Parental fear as a barrier to children's independent mobility and resultant physical activity

FINAL REPORT
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Contents

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Key Terms

CATI	Computer Assisted Telephone Interview.
Children's independent mobility	Children's freedom to move around in public spaces without adult accompaniment[1].
Parental fear	Parents' general fear as it pertains to their children's independent mobility[2].
Fear of strangers	Parental fear about harm to their children from strangers[2].
Physical activity	Bodily movement resulting in energy expenditure[3], such as any play, travel or exercise.
Active transport	Transport involving some level of physical activity, including travel by walking, cycling, and other non-motorised vehicles (e.g. skateboarding)[4].

Executive Summary

This report presents findings from a three-year study, "Parental fear as a barrier to children's independent mobility and resultant physical activity". This study was conducted from 2012 to 2015, led by La Trobe University and the Parenting Research Centre. This work was commissioned by the Victorian Health Promotion Foundation (VicHealth) in recognition of the importance of children's independent mobility for their physical activity, social and emotional development. In a review by Zubrick and colleagues[5], parental fear was identified as a factor contributing to low levels of children's independent mobility, informing the need for this research.

The current study aimed to determine the unique association between parental fear and children's independent mobility for a representative sample of Victorian school-aged children, after taking into account the impact of associated parent, child, family, socio-economic, neighbourhood, and broader political and economic factors, and to develop recommendations for promoting the independent mobility of Victorian school-aged children. The research was conducted in three phases: (1) focus groups with 132 children aged 8-15 years and 12 parents; (2) a state-wide survey of 2,002 parents of Victorian children aged 9-15; and (3) expert workshops with 47 professionals from a broad range of sectors.

Findings from focus groups with children and parents highlighted the complexity of independent mobility for children. Children's levels of independence varied, particularly in the transition from primary to secondary school. Multiple factors, such as child, family, community and neighbourhood characteristics, including concerns about personal safety, informed parents' decision making around their child's independence. The transition from dependent to independent mobility involved a staged process.

Findings from the parent survey demonstrated that parental fear (both general fear and stranger-specific fear) was found to be related to lower levels of independent mobility for children. Parents were also more likely to restrict their child's independent mobility if they were concerned about being judged by other parents, family or teachers, if they did not perceive independent mobility to be beneficial, and if they believed that their child lacked the necessary skills to be safely independently mobile. Children with lower independent mobility were also more likely to be girls, younger children, live in a metropolitan area, have a disability, have a younger parent, speak a language other than English, have parents with lower educational attainment, and live in a more disadvantaged neighbourhood.

Children's independent mobility is a key aspect of children's overall physical activity. Improving participation in physical activity has health and social benefits for children, and is a core strategy of VicHealth's Action Agenda for Health Promotion[6]. A broad range of experts agreed that this was both a complex and important issue, requiring a multi-level approach which considers the individual, family, social and community, built environment, and legislative contexts. The school was considered to be an appropriate platform from which to engage parents and families about children's independent mobility. In addition, opportunities beyond the school setting should be harnessed to encourage integration of regular children's independent mobility and physical activity into everyday routines and family activities.

Recommendations for promoting children's independent mobility and reducing parental fear are discussed. It is suggested that interventions should consider four key systems of influence: the family and individual parent and child, the social and community environment, the built environment, and the political and legislative environment.

Background

Why is children's independent mobility important?

Independent mobility refers to children's freedom to move around in public spaces without adult accompaniment[1]. This includes free play and active transport to school and other destinations in the neighbourhood by walking or cycling[1]. Such activities are generally non-competitive, non-structured, social, inexpensive and accessible to all children[7]. Children's independent mobility is beneficial at multiple levels, including the development of motor, spatial and practical coping skills, fostering independence, responsibility, and sense of identity, building confidence and social skills, and knowledge about the local environment[5]. These activities also have the potential to contribute to children's physical activity[8]. Children who play outdoors burn more calories than children involved in structured after-school activities[9]. As children move towards adolescence, their overall levels of physical activity decrease[10]. However, this is also a time where children gain more independence, and independent travel and play increase, for example, through active transport to school and other independent outdoor activities[11,12]. This provides a key opportunity for interventions[10], promoting independence, physical activity and social and emotional development.

There is some evidence that patterns of children's mobility have changed in recent decades. There has been a decrease in travel to school by walking and cycling, accompanied by an increase in children being driven to school[13]. The distance that children are allowed to 'roam' is also considered to be restricted, with only one-third of children permitted to venture more than 15 minutes from home[14]. Parental fear about children's independent mobility is often posed as a key factor for these changes, constraining children's independent travel and overall physical activity. Increasing participation in physical activity is one of the key strategic imperatives of VicHealth's Action Agenda for Health Promotion[6], with established physical, social, economic and neighbourhood benefits for children and their families.

Why study parental fear?

Parents are the gatekeepers to children's independence and autonomy across all stages of childhood[15]. Parental fear has been identified as a potentially critical barrier to children's ability to travel and play independently and may act to restrict physical activity[5,16] and be a factor contributing to Australia's high rates of childhood obesity[17]. 'Helicopter' parenting, the 'cotton wool generation' and other colloquial terms attribute these restrictions to parents' worry, anxiety, fear and concern about potential risks and dangers to children when they are independently travelling or playing unaccompanied or unsupervised by a trusted adult[18]. Broadly, parental over-protectiveness is associated with poorer mental health outcomes for children (e.g. depression and anxiety)[19-21]. Available qualitative evidence suggests the most common barriers reported by parents relating to children's participation in active transport to school is their fear for their child's personal safety on the journey, namely, fear of strangers, abduction or assault[22-27] and traffic risks[26]. Other qualitative findings suggest a link between parental fear and a lack of neighbourhood social cohesion and safety[28-30]. However there is little quantitative evidence showing that parental fear makes a contribution to children's mobility independent of other established social and contextual factors. Furthermore, the drivers of parental fear have not been identified sufficiently to inform evidence-based interventions.

This research directly addressed this gap, identifying key factors associated with parental fear, and informing evidence-based recommendations.

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Theoretical Framework

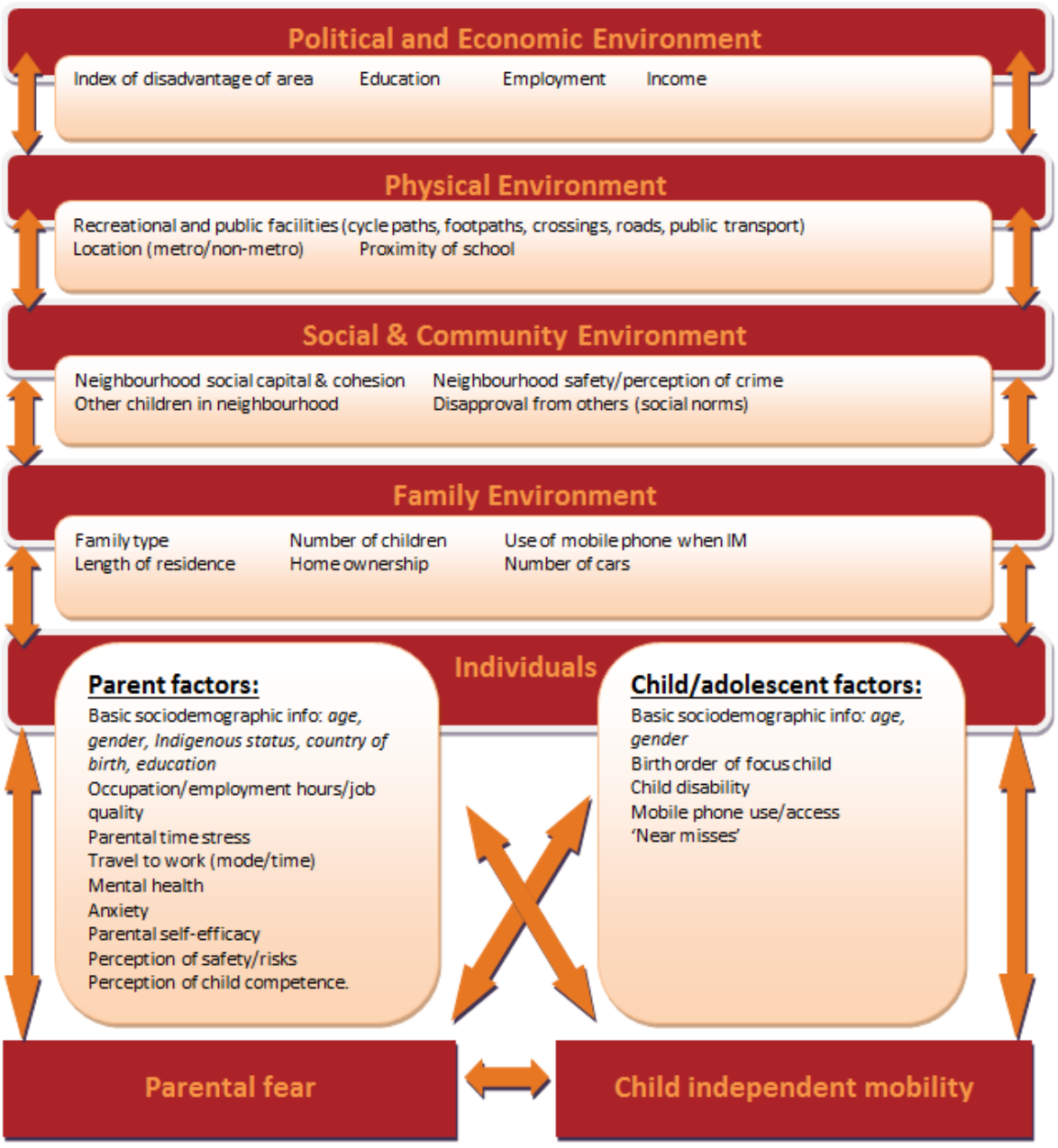


Figure 1. Theoretical Framework for the research.

The theoretical framework for the research (Figure 1) was developed following extensive review of the literature on parental fear and independent mobility, and based on the socio-ecological model, which acknowledges multiple spheres of interacting determinants. Socio-ecological models of children's development highlight the range of factors that influence how parents raise their children, and children's consequent development[31].

One existing model is the Lynch model[32] which was developed to guide social and epidemiological research and has since been used in a number of studies that investigate the determinants of a range of child development outcomes. The model categorises the factors that may be associated with health outcomes into: structural macro-social factors (e.g. policies, legislation), distal social connections (e.g.

communities, neighbourhoods), proximal social connections (e.g. families, social networks) and individual characteristics (e.g. age, country of birth). In its strategy and business plan for 2009-2013[33] VicHealth also presented a socio-ecological model which collates some of the determinants of health identified by Lynch into the societal, community and family/household influences on an individual's health and wellbeing.

