Child Cycle Use And Parental Perceptions Of Cycle Road Safety

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ABSTRACT

Cycling has become a relatively uncommon way for children to get to and from school. Overseas research suggests that parental perception of the safety of cycling plays a role in this. The results of a study examining the relationship between child cycling behaviour and parental perception of the safety of cycling are reported and discussed. Parents of high school aged children that cycled to school (*n*=37) and parents that drove their high school aged children to school (*n*=52) completed questionnaires examining perceived hazard to high school aged cyclists from road features, the behaviour of other road users, and cyclist factors. Also examined were the risk of cycling relative to other modes, convenience and discomfort aspects of cycling mode choice, encouragement and the presence of cycle facilities, a range of temporal and historical items, the perceived probability of a high school aged child being endangered generally, and the safety of cycle routes available to children.

1. INTRODUCTION

The promotion of cycling is a major focus of New Zealand government strategies, such as *Getting there - on foot, by cycle* and the *NZ Transport Strategy*. Reasons for this include cycling's low environmental impact relative to private motor vehicles, and the health benefits of cycling. One area where there is room to increase cycle use is in children's travel to and from school. The present study examines the role of safety concern in whether children cycle to school.

A number of international and New Zealand studies have examined children's cycling to school. Some studies have examined the reasons given by children for not cycling to school. Lord and Murray (2004) surveyed a sample of British high school children finding that fear of theft was the most common reason for not cycling to school followed by traffic danger. Likewise Bradshaw's (1995) study of British children aged 9-13 years old and their parents found that the major deterrent to cycling to school reported by children was the possibility of the cycle being stolen. This suggests that while safety is important, it may not be the most important deterrent for children cycling to school. This should not be surprising given that it is often reported that children engage in risky behaviours. Indeed most literature on risk in youth revolves around helping adults prevent risky driving, sexual, and drug related behaviours (for example, Coggan, Disley, Patterson & Norton, 1997). It falls to parents to make safety related decisions around children, and one of those decisions may be whether a child cycles to school. Parental concern for safety will thus be the focus of the present study

In the Bradshaw (1995) survey, the second most common reason that parents gave for accompanying children to school was the personal safety of the child, second only to convenience. Dellinger and Stanton (2002) surveyed householders containing children aged 5-18 looking at barriers to children walking and cycling to school. Distance and dangerous motor vehicle traffic were the most common barriers reported to walking and cycling to school. Weather, crime, and school policy were also mentioned as barriers. Where no barriers were reported, children were six times more likely to walk or cycle to school. The National Research Bureau (2003) telephone survey residents in the Greater Wellington Regional Council area found that 60% of respondents would not let a child (<12 years of age) cycle unsupervised to and from school. Chief amongst the reasons given by these participants for not allowing a child to cycle unsupervised to and from school were safety concerns such as there is too much traffic, no provision for cyclists, lack of road sense, and speeding traffic.

The literature above suggests that safety might be an important consideration in the parental decision to let children cycle to school but it does not conclusively show that this safety concern is related to actual mode choice. If safety is a factor in cycle mode choice then parents of children who cycle to school will be less concerned about cycle safety than parents of children who drive their children to school. The present study surveys parents who drive their children to school and parents whose children cycle to school to get a difference in children's behaviour. It is hypothesised that 1) parents whose children cycle to school will have more positive attitudes towards cycling than parents who drive their children to school, 2) parents who drive their children to school perceive cycling as less safe than parents whose children cycle to school, and 3) parents who drive their children to school will be more concerned

about the safety impact of road features and the behaviour of other road users than those whose children cycle to school.

2. METHOD

2.1 PARTICIPANTS

Two adult samples were obtained. The first sample consists of parents who had children that cycle to high school at least once per week (n = 37). Sample 2 consists of parents who drive their children to high school (n = 52). Parents of high school aged children were used to minimise any role of the children's age in safety assessments. Of the 204 questionnaires sent out, 89 were returned, giving an overall response rate of 44%.

In the overall sample (N = 89), there were 43 females and 45 males, and the average age was 46.5 years (SD = 6.7 years). There are no differences in age (t (85) = -.622, p > .05), gender (χ^2 (1, N = 88) = 3.657, p > .05) or income (t (79) = -.678, p > .05) between the sample of parents whose children cycle to high school and the sample of parents that drop their children off at high school by motor vehicle. Likewise, distance from high school does not differ between the cycling (M = 3.83 km) and motor vehicle (M = 4.09 km) sample groups (t (86) = -.582, p > .05).

