

## Comparison of Motorists' and Cyclists' perception of bicycle safety

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### Abstract

Increasing the modal share of public transit systems has become paramount in aiding the reduction on the excessive reliance of personal motor vehicles. More so the need to increase the share of active modes of transport such as the use of bicycles, therefore there is an ever increasing need to use bicycles both on shared pedestrian paths and on-road cycling. The risk to cyclist, or consequently the perception of the risk from both cyclists and motorists alike, is an important factor to increase the use of this transport mode. This paper investigates perception of bicycle safety by conducting a survey and analysing the survey data to understand how participants with different backgrounds perceive the risks of cycling for transport. Contributing factors to people's perception of bicycle safety were identified and compared across different road user groups, based upon which recommendations were made on how to improve bicycle safety.

Keywords: active transport; road safety; bicycle safety; safety perception

### Introduction

Currently, up to 20% of trips using a motor vehicle in Australia are less than 5kms, which is generally regarded as a rideable distance, while cycling only accounts for about 1.5% of daily trips in Australia (Australian Bureau of Statistics, 2009). Ellison & Greaves (2011) concluded that the majority of trips with a rideable distance (i.e., less than 5kms) could be made by cycling without significant time penalty and that 90% of inexperienced adult cyclists could cycle the same distance within 10 minutes as they would with a motor vehicle. Furthermore, promotion of cycling as a preferred transport mode can improve the quality of life (Killingsworth et al. 2003), impose lower costs than using motor vehicles (Victorian transport policy institute, 2012), reduce the transport systems' negative impact on environment and public health, and mitigate traffic congestion (Yiannakoulias et al. 2012). However, despite the substantial benefits that cycling for transport can induce, cycling has been neglected for decades by urban transport planners as a viable travel mode (Mulley, et al., 2013).

Numerous factors may prevent cycling taking place, including route choice, connectivity of bicycle infrastructure (Ehrgott et al. 2012), the efficiency of cycling compared to the use of personal motor vehicles (Ellison & Greaves, 2011) and mandatory helmet laws in Australia. The (perceived) risk of cycling also plays an important role, in particular when cyclists and motorists are sharing an on-road lane. Generally, the deteriorating perception of cycling safety causes the decline of choosing cycling as a transport mode (Curnow, 2008). Meanwhile, Basford et al., (2002) reported that unpredictability of cyclist's behaviour was linked to the irritation motorists perceived. From the experiments they

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conducted, although they had some empathy for cyclists in varying situations, motorists tended to blame cyclists for the difficulties encountered on the road.

Perception of bicycle safety is a highly complex issue, which can be influenced by lots of factors. For example, the type of equipment can affect the safety perception, for both cyclists and motorists alike. (Phillips, Fyhri, & Sagberg, 2011) found that compared to those who typically never wore a helmet cyclists, who typically wore helmets, cycled slower when without wearing helmets. Cyclists who use more cycling equipment (computers, cycling lycra, clip in shoes) were found to travel faster than cyclists who used helmets only (Fyhri et al. 2012). Drivers take fewer countermeasures when the cyclists are equipped with safety and cycling equipments as drivers perceive the cyclists to be more competent, particularly during tight-passing events (Walker, 2007). However, few studies have attempted to understand impact of different cycling environment features on perception of bicycle safety (Walton & Murray 2012). Furthermore, there are no studies that have systematically investigated the inconsistency of risk perceptions among different road users (e.g., motorists, cyclists) (Fyhri, et al., 2012). Therefore, our understanding on perception of bicycle safety remains elusive, which has tragic and even disastrous consequence because 86% of all fatalities between 1997 to 2004 in Australia were resulted from interaction with personal motor vehicle and heavy transport vehicle (Australian Transport Safety Bureau, 2006). This paper aims to fill this gap in the literature and shed light on this important topic.

Towards this end, the remainder of this paper is organized as follows: the next section discusses the survey design and implementation, followed by a section of discussing the survey data analysis and main results. Finally, this paper is concluded by summarizing major findings and pointing out future research.

## **Methodology**

### **Survey Design**

A survey was designed to collect participants' attitudes and perceptions regarding bicycle safety. The survey consists of two parts. The first part (Part A) was used to collect demographic information (e.g., gender, age, education, employment, income, household structure and vehicle access). Respondents were then categorised as non-cyclists vs. cyclists based on their cycling characteristics, such as bicycle access and cycling frequency. More specifically, participants who had access to a bicycle and rode it more than once a month were categorised as cyclists. Otherwise, they were categorised as non-cyclists.

To investigate the possible conflicting perceptions on bicycle safety between cyclists and motorists, the remainder of Part A presents both cyclists and motorists with a set of statements regarding bicycle safety. This approach allows responses from cyclists and motorists to be paired for a comparative analysis to reveal any possible conflicts in perception of bicycle safety.

The second part of the survey (Part B) presented respondents with ten photographs of typical cycling scenarios, with each photograph representing specific factors such as helmet-on vs. helmet-off, slow paced riding, use of the shared lane, riding on designated cycle lanes, a group of cyclists, and cyclists commuting in traffic, etc. Respondents were asked to rate the level of safety of each photograph based upon their own experience using a 5-point Likert scale, ranging from safe (1) to unsafe (5). To avoid introducing biases, no information was provided to assist participants in interpreting the photographs.

A similar approach has been used in Curnow (2008) by which used a novel approach of filming the journey of a cyclist through junctions, intersections and roundabouts where respondents were asked to judge their level of discomfort with different video-taped cycling scenarios. Combining data obtained from Part A and Part B, insights on perceptions of bicycle safety are likely to be obtained.