To guide the investigations of the influences on children's independent mobility and parental fear, a hybrid of the VicHealth and the Lynch models was utilised to develop the theoretical framework. As well as influencing each other, it was posited that parental fear and children's independent mobility were likely to be largely influenced by the same family, community and broader environmental factors. This is reflected in the framework, with the relationship between parental fear and children's independent mobility representing the key outcome, and the main factors influencing both of these grouped into five key levels: the individual parent and child, the family unit, and broader contexts including social structures and community, the built environment, and the political and economic.

What did the research involve?

The project involved three sequential phases conducted over a three-year period:
Phase 1: Focus groups with parents and children.
Phase 2: State-wide survey of a representative sample of Victorian parents.
Phase 3: Expert workshops with key stakeholders.

An overview of the aims, methods and findings of each of the phases is presented.

Phase 1: Focus groups with parents and children

Aims

Phase 1 of the research aimed to identify the perceptions of Victorian school age children and their parents regarding independent mobility and the process of becoming independently mobile.

Method

Ethical approval for Phase 1 was obtained from the Parenting Research Centre Human Research Ethics Committee (Application No. 13, 2012) and the Department of Education and Early Childhood Development (Application No. 2012_001662, 2012).

Qualitative data were collected via semi-structured focus groups with children and parents. Seven schools (five primary schools, one P-12 school, and one secondary school) were recruited into the study, from metropolitan and regional areas of Victoria. Each school selected one to two classes to participate in the research. Information about the research was sent home with children in these classes, inviting parents and children to participate in focus groups regarding children's independent travel and play. Parents provided written consent for their child and for their own participation in focus groups. Children were also asked to provide verbal assent prior to taking part in the focus groups.

Twelve focus groups were conducted with 132 children (43.2% male, 56.8% female), aged between 8 to 15 years old (Grade 3 to Year 8), and involved between six to 17 children in each group. These focus groups explored children's experiences, and their perceptions of the enablers and barriers of travelling and playing in their neighbourhood without an adult. All child focus groups were conducted at the school during school hours and ran for approximately 30-40 minutes.

An additional three focus groups were conducted with 12 parents (16.7% male, 83.3% female), who had children aged between 8 to 15 years old. Between two to six parents participated in each group. Focus groups with parents explored their attitudes to children's independent mobility, influences on their decisions about how children move around the neighbourhood, and the process of children becoming independently mobile. Parent focus groups were held at the school either during school hours, after school or in the evening, depending on parent preferences, and lasted approximately 45-60 minutes.

Focus group discussions were audio recorded with the consent of participants, and detailed notes were taken by the researchers throughout the group discussions. Thematic data analysis was conducted to identify key themes emerging from the focus groups. The analysis was based on the process described by Green and colleagues[34] and involved: immersion in the data, coding, creating categories and identifying key themes. The data from children and parents were firstly coded and categorised separately then brought together to identify four emerging themes[34].

What did parents and children say?

This research uncovered the complexity of children's independent mobility, the range of children's levels of independence, the differences across metropolitan and regional locations, and the broad range of factors that influence parents' decision making about independent mobility. Four major themes emerged regarding the influences on children's independent mobility, including parental fear. The themes were: fitting in with family life; neighbourhoods and knowing people; worried about the weirdos and other safety concerns; and finding a reference point for decision making and boundaries. These themes are summarised below.

Fitting in with family life

Daily routines and managing the demands of family life were major influences on children's travel and play. Fostering children's independent mobility and physical activity was not always a priority for parents when they had to negotiate busy daily schedules, for example getting children to school, then getting to work in the morning. Working parents reported that time restrictions meant that they had to drive children to school. Children who attended before-school or after-school care also lacked opportunities to practice travelling to school by walking, cycling or public transport.

"It's just I don't have any spare time… I'd like to not work every day pretty much so I could walk the kids to school easily but I have to work, so a lot of our travel decisions are made because of our circumstances. And that's the only way that we can cope juggling those 13 balls in the air…"
(Mum of 8 & 5 year old)

Neighbourhoods and knowing people

Children aged 8 to 15 years old had a broad range of independence, ranging from walking to school with older siblings, to travelling from Melbourne's outer suburbs to the city by train with friends. Children who had some independent mobility described how much they enjoyed the social and emotional aspects of it, as well as the physical benefits. Children had a lot of "fun", and would "muck around", "tell secrets" and have a bit of time out.

"I went with [friends] to the park and sat on top of the monkey bars and talked... and we were talking about family and stuff…" (Girl in Grade 6)

"…I like to walk my dog to the shop by myself… just being able to walk him somewhere in the cool air and get some energy." (Boy in Year 7)

Parents and children felt more comfortable about independent mobility when they knew people in the local neighbourhood, and were familiar with their surroundings. Children's independence was determined by networks of family and friends in the local community. For example, in regional areas, where parents and children knew and trusted their neighbours, and were familiar with many people in town, parents saw fewer risks to their child's safety in independent mobility. On the other hand, for families in metropolitan areas that had recently migrated to Australia, whose parents were not familiar with their neighbourhood, the language or the people, there were greater safety concerns about independent travel and play, and therefore children's independent mobility was restricted.

Furthermore, community 'norms' shaped children's activities, travel and recreation. For example, in the two regional areas, when children turn 10 years old the local swimming pool issues them a 'ticket' granting them entry to the pool without an adult. This policy was a catalyst for independent travel to and from the pools, as well as independent active play at the pools. Additionally, school policies and messaging influenced parents' perceptions about what was appropriate in terms of children's travel. Often, schools reinforced messages about risks to children who travelled without an adult, for example, at one primary school:

"Just from reading the [school] newsletters sometimes I feel like the schools are saying that it's not okay for the kids to be walking home unless they're over a certain age. I get that vibe that they're certainly saying all kids need to wait in the courtyard and the parent has to come in and get them. And I think, well what if you do want your child just to walk to the corner..." (Mother of 7 & 11 year olds)

Parents had varying views on the merits of children's independent mobility. While some parents acknowledged the benefits of independent mobility, other parents labelled independently mobile children as a "type" who were "wandering aimlessly" and lacked boundaries from their parents. The more negative views about children's independent mobility were heard from parents in metropolitan areas whose children were less independently mobile, for example:

"I don't like the young kids that just look like they've been thrown out of their house on the weekend… They don't seem to have anywhere to go or a place to be… they kind of walk around a bit aimlessly

between each other's houses and don't seem to settle. I don't like that... it annoys me that their parents wouldn't know where they are…" (Mother of 12 year old twins & a 15 year old)

Worried about the weirdos and other safety concerns

Parents and children raised a number of safety concerns about children's independent mobility, although they differed somewhat. Parents were worried about "the weirdos" (strangers) approaching and/or abducting their child, and they were also concerned about their child being injured in traffic. Conversely, while a small number of children mentioned being scared or wary of strangers, more often, they discussed being worried about getting lost, being bullied by older children, and about being frightened or attacked by animals (e.g. dogs, snakes) during their independent travel and play. A small number of children attending the focus groups had been approached by a stranger in the past or had been injured in traffic, and these were traumatic events for the child and their parents. Children described strategies they had used, or would use, to deal with problems encountered in the neighbourhood, such as "I'll yell at the top of my lungs" if approached by a stranger, or use a mobile phone to call for help if they were lost or in danger. These strategies had been discussed with their parents and siblings, and sometimes the strategies had been discussed at school, particularly after an incident near the school or in the local area (e.g. an attempted abduction).

Finding a reference point for decision making and boundaries

Parents used a range of points of reference when making decisions about independent mobility for their child. Some parents referred to other families to gauge what was 'normal' in terms of independent mobility for a child's age, as one mother describes:

"I probably wouldn't have let [my children] do it but then I think well obviously that parent is confident with their child doing it… so then I think well maybe I can instil a little bit more independence in them as well… so it takes sometimes another parent." (Mother of 10, 11 & 14 year olds)

Some parents recognised that they were very protective of their child, and some mentioned that they did not like being so worried about their child's safety. However, often it was the concept of 'better safe than sorry' that governed decisions about children's independence.

"I'd much prefer to err on the side of caution and know that they are safe than if something horrendous happens and regret it for the rest of your lives..." (Mother of 8 & 10 year olds)

Other parents described agonising over decisions about their children's independent mobility, with their perceptions of the benefits of independence conflicting with their concerns about the risks, as this father explains about his 11 year old son:

"I'm torn between him having some independence but knowing how safe he will be…"

Parents described feeling anxious about their child being independently mobile but recognised that children must be afforded independence at some stage. Even when children were well prepared for independent mobility, having practiced routes, skills and strategies, and were 'ready', parents were still concerned. They would weigh up the social, emotional and physical health benefits against

children's skills and maturity, potential risks and demands on parents' time before making decisions about the appropriateness of independently mobility for their child.

"…We were also sort of crossing our fingers and thinking what are the chances of there being someone [dangerous] within a kilometre and a half… it took us a bloody long time, and I'm okay. I can get to a point where I really trust him… but my wariness about others and in odd situations..."
(Father of 11 year old)

When the time came for children to move from dependent to independent mobility, it was a staged process, and parents and children would negotiate the details. For example, setting rules and boundaries about where the child can go, who with, and when they needed to be home. Often, children would take a mobile phone with them and let their parents know when they had arrived safely at the destination. It was important that children were contactable when they didn't have adult accompaniment, and both parents and children viewed mobile phones as a safety measure. These rules and boundaries were under constant discussion and negotiation between parents and children as their levels of independence increased.

When making decisions about independent mobility for their child, parents used a range of reference points, weighed up the multiple potential risks and benefits, and eventually helped their child move towards independent mobility in a graduated, staged process.

In summary, the focus groups with parents and children increased our understanding of the range of independent mobility for children across primary and secondary school age, the range of perceptions about independent mobility from children and parents, the multiple factors governing decision making for parents, and the staged process of allowing children to become more independent. The focus group findings were used to inform the language, content, and prioritisation of the constructs included in the quantitative parent questionnaire in Phase 2 of the project.

Phase 2: Parent survey

Aims

The aims of Phase 2 were to:

a. Determine the unique association between parental fear and children's level of independent mobility for a representative sample of parents of Victorian children aged 9 to 15 years, after taking account of associated parent, child, family, socio-economic, neighbourhood and broader environmental factors; and
b. Identify barriers and facilitators to parental fear as it pertains to children's independent mobility, in particular, those amenable to change via intervention.

