As the COVID-19 vaccine becomes a reality in Australia, it become essential to understand attitudes towards vaccination. This report highlights five important issues:

- Willingness to receive, and perceived risk of, vaccination are changing and continue to change. Even though Australia has successfully managed COVID-19 (to date), it might have simultaneously decreased the public's perception of the seriousness of the disease and the urgency of vaccination (lower willingness to receive the vaccination as soon as possible across time; increased perceived risk of being vaccinated across time).
- One important influence that must be considered is social cohesion, which can be used to predict more accurately willingness to receive, and their perceived risk of, vaccination over and above personal risk factors such as personal health, age and gender (i.e., attributes that cannot be as easily changed).
- Building social cohesion earlier in the pandemic predicted greater willingness/lower perceived risk of vaccination four months later in the pandemic. Therefore, investing in social cohesion at both local and national levels when there is no health crisis or early during a health crisis could help manage and potentially resolve this crisis later in time.
- Social cohesion may be improved by increasing confidence in local and national government, ensuring the roll out of vaccines is perceived as fair, and developing community and age group norms around vaccination rates. If these three factors are achieved, then individuals are more likely to get vaccinated.
- Young women showed the least confidence in the government, a key predictor in willingness to get vaccinated. Bolstering their confidence is hence essential for their vaccination attitudes.
- Those who are young and who are women showed the least willingness to get vaccinated.
- As Australia unfolds its vaccination program, it becomes essential to strengthen **current** levels of social cohesion, particularly confidence in the government, as these are likely to impact vaccination rates.

Appendix 1

Gender	Ideal N Size	Actual N Size
Female	1530	1595
Male	1470	1435

Age	Ideal N Size	Actual N Size
18-24	368	345
25-34	578	524
35-44	517	506
45-54	505	461
55-64	445	514
65+	587	680

Individual Income (Weekly)	Ideal N Size	Actual N Size
<$299	684	669
$300-$649	796	803
$650-$1,249	791	826
$1,250-$1,999	459	467
$2,000+	270	260

Region	Ideal N Size	Actual N Size
New South Wales	960	1098
Victoria	750	699
Queensland	600	505
South Australia	210	204
Western Australia	330	305
Tasmania	60	59
Australian Capital Territory	60	130
Northern Territory	30	30

Appendix 2

Age was measured with one item ("What is your age?").

Weekly income was measured with one item ("What is your individual WEEKLY income after income tax?" where 1 = Nil income; 2 = Negative income; 3 = $1 - $149 per week; 4 = $150 - $299 per week; 5 = $300 - $399 per week; 6 = $400 - $499 per week; 7 = $500 - $649 per week; 8 = $650 - $799 per week; 9 = $800 - $999 per week; 10 $1,000 - $1,249 per week; 11 = $1,250 - $1,499 per week; 12 = $1,500 - $1,749 per week; 13 = $1,750 - $1,999 per week; 14 = $2,000 - $2,999 per week; 15 = $3,000 or more.

Gender was measured with one item ("What is your sex?"), with answers being 1 = Male, 2 = Female, and 3 = Others.

Subjective health was measured with a single item ("In general, would you say your health is …") which was answered on a Likert-scale that ranged from 1 = excellent to 5 = poor.

Perceived risk of walking was assessed with "How risky do you think it would be to take a walk with..." followed by 9 different targets (1) family member living with me, (2) family member who doesn't live with me, (3) a friend of the same ethnic group as me, (4) a friend of a different ethnic group, (5) a neighbour, (6) someone from another neighbourhood, (7) someone from my state, (8) someone from another state, (9) an Australian.

Testing positive for COVID yourself was measured with one item ("Have you tested positive for the Coronavirus (COVID-19), meaning that you (now or earlier) have had a medically confirmed case of this disease?"). Respondents answered on a yes or no scale.

Another person testing positive for COVID was measured by one item ("Has anyone you know well (friend, partner, family, colleague etc.) tested positive for the Coronavirus (COVID-19)?"). Respondents answered on a yes or no scale.

