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Where do children usually play? A qualitative study of parents' perceptions of influences on children's active free-play

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Abstract

This study explored the perceptions of 78 parents from low, mid and high socio-economic areas in Melbourne, Australia to increase understanding of where children play and why. Using an ecological model interviews with parents revealed that safety and social factors emerged as key social themes, facilities at parks and playgrounds, and urban design factors emerged as important physical environment themes. The children's level of independence and attitudes to active free-play were considered to be important individual level influences on active free-play. The study findings have important implications for future urban planning and children's opportunities for active free-play.

Keywords: Ecological model; Physical activity; Independent mobility; Environment

Introduction

Physical activity has been shown to be important for children's immediate social, mental and physical health, as well as protective to health across the lifespan (Boreham and Riddoch, 2001). Despite the importance of physical activity to health, low levels of fitness (Tomkinson et al., 2003) and recent declines in active transport such as walking and cycling to school (Carlin et al., 1997) have been reported among children in many developed countries. Australian data suggest that 20–25% of adolescents are not sufficiently active to confer health gains (Booth, 2000). Low levels of physical activity have also been observed in the US and the UK (Centers for Disease Control and Prevention, 2002; Reilly et al., 2004). Rising levels of obesity (Wing et al., 2001; Vincent et al., 2003) and increased incidence of diabetes and other diseases of sedentary living (Zimmet et al., 1997; Wing et al., 2001; Trost, 2003) provide further rationale for investigating children's physical activity.

Opportunities for children's physical activity include participation in structured activities, such as physical education at school and in organised sports teams, as well as less structured activities such as walking and cycling to school and active free-play (Pangrazi, 2000). Time spent outdoors is one of the most consistent predictors of children's physical activity (Sallis et al., 2000). It could be argued that among primary school-aged children, active free-play or unstructured physical activity that takes place outdoors in the child's free time may potentially be the major contributor to children's physical activity (Burdette et al., 2004). For example, an observational study in the US found greater amounts of physical activity amongst pre-school children occurred as active free-play rather than structured activities

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(Bailey et al., 1994). A greater understanding of active free-play and the individual, social and environmental influences on these behaviours may be critical to the promotion of children's physical activity.

The locations in which children engage in most of their active free-play and the influences on their choice of location and activity are largely unknown. A better understanding of where children play and why, is important because it may inform opportunities to promote children's physical activity. An Australian study in which 8–12 year old children took photographs of their after-school play activities, showed that 53% of play occurred within the home grounds, 24% occurred in open and natural areas, 17% occurred in parks and playgrounds and 6% occurred in the street (Cunningham et al., 1996). Similarly a study of 421 children aged between 5 and 12 years in urban Australia asked children where they liked to play (Tandy, 1999). A large proportion of children (59%) reported their preferred play space was at home or at a friend's home, 23% preferred to play at the park and 9% in the street (Tandy, 1999). These findings, however, are based primarily on quantitative data, and do not provide insights into contextual influences on children's use of different play spaces. In addition, these previous studies included only children from urban areas and mid socio-economic status (SES) backgrounds. Further research into the influences on active free-play among children from a range of socio-demographic backgrounds is required.

Theoretical models provide a useful framework within which influences on children's physical activity can be examined. Few studies however have utilised a theoretical approach to explain children's active free-play. Ecological models provide a comprehensive framework within which to examine children's active free-play (Sallis et al., 1997). This conceptual model suggests that there are unique interactions between individuals and their social, policy and physical environments. For example, this model might posit that children's physical activity is influenced by their friendship groups, their access to quality safe places to play, and local government policy regarding park use. Despite the increased recognition of these influences the ecological model has only recently received attention as a useful framework to guide our understanding of physical activity behaviours, thus the constructs are not yet clearly elucidated. However, one study that did apply an ecological model examined the factors that parents considered in selecting play spaces for children (Sallis et al., 1997). The major factors reported by parents were safety, and the availability of toilets, drinking water, lighting and shade. Parents are important gatekeepers of children's physical activity and it may be that opportunities for children's active free-play are restricted due to parental concerns regarding safety and other factors (Blakely, 1994; Evans, 2000). A better understanding of parental concerns and other influences on children's active free-play may guide the development of intervention and policy strategies aimed at promoting physical activity amongst this important target group.