Method

Ethical Approval for Phase 2 was obtained from the Parenting Research Centre Human Research Ethics Committee (Parental Fear Measure Development Application No. 19, 2013; Main Study Application No. 20, 2013).

Phase 2a

During development of the parent survey, no validated measure of parental fear in the context of children's independent mobility could be identified in the research literature. Therefore, VicHealth supported an additional measure development study[2]. A rigorous measure development protocol[35] was followed, and testing was undertaken in a development sample of parents (n=118). The pilot measure was then administered to all parents in the state-wide parent survey (Phase 2b). A sub-sample of these parents (n=209) were then recontacted three months later to complete the measure a second time. In this way, the accuracy and stability of the new measure could be tested.

Given that the literature refers to parental fear in general, and parental fear of strangers in particular[5], the final measure assessed two-dimensions of parental fear. Firstly, an assessment of parents' *general* fear as it pertains to their children's independent mobility was developed, drawing on behavioural, and cognitive, but predominantly emotional experiences. Secondly, the recommendations by Ding et al[36] were taken up to examine the influence of specific parental fears (in this case, *fear of strangers*) and develop items assessing parental fear about harm to their children from strangers. The two newly developed measures were of general Parental Fear (4-items e.g. "I am anxious when letting my child go out anywhere without me") and Fear of Strangers (5-items, e.g. "I worry about my child's safety when they are not with an adult because a stranger might approach them"). The measures had strong statistical properties (internal consistency Coefficient H 0.91 and 0.93 respectively) and temporal stability (test-retest co-efficient r = 0.73, 0.76 respectively).

Phase 2b

Phase 2b involved the collection of quantitative data via survey from Computer Assisted Telephone Interviews (CATI) with a large representative sample of Victorian parents with children aged 9 to 15 years (*N*=2,002). Data collection for this Phase was conducted by the Social Research Centre, an expert research centre experienced in the collection of data via CATI.

The key constructs included in the parent survey are summarised in Figure 2.

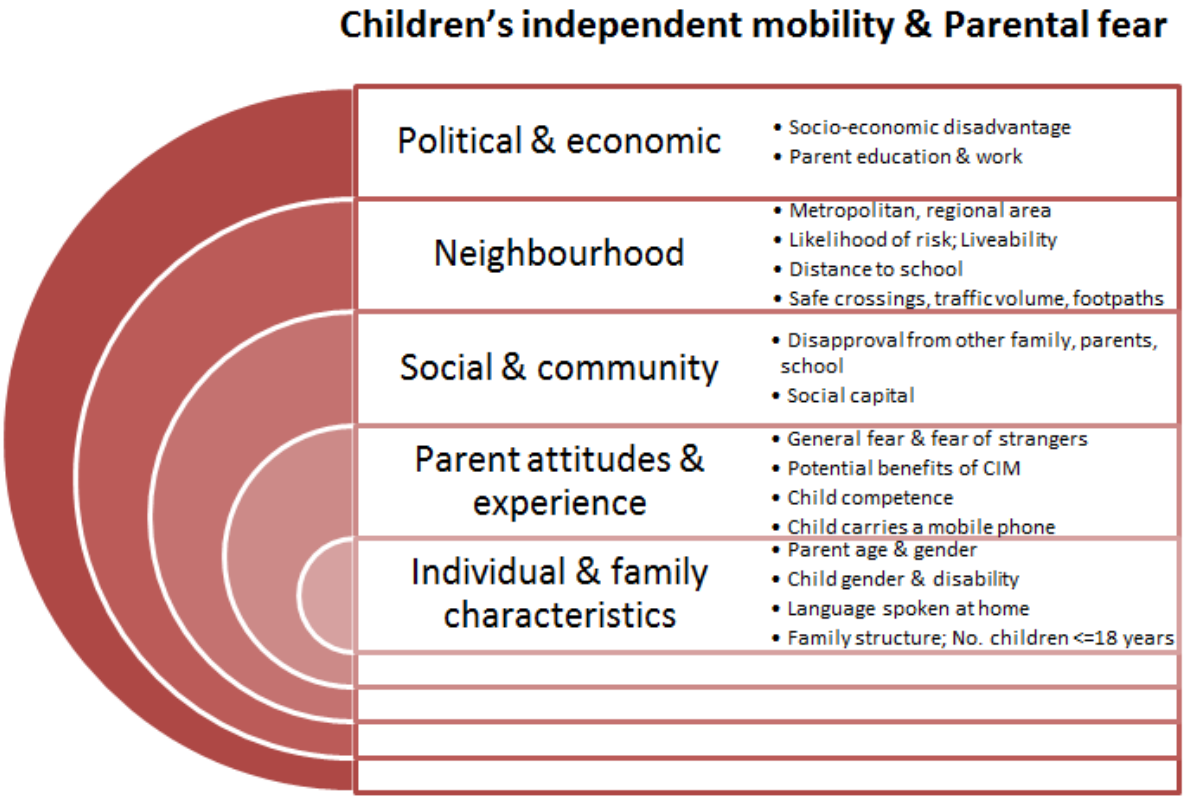


Figure 2. Summary of the constructs included in the parent survey.

Data analysis

Parents' responses to items in the survey were divided into three groups by child age (9-10 years, 11-13 years and 14-15 years) so that different patterns of parents' concerns and children's mobility could be understood as children got older. The main purpose of the analyses was to identify factors associated with children's independent mobility (Aim a, page 14) and factors that influenced greater parental fear (Aim b).

Descriptive summaries of parental fear, and children's independent mobility were performed. To answer the Phase 2 research questions (Aims a and b), the following analytic steps were conducted:

1. Relationships between the main study outcomes (children's independent mobility, parental fear), and the parent, individual family, social and community, neighbourhood, political and economic variables were tested separately (bivariate tests of association).
2. Factors that had a significant statistical relationship with the study outcomes in Step 1 were included in a model together (multivariate linear regression) to understand the main factors influencing children's independent mobility and parental fear. All analyses accounted for parent demographic differences (i.e. parent and child age and gender; child disability; metropolitan or rural residence; family type; distance to school; primary language spoken at home; parent education and employment).

Results

Characteristics of the sample are presented in Table 1.

Table 1. Sample characteristics (*N*=2,002).

Parent characteristics	
Female Parent, n (%)	1,401 (70.0)
Parent Age, years, m(sd)[b]	44.8 (6.1)
Non-Metro, n (%)	580 (29.0)
LOTE[c], n (%)	405 (20.2)
Tertiary Degree, n (%)	915 (46.1)
Couple family, n (%)	1699 (84.9)
Dual-earner household, n (%)	1205 (60.2)
Child characteristics	
Female Child, n (%)	944 (47.2)
Child Age, n (%)	
9 years	268 (13.4)
10 years	294 (14.7)
11 years	314 (15.7)
12 years	283 (14.1)
13 years	306 (15.3)
14 years	292 (14.6)
15 years	245 (12.2)
Child disability, n (%)	80 (4.0)
Distance to school, n (%)	
<5 minutes	93 (4.7)
5-10 minutes	355 (17.9)
11-15 minutes	198 (10.0)
16-20 minutes	181 (9.1)
21-40 minutes	345 (17.4)
>40 minutes	804 (40.5)

a. n (%) = number (%); b. m (sd) = mean (standard deviation); c. LOTE=Language other than English.

What factors determine children's independent mobility?

Parents were asked how many activities, and what type of activities, they permitted their child to do without an adult, from a list of 15 activities (e.g. play in the street, go to the local shops, go out after dark). On average, children participated in 8.4 activities without an adult. The number of activities children were allowed to do increased with age (Figure 3). Most parents started allowing children to play and travel in their community without adult supervision in primary school. During the pre-teen years (ages 11 to 13) children moved from quite limited independence to much more independence. For example, 9 year old children were allowed to do an average of four to five activities independently and almost all 9-10 year old children (96%) were allowed to play in their own yard without adult supervision. For children of all ages, other common independent activities included going to a friend's house (82%), walking in the neighbourhood (77%), riding a bike in the street (77%), going to shops (67%), local parks (58%) and using public transport (40%). Going out after dark without an adult (13%) was less common. By comparison, children aged 15 years were allowed to do an average of 11 independent activities.

Children's independence was related to their gender and where they lived (Figure 3). Children who lived in rural and regional areas were more independent than those living in metropolitan areas. On

average, boys were allowed more freedom for independent play and travel than girls at all ages. Fathers did not differ from mothers in how much independence they reported giving their children.

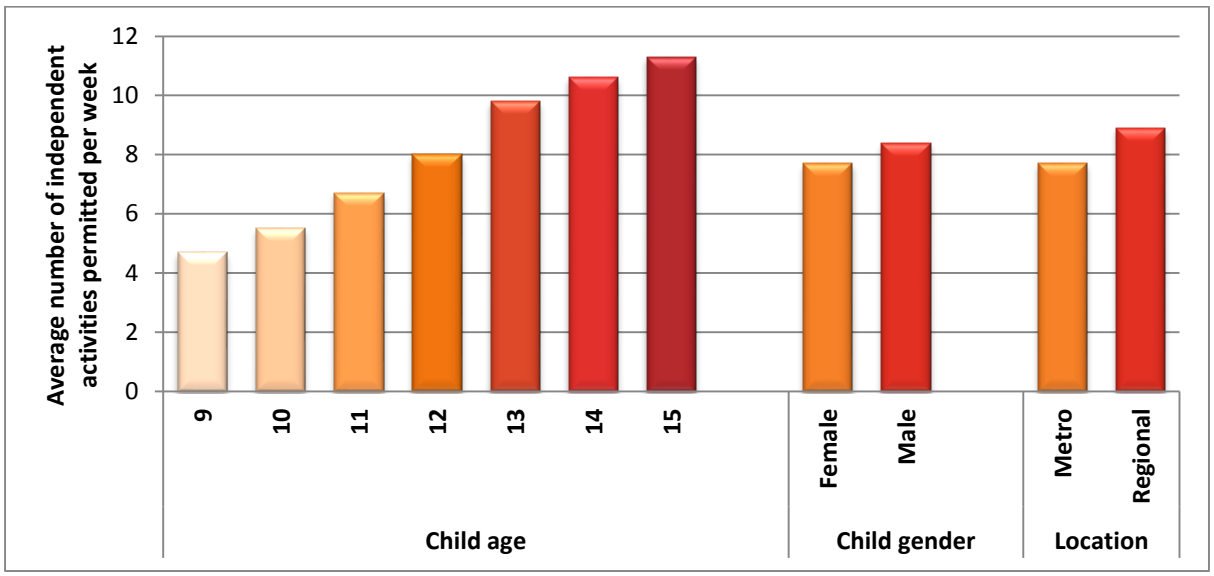


Figure 3. Number of independent activities (range 0-15) children are allowed to do by child age, child gender and geographic location.

