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Supplementary Material

Identifying the most common barriers to opioid agonist treatment in an Australian setting

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Appendix 1: Client OAT barrier statements

This statement was given before the Likert barrier items:
People often experience barriers or obstacles when making the decision to seek treatment for an opioid or heroin problem. Please rank how you perceive the following 15 barriers would (or have) affected your ability to seek treatment, in particular opioid substitution therapy (methadone or suboxone), for your opioid or heroin use

1. I have negative perceptions of treatment. For example, treatment does not work, treatment has side effects, I have heard bad things about treatment
2. I feel there is stigma surrounding treatment for opioid disorders. For example, I am scared and embarrassed to get treatment for my opioid use. I also think that my friends or family or boss or healthcare provider will think badly of me if I get treatment for my opioid use.
3. I am worried about the cost of treatment.
4. Treatment is hard to access. For example, it is hard to find a treatment spot and/or there is always a long waiting list for treatment.
5. I feel like when I enter treatment there will be no flexibility regarding treatment and I will have no control over my treatment. For example, having to get medications every day, regular appointments, not able to travel.
6. I feel that there are difficult, confusing, and time-consuming entry and registration requirements that must be completed before getting into treatment
7. I am not ready to start treatment because I still enjoy using opioids
8. The clinic is too far away from my place of residence and makes the thought of starting treatment difficult for me
9. I have other things to worry about right now (e.g., finding work, my family, my housing situation, my relationship troubles, violence, my schooling, crime, and money problems) rather than thinking about treatment for my opioid use
10. Current opioid substitution treatments that are available do not fit with my cultural needs. For example, language and cultural needs
11. I feel that opioid substitution treatment does not include other support services I require. For example, psychological services, childcare services
12. I am scared to start opioid treatment because I feel I may become more of a target to police once in treatment
13. I do not want to start treatment because I feel worthless, and I think that I would be a waste of treatment space
14. I do not want to start treatment because it means that you associate daily with people who use drugs, which may push you further into the drug scene
15. I do not want to start treatment because opioid substitution treatment does not fit with the social model of using and requires many big lifestyle changes all to be made at once. For example, dealing with psychological addiction, dealing with boredom of not using, dealing with the ritual of using, dealing with loss of friendships/relationships and dealing with emotions without the drug to lessen or numb these emotions

Appendix 2: T-test results

Comparison of patient-perceived Likert mean scores using paired t tests of those dependent on prescription opioid versus heroin

Barriers	Heroin n=173	Prescription opioids n=22	Corrected Cohen's d	p
	Mean (SD)	Mean (SD)		
Stigma	3.52 (1.25)	3.55 (1.18)	0.02	0.929
Lack of support services	3.49 (1.16)	4.09 (0.81)	0.53	0.020*
No flexibility	3.34 (1.13)	3.64 (1.05)	0.27	0.245
Enjoy using opioids	3.28 (1.22)	3.32 (0.99)	0.03	0.881
Cost	3.17 (1.25)	3.27 (1.28)	0.08	0.712
Hard to access	3.24 (1.14)	3.45 (0.86)	0.20	0.391
Difficult registration	3.03 (1.22)	3.5 (1.10)	0.39	0.087
OAT does not fit with social model of using	3.17 (1.18)	3.45 (1.14)	0.24	0.293
Treatment is not priority, chaotic lifestyle	3.13 (1.22)	3.23 (1.11)	0.08	0.715
Daily association with drug users	2.93 (1.15)	2.95 (1.40)	0.02	0.929
Negative perception of OAT	2.86 (1.08)	3.41 (1.01)	0.51	0.025*
Distance	2.63 (1.13)	2.73 (1.08)	0.09	0.703
Worthlessness	2.55 (1.26)	2.55 (1.06)	0.01	0.973
Fear of police	2.40 (1.06)	2.64 (1.22)	0.22	0.330
Cultural issues	2.28 (1.03)	2.14 (1.08)	0.14	0.532

*Statistically significantly different between the groups at the p=0.05 level

Comparison of patient-perceived Likert mean scores using paired t tests of females versus males