Parents of children that cycled to high school reported that their children on average cycle to high school 3.59 days (SD = 1.67 days) in a typical week (remembering that students only attend high school 5 days of the week). From the sample of parents that drive their children to school, 22% (n = 11) have children that still cycle for reasons other than trips to high school.

2.2 MATERIALS

The questionnaire was made up of 66 items. Likert scales were used for 44 items that examined perceived hazards to high school aged cyclists, whether cycling has become safer, whether they or their child like cycling, and whether more funding should be placed to increase cycle safety. Three items examined the safety of the cycle routes of children. Three items examine the cycling habits of parents when they were at high school, and the same three items were repeated regarding their child's cycling habits. Seven items examine the perceived probability that a high school student will be endangered. These seven items form a scale of parental concern similar to that used by Becker, Hendrickson, and Shaver (1996) (for which they cite Schneider, 1993), but adapted for greater focus on transport rather than health, and on likelihood of harm rather than worry of harm. Four items asked about demographics, two items asked about survey difficulty and survey completion time.

2.3 PROCEDURE

Two methods were used to gain a sample of parents whose children cycled to high school (n = 29). First, high schools within the Hutt Valley, New Zealand area were contacted to participate in the study. Fifty-two survey packs were dropped off at participating high schools, where children who cycled to school were given the survey packs at assembly and took them home for their parents to fill in. Second, advertisements were placed in local papers in the Hutt Valley area, asking for parents of high school aged children that cycled to school. Nine parents responded to

the advertisement. The sample of parents who drove their children to high school (n = 60) was gained from the number plates of vehicles dropping children off at participating high schools in the Hutt Valley area. Only addresses of parents within approximately 5km of the high schools were mailed surveys, to reduce the likelihood that distance was a factor in why the children did not cycle to school. One hundred and forty three survey packs were mailed to parents who drove their children to high school by motor vehicle.

The survey packs included a personally signed cover letter explaining the project, a questionnaire regarding perceptions of cycle safety, and a self-addressed return envelope in which to return the questionnaire. Participants received either entry to a prize draw to win cycle shop gift tokens or a scratch and win lottery ticket for their participation.

An item was placed in the questionnaire to examine how often their child cycled to high school in an average week. One of the cycling parents sample did not actually have a child that cycled to high school at least one day of the week, and 9 of the driving parents sample had children that cycled to high school at least one day of the week. This altered the cycling parents sample size to 37, and the driving parents sample size to 52.

3. RESULTS

3.1 LIKELIHOOD OF HARM FOR HIGH SCHOOL CHILDREN

When placed into a scale, the 7 items relating to likelihood of harm had high inter-item correlations, with a Cronbach's Alpha of .80, showing the scale had high internal reliability. Parents of children who dropped their children to high school by car rated likelihood of harm to high school aged children as more likely than parents of children that cycled to high school (t (85) = –2.627, p< .05). Removing the item measuring harm to cycling from the scale leaves a 6-item scale that also has high reliability (Cronbach's Alpha of .75). For this scale parents of children who dropped their children to high school by car also rated likelihood of harm to high school aged children more highly than parents of children that cycled to high school (t (85) = –2.649, p < .05).

Independent samples t-tests found that parents of children who drove their children to high school by car were more likely to rate a high school aged child as: being injured while riding a bicycle (t (86) = –2.410, p < .05); being injured by a motor vehicle when walking (t (84) = –2.674, p < .01); and being diagnosed with a serious illness (t (86) = –2.838, p < .01). Parents that drove their children to high school did not perceive riding in a motor vehicle as more likely to cause injury than parents that let their child cycle to high school (t (86) = -.967, p > .05).

Paired samples t-tests were used to analyse the relative risk of each transport mode within the cycling and driving groups (see Figure 1). Parents of cyclists perceived walking to be the safest mode (p < .05), and found no difference in likelihood of injury between cycling and riding in a motor vehicle (p > .05). Parents that drove their children to high school by car also found walking to be the safest mode (p < .05), but rated cycling as the least safe mode (p < .05).