This study aimed to investigate where children play and why, by exploring parents' perceptions of the individual, social and physical environment influences on their child's active free-play. As little is known about the influences on children's active free-play, a qualitative approach was considered most appropriate. Qualitative methods have been shown to generate rich data and provide an opportunity to gain important insights into poorly understood areas (Ritchie, 2001). An ecological model was selected to guide this study in order to broaden understanding of both individual and environment influences on children's active free-play.

Methods

This qualitative study involved face-to-face interviews with parents from a selection of school populations. The interviews were designed to examine a range of issues relating to children's out-of-school hours active free-play. Ethics approval was received from the Deakin University Ethics Committee and the Department of Education and Training, Victoria. Informed consent was obtained from all participating parents.

Participants

Seventy-eight parents from five primary schools representing a range of SES areas of metropolitan and outer-urban Melbourne participated in the interviews (20 parents from a high SES area; 35 from a mid SES area; and 23 from a low SES area). The area described as outer-urban Melbourne is on the outskirts of the metropolitan area but not classified as regional.

As children from low SES areas are at particularly high risk of inactivity (United States Department of Health and Human Services, 1996), purposive sampling was used to ensure that children from a range of SES backgrounds were represented. Schools were selected from areas of different SES, using the Socio Economic Index for Areas (Australian Bureau of Statistics, 1996). SES ranking of schools was confirmed using the "like" school group ranking (Department of Education and Training, 2002). This ranking categorises schools in Victoria, Australia, into nine groups based on the demographic background of their students, for instance, the proportion of students receiving Government education benefits, a means-tested welfare payment (Department of Education and Training, 2002). Two schools from low SES (like school groups 7–9), two

schools from mid SES (like school groups 4–6), and one school from high SES (like school groups 1–3) were included in the study.

Recruitment of parents with children attending these schools was standard across all schools and occurred primarily from a notice, seeking participants, that was placed in the school newsletter. Snowball techniques were also used to recruit additional parents. All parents who participated were required to have at least one child attending the school in grade one through to grade six. This was the only selection criterion that determined suitability for participation. In instances where a parent had more than one child in grades 1–6, parents were asked to answer on behalf of one randomly selected child.

Materials

The ecological model guided the development of questions designed to assess a range of influences on children's active free-play, including influences at the individual level (e.g., child's attitude towards and preferences for play), social environment level (e.g., network of friends living nearby home) and physical environment level (e.g., availability of backyard space, urban design and access to public open space).

A semi-structured interview schedule was developed for this study. Parents were asked to report where their child usually played outside of school hours. For the purpose of our interviews public open space was defined as parks, playgrounds, ovals, public outdoor netball/basketball courts, or other freely accessible recreational open spaces. Open-ended questions were designed to explore, from a parent's perspective, a range of issues about their child's out-of-school hours activities. The main topics covered included: what the child usually did after school and on weekends; their child's independent mobility and active free-play around the neighbourhood; their child's use of play space, including frequency and timing of visits, transport, attitudes to and impact of that space on the child; and the barriers to use of that space.

Prompts were used where necessary to encourage more detailed responses. Key demographic questions were asked at the end of the interview, including parents' level of education, marital status, and dog ownership.

Procedure

One of four trained female researchers individually interviewed the participants. All interviews lasted approximately 30–45 min and were conducted in a quiet room at the school that the participant's child attended. With the participant's permission, a small cassette recorder was used to record each interview. Participants in the study were presented with a $20 gift voucher at the end of the interview in recognition of and gratitude for their time.