Barriers	Female n=66	Male n=115	Corrected Cohen's d	p
	Mean (SD)	Mean (SD)		
Stigma	3.67 (1.18)	3.36 (1.29)	0.24	0.111
Lack of support services	3.50 (1.17)	3.57 (1.12)	0.06	0.674
No flexibility	3.56 (1.01)	3.22 (1.14)	0.32	0.044*
Enjoy using opioids	3.21 (1.20)	3.34 (1.20)	0.11	0.493
Cost	3.23 (1.21)	3.16 (1.25)	0.06	0.712
Hard to access	3.36 (1.10)	3.16 (1.09)	0.19	0.222
Difficult registration	3.12 (1.17)	3.00 (1.21)	0.10	0.512
OAT does not fit with social model of using	3.14 (1.21)	3.23 (1.09)	0.09	0.577
Treatment is not priority, chaotic lifestyle	3.23 (1.19)	3.06 (1.22)	0.14	0.373
Daily association with drug users	3.00 (1.20)	2.86 (1.15)	0.12	0.441
Negative perception of OAT	2.85 (1.03)	2.91 (1.11)	0.06	0.700
Distance	2.79 (1.43)	2.52 (1.07)	0.24	0.118

Worthlessness	2.67 (1.22)	2.43 (1.23)	0.18	0.222
Fear of police	2.36 (1.05)	2.41 (1.07)	0.04	0.783
Cultural issues	2.05 (0.98)	2.36 (1.04)	0.30	0.049*

*Statistically significantly different between the groups at the p=0.05 level

Comparison of patient-perceived Likert mean scores using paired t tests of those currently in OAT versus those not currently in OAT (can be in other treatment such as inpatient detox, residential rehabilitation, naltrexone)

Barriers	Current treatment n=89	No current treatment n=104	Corrected cohen's d	p
	Mean (SD)	Mean (SD)		
Stigma	3.51	3.56	0.04	0.772
Lack of support services	3.51	3.62	0.10	0.508
No flexibility^	3.27	3.48	0.19	0.203
Enjoy using opioids	3.00	3.54	0.47	0.001**
Cost	3.09	3.25	0.13	0.380
Hard to access	3.20	3.30	0.09	0.553
Difficult registration	2.76	3.34	0.49	0.001**
OAT does not fit with social model of using	2.98	3.41	0.38	0.010*
Treatment is not priority, chaotic lifestyle^	2.94	3.33	0.32	0.031*
Daily association with drug users	2.82	3.01	0.16	0.266
Negative perception of OAT	2.79	3.04	0.23	0.109
Distance	2.47	2.79	0.29	0.050*
Worthlessness	2.21	2.82	0.51	<0.001**
Fear of police	2.27	2.58	0.29	0.047*
Cultural issues	2.07	2.40	0.34	0.022*

^unequal variances

*Statistically significantly different between the groups at the p=0.05 level

Comparison of patient-perceived OAT barriers using paired t tests of those with a history of OAT use versus no history of OAT

Barriers	History of OAT n=138	No history of OAT n=55	Corrected cohen's d	p
	Mean (SD)	Mean (SD)		
Stigma	3.50	3.58	0.07	0.068
Lack of support services	3.58	3.53	0.05	0.774
No flexibility	3.40	3.33	0.06	0.691
Enjoy using opioids	3.25	3.40	0.13	0.423
Cost	3.08	3.45	0.30	0.061
Hard to access	3.21	3.36	0.13	0.415
Difficult registration	3.00	3.31	0.26	0.112
OAT does not fit with social model of using	3.17	3.27	0.08	0.599

Treatment is not priority, chaotic lifestyle	3.14	3.13	<0.01	0.957
Daily association with drug users	2.92	2.98	0.05	0.744
Negative perception of OAT	2.89	2.98	0.08	0.603
Distance	2.59	2.80	0.19	0.235
Worthlessness	2.38	2.98	0.50	0.002**
Fear of police	2.36	2.58	0.21	0.188
Cultural issues	2.20	2.45	0.24	0.128