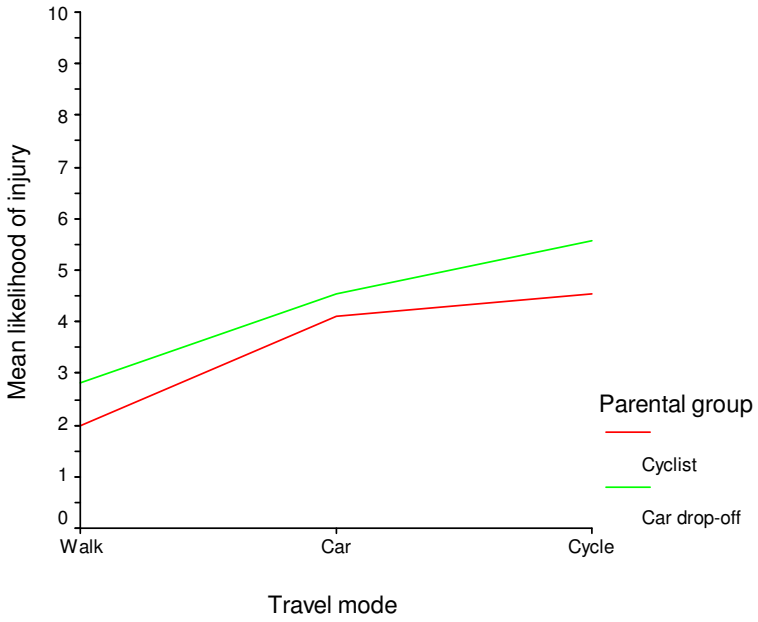

Figure 1. *Mean perceived likelihood of injury for high school aged children when travelling by different modes for the parents of children that cycled to school and the parents of children that were dropped off at school by car.*

3.2 CYCLE ROUTE

Parents whose children cycled to school rated their child's cycle route (t (87) = -2.637, $p < .01$) and the cycle routes of other children at the same high school (t (82) = -2.742, $p < .01$) as safer than parents that drove their children to school by car. There was no significant difference between the groups for the cycle route of the average student at any New Zealand school ($p > .05$), with both groups rating the average NZ school cycle route as slightly dangerous (see Figure 2). Within subjects, repeated measures t-tests reveal that the parents of the school cyclist group rated the cycle route of the average NZ school cyclist as more dangerous than either their child's cycle route or the average child at their school's cycle route ($p < .05$). No differences were found between routes for the car drop-off group.

3.3 LIKERT SCALES

The Likert scale items are separated into 7 topic areas: Road features, temporal factors, convenience and discomfort, other road users, cycle safety factors, cyclist encouragement and cycle facilities, and relative perceived risk. The Likert scales range from 1 = Strongly agree to 5 = Strongly disagree. The statistical differences between the means of the parents whose children cycle and the parents who drive their children to school are examined. In addition, the overall percentage of parents who either strongly agree or agree to each statement is also given below (see Tables 1 to 7).