The proportion of children's independent trips to school (by walking, cycling or public transport without an adult) also increased as children progressed through primary school (Figure 4). From the time children were 13 years, the proportion remained steady at around 50%. Nonetheless, it should be noted that, even for children aged 14-15 years, 35% were never travelling independently to school. Boys had significantly more independent trips to school compared to girls (39% compared to 33%, $p<.01$), and children in rural and regional areas had significantly more independent trips to school than children in metropolitan areas (40% compared to 34%, $p<.01$). In the families surveyed, half of the children travelled to school by car (52%), while 19% walked, 5% cycled and 24% travelled by public transport. Most children travelled to school with a parent or other adult (64%), although 36% travelled to school independently, either alone or with other children.

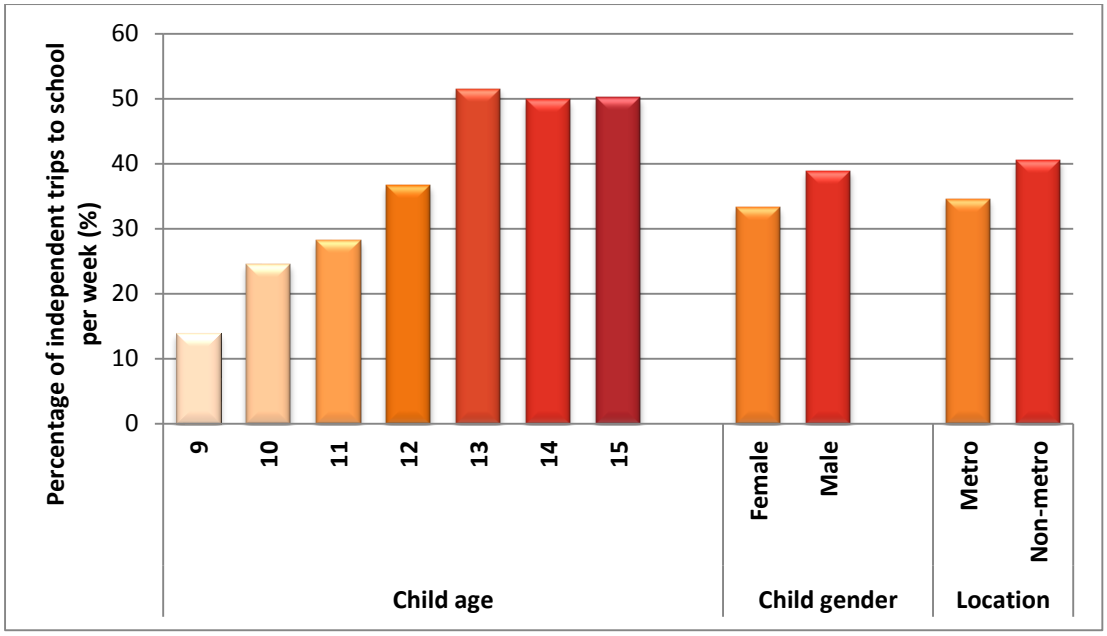


Figure 4. Percentage of trips to school (%) that children make per week unaccompanied by an adult by child age, child gender and geographic location.

Multivariate models revealed a number of demographic factors associated with independent mobility. Children were ***less likely*** to be independently mobile if they were:

- Younger (9-10 years old)
- Female
- Living in a metropolitan area (compared to a rural or regional area)
- Living with a disability
- Living with a younger parent
- Speaking a language other than English at home
- Had a parent with lower educational attainment (i.e. not a tertiary qualification)
- Living in more disadvantaged neighbourhood (i.e. a lower SEIFA Index of Relative Socio-economic Disadvantage[37] score)

Whilst the above factors are generally fixed and not amenable to change, the analysis also revealed several factors which could potentially be changed through targeted intervention. Parents were ***more likely*** to allow their child to be independently mobile if they:

- Reported less fear (general fear and fear of strangers) about their children's safety when independently mobile
- Had confidence in their child's ability to travel competently in the neighbourhood (e.g. child is responsible, careful in traffic)
- Perceived independent mobility as having multiple benefits (e.g. make friends, learn responsibility and independence, get exercise, get to know the neighbourhood)
- Did not believe that other parents, family or the school would disapprove of their child being independently mobile to school
- Provided their child with access to a mobile phone

At all ages, parents' perceptions of the views of other family members, schools and other parents influenced their decisions about children's independence. Children whose parents reported more disapproval from family, schools and other parents were less independent in their play and travel and independent trips to school.

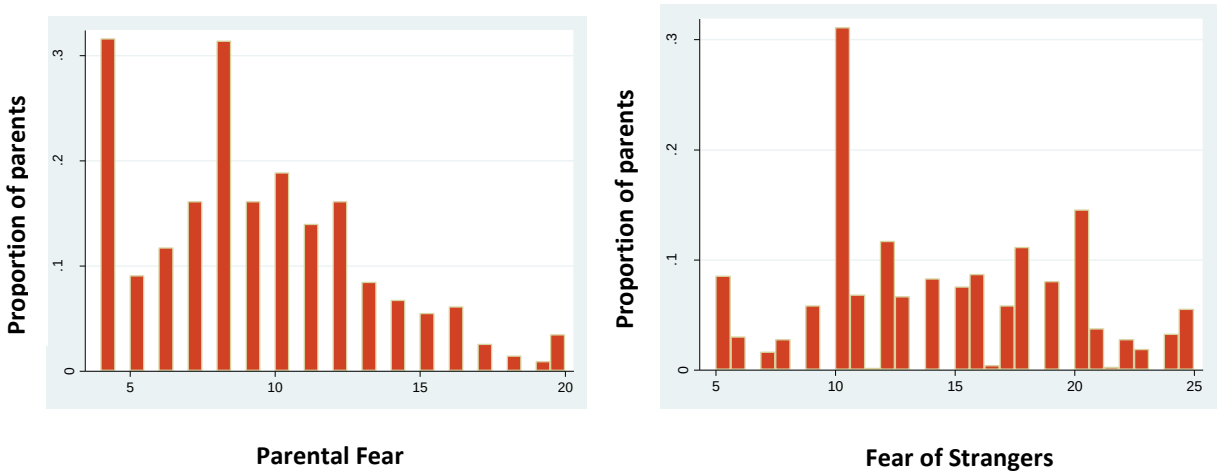
Factors supporting children's independent mobility (non-modifiable and modifiable) are summarised in Table 2.

Table 2. Summary of non-modifiable and modifiable factors associated with children's independent mobility.

Non-modifiable factors	Modifiable factors
Older child age (14-15 years)	Less parental fear about child's safety, e.g. less fear of harm from strangers, less general concern about child's safety
Boys	Confidence in child's competence, e.g. responsible, careful in traffic
Regional/Rural residence	Perceived multiple benefits of CIM, e.g. social, exercise, learn independence
No child disability	Perceived less disapproval from others, including family, teachers/principal, other parents
Older parent age	Mobile phone access when out and about
English primary language at home	
Parent with a tertiary degree	
Living in a higher socio-economically advantaged neighbourhood	

Does parental fear matter to children's independent mobility?

The newly developed measures of Parental Fear and Fear of Strangers showed that parents reported fear across the spectrum of scores (Parental Fear range = 4-20; Fear of Strangers range = 5-25). Some parents had very few concerns, whereas others had moderate or high levels of fear (Figures 7 and 8).



Figures 7 and 8. Distribution of scale scores: Parental Fear scale (left) and Fear of Strangers scale (right).

Parental Fear assesses general parental concerns about children's safety when children are without adult supervision. Parental **Fear of Strangers** assesses fear of harm to children from strangers.

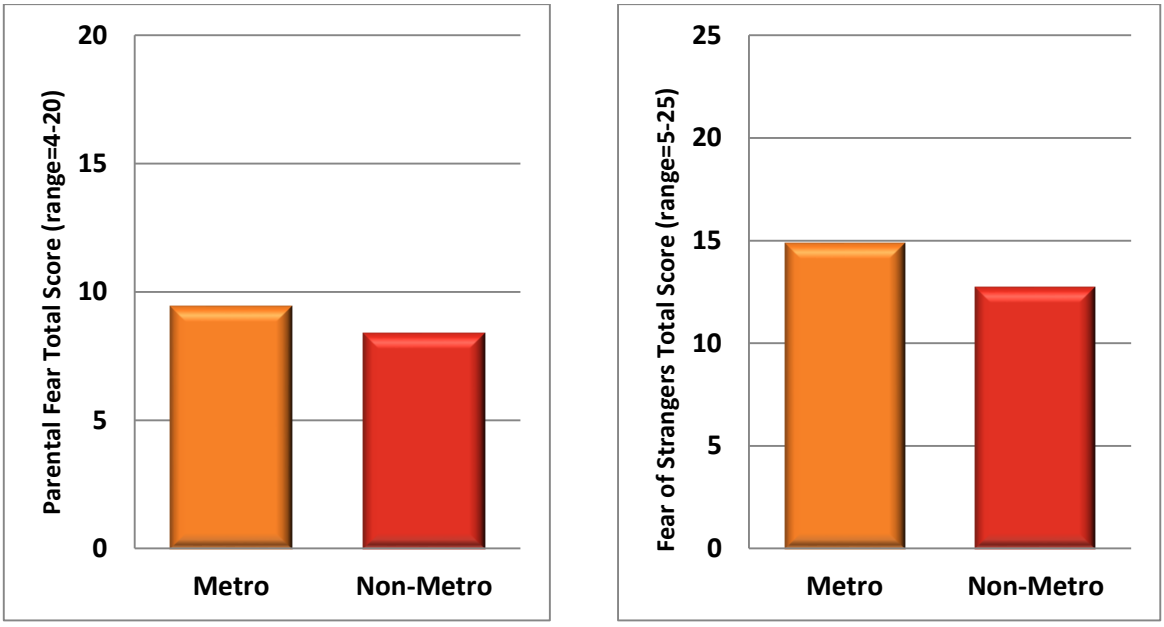
Parental fear

- 18% always worried about their child's safety when they were out without an adult
- 13% were fearful of letting their child go out anywhere without an adult
- 13% were anxious about their child's safety when they were out somewhere familiar without an adult
- 10% were anxious when letting their child go out anywhere without them