The questionnaire is attached in Appendix A.

### **Survey Implementation**

Initially this survey was designed to be carried out in a paper-based format. However, during the administration it was quickly realised that other delivery methods should be considered because of the low response rate (i.e., about 1 in every 12 persons we approached eventually agreed to participate in the survey). In addition, it was more difficult to attract cyclists to complete the survey. Therefore, after reviewing the results of early data it was decided to launch a web-based version simultaneously to increase the sample size, in particular responses of cyclists by posting the questionnaire on several cycling groups' websites. The web-based questionnaire is identical to the paper-based. Thus, data from each delivery method can be easily combined in the analysis.

The paper-based survey was conducted at different sites in Brisbane and surrounding suburbs over 19 days from the 12<sup>th</sup> of May to the 25<sup>th</sup> of May 2013 while the web-based survey was posted from the 23<sup>rd</sup> of May to the 30<sup>th</sup> of May 2013. A total of 468 participants completed the survey (196 from the paper-based and 272 from the web-based).

The self complete pen and paper survey was conducted while the self complete on line version was distributed on two automotive forums and shared with social media websites in particular. More detail on the survey implementation is provided in Appendix B.

The target population of the survey was residents of the inner suburbs of Brisbane, where people are frequently affected by road congestion and most likely to benefit from an increased mode share of cycling. cyclists are over-represented in our sample because of the emphasis of this study on cyclist's safety perception on cycling. Such over-representation may have significant impacts on using statistical modelling methods to quantitatively study this issue, which will be accounted for accordingly but is beyond the scope of this paper.

### **Results and Discussion**

Out of 468 respondents, 362 are male and 106 are female. 66% of the respondents fell between 18 and 34 years of age, 26% between 35 and 54 years and 8% either below 18 or above 54 years. There was a fairly even distribution of educational levels, with approximately half of respondents with a high school, certificate or diploma education level and the other half with a bachelor degree or higher. The predominant household types were couple family with dependent children, couple family only and group of unrelated persons. 58% of the respondents worked full-time, 25% part-time and/or study, 9% self-employed and 8% retired or not in the work force. 91% of the respondents had access to a car and 84% had access to a bicycle, but only 78% used their bicycles at least once a month.

Out of 393 respondents who had access to a bicycle, 61% were recreational users, 46% were for exercise, 37% for transport and 18% for competitive sport. The predominant bicycle type was a mountain, road or training style bicycle and the majority of bicycle users always wore a helmet. The common distances travelled by cyclists were 1 to 4.9km (17%), 5 to 9.9km (22%) and 35km or more (24%). Most respondents identified excessive trip distance, inconvenience and route safety as the main reasons for not using a bicycle.

### Relationship between cycling experience and safety perception

To investigate the relationship between level of cycling experience and bicycle safety perception, a comparison was made between frequency of bicycle use and the average unsafe rating respondents gave to the series of photographs, as shown in Figure 1. This figure indicates that the more frequent a participant used a bicycle, the lower unsafe rating the participant gave to these cycling scenarios represented in the photos. Although it is not as evident, a similar result can be obtained by comparing bicycle trip distance to the average unsafe rating, with the average unsafe rating decreasing by 0.26 from the shortest distance to longest distance per trip, as shown in Figure 2. Both these comparisons suggest that as an individual's level of exposure to cycling increases, this participant become more habituated with the comfort and safety factors associated with riding a bicycle, which is consistent with the previous studies (Winters et al. 2011).

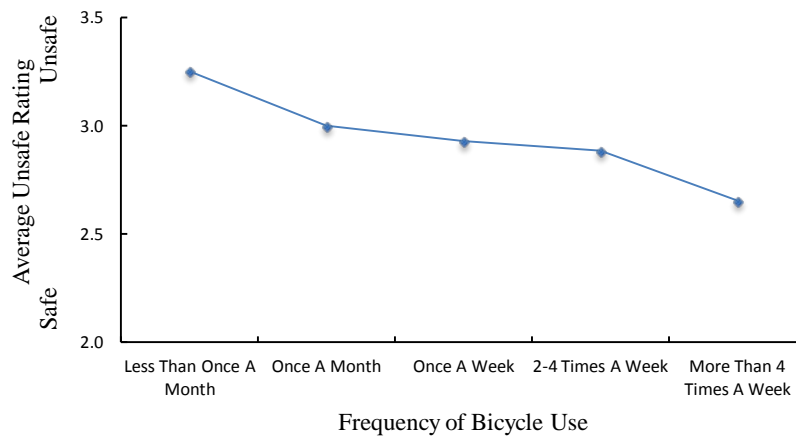


Figure 1. Comparison of frequency of bicycle use and average safety rating; 1 for safe and 5 for unsafe

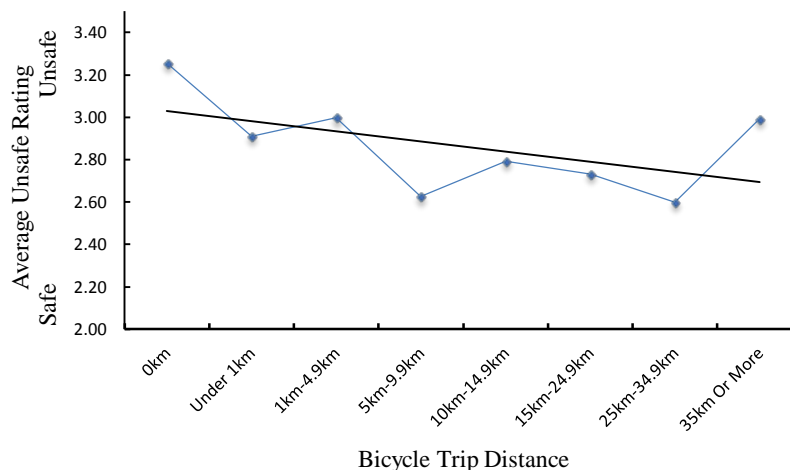


Figure 2. Comparison of bicycle trip distance and average safety rating: 1 for safe and 5 for unsafe

