

Original Article

Parent's views of the importance of making changes in settings where children spend time to prevent obesity

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Aim: To examine the kinds of changes parents would like to see in those settings where children spend time (kindergartens and schools, child care centres and after-school care facilities, and the local neighbourhood) in policies and practices that impact on children's risk of obesity, and to establish whether parents might be willing to advocate for changes in these settings. **Materials and Methods:** 175 parents from five randomly selected primary schools and five randomly selected kindergartens located in suburbs of metropolitan Melbourne completed a questionnaire in which they rated the importance of a number of potential changes to promote healthy eating and increase physical activity in their children. **Results:** Parents of children in kindergarten most commonly rated changes to the eating environment as important. In contrast, parents of primary school children believed changes related to both eating and physical activity in school were important. Ninety-five per cent of parents of kindergarten children and 89% of parents of primary school children believed it was possible for parents to bring about change to provide more opportunities for their child to eat more healthily and be more physically active. One in four parents reported that they had thought about or had tried to bring about changes in their community. **Conclusions:** The findings suggest that mobilising parents to take an active role in advocating for change in those settings that have the potential to shape their children's physical activity and eating behaviours may be feasible.

Key Words: kindergartens, schools, obesity prevention, perceptions, parents

INTRODUCTION

Health authorities globally are grappling with an epidemic of childhood obesity. In Australia, rates of overweight and obesity are among the highest in the world.¹ Recent data suggest that approximately 25% of Australian children and adolescents are overweight or obese.² The prevalence of overweight and obesity in this age group has increased significantly over the past few decades making it one of the most common chronic conditions in childhood and adolescence.³ Obese children are often the targets of peer prejudice and are at risk of developing low self-esteem.⁴ Importantly, obesity in childhood is an independent risk factor for adult obesity which has well-documented health implications.⁵ As a consequence, the prevention of obesity among children has become a key public health issue.⁶

Overweight and obesity are the consequence of energy imbalance, where energy intake exceeds expenditure.⁵ Although the available data are limited, they suggest that Australian children's eating habits⁷ and their physical activity behaviours⁸ are less than optimal, and are likely to put children at risk of unhealthy weight gain. One of the keys to preventing childhood obesity lies in the opportunities for modification of the socio-cultural and environmental forces that promote a diet high in energy, and a sedentary lifestyle. Parents have a potentially important role to play in preventing obesity in their children.⁹ There

is evidence that parents are concerned about the growing prevalence of obesity amongst children,¹⁰ and that parents recognise that there is a range of influences on obesity risk in children.¹¹ However, little is known about the kinds of changes parents would like to see to promote healthy eating and to improve opportunities for physical activity in children, even though such information is likely to be important for the development of obesity prevention initiatives.

The aim of this exploratory study was to examine the kinds of changes parents would like to see in those settings where children spend time (kindergartens and schools, child care centres and after-school care facilities, and the local neighbourhood) in policies and practices that impact on children's eating, physical activity and thus, risk of obesity. A secondary aim was to establish whether parents might be willing to advocate for changes in these settings.

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MATERIALS AND METHODS

Subjects and procedure

Data for this study were collected between October and November 2005. The sample comprised of 175 parents from five randomly selected primary schools and five randomly selected kindergartens located in suburbs in metropolitan Melbourne, Australia, which rank in the middle quintile of the Australian Bureau of Statistics socioeconomic index for areas.¹² Schools were randomly selected using stratified random sampling proportionate to school size. One pre-school and one primary school declined to participate and were replaced by the next school on the randomly generated list.

The teachers of the kindergartens and the Principals of the primary schools were sent a letter seeking permission to distribute study information (including a letter of invitation to participate, consent forms, questionnaire and a reply paid envelope) to all families attending the selected kindergartens (mean age of children=4.7 years, SD=0.6) and to all children in school years two and five (mean age of children=10.1 years, SD=1.5) at the selected primary schools.

Approval to conduct this study was obtained from the Deakin University Human Research ethics committee and from the Department of Education, Victoria.

Measures

A pilot questionnaire was developed and distributed to a convenience sample of 15 parents with children, aged between 2 and 12 years. The pilot questionnaire was used to inform development of the final questionnaire. The purpose of the parent questionnaire was to explore the nature and extent of parental concerns regarding children's eating, physical activity and obesity risk in their child's kindergarten or school, child care centres and after-school care facilities, as well as the local neighbourhood; and to explore the kinds of changes parents would like to see take place in those settings. As this was an exploratory study, validity and reliability data for the survey is not available.

