


## RESEARCH ARTICLE

# COVID-19 testing decisions and behaviours in two Australian cities

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**Abstract**

**Issue addressed:** High levels of testing are crucial for minimising the spread of COVID-19. The aim of this study is to investigate what prevents people from getting a COVID-19 test when they are experiencing respiratory symptoms.

**Methods:** Semi-structured, qualitative interviews were conducted with 14 purposively sampled adults between 20 November 2020 and 3 March 2021 in two capital cities of Australia and analysed thematically. The analysis included people who reported having respiratory symptoms but who did not undergo a COVID-19 test.

**Results:** Participants appraised risks of having COVID-19, of infecting others or being infected whilst attending a testing site. They often weighed these appraisals against practical considerations of knowing where and how to get tested, inconvenience or financial loss.

**Conclusions:** Clear public health messages communicating the importance of testing, even when symptoms are minor, may improve testing rates. Increasing the accessibility of testing centres, such as having them at transport hubs is important, as is providing adequate information about testing locations and queue lengths.

**So what?:** The findings of our study suggest that more needs to be done to encourage people to get tested for COVID-19, especially when symptoms are minor. Clear communication about the importance of testing, along with easily accessible testing clinics, and financial support for those concerned about financial impacts may improve testing rates.

**KEYWORDS**

COVID-19, health behaviours, infectious disease, perceived risk, risk communication

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## 1 | INTRODUCTION

High levels of testing are essential for minimising COVID-19 transmission and form part of Australia's COVID-19 minimisation strategy, along with high vaccination uptake; contact tracing; isolation of cases and contacts and other measures to limit transmission between individuals. Testing recommendations have changed throughout the course of the pandemic. These interviews were conducted in November 2020–March 2021 when people with respiratory symptoms were asked to immediately attend for COVID testing at special purpose testing clinics or a general practice<sup>1,2</sup> and isolate until they receive a negative result.<sup>3,4</sup> This study explores people's COVID-19 testing decisions and risk appraisals, focusing on those who decide not to have a test despite experiencing respiratory symptoms.

Adoption of preventive public health behaviours such as testing is influenced by a range of cognitive and sociocultural factors, including risk perception, personal values, social trust and situational factors.<sup>5–9</sup> Public perceptions of risk are complex and often involve balancing different categories of risk, such as social disapproval or financial loss.<sup>10</sup> Several Australian studies have investigated COVID-19 risk perception, information use and compliance with preventive behaviours.<sup>1,11–16</sup> Of the few Australian studies of barriers to COVID-19 testing,<sup>1,12,16</sup> none have explored the underlying reasons for people's testing behaviour in depth. We undertook a qualitative study exploring the decisions of those who reported having respiratory symptoms but did not have a COVID-19 test. Qualitative enquiry provides an in-depth understanding of health behaviours and is particularly useful in understanding why people act in the way they do. We recruited in two Australian states where there were strong public health recommendations to get tested if experiencing certain symptoms (Table 1). This paper captures the drivers of choice at a specific time during the pandemic, with implications for understanding how people might make testing decisions in other disease control contexts.

## 2 | METHODS

Interviews were conducted between 20 November 2020 and 3 March 2021 in two capital cities of Australia (Sydney and Melbourne) with the highest number of positive cases at the time. A research agency recruited participants from their large Australia-wide databases. Participants were purposively selected via a screening survey which included questions about experiencing any cold or flu-like symptoms in the previous 4 months, and whether they had been tested for COVID-19. We invited people who had experienced symptoms but who had not had a COVID-19 test to take part in a 30-minute interview conducted via Zoom or phone. Participants were reimbursed \$60 for their participation.

Audio recordings of the semi-structured interviews (Appendix A) conducted by DL, PR and KW were transcribed verbatim by a confidential transcription company, and then two investigators (DL and PR) carried out a thematic analysis of the data.<sup>17</sup> Thematic analysis

### Summary

- We explored barriers to COVID-19 testing through in-depth qualitative interviews with 14 adults living in Sydney and Melbourne.
- Reasons for not getting tested for COVID-19 despite experiencing symptoms fell into two categories: risk appraisal and practical challenges.
- Participants assessed their symptoms as too minor to be COVID-19 and felt worried about contracting COVID-19 at a testing clinic.
- Participants considered practicalities such as financial concerns and inconvenience when making testing decisions.