### Relationships between helmet usage and safety perception

When asked how often the respondents wore their helmets while cycling, 63.3% chose always, while only 13.5% selected never. This shows a significant compliance to Australian mandatory helmet laws currently in place. In addition, when asked if the respondents felt safer while wearing a helmet, 32.5% were undecided while only 4.9% strongly agreed (See Figure 3). Studies have shown that when a helmet is provided to a cyclist who is not accustomed to wearing one, the cyclist shows no change in the cycling speed (Phillips, et al., 2011). This reinforces the evidence that the use of helmets while cycling has little influence on the perception of safety for a cyclist, as other factors such as interactions between cyclists and motorists are of greater concern when cycling.

Meanwhile, in a related question on main reasons of not using the City Cycle (Brisbane bicycle share scheme), 18% participants stated that they did not want to risk a helmet fine while only 4.6% selected that they would feel unsafe without wearing one. This is comparable to what was reported in Fishman et al. (2012).

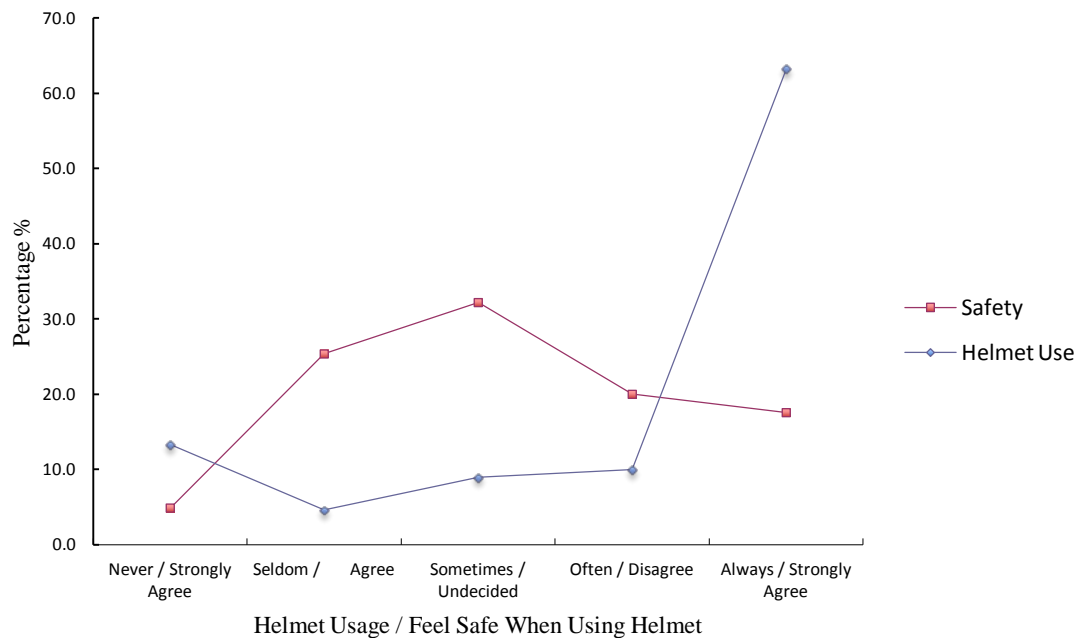
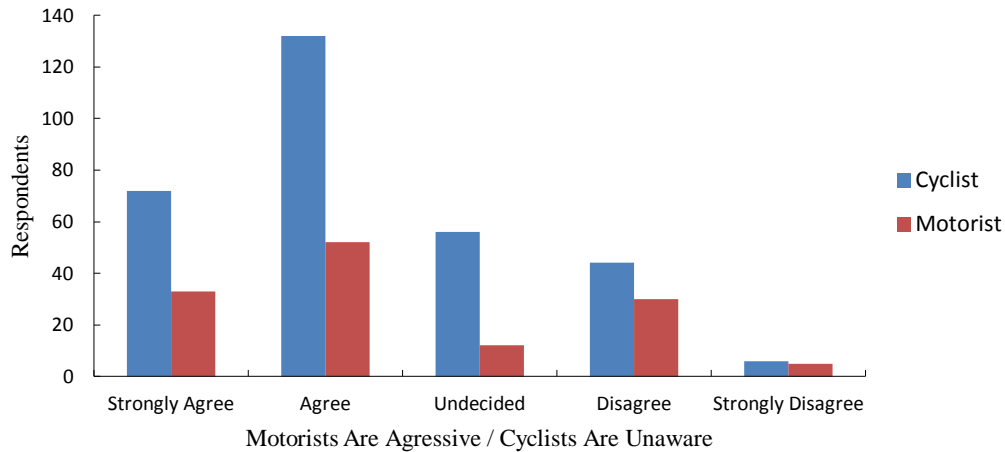