Socio-demographic information

Parents' answered questions about their highest level of education, their employment status, marital status, details of family structure and their relationship to the child in the study were obtained.

Parent's view of children's eating and physical activity

Parents were asked two questions in relation to their perception of the average Australian child's eating behaviours and their physical activity levels. Parents were provided with five response options for each question: 'very good', 'quite good', 'quite poor', 'very poor' and 'don't know'. Parents were also asked to consider how important it was that steps are taken to improve opportunities for children to eat healthily. This question was repeated for physical activity. The response options for these questions were 'not important', 'quite important', 'very important' and 'don't know'.

Importance of changes in kindergartens and schools

Parents of kindergarten-aged children were provided with a series of questions about their child's kindergarten environment (see Table 2). Each question asked parents to consider, in their opinion, how important change in each particular area was to providing greater opportunity for children to eat healthily or be physically active (e.g., kindergartens only allowing healthy foods and drinks to be available to children). The response options comprised: 'no change needed', 'not important', 'quite important', 'very important', and 'don't know'.

A series of questions relating to the school environment were included in the questionnaires given to parents of primary school-aged children. These questions asked for parental opinion of the importance of a number of changes that could be made in the school environment (see Table 2). Parents were asked to consider how important these changes would be, when considering opportunities for children to eat healthily and be physically active (e.g., yard duty teachers encouraging active games by participating and/or teaching the children). The response options comprised: 'no change needed', 'not important', 'quite important', 'very important', and 'don't know'.

Importance of changes in child care centres and after-school care

Those families who had a child attending a child care centre were asked to consider the importance of a range of changes that could occur within the centre that could provide more opportunities for their child to eat healthily or be physically active (see Table 3). For each item, parents were asked to consider, in their opinion, how important each change would be (e.g., parents have more input regarding menu preparation). Parents were asked to select one of the following responses: 'no change needed', 'not important', 'quite important', 'very important', and 'don't know'.

Parents of children attending after-school care were asked questions relating to changes that could be made to the after-school care program (see Table 3). For example, parents were asked "in order to provide more opportunity for children to be physically active, how important is it that after-school care workers encourage children to spend more time outside?" Parents were asked to select from the following responses: 'no change needed', 'not important', 'quite important', 'very important', and 'don't know'.

Importance of changes in the local neighbourhood

A series of questions were presented to parents in relation to specific changes that could be made in their local neighbourhood (see Table 4). Parents were asked to consider each suggested change and to rate the importance of this change (e.g., employing traffic calming infrastructure to slow cars down in suburban streets). The following response options were provided: 'no change needed', 'not important', 'quite important', 'very important', and 'don't know'.

The feasibility of parents bringing about change

Two questions assessed parental interest and experience in trying to bring about change in the settings where their children spend time. The first question asked whether

parents themselves could make a change in the neighbourhood towards improving opportunities for their child to eat healthily and be physically active. The second question asked whether parents have ever tried, or thought about trying to bring about change in their local neighbourhood regarding these issues.

Analysis

Given the exploratory nature of this study, descriptive statistics were used to analyse the data. Frequency distributions were produced for each variable separately for parents of kindergarten children and school children. Crosstabulations were conducted to examine differences by parent group (parents of kindergarten children versus parents of primary school children). All analysis was performed using SPSS version 11.0.0 statistical software.¹⁵

RESULTS

Profile of participants

Table 1 summarises the demographic profile of the participants. A total of 74 kindergarten parents and 101 parents of primary school children responded to the survey. In most cases the questionnaire was completed by the child's mother. In almost 90% of cases, the child's birth parents lived together and were married. Seventy per cent of participating parents had a tertiary (university) qualification.