Political orientation was measured by asking participants what best describes their political orientation, based on previous research (e.g., Carney et al., 2008; Graham et al., 2009).

Two measures assessed participant's attitude and behavioural intention towards vaccination at Waves 2 and 3. The first was **willingness to get the COVID-19 vaccine** as soon as it is available ("If a vaccine for COVID-19 was available today, I would get it as soon as possible"). Participants answered using a Likert-scale that ranged from 1 = Strongly Disagree to 7= Strongly Agree. The second was the **perceived health risk of getting the COVID-19 vaccine** ("How risky for your health is the following activity: Getting the COVID-19 vaccine as soon as it is available") and participants used a scale that ranged from 1 = Not risky at all to 7= Extremely risky.

Three social cohesion elements were measured at Wave 1.

Social relations in the neighbourhood and Australia was measured at Wave 1 with 11 items. Individuals responded whether people in their neighbourhood where helpful (1 item), could trust one another (1 item), feel safe (1 item), respect rules and laws (1 item), receive what they deserve (1 item), had positive ethnic interactions (2 items), had solved problems together (2 items) and had positive interactions (2 items). These same questions were asked for people in Australia (e.g. people in Australia are helpful). A Likert-scale ranging from 1 = Strongly Disagree to 7= Strongly Agree was used.

Confidence in state and federal government at Wave 1 was calculated by averaging the response to three questions/items): "I trust the way the government communicates information", "I trust the economic strategies of the government", and "My faith in the government is strong" (using a Likert-scale ranging from 1 = Strongly Disagree to 7= Strongly Agree). These questions were answered for the **state** (3 items) and **federal** government (3 items).

Social identification with the neighbourhood was assessed with a single question/item ("I identify as a member of my neighbourhood"). Social identification with Australians was measured by averaging the response to three questions/items ("I identify as Australian"; "I take pride in the Australian way of life and culture"; "I have a sense of belonging in Australia"). All questions were answered using a Likert-scale that ranged from 1 = Strongly Disagree to 7= Strongly Agree.

Appendix 3

The figures below show the distribution of respondents at Wave 1 across age (Figure 1), gender (Figure 2), income, (Figure 3), and state (Figure 4), and show that oversampling occurred for certain categories (e.g., from ACT respondents; from respondents aged 65 and older). The results are thus weighted to better match the Australian population (based on income, age, gender and state distribution).

In addition, Figure 5 also shows the number of respondents who were born in Australia versus outside of Australia.

Age distribution at Wave 1

18-24 25-34 35-44 45-54 55-64 65+

- 11%
- 17%
- 17%
- 15%
- 17%
- 22%
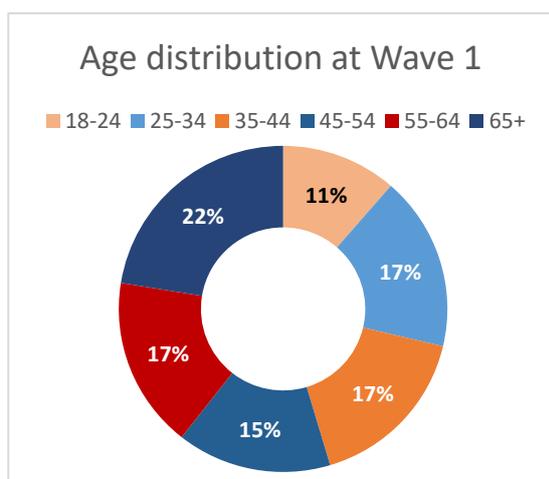
Figure 1. Age distribution at Wave 1