Figure 3. Comparison of helmet usage and safety perception when cycling

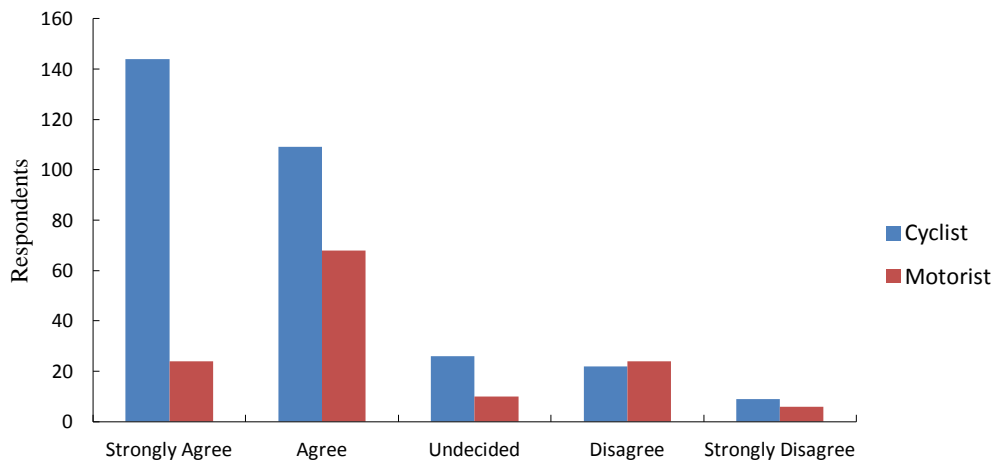
### The interaction of cyclists and motorists on safety perception

The interaction between cyclists and motorists due to the sharing of the roadway is a significant factor in fatal accidents of cyclists (Australian Transport Safety Bureau, 2006). Therefore a series of questions in the survey were designed to gauge the cyclists' and the motorists' perception of bicycle safety.

When asked if cyclists found motorists aggressive while cycling on road, 23.2% strongly agreed and 42.8% agreed. In comparison when motorists were asked if cyclists were unaware of passing vehicles, 25% strongly agreed and 39% agreed with the statement (See Figure 4). 46.3% of the cyclists strongly agreed and 35.4% agreed with the statement of *when I'm on my bicycle, I am often concerned that I will be involved in an accident*. When motorists were asked a similar question, *when passing a cyclist on the road I am concerned that I will collide into him/her?* 51.5% agreed to this statement (see Figure 5). 40.9% of the motorists also agreed with the statement that *fitness was required for cyclists using on-road lanes* while 28.0% disagreed.

