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Influences on where Australian parents allow their children to sit in cars

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Abstract

There is growing evidence that children's protection as car passengers can be improved through both appropriate restraint use and through insisting that they travel in the rear seat rather than the front. However many children still travel in the front seats of cars in Australia and New Zealand. Encouraging parents to keep children in the rear seat requires an understanding of why they allow their children to sit in the front seat. As part of a larger study, an intercept interview was conducted with parent-drivers ($n = 470$) of children (≤ 12 years). Questions focussed on parents' concerns about children's safety in cars, family rules about seating position, and the influences on their decisions in relation to where they allow their children to sit. This paper reports preliminary findings from those parents with children aged 4 years or older ($n=265$). While most parents were concerned about where their children sat, and had a rule that children should travel in the rear seat, over 60% had allowed children to sit in the front seat at some time. The strongest influence on their decisions, affecting 23% of these parents, was lack of space for all children in the rear seat. Around one fifth reported that having older children who were allowed to sit in the front seat or children who fought a lot were also influential on their seating position decisions. These findings suggest that interventions to encourage the practice of children travelling in the rear seat can be addressed through engineering and behavioural avenues. By drawing the attention of manufacturers of child restraints and vehicles to parents' experiences of using such products it may be possible to encourage design changes that facilitate children remaining in the rear seat to older ages. In terms of behaviour, interventions with parents would do well to capitalise on the existing rules parents use to prevent children from sitting in the front seat as well as providing parents with strategies to address child management issues

INTRODUCTION

Children's protection from injury and death in car crashes has been greatly enhanced by the use of restraints. The development of restraints specifically suited to children's anatomy has seen even better levels of protection for those children who use them. However, for maximum safety, many road safety bodies (for example, VicRoads) recommend that children should sit in the back seats of cars as well as wearing a child-specific restraint. This is because the travelling in the back seat is protective: the risk of serious injury or death during a crash has been shown to be significantly lower for children in the back seats of vehicles than for those in the front¹⁻⁴. Though the effect of using a size-appropriate restraint has been found to be greater than the effect of seating position, the two are interactive, and thus appropriately restrained children seated in the back seat are at the lowest risk of injury⁵. Australian research examining crashes involving children has similarly found that the risk of injury is significantly lower for children seated in the back seat than for those in the front⁶.

Despite this, it is apparent that high proportions of parents still allow their children to travel in the front seats of cars. For Australia, depending on the research method used, the reported proportion of front seated children varies: in-depth investigations of crashes involving children found that 20-

25% of the children were seated in the front seat⁶ while road-side observational surveys reveal that 50-60% of vehicles with child passengers carry a child in the front seat^{7, 8} (though it should be noted that these observational studies had high proportions of school-related travel). These figures suggest that children's protection as passengers could be enhanced by encouraging parents to sit them in the back seat whenever they travel.

Several studies have explored situational factors associated with where children sit in vehicles. The presence of other passengers, particularly adults, driver seat belt use, having only young (6 years and under) child passengers in the vehicle⁹ and the presence of passenger-side airbags¹⁰ have been found to reduce the risk of front seating. Factors that increase the likelihood of children sitting in the front seat include travelling alone with the driver⁹⁻¹², travelling with 2 or more other child passengers⁹, older child age, being driven by someone aged over 25 years, non-morning trips, and being driven for recreational purposes¹³.

However, we have little information on parents' views about where their children sit, though this may be vital to design of effective interventions. For instance, parental knowledge and attitudes have been shown to be important in the use of booster seats in age-appropriate children¹⁴⁻¹⁶. Accordingly, this study sought to explore psycho-social factors that influence parents' behaviour in relation to their choices about where their children sit in cars.

METHOD

Parent-drivers of children aged 12 years and under who regularly drove their children in passenger cars were recruited by personal approach in the open-air car-parks of two urban shopping centres, primarily retailing food and grocery items in Brisbane, Queensland. One of these centres was chosen in an upper socioeconomic area and one in a mixed socio-economic area. Refusals from eligible parents were low.