TABLE 1 List of COVID-19 symptoms<sup>a</sup>

NSW symptom list <sup>3</sup>	Victoria symptom list <sup>4</sup>
Symptoms of COVID-19 include: <ul style="list-style-type: none"> <li>• Fever (37.5° or higher)</li> <li>• Cough</li> <li>• Sore throat</li> <li>• Shortness of breath (difficulty breathing)</li> <li>• Runny nose</li> <li>• Loss of taste</li> <li>• Loss of smell</li> </ul> Other reported symptoms of COVID-19 include fatigue, muscle pain, joint pain, headache, diarrhoea, nausea/vomiting and loss of appetite.	The symptoms to watch out for are: <ul style="list-style-type: none"> <li>• Fever</li> <li>• Chills or sweats</li> <li>• Cough</li> <li>• Sore throat</li> <li>• Shortness of breath</li> <li>• Runny nose</li> <li>• Loss of sense of smell</li> </ul> In certain circumstances, headache, muscle soreness, stuffy nose, nausea, vomiting and diarrhoea may also be considered.

<sup>a</sup>Symptom lists from NSW and Victorian Health Department websites at the time of interviews.

involved close reading of the data, deciding on codes and then conceptualising the findings with themes and subthemes. To ensure coding reliability, we negotiated and agreed on the analytic codes and themes after coding three interviews independently.<sup>18</sup> A group of investigators met and discussed the final organisation of themes. Reflexivity was maintained through frequent self-referent discussions among the researchers throughout the analysis phase. The interview guide includes questions about isolation and quarantine to understand people's perceptions of the current health orders, whether or not they had been directed to isolate. However, this paper focuses on the data collected about the reasons people did not get tested.

### 3 | RESULTS

We conducted 14 interviews with participants in Sydney and Melbourne. Participants were aged between 21 and 66 years and came from a variety of occupations and household composition types but were mostly located in areas with less disadvantage (Table 2). All names mentioned in this paper are pseudonyms, to ensure the anonymity of participants. People's reasons for not getting tested were broadly related to their appraisal of risks or practical challenges.

## 4 | APPRAISING RISK

### 4.1 | Judgements about symptoms

Participants primarily did not have a COVID-19 test because they believed their cold or flu-like symptoms were not related to an infectious disease or were too minor to be of concern. These judgements were often intuitive: 'I knew in myself', 'it was nothing'. This assessment of symptoms was often accompanied by a belief that they were at low risk of infecting others and sometimes a view that their extra precautionary measures mitigated risk.

#### 4.1.1 | Intuition: 'I knew that it was nothing'

Several participants talked of experiencing their usual hay fever symptoms. Wendy knew in herself that the symptoms she had

(runny nose, 'sinus issues') were not serious enough to get tested, especially because she was already living in an isolated way:

I think if I'd had a sore throat I would have gone and got tested, but I knew in myself, the symptoms were just seasonal... I felt confident that we were fine.

(Wendy, 66, Melbourne)

Margaret also described her symptoms as seasonal allergies. However, she exercised caution by not visiting her elderly mother:

I suffer from hay fever badly and it can become quite flu-like. A couple of times I have said to mum, "Look, I'm not coming to see you for a week or so because just in case..."

(Margaret, 52, Melbourne)

Many participants similarly considered their symptoms not significant enough to warrant a test. Participants described feeling rundown, attributing their symptoms to things like stress or lack of sleep. Anwar talked of being encouraged by his boss to get tested, but decided against it as he believed his symptoms were due to lack of sleep with a newborn baby:

[W]e just had a baby, so obviously we are pretty tired, lack of sleep, and a change of the weather, and then I had that flu symptoms... But I knew I just need a nap – a few hours' sleep, and then the next day I was fine.