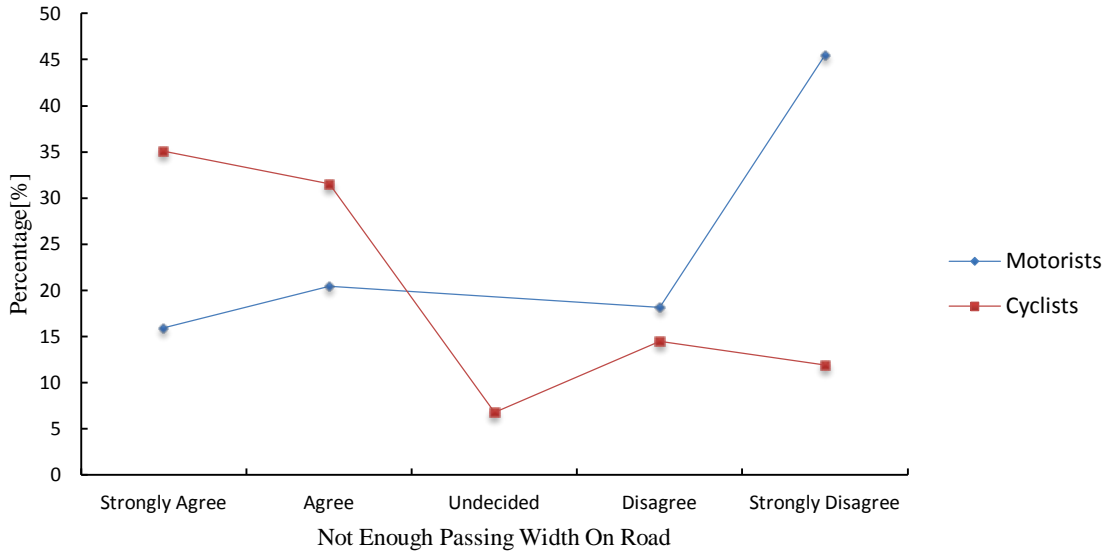


**Figure 4. Comparison of the perceived behaviours of motorists and cyclists**



**Figure 5. Level of concerns of being involved in an accident**

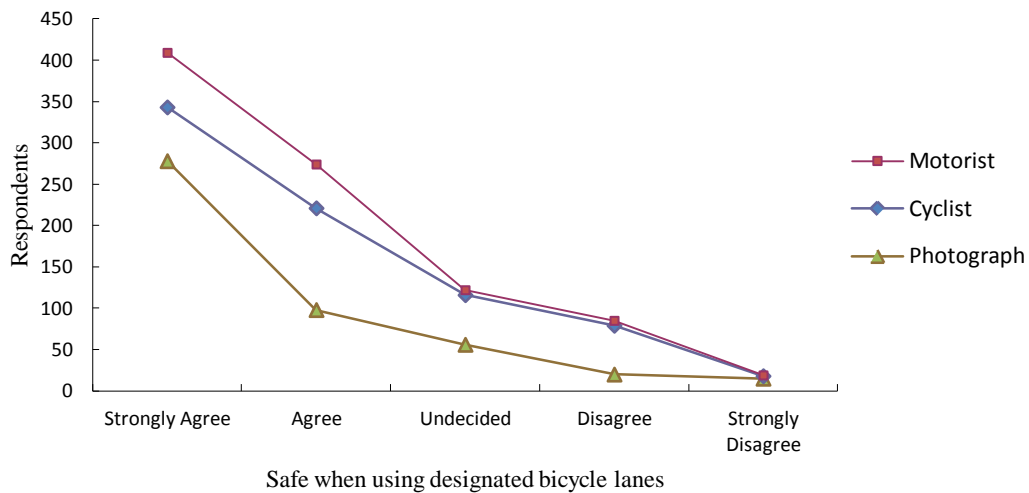
Meanwhile, motorists were asked what actions were performed when passing cyclists on the road. 45.5% indicated that they drove normally. Cyclists and motorists were asked whether motorists passed too close to cyclists while on the road, about 66% of the cyclists either strongly agreed or agreed with this statement. In contrast, almost 50% of the motorists strongly disagreed, as shown in Figure 6. Such discrepancy in perception of motorists' reaction towards cyclists is dangerous and thus needs to be further investigated.



**Figure 6. Perceptions on motorists passing cyclists**

**Safety perception on using designated bicycle lanes**

Designated on-road bicycle lanes have been disputed on whether they provide any benefit on safety. To study this issue, in this survey both motorists and cyclists were asked if cyclists were safer within designated on-road bicycle lanes. About 60% of cyclists either strongly agreed or agreed with this statement while about 90% of motorists either strongly agreed or agreed with the statement. Such trend is consistent with the responses to photographs 5 and 6 from Part B of the survey (see Figure 7). This finding clearly shows that both the cyclists and motorists are calling for better segregation of the two modes of transport, which agrees with the literature that an effective way of reducing the cyclist’s risk is to use bicycle-designated facilities (Curnow 2008).

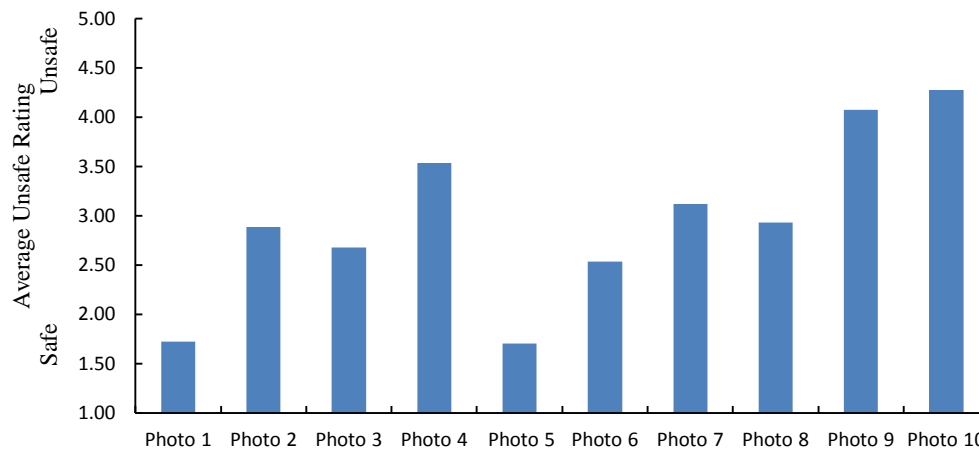


**Figure7. Safety perception on using designated bicycle lanes**

**Safety ratings on the cycling scenarios represented in the photos**

467 respondents rated 10 photographs provided to them on the 5-point Likert scale, ranged from 1 (safe) to 5 (unsafe). For the purpose of comparison, for an odd-numbered photograph with helmet-on cyclists, there is an even-numbered photograph with helmet-off cyclists. The 5 pairs of photographs

were roughly arranged according to their safety levels (from being safe to being unsafe), e.g., photograph 1 is with the least risk photograph 10 with the most risk. The average unsafe rating for these photographs was 2.95, which implies that the activities shown in the photographs were of an average safety level from their experience, which indicates a balanced representation of cycling scenarios by these photos. In particular, photograph 1 (family unit, helmet-on, quiet road) and photograph 10 (helmet-off, cyclists navigating through traffic) exhibited typical safe and unsafe cycling activities, respectively. And as expected, they were rated as with an average rating of 1.72 and 4.28 respectively. The average unsafe rating for each photograph is presented in Figure 8.