*Statistically significantly different between the groups at the p=0.05 level

Comparison of patient-perceived OAT barriers using paired t tests of those 16-39 years old compared to those 40+ years old

Barriers	Age 16-39 n=93	Age 40-73 n=96	Corrected cohen's d	p
	Mean (SD)	Mean (SD)		
Stigma	3.59	3.42	0.14	0.338
Lack of support services	3.48	3.61	0.11	0.434
No flexibility	3.29	3.42	0.11	0.443
Enjoy using opioids	3.56	3.04	0.44	0.003**
Cost	3.16	3.19	0.02	0.886
Hard to access^	3.26	3.23	0.03	0.861
Difficult registration	3.04	3.08	0.03	0.821
OAT does not fit with social model of using	3.25	3.10	0.12	0.405
Treatment is not priority, chaotic lifestyle	3.15	3.15	<0.01	0.979
Daily association with drug users	2.89	2.96	0.06	0.703
Negative perception of OAT	3.09	2.73	0.34	0.022*
Distance	2.56	2.72	0.15	0.320
Worthlessness	2.80	2.38	0.34	0.020*
Fear of police	2.44	2.43	0.01	0.931
Cultural issues^	2.22	2.29	0.07	0.609

^unequal variances

*Statistically significantly different between the groups at the p=0.05 level

Comparison of patient-perceived OAT barriers using paired t tests of those with higher SDS (8 to 15 out of 15) or OWLS scores (7 to 12 out of 12) compared to those with lower SDS (3 to 7 out of 15) or OWLS scores (2 to 6 out of 12)

Barriers	High dependence score n=107	Low dependence score n=88	Corrected cohen's d	p
	Mean (SD)	Mean (SD)		
Stigma	3.87	3.10	0.65	<0.001**
Lack of support services	3.64	3.45	0.17	0.247
No flexibility	3.52	3.19	0.30	0.040*

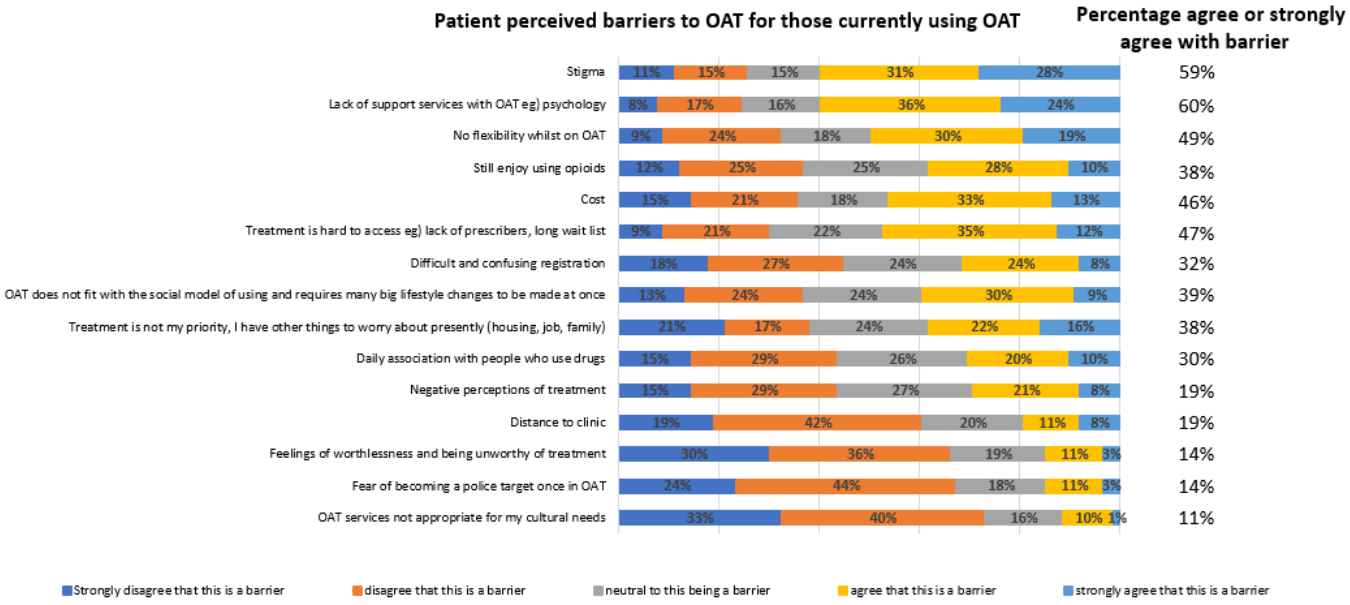
Enjoy using opioids	3.18	3.41	0.19	0.179
Cost	3.32	3.01	0.25	0.089
Hard to access	3.46	3.02	0.399	0.006*
Difficult registration	3.40	2.69	0.61	<0.001**
OAT does not fit with social model of using^	3.38	2.99	0.34	0.017*
Treatment is not priority, chaotic lifestyle	3.35	2.89	0.39	0.008*
Daily association with drug users	3.12	2.70	0.36	0.014*
Negative perception of OAT	2.94	2.90	0.04	0.768
Distance	2.84	2.40	0.40	0.006*
Worthlessness	2.70	2.39	0.25	0.087
Fear of police	2.58	2.24	0.32	0.027*
Cultural issues	2.32	2.20	0.11	0.449