(Anwar, 36, Melbourne)

TABLE 2 Participant information

ID	Interview date	Sex	Pseudonym	Age & status	Location	IRSD decile <sup>a</sup>
1	20 November 2020	F	Jen	42 (parent of 3, works part time)	Sydney	10
2	23 November 2020	F	Gloria	36 (parent of 3, works part time)	Sydney	8
3	24 November 2020	F	Chloe	21 (student/works part time)	Melbourne	9
4	2 December 2020	F	Rebecca	35 (parent of 2, works part time)	Melbourne	4
5	4 December 2020	M	Craig	48 (parent of 4, works full time)	Melbourne	9
6	8 December 2020	M	Anthony	30 (married, works full time)	Sydney	7
7	1 March 2021	M	Rob	50 (single, no children, unemployed)	Sydney	10
8	1 March 2021	F	Annabel	38 (in a relationship, works full time)	Sydney	10
9	2 March 2021	F	Margaret	52 (single, no children, works full time)	Melbourne	5
10	2 March 2021	M	Chun	31 (partnered, works full time)	Melbourne	8
11	2 March 2021	M	Anwar	36 (married, works full time)	Melbourne	9
12	2 March 2021	M	Marco	45 (single, unemployed)	Sydney	6
13	3 March 2021	F	Sinta	30 (married, works full time)	Sydney	7
14	3 March 2021	F	Wendy	66 (married, retired)	Melbourne	9

Note: The IRSD decile corresponds to the postcode location and not the participants' specific circumstances.

<sup>a</sup>Index of Relative Socioeconomic Disadvantage (IRSD) is a rank calculated by the Australian Bureau of Statistics (ABS). A decile of 1 indicates the lowest 10% (most disadvantaged), whilst a decile of 10 indicates the top 10% (least disadvantaged).<sup>35</sup>

Annabel blamed her symptoms on newly installed air conditioning as well as end-of-year stress from her job and Christmas plans. Similarly, Rebecca downplayed her symptoms, suggesting that walking in the cold winter air the previous night had caused her symptoms:

And the next morning, we all woke up with a runny nose, and again, I didn't bother [testing] because we just shouldn't have been out the night before, and I just knew that was what it was.

(Rebecca, 35, Melbourne)

Rebecca also reported having lost her voice on a different occasion but did not consider getting a test because she was certain it was caused by her job which involved several hours of talking each night.

A small number of participants evaluated their symptoms within a framework of healthy lifestyle and being in touch with their body. Jen (42, Sydney) believed her symptoms were a cold because, having read about the symptoms of COVID, she was confident hers were different and 'I'm very into energy and listening to my body, so I just knew it was the same'.

Annabel (38, Sydney) also spoke about being in tune with her body and debated whether she should get a test after she developed a sore throat. She reasoned that she often gets sore throats and knew that she had just not been looking after herself. Anwar (36, Melbourne) considered himself to be generally very healthy, exercising regularly and eating nutritious food. His confidence in his healthy lifestyle made him feel reassured that his symptoms were not serious and suggested that his good health and antibodies made a COVID-19 infection unlikely.

#### 4.1.2 | Already self-isolating

Several participants appraised their likelihood of having COVID-19 as low, due to already being mostly in isolation, for example, by working from home and only going out for groceries. In Annabel's words, she had been 'pretty much all at home anyway. We weren't going anywhere'. Similarly, Anwar mentioned that he was already self-isolating, working from home with a young baby. He felt that it was unlikely that he had COVID because the only place he had visited outside the home was the supermarket, and he made the point that he got in and out with the groceries very quickly.

#### 4.2 | Fear of contracting COVID-19 at the testing clinic

Many participants were concerned about the possibility of being infected with COVID-19 whilst visiting a testing centre and of weighing up the risks of testing versus not testing. Margaret (52, Melbourne) felt that she was more likely to catch COVID-19 whilst

waiting in a testing clinic than have it already. Similarly, Chun was worried about being exposed to the disease via people in the queue for the clinic:

So, it's like, you're going to test because you think you have symptoms but you're just standing in line with other people [who] could potentially have it as well.