A short intercept interview questionnaire was designed based on the findings from an earlier, related qualitative study reported elsewhere (Lennon, 2006; 2007) that used focus groups to identify parents' concerns regarding their children's safety as passengers in cars. The final questionnaire consisted of 28 mostly open-ended items assessing parents' beliefs and behaviour in relation to children's seating positions in the car.

During the piloting phase of the questionnaire, verbatim responses to the questions were recorded. For many of the questions, there were a limited number of common responses and hence for the final questionnaire, with the exception of the question on factors affecting parents' seating position choice, these common responses were pre-coded on the recording sheet. For the question relating to influences on seating position choice, parents were shown a set of responses (see Table 3). Parents were asked to rate how often each of the influences arose as an issue in relation to where children sat (on a five point, Likert-type scale, 1 = "never or rarely"; 2; 3 = "about half the time"; 4; 5 = "frequently-over half the time") and also how much each affected their final decision about where the child actually sat (on a five-point, Likert-type scale, 1 = "No influence: child sits in rear seat"; 3 = "Moderate influence: sometimes affects decision"; 5 = "Very influential: often or always affects decision").

Parents were also asked about the existence and nature of rules in relation to where children were allowed to sit in the car. Parents who indicated that they used a rule were asked about the extent to which they had found it necessary to relax the rule. Responses were on a 5 point Likert-like scale with 1 = "rarely (once or twice) to 5 = "often (50% or more). They were then shown a list of potential reasons drawn from the pilot study and previous research and asked to indicate all of those which had applied to relaxing their rule at any time (see Figure 1). Finally, demographic information was gathered.

Procedure

Trained interviewers were instructed to approach all shoppers who appeared to be between the ages of 18 and 60 as they approached their cars in each of the open-air car parks and invite their participation. The purpose of the study was explained and parents were asked to provide verbal consent to the interview. Refusal rates among those who met the inclusion criteria were low.

RESULTS

Sample characteristics

A total of 468 parents, the majority of them mothers (348, 76%) completed the interview. Number of children ranged from 1-9, with most participants having 2 children (46%). Most parents were aged between 30-49 years (83.5%), with the range for age from under 21 years to 59 years. The majority of this sample indicated their occupation as full time parents (43.7%), though a further 20.2% were employed as professionals or managers. Consistent with the population from which they were drawn (Queensland, Australia), median family income was between \$61,000 and \$80,000¹⁷.

Most of the parents in this sample had at least some post-secondary education (73%), though residents of the upper SES location were significantly more likely to report this (85%) than were parents from the lower SES location (64%), [χ^2 (df 4) = 37.828, $p < .001$]. Both of these figures are substantially greater than the national average of 49% of adults with post-secondary education¹⁸ but this discrepancy may reflect the fact that the national ABS sample includes older people who did not have the access to education that their children and grandchildren (our sample) would have had.

Parent beliefs in relation to seating positions

Parents were asked their beliefs about the “right time” for children to begin sitting in the front seats of cars when travelling. The majority of parents (84%) responded with an age, the largest proportion (28%) indicating that children should be at least 11 years old. A small proportion of parents said “when the [seat] belt fits” or gave a weight the child should attain instead. Consistent with this, parents said their own children had been (or would be, for those whose children who had not yet reached this stage) around these ages before being allowed to sit in the front seat, with almost half (47%) indicating ages between 7 and 10 years and a further 33% indicating ages from 11 years upwards. However, 15% of parents said that their own children had (or would) sit in the front by the age of 6 years. Only 19 parents indicated they would make this decision on the basis of belt fit or height/weight.