^unequal variances

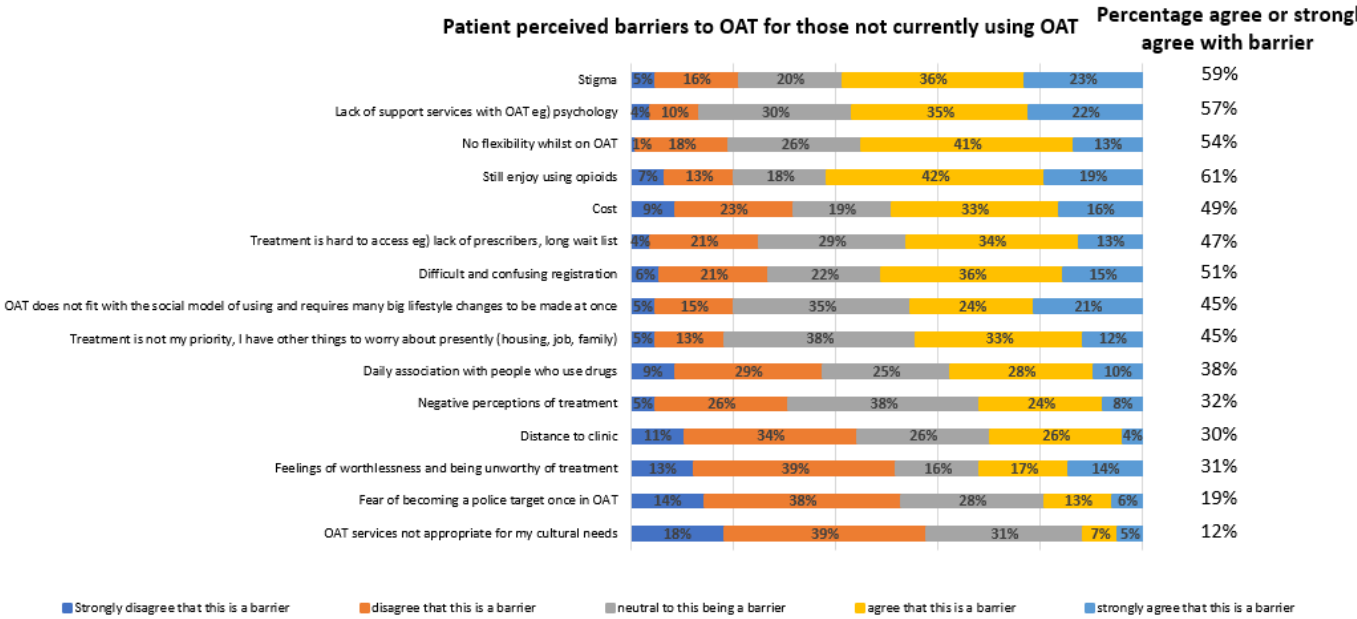
*Statistically significantly different between the groups at the p=0.05 level