(Chun, 31, Melbourne)

Some, like Wendy (66, Melbourne), were concerned about long wait times and 'exposing ourselves unnecessarily'. Some had explicit concerns about the perceived lack of appropriate measures being taken by staff at testing centres. Others were anxious about the public not wearing masks or socially distancing. Annabel did not want to put herself at risk:

I saw all the pictures on the TV, and I'm like, they're not even socially distancing. I was like, no, not going, not doing that.

(Annabel, Sydney, 38)

Sinta was worried about not knowing whether proper safety protocols were followed by clinic staff. This affected her risk appraisal:

I mean, I don't know every single patient that drives through, they have to completely remove the gloves and all of that; I don't know that. So unless I was really sick then I probably wouldn't go.

(Sinta, 30, Sydney)

## 5 | MANAGING PRACTICALITIES

Along with their risk appraisal, participants also weighed practical considerations such as inconvenience or potential lost income to long waiting times.

### 5.1 | Financial worries

Wendy (62, Melbourne) knew where her nearest testing centre was but had heard that the waiting time was a couple of hours. She did not like the prospect of having a day off work and 'wasting sick leave' to queue up for a test. She also mentioned the financial impact of using up sick leave, worrying that she could not afford to not get paid if she ended up getting sick.

Chloe (21, Melbourne) talked about her boyfriend's hesitancy to get tested after exhibiting flu-like symptoms. Along with being bored stuck at home waiting for the results, he was reluctant to take unpaid time off work.

Anthony, who teaches at a Sydney high school, discussed the financial costs some parents would have endured when their child was sick as they would need to take time off work to look after the unwell child and take them to get tested:

Mum and Dad have to take leave, and then take your kid to the hospital. So it's like a double whammy. The parent gets financially hit and has to use their leave, and on the kid as well.

(Anthony, 30, Sydney)

Some respondents mentioned the impact of finances on their decision not to get tested. For example, Jen (42, Sydney) suggested that testing her daughter would have meant spending money on a GP appointment. She mentioned that the drive-through clinic close to her would not accept children under 5-year old, so she would have had to spend \$85 or travel to the children's hospital.

## 5.2 | Inconvenience

Participants reported significant inconveniences associated with getting to a testing clinic. For example, Jen discussed the difficulties of having to transport and wait in the car with small children. The frequency of child symptoms made testing impractical, especially since the procedure was unpleasant:

It's like, you can't just go and get a COVID test every time they have a runny nose or a cough. It's just not practical. It's so intrusive to them, like having the stick up their nose.

(Jen, 42, Sydney)

Accessibility was an issue for some participants, such as Wendy, who discussed the difficulties of getting to a clinic without a car. She decided that staying at home and not testing was less risky than potentially spreading her illness if she travelled on public transport. This decision interwove concerns about the risk to others:

And again, it was really difficult to go and get tested because I don't drive, because most of them were drive-through testing stations.

(Wendy, 62, Melbourne)

### 5.2.1 | Long waiting time

Participants were also put off by long clinic waiting times. Annabel (38, Sydney) considers herself claustrophobic, 'So, although I've got a decent car, I don't want to be stuck in the car for 6 hours'. She would be more likely to get a test if she could book an allocated time slot, which would also prevent gathering with many others for hours in a queue. Craig (48, Melbourne) was not worried about queuing times but was deterred by reported long delays to receive a test result.

Participants suggested that ease of access would significantly influence their decisions around testing. For instance, Annabel (38, Sydney) suggested that she would be more likely to take a test if

at-home testing kits were available. Chun (31, Melbourne) said that he would have taken a test had the public health officials conducted tests door-to-door in his neighbourhood.

### 5.2.2 | Insufficient information

Having clear information about the nearest clinic and accurate wait time information were mentioned as potential factors to increase the likelihood of getting tested. Marco suggested that more information would have been helpful in the decision to get tested:

I don't think it was clear which one you should go to, in the sense of which would be easiest for you. Like, you know, is there somewhere to park? How long is the wait time going to be? When's the best time to go? There was just one message, which was, "Go get yourself tested." That's all well and good but give us a bit more information.

(Marco, 45, Sydney)

Similarly, Chun (31, Melbourne) and Rob (50, Sydney) said that they were unsure of where testing was located or where to get tested.