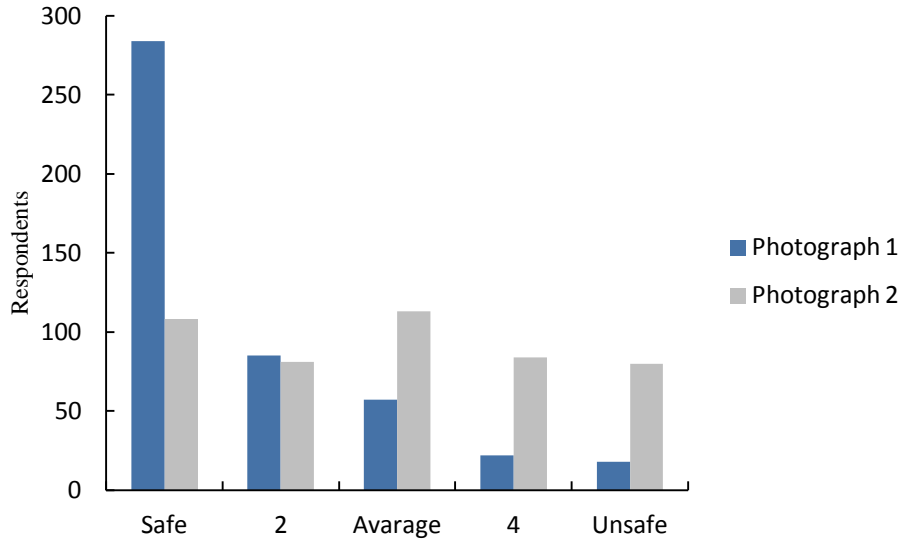


**Figure 8. Average unsafe ratings of the cycling scenarios represented in the photographs**

The average unsafe rating for photograph 2 (couple unit, helmet-off, quiet road) is 2.89, which is a considerable variation from photograph 1 (family unit, helmet-on, quiet road). A comparison between the unsafe ratings of photo 1 and photo 2 is presented in Figure 9. Surprisingly, many respondents regarded photo 2 as unsafe. Safety-related issues in photograph 2 commented by many respondents were unexpected, including improper footwear and clothing. Therefore there may be many factors outside the helmet issue which significantly influenced the respondents' unsafe ratings.

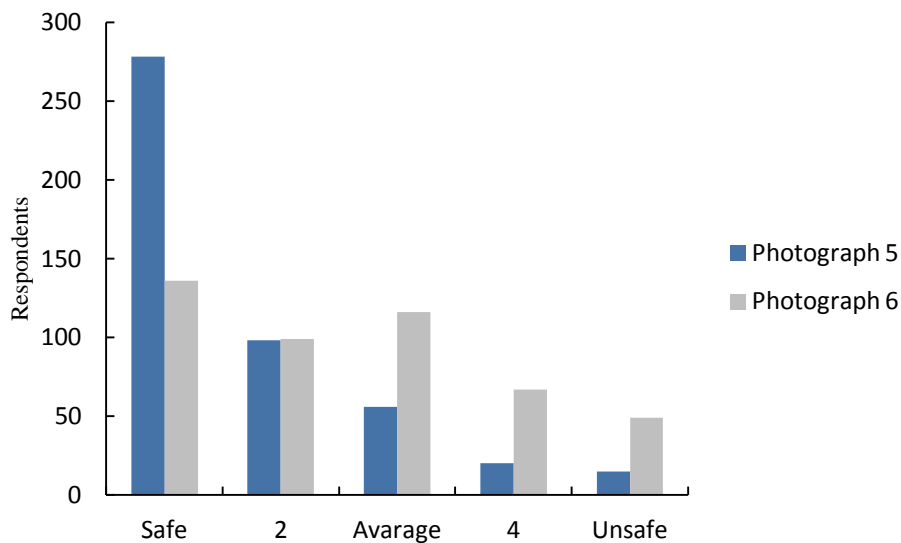
The average unsafe ratings for photograph 3 (cycle share, helmet-on, inner city) and photograph 4 (cycle share, helmet-off, inner city) are 2.68 and 3.53 respectively. This is as expected due to higher traffic interaction and interaction with pedestrians. This also indicates that the perceived safety on the helmet-off cyclists is lower than that on the helmet-on cyclists.





**Figure 9. Safety ratings of the photographs 1 and 2**

The average unsafe rating on photo 5 (helmet-on, designated bicycle lane) is 1.70 (see Figure 8), which confirms the finding previously discussed, that is, cyclists and motorists perceive segregated and designated on-road cycle lanes to be safe. In contrast, the average unsafe rating on photograph 6 (helmet-off, designated cycle lane) is 2.54, which implies that the perceived safety for the cyclists with helmet-off is close to the average level as shown in Figure 10.



**Figure 10. Safety ratings of photographs 5 and 6**

Photograph 8 (helmet-on, on road lane, grouped cyclists, in-transit cyclists) was of a similar nature to photograph 6 but was found to be less safe (the average unsafe rating is 2.93), which could be contributed to the grouped cyclists or the lack of segregation from the roadway. Photograph 9 (helmet-on, cyclists navigating through traffic) and photograph 10 (helmet-off, cyclists navigating through traffic) displays similar average unsafe ratings (i.e., 4.08 and 4.28 respectively), which is

consistent with the results previously discussed in this paper. The cyclist shown in photograph 10 was using hand signals and waiting for the appropriate time to make turns.

## **Conclusion and Further Study**

This paper investigated the perception of bicycle safety displayed by different categories of road users to understand the specific safety concerns of each category, identify appropriate measures to encourage and promote bicycle use. Analysis of the survey data suggests that the level of cycling experience significantly influences bicycle safety perception, with less experienced cyclists having a higher level of risk with riding a bicycle in a range of environments. In compliance with the Australian mandatory helmet laws, the majority of cyclists wear a helmet when cycling; however a significantly low proportion of helmet users experienced an additional feeling of safety when cycling with a helmet. This suggests that helmets have very little influence on safety perception at the presence of more concerning safety factors.

An investigation into the perception of safety exhibited by cyclists and motorists on specific safety issues has revealed strong conflicts in opinion, with a large proportion of cyclists identifying motorist behaviour as aggressive and impatient, while a large proportion of motorists expressed cyclist behaviour as neglectful when sharing the road with vehicles. Significant conflicts in safety perception have been demonstrated when motorists pass cyclists on roads without bicycle infrastructure, revealing that the majority of motorists believe they are providing sufficient space when passing, whilst most cyclists strongly disagree. Due to such inharmonious behaviour between cyclists and motorists, the majority of both categories have expressed strong concerns for the possibility of an accident when sharing the road. In contrast, there is an overall consensus that designated bicycle lanes improve cyclist safety, with both motorists and cyclists identifying the safety benefits of cycling within a designated bicycle lane.