Appendix 3:

Patient perceived barriers to OAT (for those currently on OAT) and the percentage that agree or strongly agree with OAT barrier



Patient perceived barriers to OAT (for those not currently on OAT) and the percentage that agree or strongly agree with OAT barrier



Appendix 4: Qualtrics survey

Barriers to OST

Plain Language Statement (PLS)

Project title: Identifying the most common barriers to opioid substitution treatment in an Australian setting

About the project: This study is being undertaken to rank and determine the most important barriers to treatment for those who use opioids non medically. This study will involve self-completing survey questions online or on a Deakin electronic device about your demographics, opioid use, treatment use and history and barriers to treatment. The self-completed survey will take about 15 minutes to complete. This survey and the data collected from it will have no identifying factors and your answers will be totally anonymous. Participation in this study is entirely voluntary and even if you start the interview and you decide you do not want to finish it you may stop at any time and there will be no negative consequences for you or your treatment provision. If you are eligible for the study and upon full completion of the survey you will be given or emailed a $10 Coles supermarket voucher as compensation for your time. Upon completion of the study, a summary of results will be made available to the recruitment organisations, which will be published online for study participants. Presently, this research is being undertaken to determine the most important barrier to opioid substitution therapy and to evaluate two different preference-based methods. If used in an appropriate and beneficial way the non-identifiable data may be used as secondary data if the initial research team approves and agrees the secondary use would be adding to the research field and benefiting the individuals involved. If the data is shared in the future it will be shared in a way that is totally private, anonymous and confidential.

Privacy and confidentiality: * All the information we collect about you will be kept private
* If you take part we will not put your name on any files associated with the project and no-one apart from the people doing the project can see the files
* You do not have to take part in the project and there will be no negative consequences if you do not take part
* You may discontinue the survey at any point with no negative results
* If you wish to withdraw from the study please contact Deakin University

Complaints If you have any complaints about any aspect of the project, the way it is being conducted or any questions about your rights as a research participant, then you may contact: The Manager, Deakin Research Integrity, Deakin University, 221 Burwood Highway, Burwood Victoria 3125. Telephone: 9251 7129, Facsimile: 9244 6581, email: research-ethics@deakin.edu.au Please quote project number: 2020-350 I consent to completing this survey:

- ○ Yes (1)
- ○ No (2)

Q2 what is the primary drug you use

- ○ heroin (1)
- ○ prescription opioids (2)
- ○ other (3)

SDS heroin dependence

Q3 Do you think your use of heroin is out of control?

- ○ never/almost never (1)
- ○ sometimes (2)
- ○ often (3)
- ○ always/nearly always (4)

Q4 Does the prospect of missing a hit of heroin make you anxious or worried?

- ○ never/almost never (1)
- ○ sometimes (2)
- ○ often (3)
- ○ always/nearly always (4)

Q5 Do you worry about your use of heroin?

- never/almost never (1)
- sometimes (2)
- often (3)
- always/nearly always (4)

Q6 Do you wish you could stop to use heroin?

- never/almost never (1)
- sometimes (2)
- often (3)
- always/nearly always (4)

Q7 How difficult would you find it to stop or go without heroin?

- not difficult (1)
- quite difficult (2)
- very difficult (3)
- impossible (4)

Q8 In the past 3 months, in times of worst pain did you use more opioid medicines than prescribed? (This includes of "as required" medicine if used in greater amounts than prescribed)

- ○ not at all (1)
- ○ a little (2)
- ○ quite a lot (3)
- ○ a great deal (4)

Q9 In the past 3 months, did you worry about your use of opioid medicines?

- ○ not at all (1)
- ○ a little (2)
- ○ quite a lot (3)
- ○ a great deal (4)

Q10 In the past 3 months, did opioid medicines cause you to lost interest in your usual activities?