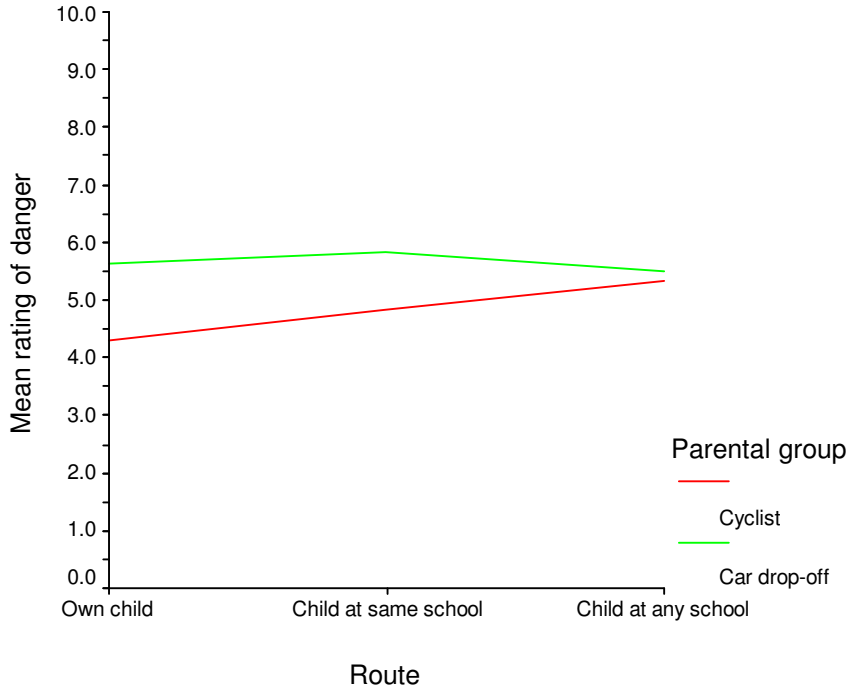

Figure 2. *Mean rating of danger of the cycle route to school for their child, children at the same school, and children at any high school in NZ, for parents whose children cycled to high school and parents who dropped their children at high school by car.*

3.3.1 Road Features (11 items)

Parents of cyclists were more likely to consider that narrow road shoulders force cyclists into the driver lane than parents who drove their children to school (Q12, t (87) = -2.173, p < .05). Both parental groups strongly believe that narrow road shoulders, narrow roads, and roundabouts are safety issues for cyclists (see Table 1). Likewise, there is large agreement by parents that 100kph speed zone areas, trucks passing cyclists, parked cars, and wet road markings all present hazards for cyclists (see Table 1). There is reasonable agreement (55%) that poor design forces cyclists into dangerous situations. About a third of parents agree that the road shoulder is too rough and has too much loose gravel for safe cycling.

3.3.2 Temporal Factors (8 items)

Parents of cyclists were more likely to enjoy cycling now (Q10, t (86) = -3.475, p < .01), have liked cycling when at high school (Q20, t (85.724) = -3.345, p < .01), and think it was safe to cycle when they were at high school (Q41, t (82.566) = -2.874, p < .01) compared to parents who drove their children to school. There is a high level of agreement within both parental groups that the actual and perceived dangers of cycling have increased in recent times (see Table 2).

Table 1. *The road feature statements, means, and standard deviations (SD) for parents of cyclists and parents who drove their children to school. The probability values indicating significant differences between the groups, and the overall percentage agreement to each statement.*

	Road feature statements	Cyclist group		Driving group		p	%Agree
		Mean	SD	Mean	SD		
Q29	Roads that are narrow make cyclists vulnerable to accidents	1.81	0.70	1.81	0.56	0.982	95.5
Q12	Narrow road shoulders force cyclists into the driver lane	1.84	0.69	2.13	0.60	0.033*	87.6
Q15	Even when cycling in a cycle lane, being passed by big trucks is hazardous for cyclists	1.97	0.83	1.96	0.82	0.949	84.3
Q14	Roads with 100 kph speed limits are dangerous for cyclists	2.11	1.09	1.87	0.79	0.252	81.8
Q8	Parked cars present a significant hazard to cyclists	2.19	1.13	2.19	0.89	0.988	76.4
Q2	Road markings can be difficult for cyclists to negotiate when wet	1.97	0.93	2.12	0.91	0.467	76.1
Q6	Cyclists are forced into dangerous situations by the poor design of roads	2.42	1.06	2.75	0.99	0.135	55.1
Q21	The road shoulder is too rough to cycle on	2.92	1.01	3.04	0.91	0.568	37.1
Q11	There is too much loose gravel to cycle safely on the road shoulder	3.08	0.95	3.02	0.88	0.756	29.5
Q26	Roads are designed for motorists, not cyclists	1.86	1.11	2.15	0.79	0.191	28.4
Q38	Cyclists can negotiate roundabouts very easily	3.68	1.03	3.77	0.70	0.634	11.2

* p < .05. ** p < .01. *** p < .001.