Gender distribution at Wave 1

Male Female Other

- 47.3%
- 52.5%
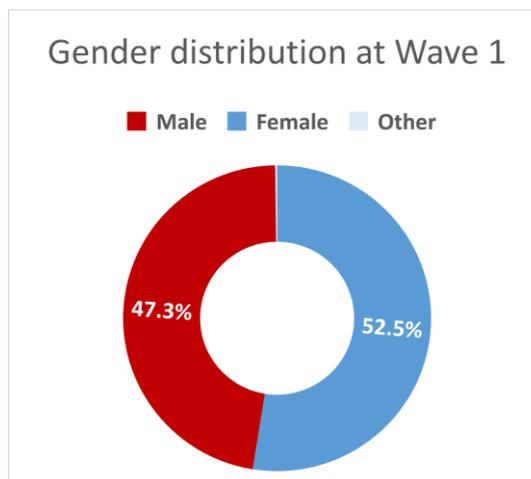
Figure 2. Gender distribution at Wave 1

Income distribution at Wave 1

<$299 $300-$649 $650-$1,249 $1,250-$1,999 $2,000+

- 22%
- 27%
- 27%
- 15%
- 9%
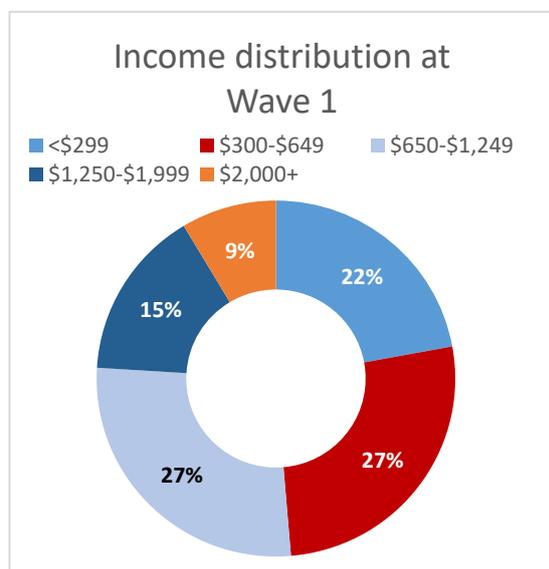
Figure 3. Weekly individual income distribution at Wave 1

State distribution at Wave 1

NT TAS ACT SA WA QLD VIC NSW

- 4%
- 36%
- 1%
- 17%
- 7%
- 2%
- 23%
- 10%
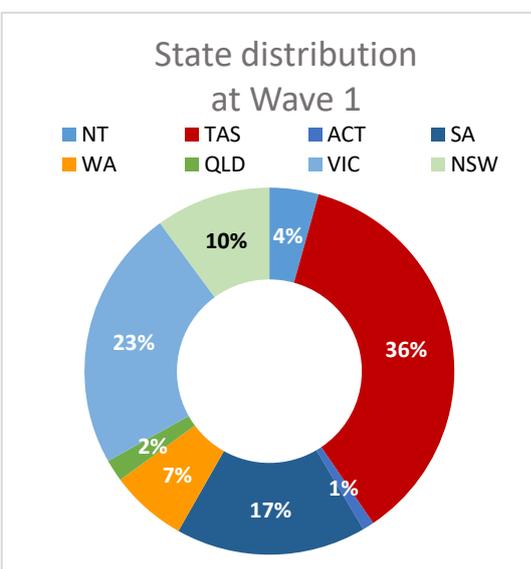
Figure 4. State distribution at Wave 1
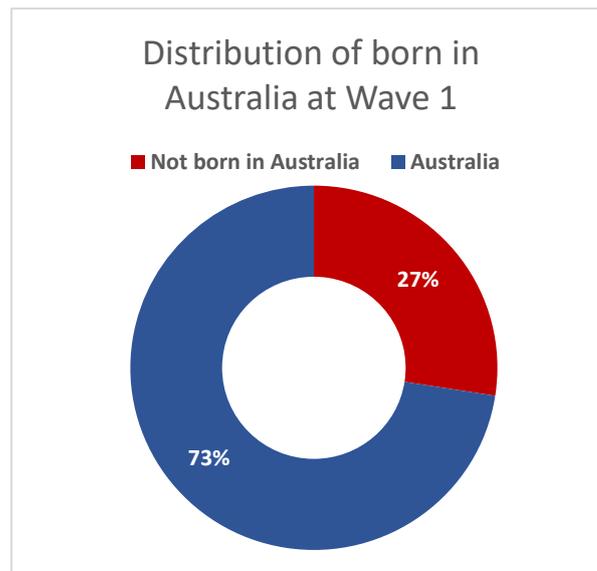
Figure 5. Distribution of Australian born at Wave 1