Data management and analysis

All interview data were transcribed verbatim. Analysis of data was based on an examination of participants' responses to each question. Two researchers reviewed the transcripts to generate a series of coding categories and sub-categories based on the aims of the study and the themes that emerged. A random sample of ten transcripts was cross-coded to check for inter-coder agreement. These codes were then applied to all transcripts using the qualitative software package NVivo (QSR International, 2002). This package was used to facilitate analysis of data and themes, and identification of relevant quotes.

Responses based on the main themes and sub-themes to emerge from the interviews are described, with illustrative quotes drawn as examples from the raw data. The quotes provided are verbatim responses from the mother or father of the child in the study. This study did not aim specifically to investigate influences of SES or age differences on children's active free-play and therefore results have not been presented separately for each SES or age group; however, issues that arose and seemed unique to these groups are noted.

Results

The socio-demographic characteristics of the sample are presented in Table 1. Over 90% (72/78) of the parents interviewed were mothers, 79% were married, and the majority (88%) had either two or three children. The average age of the child about whom the parent responded was 8.3 years (± 2.1).

This study aimed to identify where children typically play and why. Parents were asked where their child usually played in their free time after school or on weekends. Multiple responses as to where the child usually played were possible. The most frequently reported location for children's active free-play was the yard at home (74%). More than one-third of parents reported their child usually played in the street and a similar proportion of parents reported their child often played in public open spaces such as a park, playground or the bush or river for children in the outer-urban areas of Melbourne. Other play places, such as the swimming pool or school-yards were mentioned but they were not the child's usual or habitual place to play.

From the analysis of the data a range of issues on the influences on children's active free-play emerged. These have been presented as six major themes (refer to

Table 1
Socio-demographic characteristics of interview participants

	Overall % ($n = 78$)	Low SES[a] % ($n = 23$)	Mid SES % ($n = 35$)	High SES % ($n = 20$)
Parents gender				
Female	92	83	100	90
Male	8	17	—	10
Parents age				
25–29	3	—	6	—
30–34	19	22	20	15
35–39	29	30	29	30
40–44	35	35	31	40
45+	14	13	14	15
Parents marital status				
Single	3	4	—	5
De Facto	9	9	14	—
Married	79	74	74	95
Separated/widowed/divorced	9	13	11	—
Parents level of education				
Some high school	31	65	23	5
Completed high school	15	9	23	10
Technical or trade school certificate	18	22	14	20
University or tertiary education	36	4	40	65
Total number of children per family				
1 child	8	9	6	10
2 children	55	56	60	45
3 children	33	26	31	45
4 children	4	9	3	—
Gender of selected child				
Female	53	52	51	55
Male	47	48	49	45
Average age (±SD) of selected child	8.3 (±2.1)	8.3 (±1.6)	8.9 (±1.6)	8.3 (±1.7)
School grade of selected child				
Grade 1–2	44	48	37	50
Grade 3–4	33	30	31	40
Grade 5–6	23	22	31	10
Child a user of public open space				
Yes	67	52	77	65
No	33	48	23	35
Dog ownership				
Yes	59	91	54	30

[a]Based on measures of school and area level SES.

Table 2) and include: safety, child's level of independence, child's attitudes to active free-play, social factors, facilities at parks and playgrounds, and environment and urban design factors.

Theme 1—Safety

Throughout the interviews the most frequently reported factor influencing where children played was parent concerns regarding their child's safety (94% parents). Parents' issues about the safety of their children playing in places other than their own yard were mostly influenced by concerns surrounding strangers, teenagers/gangs, and road traffic en route to the place of play. These safety concerns seemed to limit the number of places available for children to play at.

> My main concerns regarding park use by my child are strangers, syringes, and main roads on the way there (parent of boy aged 9, low SES).