Table 2. *The temporal factor statements, means, and standard deviations (SD) for parents of cyclists and parents who drove their children to school. The probability values indicating significant differences between the groups, and the overall percentage agreement to each statement.*

	Temporal factor statements	Cyclist group		Driving group		p	%Agree
		Mean	SD	Mean	SD		
Q22	Cycling is more dangerous today than when I was at high school	1.89	0.58	2.10	0.89	0.189	83.0
Q31	People are more concerned about cycle safety than they used to be	2.46	0.77	2.23	0.76	0.167	71.9
Q41	It was safe to cycle when I was at high school	2.05	0.82	2.59	0.92	0.005**	68.2
Q20	I really liked to cycle when I was at high school	1.97	0.83	2.71	1.22	0.001**	67.0
Q13	It is safe for high school students to cycle these days	2.61	0.95	2.83	0.92	0.279	53.9
Q10	I really like to cycle now	2.22	1.13	3.10	1.20	0.001**	50.0
Q24	Cycling has become safer over the last 10 years	3.31	0.97	3.41	0.85	0.606	20.5
Q5	Cyclists are less vulnerable to accidents nowadays	3.86	1.03	3.83	0.94	0.858	10.1

* p < .05. ** p < .01. *** p < .001.

3.3.3 Convenience and discomfort (6 items)

Parents who drove their children to school were more likely to agree that students would be too tired to concentrate in class if they cycled to school (Q4, t (70.77) = 2.831, $p < .01$), that the only way they would be sure that their children would get to school on time would be if they took them (Q27, t (82.58) = 4.031, $p < .001$), that the wind in Wellington makes it difficult to cycle to school (Q28, t (86) = 2.305, $p < .05$), and that they live too far away for their children to cycle to school (Q30, t (87) = 3.085, $p < .01$). Despite these differences, neither parent group believed that distance from school, tiredness in class or tardiness were good reasons not to cycle (see Table 3).

Table 3. *The convenience and discomfort statements, means, and standard deviations (SD) for parents of cyclists and parents who drove their children to school. The probability values indicating significant differences between the groups, and the overall percentage agreement to each statement.*

		Cyclist group		Driving group			
	Convenience and discomfort statements	Mean	SD	Mean	SD	p	%Agree
Q7	It's hard for students to carry books and other equipment to school on a bicycle	3.03	1.19	2.65	1.02	0.121	55.7
Q23	Bicycles are likely to get stolen or damaged if taken to school	2.93	1.07	2.67	0.90	0.233	46.1
Q28	The wind we get in Wellington makes it difficult to cycle to school	3.50	1.04	2.96	1.11	0.022*	33.0
Q27	The only way I would be sure my child would get to school on time would be if I took them myself	4.03	0.96	3.15	1.07	0.000***	24.7
Q30	We live too far away for my child to cycle to school	4.27	0.77	3.65	1.03	0.002**	13.5
Q4	Students would be too tired to concentrate in class if they cycled to school	4.49	0.69	4.10	0.60	0.007**	2.2

* p < .05. ** p < .01. *** p < .001.

3.3.4 Other road users (5 items)

There is very strong agreement that when several cyclists ride abreast of each other they are at greater risk, and that traffic density affects cyclist safety (see Table 4). There is a perception amongst parents that car drivers do not have high consideration for, or awareness of, cyclists (see Table 4). No significant differences between the groups were found for these items.

3.3.5 Cyclist safety factors (5 items)

Parents of cyclists were more likely to consider that high school students understand road rules enough to cycle safely (Q33, t (87) = -3.371, $p < .01$), and less likely to agree that it takes years of experience to cycle safely (Q9, t (86) = 2.199, $p < .05$) or that teenagers make too many risky decisions to be safe cyclists (Q39, t (69.317) = 3.471, $p < .01$). Parents of cyclists believe that high school cyclists understand the road rules, have the experience, and do not make too many risky decisions to be safe cyclists (see Table 5). Contrary to these findings, 97% of parents believe that cycling is safer for adults than for teenagers.

Table 4. *The other road user statements, means, and standard deviations (SD) for parents of cyclists and parents who drove their children to school. The probability values indicating significant differences between the groups, and the overall percentage agreement to each statement.*

	Other road user statements	Cyclist group		Driving group		p	%Agree
		Mean	SD	Mean	SD		
Q1	Cyclists are at greater risk of accident when there are a lot of them riding abreast of each other	1.46	0.56	1.52	0.80	0.697	94.4
Q32	The amount of traffic on the roads makes it dangerous to cycle	2.68	1.06	2.37	0.99	0.165	66.3
Q34	Car drivers have very little consideration for cyclists	2.69	1.06	2.50	1.02	0.390	59.1
Q3	Car drivers are usually very aware of cyclists	3.41	1.09	3.27	1.07	0.559	31.5
Q35	People rarely open car doors in the path of cyclists	3.73	0.84	3.37	1.05	0.072	19.1

* p < .05. ** p < .01. *** p < .001.