Parental fear of strangers

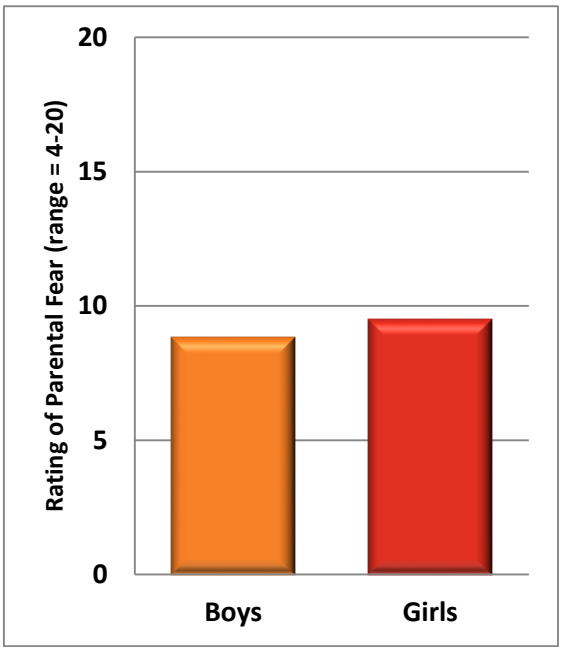
- 48% worried about their child's safety when they were not with an adult because a stranger might approach them
- 38% were fearful their child would be approached by a stranger if they went out alone
- 37% were anxious their child would be approached by a stranger if they went out alone
- 36% of parents avoided situations where their child went without an adult because they were fearful they will be approached by a stranger
- 28% were fearful that if their child walked or cycled somewhere in the neighbourhood, he or she might be at risk, or in danger, because of strangers

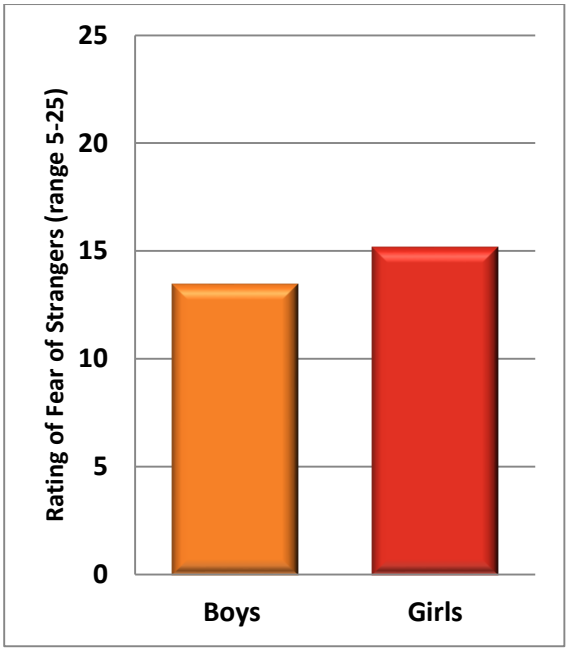
Parents in metropolitan areas reported having significantly greater general fear (mean 9.4 vs 8.4, $p<.001$) and significantly greater fear of strangers (mean 14.9 vs 12.7, $p<.001$) in the context of their children's independent mobility (Figures 9 and 10) than parents in rural and regional areas.



Figures 9 and 10. Levels of Parental Fear (left) and Fear of Strangers (right) for metropolitan vs non-metropolitan participants.

Parents were also likely to report significantly more fear for girls compared to boys (mean 9.5 vs 8.8, $p<.001$) and significantly greater fear of strangers for girls compared to boys (mean 15.2 vs 13.5, $p<.001$) (Figures 11 and 12).





Figures 11 and 12. Levels of Parental Fear (left) and Fear of Strangers (right) for girls vs boys.

Parents' fears gradually decreased as children got older. Parents' general fear was highest for 9 year old children compared with 15 year olds (mean 10.8 vs mean 7.7, respectively) (Figure 13). Similarly, parents' fear of strangers was highest for 9 year olds and lowest for 15 year olds (mean 16.1 vs. mean 11.7) (Figure 14).

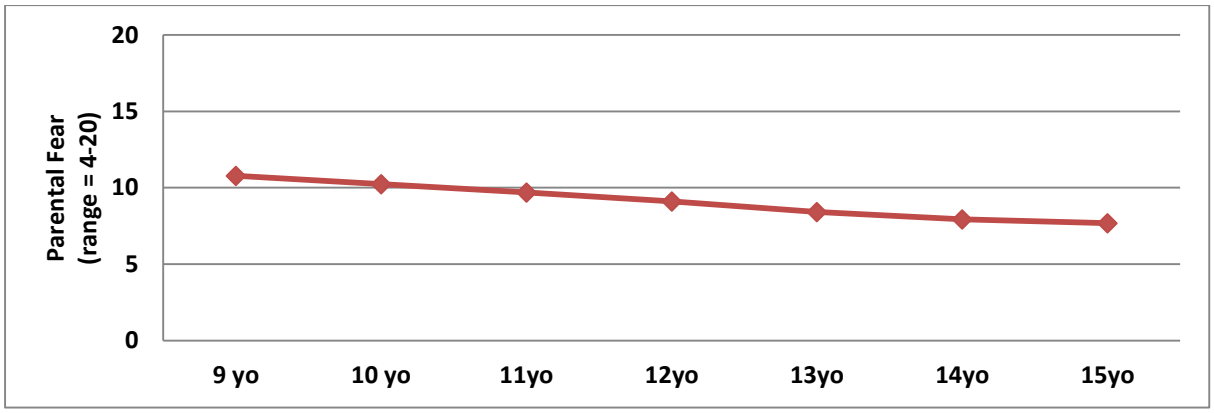


Figure 13. Levels of Parental Fear according to child age.

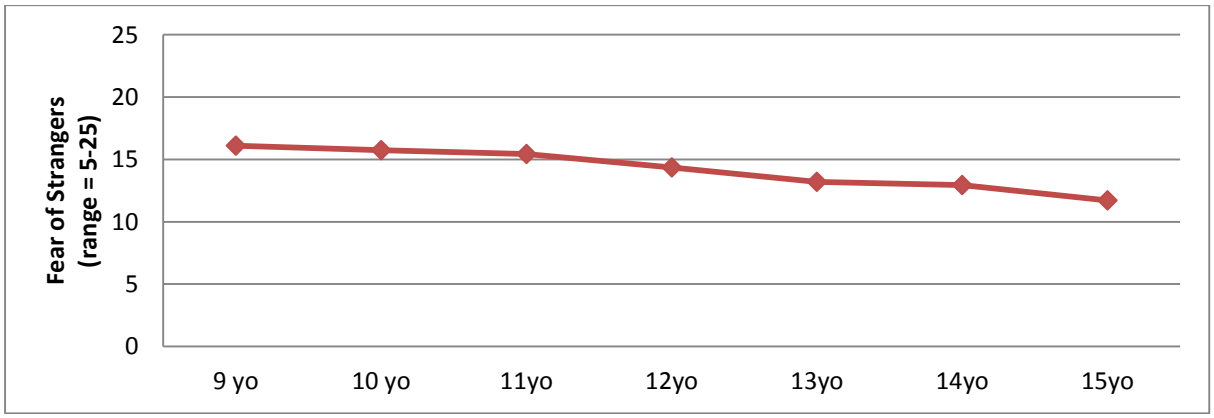


Figure 14. Levels of Fear of Strangers according to child age.

In addition to a child's age, gender and location, several other factors were also associated with greater Parental Fear and Fear of Strangers including:

- Greater parent psychological distress (measured using the Kessler-6[38])
- A more protective parenting style
- Perceiving the neighbourhood as less safe (e.g. child likely to get injured, bullied, lost)
- Having doubt in the child's abilities to travel competently (e.g. responsibly, careful in traffic)
- Being concerned that others (parents, school teachers/principal, family members) might disapprove of the child travelling to school independently
- Placing less value on the benefits of children's independent mobility (e.g. making friends, learning independence, getting exercise)

Modifiable and non-modifiable factors associated with **higher Parental Fear, and Fear of Strangers** are summarised in Table 3.

Table 3. Summary of non-modifiable and modifiable factors associated with Parental Fear.

Non-modifiable factors	Modifiable factors
Younger child (9-10 years old)	Parent psychological distress
Female child	More protective parenting style
Metropolitan location	Perceiving neighbourhood as unsafe
Language other than English spoken at home	Doubts in child's competence
Lower parental education	Perceived disapproval from others
Single parent family	Less value of benefits of children's independent mobility
Parent's past experience with strangers	
Fewer children under 18 years at home	

Children of more fearful parents were less likely to be independently mobile, or travel to school independently. Parents who were more concerned about safety in general and harm from strangers in particular reported that their children were less likely to play and travel independently in the community. This applied across all age groups from 9 to 15 years.

Parents in metropolitan areas tended to be more worried about children's safety in general and harm from strangers in particular, and their children had less independence, compared with children in rural and regional areas.

There was some overlap between the modifiable factors associated with children's independent mobility and factors associated with parental fear. The mutual and independent predictors of the two outcomes are presented in Figure 15.