> My only concern about public open space is their safety in getting there by themselves. I'm quite happy for them to be there by themselves, it's more thinking of a safe route (parent of girl aged 10, high SES).

Table 2
Main themes emerging from parents' interviews

Main theme	Description/examples
Safety	Factors relating to children's safety including strangers, teenagers, syringes, traffic and personal accidents.
Level of independence	Ability of child to go places in their neighbourhood without adult supervision.
Attitudes to active free-play	Individual preferences and positive and negative attitudes towards active play and particular play spaces from children and parents.
Social aspects	Impact of friends, neighbours, teenagers and gangs on children's play.
Facilities at parks and playgrounds	Provision of public open spaces including parks, playgrounds, sports ovals within a child's neighbourhood and the impact of factors such as access and facilities to use.
Environmental factors/urban design	Elements of urban design of the local neighbourhood and the physical environment of the home that influence choice of place for active play.

A high proportion of parents (58%) reported safety concerns regarding strangers.

> I don't let them play in the street. It's not a busy street, I'm just not comfortable to let them out there …. stranger danger I suppose (parent of girl aged 6, mid SES).
>
> The way the world is today, you don't let them play out in the street. It would be nice to let them just run around as we used to do, but you can't anymore (parent of boy aged 7, mid SES).

Parents also reported that the presence of teenagers at parks were a deterrent to their child's use of parks and playgrounds. These concerns about teenagers were particularly evident among parents from low and mid SES areas. For example, more than one-third of parents from low and mid SES areas expressed safety concerns about teenagers loitering in parks, compared to just 10% of parents from high SES areas. The parents from low and mid SES areas explained that teenagers often used parks as places to congregate in groups and be involved with undesirable behaviours such as bullying, swearing, drinking alcohol and in some parks taking drugs. In one low SES area, there was only one park available in the entire area and that park was often dominated by groups of teenagers. Thus, for the children in that neighbourhood there was no park that parents considered 'safe' for their child to visit. The children in this area therefore seemed to spend more time at home or at friends' houses or even in the bush and river, as they were living in the outer-urban area where there were more natural open spaces.

> A lot of the teenagers use the park as a place to hang out and they're drinking and swearing and all that. Quite openly drinking and they don't even bother to hide it (parent of girl aged 10, low SES).
>
> The skate parks that have bike paths as well, they're always taken over by the teenagers, and I had a terrible run-in one day with a youth there, and he was swearing at me and it was awful. I had to leave with the kids, coz my son loves skateboarding and riding his bike, but these older kids just take them over, and they're not safe and they're not good environments for the children coz they're swearing their heads off. Yeah, so I've found that a big problem. He would go there every week, I think if that was possible (parent of boy aged 7, mid SES).

Safety concerns were not just limited to strangers and teenagers. The negative impacts of parents' safety concerns were also reflected in the decreased opportunities for active free-play amongst children who lived in main or through streets compared with children living in courts or cul-de-sacs. More than 80% of families lived on a main or through street and of those families, only half of the parents reported allowing their child to play on the street.

> Our street is not very safe because there are so many cars and I never allow them to play in front of the house (parent of boy aged 8, high SES).

In contrast, all participants that lived in a court or cul-de-sac (12 families) stated that their child played out on the court regularly and that they considered their court a 'safe' place for their child to play. Children living in these locations were therefore more likely to play independently and unsupervised by adults.

> Yeah they play in the court and it's a pretty community orientated court, like we all know each other and look out for each other's children. We can honestly let her go out the front and play, and not

have to worry that we've got to be out there too. It's pretty good like that (parent of girl aged 9, mid SES).

Among families not living in courts, children seemed to play in the streets mainly if the parents perceived their street to be quiet, or sometimes children played in nearby courts or streets that were more suitable for outdoor play. An interesting observation was that there appeared to be strong social norms regarding parents' allowing their children to play in the street and at times disapproval of parents who allowed their child to do this was expressed.