Table 1. Demographic profile of parents completing the survey

	Total Sample (%) (n=175)
Parent's relation to child	
Mother	79
Father	20
Other	1
Family structure	
Both the child's parents live together	89
The child's parents live apart	10
Other family situation	1
Parental marital status	
Married	88
De facto/living together	4
Separated	3
Divorced	4
Never married	1
Parent's highest level of schooling	
Some high school	5
Completed high school	16
Technical/trade school certificate or apprenticeship	12
University or tertiary qualifications	70
Parental employment status	
Employed full-time	30
Employed part-time	34
Home-duties full-time	24
Student	2
Unemployed	2
Other	9

Parents' views of children's eating and physical activity

For parents of kindergarten children, 6% described the average child's diet as very poor, 40% as quite poor, 44% as quite good and only 1% as very good. Nine percent of the parents of primary school-aged children described the average Australian child's diet as very poor, 45% as quite poor, 35% as quite good and only 6% as very good. In terms of their views about children's physical activity levels: 4% of parents of kindergarten children described the average child's physical activity levels as very poor, 54% as quite poor, 31% as quite good and only 4% as very good. Seven percent of parents of primary school-aged children described the average Australian child's physical activity levels as very poor, 42% as quite poor, 43% as quite good and only 5% as very good. Between 80-89% of all parents surveyed held the view that it is very important that steps are taken to improve opportunities for children to eat healthily and to be more physically active, with most of the rest of the parents describing this as quite important.

Perceived importance of changes in kindergartens and schools

Parent's views of the importance of making various changes to their child's kindergarten or school are shown in Table 2. Among the parents of the kindergarten children, the changes seen as being most important were: ensuring that only healthy foods and drinks are available to children (44%), ensuring that fundraising excludes unhealthy foods (44%), ensuring that children have enough time to eat their lunch before going out to play (41%) and provision of guidelines about what should and should not be in children's lunch boxes (40%). Although all of these issues related to the children's eating, it is noteworthy that parents were divided about these issues, with approximately one-third of the parents holding the view that there was no need for change. Parents were also quite divided about the need for changes in relation to their children's physical activity. Among these parents, the issues most commonly identified as not requiring change were increasing the amount of time that children spend playing outside (71%) and ensuring that food is not used as a reward for good work or behaviour (52%).

Unlike the parents of kindergarten children, the parents of primary school children saw a number of improvements to physical activity opportunities as being very important. These included teaching children about road safety (62%), increasing the amount of covered outdoor play spaces (54%) and providing better quality play equipment (46%). Other changes to physical activity opportunities that a large proportion of parents of primary school children saw as very important (that were not presented to kindergarten parents) included more encouragement for children to take part in sport (59%) and introducing rules to stop children playing computer games at school (47%). In terms of improving opportunities for healthy eating, the changes seen as being most important among parents of primary school children included: ensuring that children have enough time to eat their lunch before going out to play (61%), only allowing healthy foods to be available (57%) and allowing parents to have

Table 2. Importance of the parent's place on improving opportunities at kindergarten/school for physical activity and healthy eating among children.

	Parent group†	Sig‡	No change needed (%)	Not important (%)	Quite important (%)	Very important (%)	Don't know (%)
Physical activity: In order to provide more opportunity for children to be physically active, how important is it that...							
The kindergarten/school increases the amount of time that children spend playing outside?	K	***	71	11	16	1	0
	S		28	21	25	22	5
The kindergarten/school increases the amount of covered outdoor play spaces to protect children from the rain and sun?	K		48	7	32	14	0
	S		12	7	28	54	0
Teachers are provided with further education about the importance of active time for the children?	K	***	49	6	22	16	7
	S		13	8	35	42	3
The kindergarten/school puts more effort into teaching the children basic ball skills (e.g. throwing, catching and kicking)?	K	*	24	7	46	19	4
	S		21	10	33	37	0
The kindergarten/school provides a better range of good quality outdoor equipment?	K	***	53	4	27	14	1
	S		16	7	31	46	1
The school provides more teachers who are specially trained to teach physical education and sport?	S		17	10	25	46	2
The school allocates more time for children to participate in physical education classes and sport while at school?	S		21	8	34	34	3
The school allows children to access the school grounds outside of school time?	S		18	23	31	24	4
The school provides a safer place for children to store their bikes?	S		21	5	39	29	6
The kindergarten provides more encouragement for children to walk to kindergarten?	K	**	26	10	39	22	3
The school provides more encouragement for children to walk or ride their bike to school?	S		8	7	40	40	5
The school starts or expands a walking school bus program?	S		8	11	34	41	6
The school introduces or enforces stricter rules to stop children bringing computer games to school?	S		25	5	17	47	6
Teachers provide more encouragement to take part in sport even if the children don't do very well?	S		9	2	27	59	3
The kindergarten/school places more effort into teaching children about road safety?	K	***	41	1	26	32	0
	S		9	2	25	62	2

† K= parents of children attending kindergarten; S = parents of children attending school. ‡ Chi-square tests of significance comparing responses between the parent groups. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Table 2. Importance of the parent's place on improving opportunities at kindergarten/school for physical activity and healthy eating among children. (cont.)