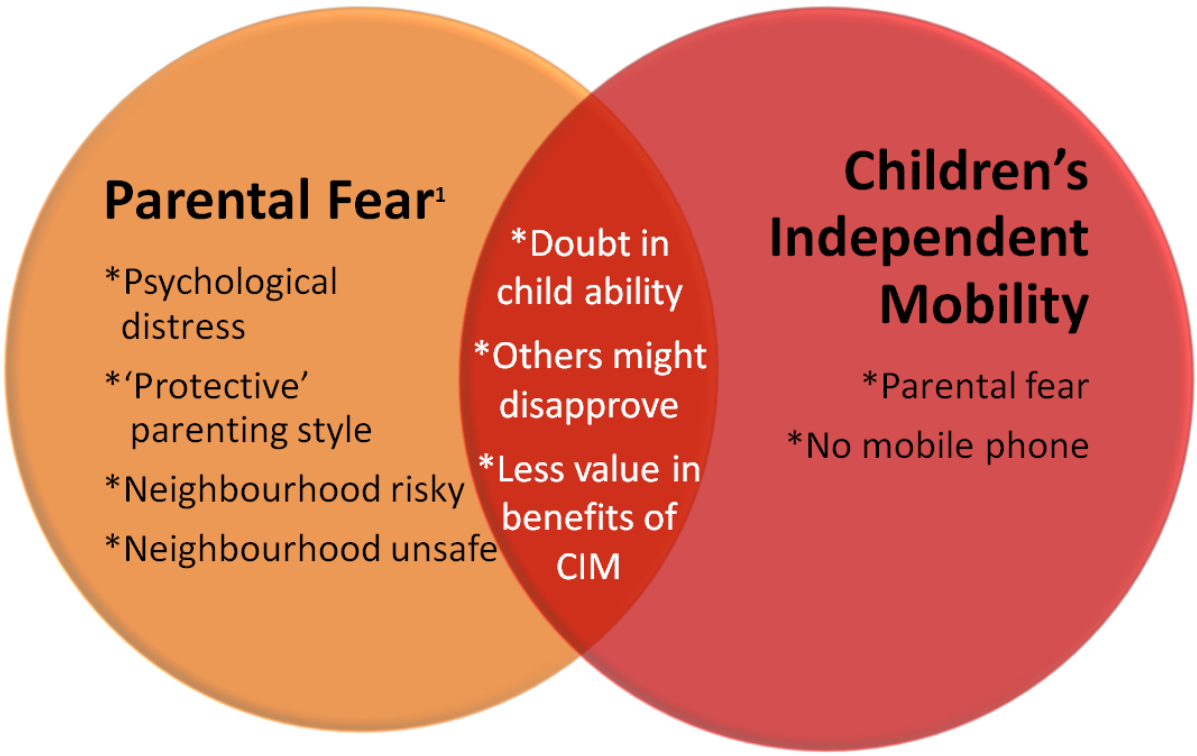


Figure 15. Mutual and independent modifiable factors associated with parental fear and children's independent mobility. [1]Parental fear includes both general Parental Fear and Fear of Strangers.

Children's independent mobility and children's physical activity

Children who were able to play and travel without an adult and those who walked or cycled to school were more likely to meet Australian physical activity guidelines. Australian physical activity guidelines recommend that children aged 5-17 years should do at least 60 minutes of moderate to vigorous physical activity each day[39]. Children aged 11-13 years who had more independence were more likely than their less independent peers to meet the physical activity guidelines on weekend days. Children aged 11-13 years who walked or cycled to school were more likely than children who were driven or took public transport to meet the physical activity guidelines on week days.

Phase 3: Expert workshops

Aims

The aim of the final phase of the research was to develop in partnership with community, government and non-government stakeholders, recommendations and strategies to promote the independent mobility of Victorian children aged 9-15 years.

Method

Ethical approval for Phase 3 was obtained from La Trobe University Health Sciences Human Ethics Committee (Application no. FHEC 14/195, 2014). To inform the development of the recommendations, a series of key stakeholder workshops were conducted, with participants from a range of organisations with an interest in the issue of children's health, parenting, physical activity, health promotion and community wellbeing, from across metropolitan and regional Victoria, and interstate.

In the workshops, findings from Phases 1 and 2 were presented to participants. Participants discussed the findings in the context of their own work and experience, and identified opportunities to promote children's independent mobility and reduce parental fear.

A total of 47[1] professionals attended four workshops. The workshops involved participants who were 'experts' in their fields of practice, with representatives from a broad range of sectors, including Local Government (29.8%), sport and recreation (19.1%), health (17.0%), research (17.0%), urban planning (12.8%) and parent advocacy (4.3%). Participants were both women (74.5%) and men (25.5%). Each workshop was held at VicHealth's offices, near Melbourne's Central Business District during February and March 2015.

Workshop group discussions were audio recorded with the consent of participants, and detailed notes were taken by the research team, for use in data analysis. Handwritten notes were subject to thematic analysis, whereby key themes were identified corresponding to the five major levels of influence: individual parent and child, family, social and community, built environment, and policy and legislative. Audio recordings were used as back-up, to support the analysis.

What did the experts say?

Professionals attending the four workshops viewed independent mobility as a graduated process, whereby parents can and should support their child to engage in activities moving from dependence to pre-independence, through to independence, with consideration for the child's age, skills, and the environmental context. Participants recognised the wide-ranging benefits of children's independent mobility, such as social and emotional development, motor skills, risk management and resilience, but also acknowledged the complexity of promoting children's independent mobility, in terms of overcoming the barriers, and supporting parents' to facilitate their children's independence.

Participants discussed the finding that 35% of children aged 14-15 years were never travelling independently to school. Participants acknowledged the multiple barriers to children's independent mobility in the school context, including family routines, time pressures, and the need for children to carry heavy items such as books, sports equipment or musical instruments. It was also noted that children often do not attend their closest secondary school, necessitating the need to travel by car if public transport is lacking, or parents may opt to drive their child as a more time-efficient option, and an opportunity to spend time together. Some participants considered that 65% of children aged 14-15 years independently travelling to school might be "as good as it gets" because the identified barriers may be difficult to overcome for many families. Participants suggested that focussing on opportunities to promote other forms of independent mobility, not limited to travel to school, were worthwhile to target this group of children.

Participants agreed that there was no "one size fits all" approach, rather, solutions needed to be tailored to individual communities (e.g. Local Government, local schools and local neighbourhoods) and at multiple levels.

[1] One regional expert was unable to attend the workshop in person, but contributed via a telephone interview.

Programs to promote active transport to school

Participants discussed a broad range of programs which had already been implemented, mainly in primary schools, to encourage active transport to school, often with some success in increasing the number of children travelling actively (with and without adult accompaniment) to and from school. However, while programs often report some short-term success in increasing active transport to school at a small number of sites, most are not rigorously evaluated for immediate and long-term success in children's travel behaviour or sustainability. Although schools represent a logical setting for engaging parents and the community in terms of active transport to school, schools can be overburdened with multiple requests to participate in programs and research, and may lack the necessary resources to implement and sustain programs. Therefore, implementing active and/or independent travel programs with children and parents in other settings is recommended, such as sporting clubs, Maternal and Child Health Centres, playgroups and other community groups, and parents' workplaces.

While there are a number of state-wide programs promoting active transport to school, there are also many smaller programs being developed (often modified versions of larger programs to suit particular contexts and communities), which are often implemented at a Local Government level with a cluster of schools. These programs also have some success but face challenges in maintaining longer term delivery due to uncertainty in relation to staffing and ongoing funding. Furthermore, given the volume of community-wide and school-based programs currently being conducted to promote active transport across Victoria, it would provide useful information for those looking to encourage children's physical activity and mobility, such as Local Government and program planners, if current programs were appropriately mapped and evaluated.

Structural barriers to promoting children's independent mobility

Workshop participants identified a number of barriers to promoting children's independent mobility that were not identified in the previous phases of the research. These included policies and legislation, urban planning, lack of programs focussing on all forms of children's independent mobility (active transport to school *and* other destinations, free play), lack of information for parents about appropriate levels or stages of independence for children, and overly negative media messaging. Participants also highlighted the need to employ more technological applications in future initiatives to promote children's independent mobility and physical activity. Further details are provided below.

Existing policies and legislation were often in conflict with attempts to facilitate independent mobility, active transport and physical activity for children. In particular, local laws and Occupational Health and Safety policies were often restrictive and prohibitive. For example, children attending after school care must be signed out by adult, meaning that older siblings cannot collect younger siblings and walk them home. Many schools are locked outside of school hours, restricting the use of school facilities (e.g. play equipment, ovals) by the broader community, including children to use for free play. There are age recommendations for children to independently walk (10 years)[40] and cycle (12-13 years)[41] near traffic, and there are highly publicised legal implications for parents who allow their children to be independently mobile[42-44]. The tension between legislation which tends to favour risk aversion, and the promotion of children's independence, was seen to cause confusion and conflict for parents, schools, Local Government and community workers.

School zoning was identified as another legislative barrier to children's independent mobility. School zoning is not commonplace among all Victorian primary schools, meaning that children can attend schools that are a great distance from home. This can restrict active travel to school by making walking or cycling to school unattractive or unachievable due to distance, and necessitates driving or public transport use. Workshop participants suggested that school zoning policy should be encouraged or compulsory to address this barrier.

Urban planning can be a facilitator or a barrier to independent mobility. Good urban planning facilitates easy walking and cycling to major local destinations, and provides access to quality green space to support community wellbeing. It also facilitates the provision of spaces and places for the community to get together, to meet and see other adults and children on their journey in the neighbourhood, thereby creating social connectedness and capital. This increases the perception of safety as more people are out and about on the streets. Urban planners who usually design communities for 'walkability' and ease of movement for active transport, often find their designs are not supported in the end stages (i.e. the value is placed on motor vehicles over pedestrians and cyclists). Urban design that is centred on car travel makes safe walking and cycling difficult, particularly for children.

Opportunities to support parents and children

Participants emphasised the importance of children engaging in non-structured and creative play in their neighbourhoods for overall health, as well as highly structured and supervised school-based activities. They highlighted that children enjoy contact with nature and the social side of independent play, so opportunities for unstructured play are important. Participants could not identify any current programs that aimed to specifically address or promote children's independent mobility more broadly than just active transport to school, such as travel to destinations other than school, or free play.

There was considered to be a lack of information provided to parents about the value of independent mobility and unstructured activities for children's resilience, risk management skills and socio-emotional development (e.g. responsibility, confidence and sense of identity). It was identified that parents may also benefit from information to guide them in determining their child's readiness for greater independence. Participants agreed that messaging around children's independent mobility needs to target both parents of school-aged children, who need practical, relevant information in the short-term, as well as parents of younger children (below the age of five), who need information on the benefits and stages of independence to support them to enable and promote independence in a range of activities earlier on (e.g. performing daily tasks for themselves such as dressing; playing in the garden unsupervised). Participants emphasised the importance of providing parents of young children with information on how to increase children's independence and why, considering that family routines are often deeply entrenched by school age.

Participants acknowledged that parents and children often have low levels of physical activity, and many do not participate in active transport in their neighbourhood. Therefore, many children lack the skills required to walk or cycle in the neighbourhood, including skills for cycling in traffic, awareness of road rules and familiarity with the neighbourhood. Parents are often not confident in their child's ability to safely negotiate the journey to school and other destinations without an adult, and often perceive distance, traffic and safety risks to be greater than they actually are. Participants suggested

that parents and children walking and cycling together in their neighbourhood would help to alleviate some of these perceived barriers. In particular, parents' anxiety would be reduced if they could step through the transitions towards independent mobility with their child, and they would also become more familiar with their neighbourhood and better informed to evaluate any risks.