So far this study has only extrapolated basic data related to the safety perception in the survey; further statistical analysis is required to implement a more in-depth analysis of safety perception of different types of cyclists and other road users and to test whether these perception correlate with their perceived level of safety provided by the photographic data section. Income, age, house hold demographic, and education levels should also be considered because they could play a significant role in how one perceives the safety of using bicycles as transport. Such work is currently on-going.

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## Appendix A: The questionnaire

### Perception of Bicycle Safety – Part A

**1) What is your gender?**

- Male  Female

**2) Please select your age group.**

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

**3) What is your highest educational qualification?**

- Postgraduate Degree Level  
 Graduate Diploma and Graduate Certificate Level  
 Bachelor Degree Level  
 Advanced Diploma and Diploma Level  
 Certificate Level  
 School Education Level

**4) What is your current employment status?**

- Full-time (paid employment)  
 Part-time (paid employment)  
 Self-employed  
 Not in the work force  
 Retired  
 Student  
 Other (please indicate):

**5) Which of the following best describes your current household?**

- Couple family with dependent children  
 One parent family with dependent children  
 Couple only  
 Multiple family households (two or more families sharing a dwelling)  
 Lone person  
 Group household (group of unrelated persons sharing a dwelling)  
 Other one family households  
 Other (please indicate):

**6) Into which of these groups does your pre-tax household weekly income fall?**

- Under \$200
- \$200 to less than \$300
- \$300 to less than \$400
- \$400 to less than \$500
- \$500 to less than \$600
- \$600 to less than \$700
- \$700 to less than \$800
- \$800 to less than \$900
- \$900 to less than \$1000
- \$1000 to less than \$1100
- \$1100 to less than \$1200
- \$1200 to less than \$1300
- \$1300 to less than \$1400
- \$1400 to less than \$1500
- \$1500 to less than \$1600
- \$1600 to less than \$1700
- \$1700 to less than \$1800
- \$1800 or more
- Did not draw a wage or salary
- Prefer not to answer

**7) Do you own or have access to a motor vehicle?**

- Yes
- No

**8) Do you own or have access to a bicycle?**

- Yes (**Continue to CYCLISTS**)
- No (**Go to NON-CYCLISTS**)

## CYCLISTS

9) What do you primarily use a bicycle for?

- Competitive Sport
- Exercise
- Recreational
- Transport

10) When cycling, how often do you wear a helmet?

- Never
- Seldom
- Sometimes
- Often
- Always

11) How often do you ride a bicycle?

- Less than once a month (**Go to NON-CYCLISTS**)
- Once a month
- Once a week
- 2-4 times a week
- More than 4 times a week

12) What type of bicycle do you use? (Please tick boxes that apply to you)

- An ordinary bike
- BMX
- Mountain bike / Downhill / Hard tail
- Road Cycle / Training bike
- Fixed gear / Track bike
- Hybrid (foldable, laid back /recumbent bike)
- City Cycle

13) How many kilometers would you travel per trip when you use your bicycle?

- Under 1km
- 1km- 4.9km
- 5km-9.9km
- 10km-14.9km
- 15km-24.9km
- 25km-34.9km
- 35km or more

**AS A CYCLIST, HOW DO YOU FEEL ABOUT THE FOLLOWING STATEMENTS?**

**14) Wearing a helmet makes me feel safer when I am riding a bicycle.**

\_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_

Strongly Agree      Agree      Undecided      Disagree      Strongly Disagree

**15) When I am sharing a lane with vehicles, drivers pass too close to me or do not give me enough space on the road.**

\_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_

Strongly Agree      Agree      Undecided      Disagree      Strongly Disagree

**16) Drivers tend to be aggressive and impatient towards me when I am cycling on the road.**

\_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_

Strongly Agree      Agree      Undecided      Disagree      Strongly Disagree

**17) I feel safer when I am cycling in a designated on-road bicycle lane.**

\_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_

Strongly Agree      Agree      Undecided      Disagree      Strongly Disagree

**18) When I am on my bicycle, I am often concerned that I will be involved in an accident.**

\_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_

Strongly Agree      Agree      Undecided      Disagree      Strongly Disagree

**Go to CITY CYCLE**



## NON-CYCLISTS

**19) From the list below, please select the most relevant reasons you do not use a bicycle for transport. (Select no more than three reasons)**

- I transport my work equipment that I cannot carry on a bicycle
- I run errands before or after work
- I transport children to school
- The distance is too far
- The route I would ride is unsafe
- Inconvenient
- Worried about bike theft
- I'm not fit enough
- Weather is too unpredictable
- Cycling would take too much time out of my day
- No change room or shower facilities at my destination.

**20) What is your primary means of transport? (If you use multiple means of transport, select one with which you spend the most time travelling)**

- Walk (**Go to CITY CYCLE**)
- Public Transport (**Go to CITY CYCLE**)
- Motor Vehicle (**Continue to MOTORISTS**)

## MOTORISTS

21) When you pass a cyclist on the road, which of the following actions do you take?

- Stay in your lane, slow down and avoid the cyclist as much as possible
- Change into the adjacent lane
- Wait for the road to widen, then pass
- Drive normally

AS A MOTORIST, HOW DO YOU FEEL ABOUT THE FOLLOWING STATEMENTS?