	Parent group†	Sig‡	No change needed (%)	Not important (%)	Quite important (%)	Very important (%)	Don't know (%)
The school provides a before or after school supervised sports program where the child can try a variety of sports/skills?	S		12	6	30	51	1
Teachers provide outside activity as a reward for good behavior?	K	***	33	19	22	15	10
	S		9	17	28	42	3
Yard duty teachers encourage active games by participating and/or teaching the children	S		9	10	32	43	6
Healthy eating: In order to provide more opportunity for children to eat healthily, how important is it that...							
The kindergarten/school ensures that more fundraising activities exclude unhealthy foods?	K		33	3	19	44	0
	S		11	10	29	44	7
The kindergarten teachers allow children to help prepare food more often?	K		21	17	43	14	6
The kindergarten/school only allows healthy foods and drinks to be available to the children?	K	***	33	3	19	44	0
	S		9	8	26	57	1
The kindergarten/school provides a functional vegetable patch?	K	***	11	23	45	14	7
	S		10	22	23	41	5
The kindergarten/school ensures that teachers do not use food as a reward for good work or behavior?	K	***	52	7	11	25	6
	S		8	18	20	46	8
The school avoids excursions to places with unhealthy foods and activities	S		19	18	32	26	5
The school establishes rules about how much money children can spend at the school canteen?	S		18	25	25	24	7
Parents are allowed to have more of a say into what foods are sold at the school canteen?	S		12	7	26	49	6
The school bans companies that sell unhealthy foods from sponsoring school activities?	S		13	24	25	34	4
The kindergarten/school bans companies that sell unhealthy foods from advertising their products at your child's kindergarten/school?	K	**	33	3	22	38	4
	S		11	10	33	43	3
The kindergarten/school ensures that children have enough time to eat their lunch in the classroom before they go outside?	K	***	34	0	22	41	3
	S		11	5	22	61	1
The kindergarten/school provides a fridge for children to store their lunch in?	K		27	19	26	26	1
	S		8	19	27	42	4
The kindergarten/school provides guidelines about what should and should not be in the children's lunch boxes?	K	***	36	3	19	40	3
	S		16	16	36	31	1
Teachers are encouraged to eat healthy food and be physically active	S		12	9	29	47	3

† K= parents of children attending kindergarten; S = parents of children attending school. ‡ Chi-square tests of significance comparing responses between the parent groups. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Table 3. Importance of the parent's place on improving opportunities at child care centre/after-school care centre for physical activity and healthy eating among children.

	Parent group†	Sig‡	No change needed (%)	Not important (%)	Quite important (%)	Very important (%)	Don't know (%)
Physical activity: In order to provide more opportunity for children to be physically active, how important is it that...							
Child care/after school care workers encourage children to spend more time outdoors?	K		38	6	19	38	0
	S		12	29	53	6	0
More organised activities are provided that let children be physically active?	K		12	0	31	56	0
	S		18	0	29	53	0
The centre minimise the time spent watching television/videos?	K		53	0	7	40	0
	S		6	3	36	54	0
Healthy eating: In order to provide more opportunity for children to eat healthily, how important is it that...							
More space and equipment is made available to prepare and store food in child care/after-school centre?	K		56	6	19	19	0
	S		15	6	29	44	6
Parents are given more say into the menu preparation?	K		44	6	12	38	0
	S		9	21	21	36	12
Parents are given more say into the minimum vegetable and fruit requirements in the menus?	K		44	0	12	44	0
	S		18	9	24	39	9

† K = parents of children attending kindergarten; S = parents of children attending school. ‡ Chi-square tests of significance comparing responses between parent groups. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

more say as to what is sold from the school canteen (49%). For these parents, the issue most commonly identified as not requiring change was increasing the amount of time spent playing outside (28%).

Perceived importance of changes in child care centres and after school care facilities

Parents' views of the importance of making various changes to their child care centre or after-school care centre are shown in Table 3. Among the parents of kindergarten children, the change seen as being most important was the provision of more activities that allowed children to be physically active (56%), while for parents of primary school children increasing physical activity opportunities and minimising the time children spend watching television or videos were seen as very important by 53% and 54% of parents respectively. In fact, parents' of primary school children felt that changes in most aspects of the facilities examined were needed. It is also noteworthy that for many of the issues listed, parents of kindergarten children appeared to be divided on their importance (e.g., 44% of parents thought they should be given more say on fruit and vegetables on the child care centre's menu, but 44% saw no need for change). For parents of kindergarten children the facilities most commonly identified as not requiring change were the provision of more space and equipment for food preparation and storage (56%) and minimising the time children spend watching television or videos (53%).