When asked about the legal age at which children are permitted to sit in the front seat of passenger vehicles, a large proportion (37.6%) said they didn't know, while roughly even proportions of parents indicated ages 7-8, 9-10 and 11-12 years (17%, 13%, 14% respectively). No parents gave an age that was younger than 5 years, and a small proportion (7%) indicated ages over 12 years. At the time of the interviews, there was no age restriction on children's front seating in Australia (this is currently under review). None of the parents we spoke to were aware of this. However, Australian legislation requires that infants aged under 12 months use an approved child restraint, properly fitted and adjusted^{19, 20}. These are rear-facing until the child reaches the size limit for the restraint (typically 8kg) after which a larger child restraint, typically either a convertible restraint or forward facing child restraint, must be used until the child is at least 12 months old. All approved restraints for children of this age require a top tether which effectively means that children using these are seated in the rear seat since this is where the anchor points for tethers are located.

In response to the question “where do you think is the safest place for children to sit in a car or passenger vehicle?” almost all the parents we spoke to (97%) specified the back seat of the car. Some were specific about exactly which rear seat (eg. “behind the driver”; “not in the middle”; “in the middle”) but only 6 parents thought that the front seat was the safest. In contrast to the question on the legal requirements, only 6 parents said they didn't know where the safest place was and 2 parents said there was “no safe place”.

Parental management of seating position

Given the findings from work in relation to the proportion of children travelling in the front seats of vehicles and parental reports that they used family rules to restrict children from sitting in the front^{21, 22}, this study sought to explore whether parents were generally aware of the increased risk

associated with the front seat, the extent to which families used rules to manage where their children sat, and when they might relax these rules.

Interviewers prefaced the next question by telling parents that recent research had shown that sitting in the front seat was about 1½ times more likely to result in injury in the event of a crash than sitting in the rear. Parents were then asked if they had known the front seat was more risky. Consistent with their responses about the safest place for children to sit in the car, the vast majority of parents (86.9%) reported that they did know the front seat was more risky, though some also added they had not realised it was “by as much as that”. Most of those who were aware (30%) also thought it was “just common sense” to know this.

Before asking parents about seating position and family rules, parents were asked whether allowing their children to travel in the front was a concern for them. While most parents indicated that it was (79.0%), a 73 parents (21.0%) said they were not concerned. The two most common reasons parents gave for not being concerned were related to their perceptions of the risk of crashing (eg. “I am a careful driver”; “I won’t have a crash”; “my car is safe”; 20/73) or the effectiveness of protection offered by restraints or safety equipment (eg. “the airbags/seatbelts will protect my child” or “my child is big enough for the seatbelt”; 24/73). The remaining reasons given were more individual (26/73) (eg. a child in the front can be monitored more easily, the risk of the front is no more than anywhere else).

Influences on parents choices about where children sit

Only those parents who indicated that they were concerned about their children sitting in the front seat were asked the remaining questions relating to influences on seating position choice, family rules about seating position, and circumstances under which they had relaxed these rules. The analyses reported below were further restricted to include only those parents who had at least one child aged 4 years old or older. The rationale for this was that by age 4, most children are growing, or have already grown, out of top-tethered child restraints and parents would thus have a real choice about where to sit the child. A total of 265 parents met both these criteria.

For many parents the issues we presented to them (see Table 1) arose fairly frequently, some as often as on half of the trips with their children. However, not all issues were influential on parents’ decisions.

Space consideration appeared to be very influential for those parents who reported experiencing it. Of the 59 parents (22.3%) for whom this was an issue, 36 (61%) indicated that lack of room “sometimes” to “always” affected their decision whether to sit a child in the front seat.

The issue of children fighting in the rear seat arose for more than two thirds of parents (67.5%). Though the proportion who reported that their decision was influenced by this reason was smaller than for lack of space (27.9%), child fights affected the decisions of 50 parents, the largest number overall. Similarly, more than 40% of parents reported that having older children who were allowed to sit in the front was an issue (43.0%) in terms of insisting that their younger children sit in the back. Though less than half of these parents said they were moderately or more influenced by this reason (44%), overall, the decisions of 50 parents, or one in every five, were affected.