- ○ not at all (1)
- ○ a little (2)
- ○ quite a lot (3)
- ○ a great deal (4)

Q11 In the past 3 months, did opioid medicines cause you to feel slowed down, sluggish or sedated?

- ○ not al all (1)
- ○ a little (2)
- ○ quite a lot (3)
- ○ a great deal (4)

Q12 What is your age in years?

_____

Q13 What is your home postcode?

_____

Q14 Which gender do you identify with?

- ○ Woman (1)
- ○ Man (5)
- ○ Non-binary (6)
- ○ Gender fluid (7)
- ○ Trans woman (8)
- ○ Trans man (9)
- ○ Sister-girl (10)
- ○ Brother-boy (11)
- ○ Unsure/questioning (12)
- ○ Prefer to self-describe as (13) _____
- ○ Prefer not to say (14)

Q15 Are you of Aboriginal or Torres Strait Islander origin?

- ○ No (1)
- ○ Yes Aboriginal (2)
- ○ Yes Torres Strait Islander (3)
- ○ Prefer not to say (4)

Q16 In which country were you born?

- ○ Australia (1)
- ○ UK & Ireland (2)
- ○ Italy (3)
- ○ Greece (4)
- ○ Netherlands (5)
- ○ Germany (6)
- ○ New Zealand (7)
- ○ Vietnam (8)
- ○ Poland (9)
- ○ USA (10)
- ○ Canada (11)
- ○ South Africa (12)
- ○ Prefer not to say (14)
- ○ Other, please specify (13) _____

Q17 What is your highest level of schooling?

- ○ no schooling (1)
- ○ primary school (2)
- ○ high school (3)
- ○ TAFE or university (4)
- ○ Prefer not to say (5)

Q18 What was your main source of income during the past month?

- ○ wage or salary (1)
- ○ government pension, allowance or benefit, please specify type (2)
  _____
- ○ criminal activity (3)
- ○ child support (4)
- ○ supperannuation (5)
- ○ own business (6)
- ○ rental investment (7)
- ○ dividends or interest (8)
- ○ Prefer not to say (10)
- ○ other, please specify (9) _____

Q19 Who were you living with during the past month?

- ○ alone (1)
- ○ partner/spouse (2)
- ○ partner/spouse and children (3)
- ○ children, no partner/spouse (4)
- ○ parents (5)
- ○ Prefer not to say (7)
- ○ other, please specify (6) _____

Q20 What was your usual form of accommodation in the past month? (Choose the one where most of your time was spend)

- ○ own house or flat (1)
- ○ parents home (2)
- ○ boarding house/hostel (3)
- ○ shelter/refuge (4)
- ○ drug treatment residence (5)
- ○ no fixed address/homeless (6)
- ○ Prefer not to say (8)
- ○ other, please specify (7) _____

Q21 Have you ever received treatment for your opioid use?

- ○ Yes (1)
- ○ No (2)

Q22 if Yes, what type of treatment have you received for your opioid use? (Multiple answers can be chosen)

- [ ] methadone maintenance (clinic based) (1)
- [ ] methadone maintenance (GP based) (2)
- [ ] inpatient withdrawal (with or without medication) (3)
- [ ] outpatient withdrawal (with or without medication) (4)
- [ ] outpatient counselling (not as a part of other treatment) (5)
- [ ] residential rehabilitation (eg therapeutic community) (6)
- [ ] buprenorphine maintenance (subutex oral, suboxone oral or buvidal injection) (7)
- [ ] naltrexone maintenance (8)
- [ ] other, please specify (9)

Q23 How many times have you started treatment for your opioid use?

_____

Q24 Are you currently using treatment for your opioid use?