Workshop participants identified that parental anxieties about the potential risks of independent mobility are often heightened by media reporting, for example, near-abductions and approaches by strangers, and traffic accidents involving children. Current media messaging reinforces the risks to the community of children's independent travel and play, for example, highlighting incidences of potential 'stranger danger' and discouraging people from being alone in the neighbourhood. This is likely to impact on parents' decision making about their children's independent travel and play. Participants felt that the media tended not to publish positive stories related to children's independent mobility and physical activity, portraying an unbalanced picture for parents and the broader community about the risks and benefits of independent mobility on their children's physical, mental and social health and wellbeing. Participants suggested that media messaging should seek to encourage 'age-appropriate' independent mobility, supporting parents to weigh up the risks and benefits for children's independent mobility in context. Messaging could be delivered via multiple platforms or forums, such as news and social media, police, schools, and sporting groups.

Participants recognised the increasing importance of using technology to promote health and healthy behaviours with children. They suggested that health promoters should consider how new technologies can promote children's independent mobility, or further develop and disseminate existing iPhone and Android applications, such as VicHealth's "Team Up" and "Walk to School".

Overall, experts agreed that a multi-pronged, tailored approach addressing barriers at the individual, social and community, built environment and legislative levels was essential for effective and sustainable change.

Conclusions

This project examined the contribution of a broad range of factors, including parental fear, to children's independent mobility using a rigorous three-phase research design. It is the first research study in Australia to investigate this topic empirically, providing valuable, systematic evidence to address a prominent gap in the scientific literature.

This study had several notable strengths. A mixed-method approach was used, and data were collected from children, from parents and from key stakeholders with a variety of related expertise. The focus group and survey designs captured representative samples of parents, including mothers and fathers (although smaller numbers of fathers), and parents from metropolitan and regional locations across Victoria. Two new measures of parental fear were developed and validated in the course of this research – a first in the field. This ensured the accurate assessment of parental fear pertaining to their children's safety when they are independently mobile (rather than other parental concerns about children's wellbeing), and strengthens confidence that the findings and implications reported here are robust and reliable.

Nonetheless, several limitations must be acknowledged. Some parents were not well-represented in the survey, for example, fathers, single parents, or those with a primary language other than English. Study findings need to be confirmed in more diverse groups of parents. While a broad range of topics was covered in the survey, the questions were necessarily brief to minimise participant burden. Some of the items therefore may not have captured the full range of parents' experiences, such as daily family routines and time pressures. As the survey was taken at one point in time, temporal or causal relationships cannot be established. Longitudinal research is required to establish the likely reciprocal relationships between parents' fears and concerns and children's independent mobility.

There are several important implications arising from this research. Findings confirm that parental fear is associated with children's independent mobility, an important part of children's physical activity. Parents who are fearful are much less likely to let their children engage in independent travel or play. However, other factors are also important in parents' decisions to allow their children to be independently mobile, and targeting parents' alone is unlikely to reduce parental fear and generate greater independence in children. Study findings indicate that factors at the school, social, neighbourhood and community levels influence parents' fears and the degree to which their children are allowed to go out without an adult. The recommendations, informed by the three phases of research, indicate that a diverse range of strategies are required to build and promote supportive environments in which parents' can confidently support their children to move towards independence. Future research is required to develop, implement and evaluate specific interventions to meet the goals of the recommendations and strategies described here.

Recommendations

Based on the findings from the three phases of this research, and in order to promote age-appropriate and graduated children's independent mobility, a series of recommendations have been developed and are outlined at different levels (Figures 16-19). Areas for future research are also identified (see Box 3).

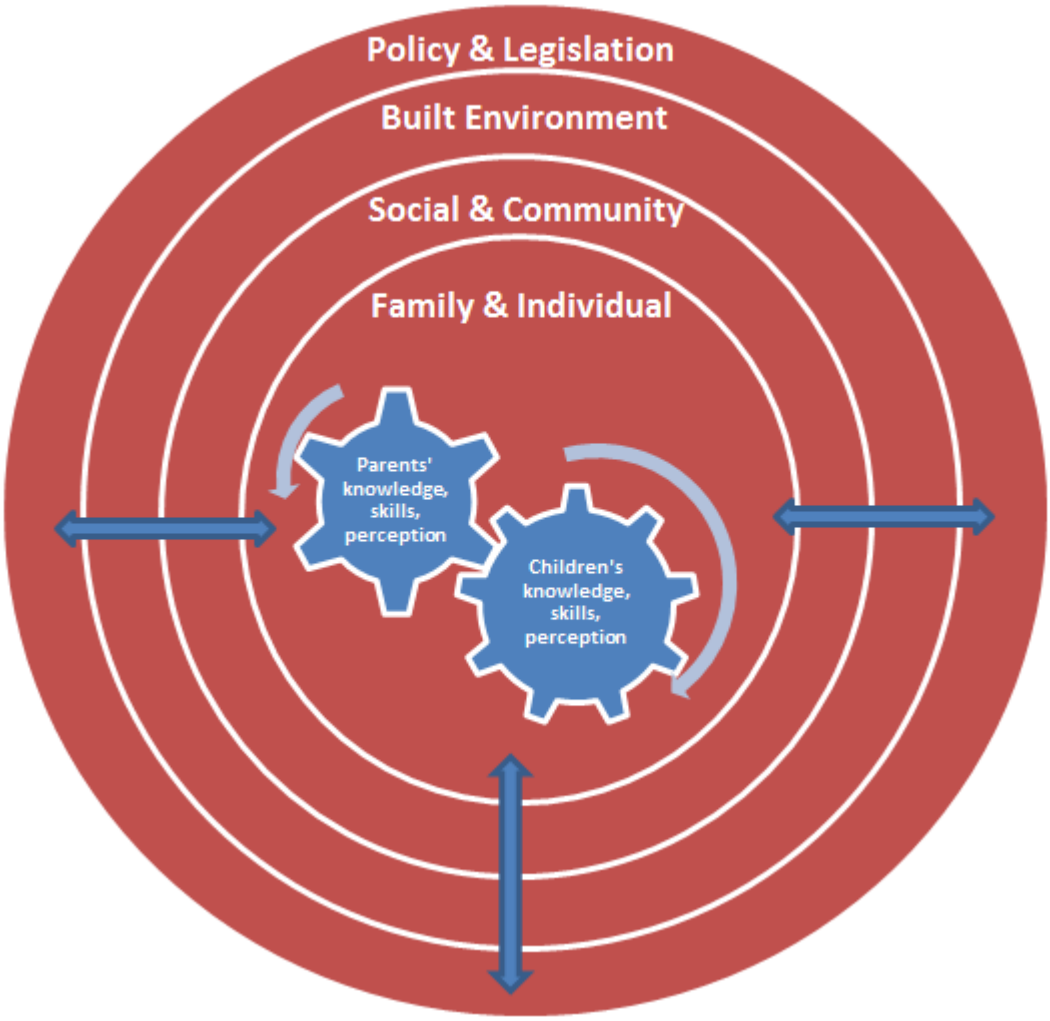


Figure 16. Recommendations at multiple levels to increase children's independent mobility.

Figure 16 highlights the multiple levels at which recommendations to increase children's independent mobility are made. At the centre of the model is the main process of interest, and the target of these recommendations; the interactions between parent and child that occur to enable the following outcomes: (i) a reduction in parental fear about the risks of children's independent mobility, and (ii) parents being more supportive of their child being independently mobile, ultimately resulting in increased independent mobility for children.

Our evidence shows that parents' were more likely to let their children travel and play independently when:

- They valued independent travel and play;

- They felt competent to support their child's independence;
- They perceived less social disapproval from friends, family members, or the school;
- They lived in communities where people knew each-other;
- There were fewer traffic and pedestrian hazards, and more children and adults walking; and
- They had less fear and worry about their child's safety.

Simultaneously, parents are influenced by their child's:

- Skills (e.g. cycling, road safety, knowing what to do if stranger approached);
- Child age, maturity, and responsibility;
- Gender, particularly during the teenage years;
- Perception and awareness of the neighbourhood; and
- Knowledge about their local places and local people.

According to the socio-ecological model, this core process is influenced by family and individual factors, society and community, the built environment and the policy and legislative context. Recommendations for each of the levels are outlined below.

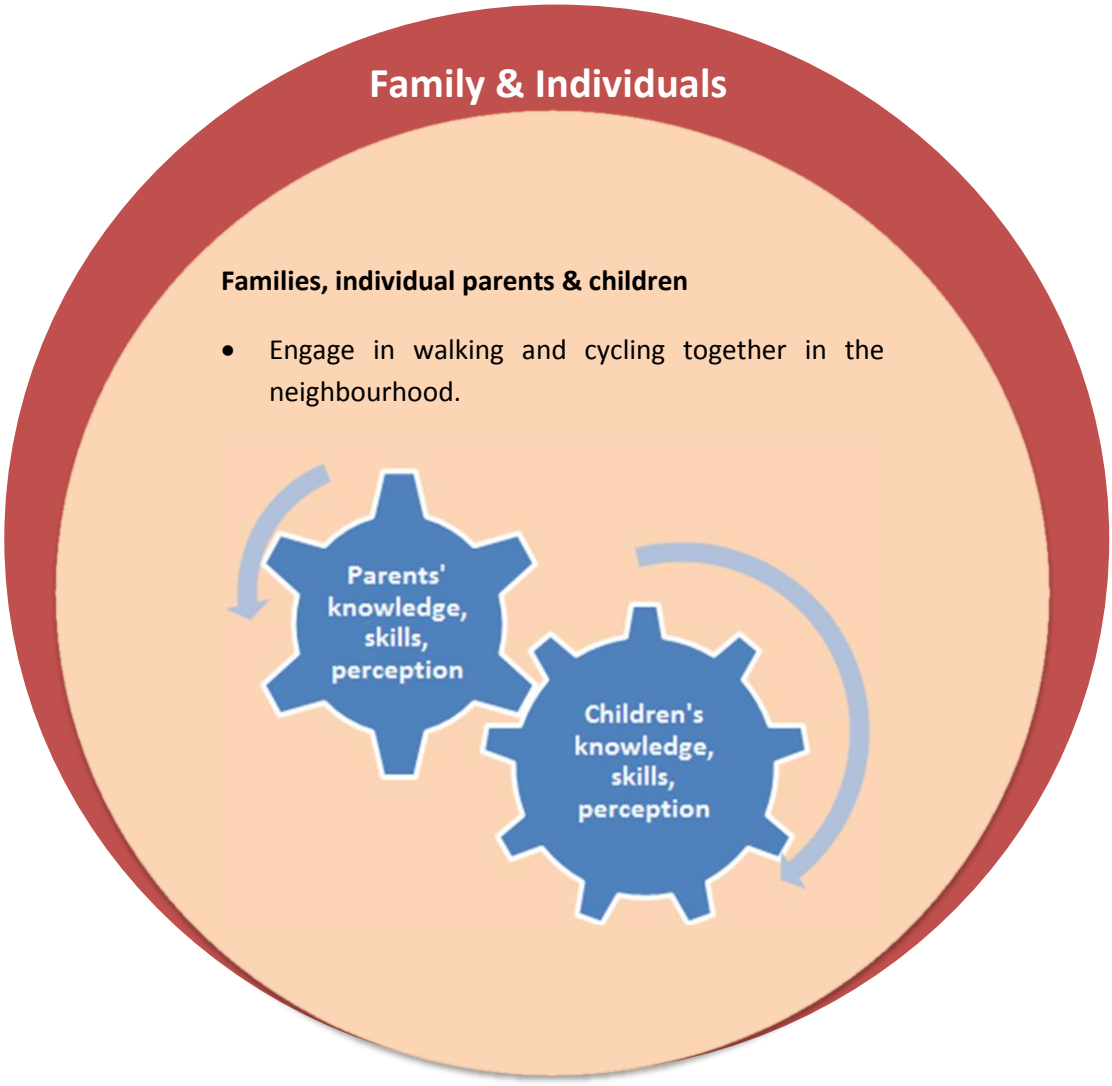


Figure 17. Recommendations aimed at families and individuals.