Almost half (47.5%) of the parents reported that children argued that they were grown up enough to sit in the front seat. However, this was apparently less convincing to parents in relation to their seating position decisions, with only 27% reporting that their decision was influenced as a result (12.8% of parents overall). Child resistance affected 21% of parents, with more than half of those affected (30 parents) indicating that they were “sometimes” to “always” influenced to sit the child in the front seat as a result. Finally, though children misbehaving in the rear seat and distracting parents’ driving reportedly affected a large proportion of parents, only 23 parents (8.7%) allowed this issue to affect the decision about where the child sat. The remaining reasons (pressure from the child’s friends or other adults, and insufficient room for all the restraints required) arose to a lesser extent and affected the decisions of only a small proportion of parents.

Table 1: Parental beliefs about the influences on their choice of children’s seating position in passenger vehicles.

<i>Question stems: How often does each of the following come up as an issue in relation to where your child(ren) sit(s) in the car? [Show list] How much does each influence your final decision about where your child(ren) sit(s)? [show response scale]</i>	Proportion of parents reporting that issue arises (%)	Proportion of parents indicating decision is sometimes to always affected (of those reporting issue arises) (%)
Child having bigger brothers/sisters who are allowed to sit in the front seat?	43	44
Child insisting that they are grown up enough to sit in front?	48	27
Pressure due to your child’s friends who are allowed sit in the front?	23	32
Pressure due to adult friends, relatives or other parents whose children are allowed to sit in the front?	14	14
Children fighting when they sit together in the rear seat?	68	28
Not enough room in the rear seat for all the restraints you need at the time?	22	61
Child putting up such a fight that it doesn’t seem worth insisting that they sit in the rear?	21	54
Child misbehaving in the rear seat and distracting your driving	56	16

Use of rules to restrict where children sit

Most of the parents (81.0%) who were concerned about front seating reported that there was a rule in their family to manage it (n = 222), while 16.8% indicated that there was no specific rule. Almost three quarters (72%) of those families with a rule said it was that children always sat in the rear seat. A further 16.7% had designated seats for each person, and for 10 families the rule was that the oldest child was permitted to sit in the front seat. The remaining 18 families had a variety of other rules (for example, that the oldest two children took turns). The type of family rules variable was recoded into 3 categories of “no rule”, “always sit in the rear”, and “other”. Chi-square analyses of this new variable by occupation, income and education revealed a significant difference for income only [$\chi^2(df 4) = 9.98, p = 0.041$]. It appears that parents on the lowest incomes were more likely to specify the rule as “always sit in the rear” (80%) than either middle (53.9%) or higher (58.2%) income parents.

Of those parents with seating position rules, more than half (55%) reported that they had not had to relax their seating position rules as yet or had done so only “rarely (once or twice).” Most of the 146 parents (66%) who reported relaxing their rules indicated that this was “occasionally (20% of the time or less)”, while 14 parents reported that it was more often.

Those parents who had relaxed their seating rules were asked to indicate what the reasons had been and were shown a list of reasons derived from responses to the earlier qualitative study (see Table 2). The most frequently endorsed reason was because they were “just going for a short trip” (54.1%). However a large proportion of parents also indicated that there were occasions when they were carrying too many children for all to sit in the rear seat (31.5%), or they could not fit all of the restraints they needed into the rear seat (20.5%). Child illness was cited by 24.0% of parents and a similar proportion (30.1%) had allowed children to travel in the front because it was “a special treat”.

More than a quarter of these parents (28.8%) endorsed three or more reasons for having allowed children to travel in the front seat.