22) Cyclists are safer when riding within designated on-road bicycle lanes.

\_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_

Strongly Agree      Agree      Undecided      Disagree      Strongly Disagree

23) When on the road, cyclists tend to be unaware of passing vehicles.

\_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_

Strongly Agree      Agree      Undecided      Disagree      Strongly Disagree

24) When passing a cyclist on the road, I am concerned that I will collide into him/her.

\_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_

Strongly Agree      Agree      Undecided      Disagree      Strongly Disagree

25) A high level of fitness is required to safely ride a bicycle on the road.

\_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_

Strongly Agree      Agree      Undecided      Disagree      Strongly Disagree

Continue to CITY CYCLE

## CITY CYCLE

**26) How many trips do you make on City Cycle per month?**

- Less than once a month (Go to QUESTION 30)
- Once a month
- Once a week
- 2-4 times a week
- More than 4 times a week

**AS A CITY CYCLE USER, HOW DO YOU FEEL ABOUT THE FOLLOWING STATEMENTS?**

**27) When I ride using City Cycle I feel safe riding on the pedestrian paths and through parks**

\_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_

Strongly Agree    Agree    Undecided    Disagree    Strongly Disagree

**28) When I ride using City Cycle I feel safe riding within on-road designated bicycle lanes.**

\_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_

Strongly Agree    Agree    Undecided    Disagree    Strongly Disagree

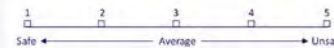
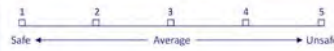
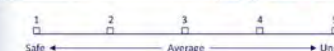
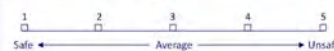
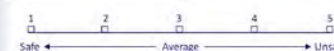
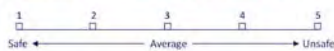
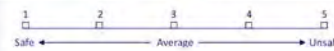
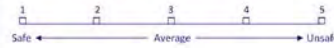
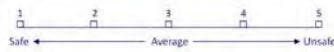
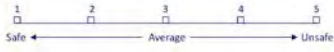
**29) If helmets were optional on City Cycle I would use this service more often.**

\_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_

Strongly Agree    Agree    Undecided    Disagree    Strongly Disagree

**30) What would you say your main reason for not using City Cycle is?**

- I don't feel confident riding the City Cycle bicycles
- Too hard to sign up
- Too expensive to hire a bike
- I do not feel safe riding around the city
- I do not carry a helmet around with me and do not want to risk a fine
- I do not carry a helmet around with me and feel unsafe without one
- Not interested in using City Cycle





## Appendix B: The survey implementation

Date	No. of copies completed	Location	Organisation or club
12 <sup>th</sup> of May	8	Gardens Point	QUT
12 <sup>th</sup> of May	11	Fortitude Valley	#BecauseFixie
13 <sup>th</sup> of May	3	Stafford	Brisbane flatland BMX
14 <sup>th</sup> of May	4	Indooroopilly	Flight centre
15 <sup>th</sup> of May	15	Gardens Point	QUT Good will Bridge
15 <sup>th</sup> of May	16	Gardens Point	QUT
15 <sup>th</sup> of May	8	Acacia Ridge	Ride on Indoor skate park
16 <sup>th</sup> of May	4	Indooroopilly	Flight centre
17 <sup>th</sup> of May	11	Willowbank	Queensland Raceway
17 <sup>th</sup> of May	4	Gardens Point	QUT - Library
18 <sup>th</sup> of May	5	Hamilton	Option 1 Garage
19 <sup>th</sup> of May	15	St Lucia	#BecauseFixie
20 <sup>th</sup> of May	15	Bald Hills	Guide Dogs Queensland
20 <sup>th</sup> of May	2	Indooroopilly	Flight centre
21 <sup>st</sup> of May	16	Manly QLD	Royal Esplanade
21 <sup>st</sup> of May	15	Manly QLD	Crossley Cycles
22 <sup>nd</sup> of May	24	South Bank	Good will Bridge
24 <sup>th</sup> of May	5	South Bank	Good will Bridge
25 <sup>th</sup> of May	15	Redcliffe	Oasis Café
<b>Paper-based</b>	196		
<b>Web-based</b>	272		
<b>Total</b>	468		

Social media websites who shared the web-based survey:

- Cycle.org.au – [https://www.facebook.com/Cycle.Org.Au?ref=stream&hc\\_location=stream](https://www.facebook.com/Cycle.Org.Au?ref=stream&hc_location=stream)
- Ride to work.com.au - [https://www.facebook.com/ridetoworkprogram?ref=stream&hc\\_location=stream](https://www.facebook.com/ridetoworkprogram?ref=stream&hc_location=stream)
- Brisbane Cycling Racing Institute – <https://www.facebook.com/BCRI.1>
- 24/7 Cycling Safety Fund – <https://www.facebook.com/247CSF>
- AustCycle – <https://www.facebook.com/AustCycle>
- Bicycle Transport Alliance – <https://www.facebook.com/pages/Bicycle-Transport-Alliance/325140634193288> - <http://btawa.org.au/>
- #BecauseFixie – <https://www.facebook.com/groups/becausefixie/>  
<http://www.becausefixie.com/>
- SecretDrift.com.au
- Cycling Queensland - <https://www.facebook.com/#!/cyclingqueensland?fref=ts>
- Amy Gillett Foundation - <https://www.facebook.com/amygillettfoundation>