- ○ Yes (4)
- ○ No (5)

Q25 If yes, what type of treatment are you currently using for your opioid use? (Multiple answers can be chosen)

- [ ] methadone maintenance (clinic based) (1)
- [ ] methadone maintenance (GP based) (4)
- [ ] inpatient withdrawal (with or without medication) (5)
- [ ] outpatient withdrawal (with or without medication) (6)
- [ ] outpatient counselling (not as a part of other treatment) (7)
- [ ] residential rehabilitation (eg therapeutic community) (8)
- [ ] buprenorphine maintenance (subutex oral, suboxone oral or buvidal injection) (9)
- [ ] naltrexone maintenance (10)
- [ ] other, please specify (11) _____

Q26 **People often experience barriers or obstacles when making the decision to seek treatment for an opioid or heroin problem. Please rank how you perceive the following 15 barriers would (or have) affected your ability to seek treatment, in particular opioid substitution therapy (methadone or suboxone), for your opioid or heroin use**

Q27 I have negative perceptions of treatment.
For example treatment does not work, treatment has side effects, I have heard bad things about treatment

- ○ strongly disagree (1)
- ○ disagree (2)
- ○ neutral (3)
- ○ agree (4)
- ○ strongly agree (5)

Q28 I feel there is stigma surrounding treatment for opioid disorders.
For example I am scared and embarrassed and think that my friends or family or boss or healthcare provider will think badly of me if I get treatment for my opioid use

- ○ strongly disagree (1)
- ○ disagree (6)
- ○ neutral (7)
- ○ agree (8)
- ○ strongly agree (9)

Q29 I am worried about the cost of treatment

- ○ strongly disagree (1)
- ○ disagree (6)
- ○ neutral (7)
- ○ agree (8)
- ○ strongly agree (9)

Q30 Treatment is hard to access.
For example it is hard to find a treatment spot and/or there is always a long waiting list for treatment.

- ○ strongly disagree (1)
- ○ disagree (6)
- ○ neutral (7)
- ○ agree (8)
- ○ strongly agree (9)

Q31 I feel like when I enter treatment there will be no flexibility regarding treatment and I will have no control over my treatment.
For example having to get medications every day, regular appointments, not able to travel.

- ○ strongly disagree (1)
- ○ disagree (6)
- ○ neutral (7)
- ○ agree (8)
- ○ strongly agree (9)

Q32 I feel that there are difficult, confusing and time consuming entry and registration requirements that must be completed before getting into treatment

- ○ strongly disagree (1)
- ○ disagree (6)
- ○ neutral (7)
- ○ agree (8)
- ○ strongly agree (9)

Q33 I am not ready to start treatment because I still enjoy using opioids

- strongly disagree (1)
- disagree (4)
- neutral (5)
- agree (6)
- strongly agree (7)

Q34 The clinic is too far away from my place of residence and makes the thought of starting treatment difficult for me

- strongly disagree (1)
- disagree (4)
- neutral (5)
- agree (6)
- strongly agree (7)

Q35 I have other things to worry about right now (eg. finding work, my family, my housing situation, my relationship troubles, violence, my schooling, crime and money problems) rather than thinking about treatment for my opioid use.

- ○ strongly disagree (1)
- ○ disagree (4)
- ○ neutral (5)
- ○ agree (6)
- ○ strongly agree (7)

Q36 Current opioid substitution treatments that are available do not fit with my cultural needs. For example language and cultural needs.

- ○ strongly disagree (1)
- ○ disagree (4)
- ○ neutral (5)
- ○ agree (6)
- ○ strongly agree (7)

Q37 I feel that opioid substitution treatment does not include other support services I require. For example psychological services, childcare services.

- ○ strongly disagree (1)
- ○ disagree (4)
- ○ neutral (5)
- ○ agree (6)
- ○ strongly agree (7)

Q38 I am scared to start opioid treatment because I feel I may become more of a target to police once in treatment

- ○ strongly disagree (1)
- ○ disagree (4)
- ○ neutral (5)
- ○ agree (6)
- ○ strongly agree (7)

Q39 I do not want to start treatment because I feel worthless and I think that I would be a waste of treatment space

- ○ strongly disagree (1)
- ○ disagree (4)
- ○ neutral (5)
- ○ agree (6)
- ○ strongly agree (7)

Q40 I do not want to start treatment because it means that you are forced daily to associate with other drug users and this can push you further into the drug scene

- ○ strongly disagree (1)
- ○ disagree (4)
- ○ neutral (5)
- ○ agree (6)
- ○ strongly agree (7)

Q41 I do not want to start treatment because opioid substitution treatment does not fit with the social model of using and requires many big lifestyle changes all to be made at once. For example; dealing with psychological addiction, dealing with boredom of not using, dealing with the ritual of using, dealing with loss of friendships/relationships and dealing with emotions without the drug to numb you.