I've got neighbours that let their kids play on the road and it's disgraceful (parent of boy aged 6, low SES).

The type of immediate environment in which children live, however, may mediate parent's perceptions of what is socially acceptable. For example, the majority of parents that lived in quiet through streets or courts allowed their child to play in their own street, and generally found it a convenient option for active free-play.

Theme 2—Level of independence

Children's level of independence, as reported by their parents, was one of the key perceived influences on their ability to play in places away from the home. Compared with parents of younger children (6–8 years), parents of older children (9–10 years) more often reported that they allowed their child greater independence, such as permitting them to walk or cycle to a friend's house or to visit a local park without parental supervision. Seventy per cent of parents reported that children in the younger primary school years had limited independence, and were unable to visit parks or ride their bicycle around their neighbourhood, for example, without adult supervision. Younger children were often reportedly dependent on their parents having the time and the motivation to take them to other play spaces such as parks. This dependence by younger children on the availability of an adult was one of the most frequently mentioned barriers to park use.

We can get to parks but it's having the spare time to get there because she has to go with me. I wouldn't let her go on her own (parent of girl aged 7, mid SES). It all comes down to how busy I am at the time. Because there's no way I'd let him go to parks by himself (parent of boy aged 6, mid SES).

Owning a dog appeared to provide the child with a certain level of independence. More than half of the families (59%) owned a dog, and those who did stated that their child walked around the local streets to take the dog for a walk, took the dog to the park or played in the yard with the dog. In some instances the only times children were allowed to walk around their nearby streets without adult supervision was when they were walking the dog.

She takes the dog for a walk every morning, three times up and down our street—she's allowed to do that by herself (parent of girl aged 8, mid SES).

Theme 3—Attitudes to active free-play

Children's attitudes were raised by parents as key influences on their child's choice of free-play activity. Throughout the interviews parents often described their child as either an "indoor kid" or "outdoor kid". Parents of children that rarely played outdoors, often made comments like, their child would prefer not to play outdoors, or was not an "outdoors child". As reported by parents, the activities that were most commonly undertaken by the "indoor kids" were, for the boys, generally television, video or computer based; and for the girls drawing or playing with friends.

They are not really indoor kids, they will play outdoors a lot of the time (parent of boy aged 11, mid SES).

Under most circumstances he would not choose to play outdoors… . It is not his preference, even on a nice day, to be outdoors (parent of boy aged 10, high SES).

He's got other things he prefers to do. If I let him, he'd watch TV all the time (parent of boy aged 10, mid SES).

Theme 4—Social aspects

Social networks were frequently raised by parents as having a significant impact on their child's active free-play. For example, 40% of parents perceived that absence of neighbours or nearby friends to play with seemed to be a very important influence on their child's outdoor play. Parents commented that their child was more likely to play in their yard or in their street, or were more likely to go to parks or other public open spaces, if they had siblings or friends to play with. This was evident amongst all SES groups. Among children living in courts or cul-de-sacs, parents reported a strong community-oriented network between neighbours whereby the children would often play together in the court or cul-de-sac.

They are outside more if they've got kids to play with (parent of girl aged 11, mid SES).

Lack of company is the main thing that restricts her ability to play outside. It's always an issue for us (parent of girl aged 10, high SES).

If the weather is good they can play outside every night until 6 o'clock. It just depends if all the kids are around. We've got three or four families and they have all got young children so they all play together up in the court (parent of boy aged 8, low SES).

We've got a big back garden but they'd rather play out in the street because it's a small cul-de-sac and all the kids sort of come out and play (parent of boy aged 7, mid SES).

Theme 5—Facilities at parks/playgrounds

Approximately half of the parents raised concerns about the play equipment in playgrounds or parks. The most common complaint was that play equipment was designed for toddlers and younger children and older children found parks boring because there was no equipment that appealed to them. In families with more than one child this could ultimately affect the younger child's use of parks, as some parents would only go to a park if all children were happy to go. Parents reported wanting a range of stimulating play equipment that was challenging and appealing for children of all ages. Parents seemed quite prepared to drive some distance to a park if they knew that their child would be happy and occupied once there. In addition to improved play equipment, parents expressed a desire for bike paths, picnic facilities, clean toilets, shade and open space.