Table 2: Potential reasons for relaxing parental rules regarding children sitting in the rear of passenger vehicles when travelling

<p><i>Question and preamble to parents who used a rule to restrict front seating:</i> <i>“Most parents tell us that there are times when their children have ridden in the front even when they have a rule about sitting in the back. We’re interested in when this happens (what circumstances) [show list] What were all of the reasons that applied at any time?”</i></p>
Too many children to fit all the restraints in rear
Too many children to fit all the children in the rear
Someone else was driving
Child management too hard on that occasion (tantrums etc.)
Special treat on that occasion
Just going for a short trip
Child illness (eg car sick) or injury
Children fighting too much
Other (please specify)

DISCUSSION

Overall, the results from this study suggest that most parents are both concerned about the safety of their children while travelling and active in their attempts to protect them. They ensure that children wear their restraints and invoke rules to limit children’s exposure to sitting in the front seat. This suggests a good base on which to build in terms of improving child passenger safety through behavioural interventions.

Parents’ lack of awareness of the legislation in relation to when children are permitted to travel in the front seat was unexpected. However, this may be protective: parents may be keeping children out of the front seat until a little later in the belief that it is not legal for them to travel in the front seat. However, given that almost all the parents said the safest place for a child was the rear seat, it seems surprising that so many were willing to allow children to sit in the front at all. One explanation is that parents are unaware of how much more risk is associated with being seated in the front, as illustrated by the comments from some parents when we told them, and thus they believe their children are sufficiently well protected once they are properly restrained. Certainly there was a large minority of parents unconcerned about front seating, at least some of whom stated reasons reflecting a lack of appreciation of the risk.

Space considerations, children fighting and having an older child who has started sitting in the front seat emerged as the most influential factors on parents’ decisions about where children should sit when travelling. Surprisingly, children’s behaviour distracting the driver was not seen as particularly influential. It may be that parents are more concerned about children harming one another when they are fighting and find other, non-interactive, distracting behaviours less of a concern. Alternatively, parents may be more distracted by the noise and movement that goes with fighting than with other potentially distracting behaviours.

Another encouraging finding was the extent to which those parents deemed to have faced a real choice about where to sit their children utilised a rule that children sit in the rear seat, with over half reporting never having relaxed the rule. However, though this applied to a large proportion of the parents in our sample, in reality most parents would allow a child to sit in the front seat well before 12 years old, as indicated in the responses to earlier questions. It is also a concern that many parents regarded short trips as a legitimate reason to allow children to occupy front seats.

Limitations

This study used a convenience sample of urban parent-drivers and as such a limitation of the study is that it may not be representative, particularly of parents in non-urban settings. Demographic characteristics also suggest that the sample parents may be somewhat better educated than the general Australian public, possibly resulting in a greater tendency to be aware of, and compliant with, recommended safety practices. However, there were no statistically significant differences between parents' responses on the basis of education, suggesting that this is not an important factor in relation to parents' choices about children's seating positions, at least within the range of education in this sample.

Although the majority of this sample was female, we would argue that currently it is mothers who take primary responsibility for children's transport, though this may be changing both in Australia and elsewhere.

Another limitation lies in the self-report nature of the data and the potential for parents to give socially desirable responses. We attempted to control for this to some extent through the open-ended nature of most of the questions as well as through normalising responses that might otherwise seem less desirable (eg by telling participants what "other parents have told us"). However it is still possible that parents were providing responses that were more conscientious than their true beliefs or behaviour.

Conclusions

The findings from this study suggest that interventions could capitalise on existing parental safety behaviour to encourage parents to maintain their seating position rules until children are somewhat older, as well as focus on reinforcing and refining parents' 'common sense' understanding of the risks of front seating. Parents' perceptions of short trips as not requiring the same diligence in relation to seating position as longer ones deserve particular attention as it is likely that the majority of children's car travel falls into this description. Child management issues also appear worthy of attention in order to assist parents to formulate strategies to deal with those factors they saw as most likely to influence them to move a child into the front seat.

Finally, manufacturers of vehicles as well as those who make child restraints need to be made aware of the difficulties faced by parents who need to use more than one child-specific restraint in the rear seats of their cars and encouraged to seek design solutions to this problem.

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