Respondents across waves

Wave	Respondents
Respondents that participated at Waves 1, 2, and 3	1407
Respondents that participated at Waves 1 and 2	627
Respondents that participated at Waves 1 and 3	316
Respondents that participated at Wave 1 only	680
Total respondents	3030

Appendix 4

Hierarchical regression predicting willingness to receive the COVID-19 vaccine from local-level social cohesion

|	Willingness to get vaccinated W3	
	b (effect)	Significance
Step 1		
Age	0.02	****
Weekly income W1	0.01	
Gender	-0.32	****
Born in Australia (0 = No, 1 = Yes)	-0.04	
Tested COVID Self W1 (1 = Yes; 2 = No)	-0.23	
Tested COVID Other W1 (1 = Yes; 2 = No)	-0.22	
Health W1	-0.04	
Risk Perception W1	0.10	****
Step 2		
Age	0.02	****
Weekly income W1	0.01	
Gender	-0.30	****
Born in Australia (0 = No, 1 = Yes)	-0.01	
Tested COVID Self W1 (1 = Yes; 2 = No)	-0.11	
Tested COVID Other W1 (1 = Yes; 2 = No)	-0.22	
Health W1	0.04	
Risk Perception W1	0.08	***
Neighbourhood SR: Helpful W1	-0.05	
Neighbourhood SR: Trustworthy W1	0.06	
Neighbourhood SR: Safe W1	-0.01	
Neighbourhood SR: Rules W1	0.06	
Neighbourhood SR Perceived fairness W1	0.08	**
Neighbourhood SR: Positive ethnic interactions W1	0.01	
Neighbourhood SR: Collective problem solving W1	-0.02	
Neighbourhood SR: Positive social interactions W1	-0.02	
Identification with the neighbourhood W1	0.05	*
Confidence in the state government W1	0.14	****

Effects that are statistically significant at the 10 percent level of significance are labelled *; those significant at the 5 percent level of significance are labelled **; those significant at the 1 percent level of significance are labelled ***; and those significant at the .1 percent level are labelled ****

Gender =1 Male; Gender = 2 Female. For these analyses, the individuals that reported "Other" gender were removed.

Hierarchical regression predicting risk of vaccination from local-level social cohesion

		Perceived risk of vaccination W3	
		b (effect)	Significance
Step 1			
	Age	-0.02	****
	Weekly income W1	0.00	
	Gender	0.21	***
	Born in Australia (0 = No, 1 = Yes)	0.07	
	Tested COVID Self W1 (1 = Yes; 2 = No)	-0.82	**
	Tested COVID Other W1 (1 = Yes; 2 = No)	-0.09	
	Health W1	0.05	
	Risk Perception W1	0.06	**
Step 2			
	Age	-0.01	****
	Weekly income W1	0.00	
	Gender	0.23	***
	Born in Australia (0 = No, 1 = Yes)	0.08	
	Tested COVID Self W1 (1 = Yes; 2 = No)	-0.73	**
	Tested COVID Other W1 (1 = Yes; 2 = No)	-0.10	
	Health W1	0.01	
	Risk Perception W1	0.06	**
	Neighbourhood SR: Helpful W1	0.05	
	Neighbourhood SR: Trustworthy W1	-0.03	
	Neighbourhood SR: Safe W1	0.02	
	Neighbourhood SR: Rules W1	-0.09	**
	Neighbourhood SR Perceived fairness W1	-0.04	
	Neighbourhood SR: Positive ethnic interactions W1	0.08	
	Neighbourhood SR: Collective problem solving W1	0.05	
	Neighbourhood SR: Positive social interactions W1	-0.16	****
	Identification with the neighbourhood W1	-0.02	
	Confidence in the state government W1	-0.03	

Effects that are statistically significant at the 10 percent level of significance are labelled *; those significant at the 5 percent level of significance are labelled **; those significant at the 1 percent level of significance are labelled ***; and those significant at the .1 percent level are labelled ****

Gender =1 Male; Gender = 2 Female. For these analyses, the individuals that reported "Other" gender were removed.