I guess that there's not enough equipment to interest older children. I don't mean teenagers but at ten years, X has to come with us, as he's not old enough to be left at home. So every time you want to go it's an argument because he's just not that interested. Whereas a couple of years ago they were begging me to go, both of them (parent of boy aged 10, high SES).

At X park they've made this sort of wooden wonderland, there's like ramps, fortresses, towers and a few musical things they can play on. They're just really good. It sort of gets their imagination going, and you can play hide and seek in it really well because there's so many little hiding places and lots of climbing stuff… (parent of boy aged 7, mid SES).
We want to go to parks that are interesting. The closest park, we can walk to, but it does not interest my kids. It's a big park but the play equipment is too small and it only caters for younger children, 7–8 year olds are not challenged there. If it's a good park we don't mind the drive there. But a lot of parks are similar because they're from the same manufacturer and there's no competition. There needs to be a challenge to build certain things that makes a park more interesting and provides both a physical and intellectual challenge (parent of boy aged 8, high SES).

Theme 6—Environmental factors/urban design

Respondents who lived in a court or had a large backyard appeared to perceive the proximity to public open space as less important. Having a small yard, no yard at all, or a yard that did not allow the child to do what they would like to when they were outdoors, seemed to influence whether the child played in their yard. Parents who lived in a court mentioned that they were less dependent on nearby public open spaces as it was easier to have their child play in a court than take him or her to a park.

Nothing really restricts her ability to play outside coz we've got a good sized backyard and the court's really safe (parent of girl aged 9, mid SES).

I guess because we've got the court, it's not overly important to have parks (parent of boy aged 10, mid SES).

Public open spaces are very important because backyards are getting smaller and smaller (parent of boy aged 6, mid SES).

Regardless of how close (or far away) the public open space was to the child's home, parents reported that their child's use of public open space was influenced and often restricted by the following: the need to cross busy roads; nearby parks not satisfying children's needs; and having to drive to get to a desirable park.

Well X reserve is only down the road, it would only be a 5–10 minute walk, but it's not safe for them as there are busy roads to cross. My sister lives next door to a park. It's just a little one but their kids go there all the time coz it's so close, and if we were in that situation I would, but we don't have that situation (parent of boy aged 10, mid SES).

It is good to locally be able to walk to open spaces. So having parks locally, like really locally, that aren't necessarily the great big parks with every equipment, just having some space really locally that you can get to easily without getting into the car all the time I think is really important and does make a difference to how we can use our recreation time (parent of boy aged 7, high SES).

Discussion

This study aimed to identify where children play in their free time. Parents are potentially important mediators of children's physical activity, and the qualitative methods employed in this study allowed for in-depth exploration of their valuable perceptions. Parents identified that their children usually engaged in active free-play in the yard at home or at a friend's/neighbour's house, the street, and local parks. The range of usual play places for children living in outer-urban areas extended to include other public open spaces such as the bush and river. Overall, our findings suggest that opportunities for outdoor play and independent mobility may be quite limited for many children. The major issues that parents considered to have the most impact on their child's active free-play included: safety concerns; the child's level of independence; social aspects; attitudes to active free-play; facilities at parks/playgrounds; and environmental/urban design. Parents most often raised issues relating to safety and child's level of independence when discussing their child's use of public open spaces. These issues are inter-related as parental safety concerns are the main factors that restrict children's level of independence and when combined these factors appear to limit children's ability to play in places away from home and be independently mobile. This limited number of play spaces available to children may affect opportunities for physical activity and overall activity levels.