- ○ strongly disagree (1)
- ○ disagree (4)
- ○ neutral (5)
- ○ agree (6)
- ○ strongly agree (7)

Thank you for your participation in this research on the barriers to treatment for adults who use opioids non-medically. The goal of this survey was two-fold: to determine the most significant barriers to opioid substitution treatment for those with opioid use disorder and to compare how appropriately two preference based tools, Likert scale and discrete choice experiments, work in this population.
If you feel that you need assistance with your opioid use or mental health or are experiencing negative feelings as a result of this study, please contact the following services:

- Alcohol & drug counselling online (A turning points service): counsellingonline.org.au
- Alcohol and drug foundation on 1300 85 85 84
- Cohealth alcohol and other drug (AOD) free counsellor service on 1800 700 514
- Thorne Health Harbour on 03 9865 6700

If you have any additional questions regarding this research, please contact Deakin University

Please continue to the next page for details regarding the $10 Coles supermarket voucher for completion of the survey.

Q57 Would you like to receive a $10 Coles supermarket voucher for your participation in this study?

- ○ Yes (1)
- ○ No (2)

Qualtrics then takes the participant to a second online survey, which asks for their email address to send the $10 Coles supermarket voucher.

Q1 Please provide an email address in the text box below and we will send your $10 Coles supermarket voucher to this address (please note that this survey for your email address is a separate survey and is not attached to the main survey answers meaning that your main survey answers will remain confidential)

STROBE Statement—Checklist of items that should be included in reports of ***cross-sectional studies***

	Item No	Recommendation	Page No
Title and abstract	1	(*a*) Indicate the study's design with a commonly used term in the title or the abstract	Abstract
		(*b*) Provide in the abstract an informative and balanced summary of what was done and what was found	Abstract
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	1
Objectives	3	State specific objectives, including any prespecified hypotheses	1
Methods			
Study design	4	Present key elements of study design early in the paper	1 & 2
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	1
Participants	6	(*a*) Give the eligibility criteria, and the sources and methods of selection of participants	2
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	2 & Appendix 1
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	*2*
Bias	9	Describe any efforts to address potential sources of bias	2
Study size	10	Explain how the study size was arrived at	2
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	2 & 3
Statistical methods	12	(*a*) Describe all statistical methods, including those used to control for confounding	2 & 3
		(*b*) Describe any methods used to examine subgroups and interactions	2 & 3
		(*c*) Explain how missing data were addressed	3
		(*d*) If applicable, describe analytical methods taking account of sampling strategy	NA

		(*e*) Describe any sensitivity analyses	NA
Results			
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	3
		(b) Give reasons for non-participation at each stage	3
		(c) Consider use of a flow diagram	NA
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	3 & Table 1
		(b) Indicate number of participants with missing data for each variable of interest	Table 1
Outcome data	15*	Report numbers of outcome events or summary measures	3 & 4
Main results	16	(*a*) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	3 & 4 (table 2 and Table 3)
		(*b*) Report category boundaries when continuous variables were categorized	3, 4 and Table 3
		(*c*) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	NA
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	3, 4 and Table 3
Discussion			
Key results	18	Summarise key results with reference to study objectives	4, 5
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	5
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	4
Generalisability	21	Discuss the generalisability (external validity) of the study results	5
Other information			
Funding	22	Give the source of funding and the role of the funders for the	Title page

	present study and, if applicable, for the original study on which the present article is based	

*Give information separately for exposed and unexposed groups.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at http://www.plosmedicine.org/, Annals of Internal Medicine at http://www.annals.org/, and Epidemiology at http://www.epidem.com/). Information on the STROBE Initiative is available at www.strobe-statement.org.