## 6 | DISCUSSION

Participants in our study made COVID-19 testing decisions by threading together their intuitive appraisal of bodily experience; evaluation of the risks of infecting others or being infected and considerations of financial loss or inconvenience associated with testing.

Our findings align with other research by Slattery et al which found that only 27% of symptomatic Australians reported getting tested.<sup>16</sup> A previous wave of the same survey<sup>9</sup> undertaken in August 2020 found that only 15% of symptomatic respondents had been tested for COVID-19, with many who did not get tested citing they did not think they had COVID-19 (24%) or that symptoms were too mild (19%).<sup>12</sup> Participants in our study similarly made judgements about testing based on the severity of their symptoms. This was despite consistent public health messaging to test no matter how mild the symptoms. Influenza and COVID-19 have often been represented in the media as severe. Hence, participants may have looked for more serious symptoms as indicators that testing was warranted. By contrast, and as predicted by established research in risk perception,<sup>19</sup> symptoms considered familiar – as 'usual for them' or as seasonal allergies – were judged as low risk.

It is noteworthy that many participants assessed the risk of their symptoms being COVID-19 as very low, yet also mitigated the chance they were mistaken, by choosing to remain isolated whilst observing the progress of their symptoms. Others balanced infection risks against financial risks. Financial support has been offered to Australians to assist people waiting for test results. In Victoria, for example, workers

could apply for a test isolation payment of \$450.<sup>20</sup> Those needing to isolate for 14 days could apply for a pandemic leave disaster relief payment.<sup>21</sup> Further research could be carried out to ascertain whether these payments have had an impact on testing behaviour.

Absence of information about testing locations, procedures and wait times were barriers to testing for these participants. This reflects previous findings that 'not knowing how to get tested (7%)' was among the common reasons for Australians not getting tested, along with 'that testing is painful' (11%), and worry about getting infected at the testing centre (5%).<sup>1</sup> A UK study similarly found that knowledge gaps about when and where to get tested were factors affecting testing decisions, especially for the elderly and those with fewer years of education.<sup>22</sup> Since some participants found access difficult if they did not have a car or drive, ongoing availability of testing centres near transport hubs such as bus or train stations will increase equity of access.

Since these interviews were undertaken, testing recommendations have changed. The Omicron surge over the December 2021–January 2022 period and the availability of Rapid Antigen Tests (RATs) have led to a change in testing recommendations. RATs are now recommended in the official public health advice in NSW<sup>23</sup> and Victoria.<sup>24</sup> In NSW, PCR testing is now only recommended for those who have symptoms but have tested negative on a RAT and who are at higher risk of severe disease or those who cannot access a RAT.<sup>25</sup> In Victoria, people are advised to do a rapid antigen test if they have symptoms or are considered a contact<sup>26</sup> and PCRs are generally reserved for testing critical workforces or vulnerable settings such as aged care facilities.<sup>27</sup> Nevertheless, PCR testing for the symptomatic will continue to be a central aspect of COVID-19 control into the foreseeable future. Our study also highlights that regardless of testing, clear messages are needed.

Our findings suggest the need for more research concerning decisions to test, or not test, children. Measey et al<sup>28</sup> found that one in five parents would not present their symptomatic child for COVID-19 testing; however, their study did not investigate the reasons behind these intentions. Our study suggests that both practicalities and parental judgement about the frequency and severity of symptoms inform decisions, although we are limited by a small number of parents. Social inequities have influenced testing behaviour overseas,<sup>29</sup> as has stigma associated with COVID-19.<sup>30</sup> McCaffery et al<sup>14</sup> found that there are important disparities in COVID-19 knowledge, attitudes and behaviours related to differences in health literacy and language in Australia.

We conducted these interviews during times of relatively low cases of community transmission in Australia. Testing rates have varied during the pandemic, increasing during periods of outbreak. Further studies are needed to understand how different outbreak contexts might influence people's testing decisions. Research into people's experiences of accessing and using Rapid Antigen Tests would also provide important insights.