Table 5. *The cyclist safety statements, means, and standard deviations (SD) for parents of cyclists and parents who drove their children to school. The probability values indicating significant differences between the groups, and the overall percentage agreement to each statement.*

	Cycle safety statements	Cyclist group		Driving group		p	%Agree
		Mean	SD	Mean	SD		
Q33	High school students understand the road rules enough to be able to cycle safely	2.14	0.71	2.75	1.01	0.001**	66.3
Q9	It takes years of experience to be able to cycle safely on the road	3.21	1.00	2.71	1.07	0.031*	45.5
Q39	Teenagers make too many risky decisions to be safe cyclists	3.43	1.04	2.70	0.88	0.001**	38.2
Q45	Cyclists often fail to look for motor vehicles when entering the traffic lane	3.22	1.13	3.00	0.91	0.340	34.8
Q36	Cycling is safer for teenagers than for adults	3.97	0.65	3.79	0.54	0.159	3.4

* p < .05. ** p < .01. *** p < .001.

3.3.6 Cyclist encouragement and cycle facilities (5 items)

Overall, there is a high level of agreement that high school students should be encouraged to cycle more, and that more money should be put in to meeting the needs of cyclists (see Table 6). Parents who drove their children to school were less likely to consider that high school children should be encouraged to cycle more (Q40, t (85.224) = -4.682, $p < .05$), or that more money should be spent on providing for the needs of cyclists, (Q44, t (87) = -4.078, $p < .05$), and were more likely to agree that whether their children cycled depended upon whether their friends cycled (Q37, t (81.090) = 2.695, $p < .05$). There is a reasonable agreement that schools should do more to encourage students to cycle, and low agreement that schools provide adequate facilities for student cyclists (see Table 6).

3.3.7 Relative Perceived Risk (2 items)

Parents who drove their children to school were more likely to consider that walking was a safer activity than cycling (Q19, t (49.862) = 2.854, $p < .05$). There was a high level of agreement that walking was safer than cycling (see table 7).

Table 6. *The cyclist encouragement and cycle facility statements, means, and standard deviations (SD) for parents of cyclists and parents who drove their children to school. The probability values indicating significant differences between the groups, and the overall percentage agreement to each statement.*

Cyclist encouragement and cycle facility statements		Cyclist group		Driving group		p	%Agree
		Mean	SD	Mean	SD		
Q40	High school students should be encouraged to cycle more	1.92	0.68	2.67	0.83	0.000***	66.3
Q44	More money needs to be spent on providing for the needs of cyclists even if this means less money is spent on motorists	1.81	0.88	2.58	0.87	0.000***	65.2
Q42	Schools don't do enough to encourage students to cycle to school	2.32	0.94	2.63	0.60	0.083	46.1
Q25	Schools provide enough facilities for students cycling to school	2.95	1.00	2.98	0.78	0.860	33.7
Q37	Whether my child cycles or not depends on whether their friends cycle	3.76	1.04	3.13	1.12	0.009**	32.6

* p < .05. ** p < .01. *** p < .001.

Table 7. *The perceived risk statements, means, and standard deviations (SD) for parents of cyclists and parents who drove their children to school. The probability values indicating significant differences between the groups, and the overall percentage agreement to each statement.*

Perceived risk statements		Cyclist group		Driving group		p	%Agree
		Mean	SD	Mean	SD		
Q19	For students, walking is safer than cycling	2.49	1.04	1.94	0.57	0.006**	80.7
Q43	Students are at more risk of being a victim of crime when walking than they are when cycling	2.59	1.04	2.73	0.87	0.524	48.9

* p < .05. ** p < .01. *** p < .001.

3.3.8 Cycling History

Parents of students that cycle to high school were more likely to cycle when they were at high school than parents that drive their children to school (t (87) = 2.448, p < .05).

4. DISCUSSION

Parents whose children cycle to school have a more positive attitude towards cycling and have a greater history of cycling than parents that drive their children to school. High school aged children were more likely to cycle to school if their parents enjoyed cycling and if their parents also cycled to high school when they were teenagers. This suggests that improving the attitudes of parents towards cycling and providing parents with cycle experience may encourage children's cycling. It also raises the possibility that, because of the currently low rate of children's cycling, the next generation of children will be even less likely to cycle.