Hierarchical regression predicting willingness to get vaccinated from national-level social cohesion

		Willingness to get vaccinated W3	
		b (effect)	Significance
Step 1			
	Age	0.02	****
	Weekly income W1	0.01	
	Gender	-0.30	****
	Born in Australia (0 = No, 1 = Yes)	-0.04	
	Tested COVID Self W1 (1 = Yes; 2 = No)	-0.32	
	Tested COVID Other W1 (1 = Yes; 2 = No)	-0.23	
	Health W1	-0.04	
	Risk Perception W1	0.10	****
	Political orientation	-0.09	***
Step 2			
	Age	0.02	****
	Weekly income W1	0.01	
	Gender	-0.29	***
	Born in Australia (0 = No, 1 = Yes)	0.01	
	Tested COVID Self W1 (1 = Yes; 2 = No)	-0.18	
	Tested COVID Other W1 (1 = Yes; 2 = No)	-0.21	
	Health W1	0.04	
	Risk Perception W1	0.09	****
	Political orientation	-0.18	****
	National SR: Helpful W1	-0.10	*
	National SR: Trustworthy W1	0.07	
	National SR: Safe W1	0.04	
	National SR: Rules W1	0.05	*
	National SR: Perceived fairness W1	0.09	***
	National SR: Positive ethnic interactions W1	0.03	
	National SR: Collective problem solving W1	-0.10	
	National SR Positive social interactions W1	0.04	
	Identification with Australians W1	0.03	
	Confidence in the federal government W1	0.15	****

Effects that are statistically significant at the 10 percent level of significance are labelled *; those significant at the 5 percent level of significance are labelled **; those significant at the 1 percent level of significance are labelled ***; and those significant at the .1 percent level are labelled ****

Gender =1 Male; Gender = 2 Female. For these analyses, the individuals that reported "Other" gender were removed.

Hierarchical regression predicting risk of being vaccinated from national-level social cohesion

		Risk to be vaccinated W3	
		b (effect)	Significance
Step 1		5.09	
	Age	-0.01	****
	Weekly income W1	0.00	
	Gender	0.21	***
	Born in Australia (0 = No, 1 = Yes)	0.07	
	Tested COVID Self W1 (1 = Yes; 2 = No)	-0.72	*
	Tested COVID Other W1 (1 = Yes; 2 = No)	-0.13	
	Health W1	0.05	
	Risk Perception W1	0.06	**
	Political orientation	0.05	*
Step 2		6.08	
	Age	-0.02	****
	Weekly income W1	0.00	
	Gender	0.21	**
	Born in Australia (0 = No, 1 = Yes)	0.04	
	Tested COVID Self W1 (1 = Yes; 2 = No)	-0.67	*
	Tested COVID Other W1 (1 = Yes; 2 = No)	-0.12	
	Health W1	0.02	
	Risk Perception W1	0.05	**
	Political orientation	0.08	*
	National SR: Helpful W1	0.08	
	National SR: Trustworthy W1	-0.02	
	National SR: Safe W1	-0.04	
	National SR: Rules W1	-0.04	
	National SR Perceived fairness W1	-0.04	
	National SR: Positive ethnic interactions W1	0.13	*
	National SR: Collective problem solving W1	0.01	
	National SR: Positive social interactions W1	-0.17	***
	Identification with Australians W1	0.01	
	Confidence in the federal government W1	-0.12	****

Effects that are statistically significant at the 10 percent level of significance are labelled *; those significant at the 5 percent level of significance are labelled **; those significant at the 1 percent level of significance are labelled ***; and those significant at the .1 percent level are labelled ****

Gender =1 Male; Gender = 2 Female. For these analyses, the individuals that reported "Other" gender were removed.