We recruited participants from a range of demographics in Sydney and Melbourne. Despite our diverse demographic sample, we began to see the repetition of major themes and categories after 8–10 interviews, giving us confidence that we had enough people to inform our analysis.<sup>31,32</sup> It is possible that views of people living outside these major cities may differ, especially given the regional

differences in COVID-19 epidemiology. Whilst the participants in our study came from a variety of backgrounds and socioeconomic status, many of the sample lived in suburbs with a relatively high level of advantage (Table 2). Financial disincentives to testing were mentioned by some participants, but they may be more of a factor in areas/suburbs with higher levels of disadvantage. We acknowledge that financial disincentives may have played more of a central role in decision-making in suburbs with higher disadvantage. A further limitation is the likely impact of social desirability in responses, in that participants may have felt less willing to admit reasons for not testing they perceive as less socially acceptable.

## 7 | CONCLUSION

Screening widely for COVID-19 has been a crucial measure in managing COVID-19 and will continue to remain so.<sup>33,34</sup> This study illuminates some of the reasons people decide not to undergo a COVID-19 test despite being symptomatic. The predominant reasons were that their symptoms were considered too mild or minor to warrant testing; fears about contracting COVID-19 whilst at a testing clinic and other practical barriers such as inconvenience and financial factors. The findings of our study suggest that more needs to be done to encourage people to get tested for COVID-19.

Communications that emphasise that testing clinics are safe and that safety protocols are followed are important, as is accessible information about testing clinic locations and queue lengths. Ongoing economic support should be provided for those concerned about financial impacts. It is also important that public communications include clear and easily accessible information about COVID-19 symptoms, including the importance of testing with mild and familiar symptoms.

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## CONFLICT OF INTEREST

None of the authors of this manuscript have any conflicts of interest to declare.

## ETHICS APPROVAL

This project was approved by the Human Research Ethics Committee at the University of Sydney (number 2020/277).

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## APPENDIX A

## INTERVIEW GUIDE

**Project number:** 2020/277 **Project Title:** *Community awareness, perceptions and behaviour about COVID-19, its prevention and management: A focus on households*

### QUESTIONS FOR TRANCHE 2A: TESTING AND ISOLATING

## GENERAL INTRODUCTORY QUESTIONS

1. Could you tell me a bit about yourself?

**Prompts:** family and household situation, work (part-time or full-time) or study.

**Prompt:** Please tell me your highest level of education: completed secondary school, TAFE diploma, bachelor's degree, post-graduate degree.

2. We are keen to learn about how people manage COVID-19 in their everyday lives. How has Covid affected your life?

**Prompts:** family, relationships, socialising, work, economic situation.

## TESTING QUESTIONS

1. We are asking people about when they have had cold or flu like symptoms in the past few months. Have you had any of these? Could you tell me more about what you experienced? (Prompts: fever, cough, sore/scratchy throat, shortness of breath, runny nose, loss of smell or loss of taste.)

2. Did you consider getting a COVID test?
3. Tell me about your decision? What did you end up doing?

[IF NOT TESTED]

4. What would you say makes it hard to get a COVID test?

**Prompts:** Others talk about things like knowing about what you need to do; getting to a clinic; taking time off; the clinic itself; the test itself; and the implications.

Further prompts: awareness and understanding of recommendations, access to information about when to test, people who influenced the process, practical or logistic issues, access issues, opportunity costs, stigma and blame, having to wait, fear of implications.

[IF TESTED]

5. Tell me more about the time you got a test. Starting from the decision to get one.

**Prompts:** decision prompt, accessing and understanding recommendations, finding out where and when to go, transport.

6. Could you tell me about the testing experience starting from when you arrived at the clinic?

**Prompts:** waiting experience, staff interactions, testing experience, information given, waiting for result.

7. Tell me about after the test. What did you do while waiting for result? [Prompts: time taken, method of informing, response to result]

8. Would you have a test again in the same situation?

## ISOLATION [all participants]

1. Can you tell me what you understand about the recommendations about isolation?

2. Were you able to stay away from others? How did you organise this? What made you do so (explore understanding of recommendations)? Probe if isolation within household was attempted or even possible.

3. [if isolating] What was it like trying to remain in isolation? What made it easy? What made it difficult? (Close and thank participant for interview.)