Parents that drive their children to high school by car perceive that high school aged children are exposed to greater risk of injury than parents of cyclists. In particular, parents that drive their children to school perceive higher risk in the vulnerable transport modes of walking and cycling. Parents that drive their children to high school consider that riding in a motor vehicle is less likely to cause an injury than riding a bicycle. These findings support previous research that suggests that the perceived danger of cycling influences cycling behaviour (Bradshaw, 1995; Dellinger & Stanton, 2002; National Research Bureau, 2003).

However, parents that drive their children to school are no more concerned about the safety impact of road features and the behaviour of other road users than those parents whose children cycle to school. Both parental groups perceive that narrow roads, roundabouts, narrow road shoulders, and cyclists riding abreast of each other are hazardous to cyclists. If road features and the behaviour of other road users did play a large role in why parents do not let their children cycle to school, then the parents that currently drive their children to school would have rated road features and other road users as more dangerous compared with the ratings of parents of cyclists. Parental perception that certain road and traffic features are hazardous to cyclists thus has low impact on whether their children cycle to high school. Improvement in road and traffic features may reduce parental anxiety regarding the each hazard, but there is no evidence to suggest that this will induce a shift in behaviour to increase cycling to high school.

The cycle route to school is also a cause for concern amongst parents that drive their children to school by car. The cycle routes to their child's school, and the cycle routes of children at other New Zealand schools are consistently rated as slightly dangerous by parents that drive their children to school. Parents of cyclists also rate the cycle routes of children at other schools as slightly dangerous. However, they rate the cycle routes to their child's school as safer. One possibility is that this perception of enhanced safety within the cycle routes of children who cycle to school is based on an actual difference in the safety of the routes. Another possibility is that parents of cyclists enhance the perceived safety of the cycle routes to their particular school so that they do not feel that they are actively placing their child in danger by allowing them to cycle to school.

Parents of cyclists respond that teenagers have the knowledge, experience and decision-making ability to cycle safely. Whereas both groups of parents strongly believe that cycling is safer for adults than for teenagers, that cycling has become more dangerous in recent years, and that motorists do not adequately attend to cyclists and their needs. These findings can be viewed as providing further evidence for the above optimistic bias, where the perceived ability of their teenage cyclist is enhanced, to reduce the perceived dangers of their teenagers cycling to school.

Another explanation for the above results is that the parent groups differ in their beliefs about parenting in the areas of independence, responsibility, and protection. In this view parents of cyclists consider their children to be independent, responsible, and requiring little protection relative to how parents of non-cyclists view their children. That parents of cyclists believe that children are independent and responsible can be seen in these parents belief that teenagers have the knowledge, experience and decision-making ability to cycle safely. Evidence that parents of non-cyclists believe that children are dependant, less responsible, and require protection can be seen in these parents considering that travel distance, wind effects on cyclists, tiredness in class after cycling, and tardiness due to cycling are more likely

to be barriers to cycling when compared to parents of cyclists. In addition, parents who drove their children to school perceived a higher likelihood of harm to children, even when the cycling item was removed from the general likelihood of harm scale used in the present study. This suggests that parental concern for cycling is part of a more general pattern of parental behaviour.

5. CONCLUSION

Parental perception of the risk of cycling appears to play a role in child cycle use. Differences in the perception of risk do not appear to be accounted for by hazards in the road environment or from other road user behaviour, hence improving these hazards is unlikely by themselves to increase cycling. One possibility is that parents of cyclists compensate for this risk with an enhanced perception of their child's ability to manage that risk, by enhancing the perceived safety of their child's cycle trip to school and by enhancing the perceived ability of their child to ride safely. Other parents simply negate these 'perceived' risks by driving their children to school. Another possibility is that parents differ in beliefs about parenting in the areas of independence, responsibility, and protection. Parents whose children cycle to school may consider that children are more independent, more responsible, and require less adult protection than parents who drive their children to school. Further research is required to see whether general parenting style or specific optimism bias best accounts for mode choice in the journey to school. The present research suggests that increasing parent cycling experience and fostering positive attitudes towards cycling may be the best target for interventions to increase child cycle use.

6. REFERENCES

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