Recommendations for parents and children include:

- Support children to learn the necessary skills for safe travel and play (cycling skills, road rules, negotiating traffic). These skills might be taught in a one-off or short-term program, for example, Bike Ed at school. Skills need to be practiced for skill reinforcement and development, and to increase competence for safe travel and play.
- Encourage parents to observe their child's improving skills and behaviour in and around traffic.
- Parents modelling safe travel and physically active behaviours to their child, for example, walking/cycling in the local neighbourhood (to school, library, parks). This would provide an opportunity for parents to: practice and reinforce safe travel skills with children; discuss safety issues and strategies within a supportive context; observe and recognise improvements in their child's skills over time and with practice; and observe the environment in context (see Box 1 for recommendations regarding parent information).
- Parents can adequately assess the safety of the environment, potential risks (traffic hazards, lack of safe crossing points, footpaths) and previously perceived barriers (e.g. distance, time), and make a judgement about when their child is ready for staged transition from dependent

to independent mobility. Evidence-based tools to support parents' to make these judgements need to be developed and piloted.

- Encourage the use of mobile phones as a strategy to enable parents to support children's independence.
- Enable parents to make a plan with their children about possible strategies when things go wrong (e.g. getting lost, stranger approaches, they or their friends gets injured).
- Encourage these individual parent and child behaviours (e.g. practicing skills, modelling behaviour), which occur within the family context, to take place in unison and interact, to enable the desired outcome of increased independent mobility for children.

Recommendations for promoting children's independent mobility at the society and community level, and the built environment, policy and legislative levels are outlined in Figures 18 and 19, respectively.

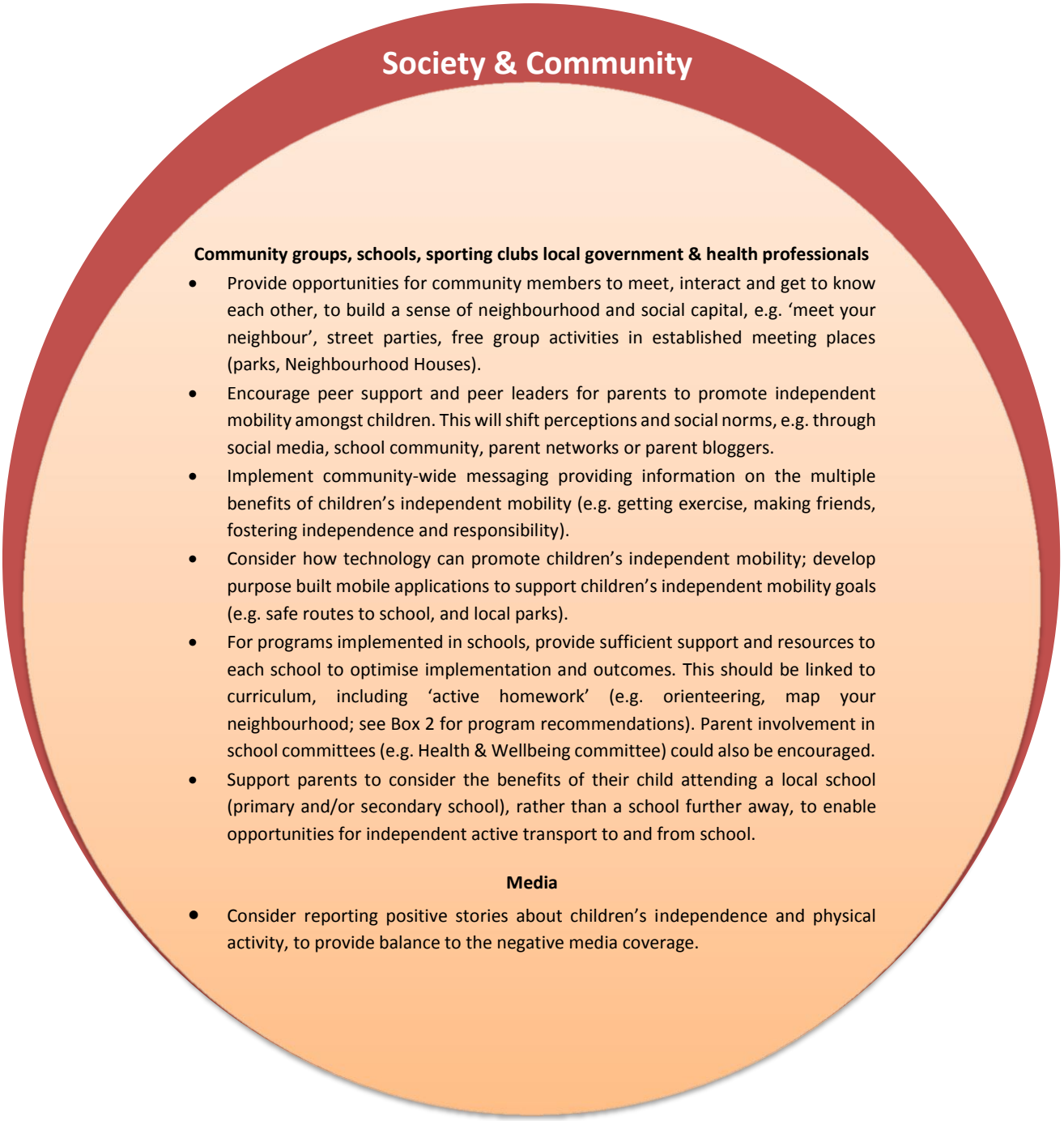


Figure 18. Recommendations aimed at the social and community level.

Figure 19. Recommendations aimed at the built environment, policy and legislative levels.

Parent education

Information for parents needs to include:

- Overview of the multiple benefits of independent mobility for children, particularly the benefits of unstructured physical activity, such as becoming more responsible, learning coping skills, making new friends, and getting exercise.
- Information on what level of independence is appropriate for different child stages. Children's independent mobility is a process, involving graduated independent mobility, and is based on maturity, skill and environment, and is not necessarily age-specific.
- Overview of the skills that children require to travel safely in the neighbourhood and beyond (e.g. road safety, responsibility and risk assessment).
- Emphasis on the importance of practicing travel skills with children prior to allowing them to travel independently. This teaches and reinforces the skills that children will need to travel safely. Furthermore, parent's exposure to children's walking and cycling alleviates a number of concerns about independent mobility, including concerns about children's walking, cycling and road safety skills, being familiar with the route, likelihood of risk and what to do if something 'bad' happened (e.g. being injured, approached by a stranger), actual travel time and distance, and actual norms.
- Ideas for negotiating the process of transitioning through the steps towards independent mobility with children, including setting milestones and boundaries.
- Awareness of cultural differences for each context, including the appropriateness and value of physical activity to different cultures.
- Addressing the perception of 'bad parents' and perceptions of judgement of those whose children are independently mobile.
- Opportunities to start early (e.g. Kindergarten, Maternal Child Health) with appropriate opportunities for parents to role model and observe children's independence.

Box 1. Parent education to assist with decision making for children's independent mobility.

Parent information and resources for parents and children could be delivered via a range of methods, but need to be selected to meet the goal of the health promotion strategy. These could include:

- School-based: newsletters, information sessions, assemblies or awards nights.
- Community events well-attended by parents (e.g. sporting events, swimming lessons, local gym or recreation facilities).
- Online applications: parenting websites (e.g. Raising Children Network; Better Health Channel); interactive apps to promote children's activity, map a route to school (e.g. Victoria Walks), connect with others who have shared interests (e.g. VicHealth's Team Up app; The Walk to School app); social media, parent bloggers.
- Through health providers including General Practitioners, Community Health Centres, Maternal and Child Health and Kindergarten providers.

Programs to promote children's independent mobility

Programs to promote children's independent mobility should consider the following:

- Programs implemented community-wide or in schools should:
  - Be flexible to allow tailoring to individual community contexts, for example, metropolitan vs regional areas.
  - Include a component to support independent mobility for different cultural groups.
  - Have some focus on parents, including providing parents with information to help with decision making regarding the staged transition from dependent to independent mobility for their child (see Box 1).
  - Include skill development training (e.g. bike riding, road safety) for children and highlight the importance of practicing these skills with parents.
  - Highlight the multiple benefits of independent mobility.
  - Make independent mobility fun for children, by using technology, holding competitions and providing incentives (e.g. free bikes, helmets).
  - Provide sufficient funding, support and resources to ensure the program components are implemented adequately. This includes linking the program to the school curriculum where appropriate, for programs implemented in schools.
  - Align with principles of good health promotion interventions: be evidence-based, feasible, scalable and likely to effectively address modifiable barriers.
- Consider opportunities to promote children's independent mobility beyond active transport to school, such as opportunities through sports clubs and community centres.

Box 2. Recommendations for programs aiming to promote children's independent mobility.

Recommendations for future research

Findings from this study highlight opportunities for further research, including:

- Policy and legislative mapping and analysis to determine which policies affect children's independent mobility in the Victorian context, and to minimise legislative barriers to children's independent mobility.
- Develop evidence-based approaches to support parents to facilitate their children's independence in the context of children's development; and to recognise signs of children's readiness.
- Mapping of current programs to promote children's independent mobility, and evaluations of their effectiveness and sustainability. This will ensure that resources are directed to effective programs proven to promote independent mobility.

Box 3. Recommendations for future research.

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- Professionals who participated in the expert workshops.

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