In the present study, children's opportunities for active free-play were impeded by parental safety concerns mainly regarding fears of strangers, teenagers/gangs, and road traffic. A previous study involving 70 parents of 8–11 year old children found that children's active free-play was limited mainly by parental safety concerns, about strangers and road traffic (Valentine and McKendrick, 1997). Tranter and Doyle (1996) argue that a reason for children's lost opportunities for active free-play is the changing function of residential streets, with streets now acting as a barrier rather than a resource for children's active free-play. The current study identified road traffic, particularly among families living in through streets, as a major concern for parents.

Children living in courts or cul-de-sacs appeared to have greater autonomy for active free-play because parents perceived their court to be a safe place for children to play and as such, courts were used regularly as a play area. Literature regarding adult physical activity suggests that connecting streets and through roads, not cul-de-sacs, are important for promoting walking among adults (Saelens et al., 2003; Owen et al., 2004). Connecting or through streets appear to create an environment that is perceived by parents as unsafe for children to play in and this may be detrimental to children's active free-play. The use of courts or cul-de-sacs for children's active free-play may therefore be an important finding that requires careful consideration by urban planners. A compromise might incorporate a walkway at the closed end of the cul-de-sac that connects through to other streets for ease of pedestrian access.

There was a high level of concern among parents from low SES areas in this study regarding teenagers loitering in parks and other public open spaces. This finding is consistent with findings from a previous qualitative study of the perceptions of 20 teenagers living in a low SES neighbourhood in Melbourne, Australia (Malone and Hasluck, 2002). Interviews with teenagers in that study revealed "a sense of boredom with the social, physical and educational environment" (Malone and Hasluck, 2002). In the present study, some parents commented that there was nothing else for the teenagers to do and their behaviour was a result of boredom. Together these findings highlight the need for environments that are supportive for teenagers, particularly in low SES areas where youth may be at the greatest disadvantage with limited ways to occupy themselves in their free time.

Concerns about safety were most frequently identified by parents as the greatest impediment to their child's independent mobility. Perhaps not surprisingly, a greater proportion of parents with younger children reported restricting the independent mobility of their child compared with parents of older children. This is consistent with findings from the UK in which a study of over 900 parents with children aged 7–15 years found that older children had greater freedom and independent mobility than younger children (Hillman et al., 1990). A more recent study of 251 mothers with children aged 7–12 years found that among children with limited independent mobility, their access to outdoor play spaces was restricted to the child's own yard or a neighbour's yard, or the street/footpath directly outside their home (Prezza et al., 2001).

The current study findings suggest that children with limited independent mobility (limited ability to walk or cycle around neighbourhood unaccompanied by an adult) are restricted in their ability to access public open space and consequently are dependent on their parents having the time and motivation to take them to places to play. This is supported by an Australian study which suggests that parental concerns about traffic and pedestrian safety were negatively associated with children's walking and cycling in their neighbourhood (Timperio et al., 2004). In addition, other studies suggest a significant loss of independence among children in the UK in recent years, with a decline in the proportion of children aged 10–11 years allowed to travel around local areas unaccompanied (Pooley et al., 2004).

From the interviews we conducted, the presence of nearby children to play with seemed to be a very important determinant of outdoor play. Parents indicated that their child was much more likely to play outdoors if he or she had friends or other children their age to play with. In a recent study by Hume et al. (2005), 147 children aged 10 years were asked to draw maps of their local neighbourhood and a sub-sample of 44 children took photographs of places in their local neighbourhood that were important to them (Hume et al., 2005). The importance of social interaction was highlighted by the finding that many children drew and took photographs of locations in the neighbourhood that were common meeting places for themselves and their friends. The importance of children having someone to play with is consistent with studies of social support among young adults (Leslie et al., 1999) and adults (Ball et al., 2001), which have found people are more likely to be physically active if they have someone to be active with.

According to ecological models, individual level factors, as well as social and physical environment factors, may influence behaviours such as physical activity (Owen et al., 2000). The results of the present study showed that child preferences were also perceived to influence a child's active free-play (e.g., some children were simply not interested in outdoor active free-play). It suggests that some children may not be motivated to play outside, regardless of whether they have friends to play with, a large backyard, or a good quality park nearby. With greater access to computers and TV at home (ACNielsen, 2000), the opportunities for children to choose these sedentary options outside of school hours has increased. While this study did not examine sedentary behaviours in depth, some parents did report that their child would prefer to be indoors watching TV and playing electronic games than playing outdoors.

Having good quality public open space was perceived by parents to be an important influence on their child's active free-play. Parents reported that if a good quality park was nearby they were more likely to take their child to that park. The importance of interesting and age-appropriate play equipment reported by parents in this study was also evident in a recent study by Cunningham and Jones (1999) in which 26, 10–13 year old children wrote short essays on the importance of play. When the children were later asked why they rarely mentioned playground equipment in the essays the children responded that, "they did indeed appreciate good equipment but a lot of it was boring" (Cunningham and Jones, 1999). Many parents in the present study perceived that play equipment at parks was often more suited to pre-school aged children and was not viewed as interesting or challenging by the older children. This has important implications for future design of playgrounds. In recent years, playground design appears to have focused on child safety, with the consequence being somewhat sterile and uninteresting play equipment. Playground engineers may therefore need to revisit playground equipment design so that parks and playgrounds are interesting for a wider age group of children whilst also remaining safe.

Several important limitations of this study should be noted. Firstly, the majority of interviewees in the present study were the mother of the child in the study and as such the results reflect to a greater extent the perceptions of mothers rather than fathers. However, it could be argued that the mother is typically the primary caregiver (Anderson et al., 2003) and therefore may have greater influence over their child's active free-play. Secondly, the interviewee was not blinded as to the nature of the present study and as such there is the possibility of socially desirable responses from the parent. Thirdly, the interviews were limited to parents; therefore, children's perceptions of influences on their active free-play are not presented in the present study. However, parents exert considerable control over their child's access to play spaces and the perceptions held by parents will ultimately influence the extent to which their child's opportunities for active free-play are restricted. Lastly, the study population was confined to metropolitan and outer-urban Melbourne; therefore, the study findings are limited in their ability to be generalised to other areas. However, an important strength of this study is that a relatively large number of parents representing a range of SES backgrounds were interviewed. This provided greater scope for revealing a wide range of influences on children's active free-play. The use of a sound theoretical framework (ecological model) and consideration of influences at the individual, social and environmental levels, was a further strength of the present study. The qualitative study design provided a strong methodological approach for obtaining rich contextual information on this under-researched topic. The semi-structured design of the questions enabled parents to provide greater depth in their responses to questions.

This study suggests that opportunities for active free-play and independent mobility may be quite limited for many children. These findings are somewhat alarming as active free-play is quite likely to be an important component of children's overall physical activity. A greater understanding of where children usually play and the influences on their active free-play is therefore necessary for the identification of appropriate points of intervention. Through the application of an ecological model the present study indicates that intervention may need to take place at both the social and physical environment level rather than solely the individual level. Further research is needed to confirm the influence of such factors as parental concerns about safety from teenagers, strangers and road traffic. The findings of the present study regarding parental concerns about road

safety, as well as the finding that courts and cul-de-sacs are popular settings in which children play, suggest that further study of both objective and perceived characteristics of streets (e.g., traffic volume and street topography and street design), may have important implications in future urban planning. Future studies may also benefit from exploring children's attitudes to outdoor play, and the impact of social networks (e.g., availability of other children to play with) on children's play behaviours, and playground equipment design. Integral to a greater understanding of influences on children's active free-play will be the inclusion of children in future studies, the quantitative assessment of these ecological influences in a larger sample, and the use of objective measures of children's physical activity.

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