Perceived importance of changes in the local neighbourhood

Parents' views of the importance of making various changes to in their local neighbourhood are shown in Table 4. More than half of parents of all children considered the following to be very important to increase physical activity: the provision of more pedestrian crossings and traffic lights; safer access to allow children to walk or cycle to school; ensuring that [local] councils cannot sell parks and other play spaces; improvements to the cleanliness and safety of recreational facilities; improvements to neighbourhood safety; the provision of free organised sports or fitness groups; and the provision of more shaded play areas. More than half of parents of all children considered the following to be very important to promote healthy eating: supermarkets stop displaying junk foods at check outs; less junk food being sold at sporting venues; healthy foods are promoted in the local community; television advertisements stop promoting unhealthy foods; and increased availability of affordable, good quality fruits and vegetables (only parents of school children were asked this question). For parents of kindergarten children, the issue most commonly identified as not requiring change was that the council do more to encourage families to live in their area (34%). Among parents of primary school children, less than one in four considered that any of the issues listed in the survey did not require change.

The feasibility of parents bringing about change

Ninety-five per cent of parents of kindergarten children and 89% of parents of primary school children believed it was possible for parents to bring about change to provide more opportunities for their child to eat more healthily and be more physically active. Approximately one in four

Table 4. Importance of the parent's place on improving opportunities in the local neighbourhood for physical activity and healthy eating among children.

	Parent group†	Sig‡	No change needed (%)	Not important (%)	Quite important (%)	Very important (%)	Don't know (%)
Physical activity: In order to provide more opportunity for children to be physically active, how important is it that...							
More roundabouts and lights are placed in your area to make cars slow down?	K		22	16	24	35	3
	S		23	16	26	31	4
More pedestrian crossings and lights are provided so your child can cross the road safely?	K		14	7	22	58	0
	S		11	14	24	50	2
The number of bike and walking paths is increased in your area?	K		22	4	24	49	1
	S		13	7	36	44	1
Quality/safety of the bike and walking tracks are improved in your area?	K		23	1	28	46	1
	S		11	3	41	45	1
Safer access is provided for your child to walk or ride with you to school/kindergarten?	K	**	27	5	15	53	0
	S		8	12	24	53	3
Steps are taken to ensure local council cannot sell off parks and other places where your child plays?	K		1	0	7	92	0
	S		3	5	9	79	4
The cleanliness and safety of parks and recreations facilities is improved in your local area?	K	*	22	3	14	62	0
	S		8	7	22	62	1
More recreational facilities are provided for children in your area?	K		20	3	43	34	0
	S		17	4	27	52	0
More information is provided to parents about physical activities available to their child in their local area?	K		10	1	47	42	0
	S		8	3	38	52	0
More children's play areas are provided in shopping centres?	K		5	34	28	28	4
	S		13	39	26	18	5
The number of video arcades is reduced in your neighbourhood?	K		26	19	14	29	12
	S		14	22	28	29	92
Your local neighbourhood is made a safer place for your child to be?	K		12	1	23	63	0
	S		5	4	15	74	2
Local council does more to encourage families to live in your area?	K	*	34	20	26	19	1
	S		13	21	31	30	5
More free organised sports/fitness groups are provided in your local area?	K		5	5	30	55	4
	S		10	7	20	62	1
More shaded areas are provided for children to play in your local neighbourhood?	K	*	16	4	15	65	0
	S		8	7	33	50	2
More community programs and events are provided in your local area?	K		12	11	32	40	4
	S		8	10	46	36	1

† K = parents of children attending kindergarten; S = parents of children attending school. ‡ Chi-square tests of significance comparing responses between parent groups. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Table 4. Importance of the parent's place on improving opportunities in the local neighbourhood for physical activity and healthy eating among children. (cont.)

	Parent group [†]	Sig [‡]	No change needed (%)	Not important (%)	Quite important (%)	Very important (%)	Don't know (%)
Healthy eating: In order to provide more opportunity for children to eat healthily, how important is it that...							
The number of vending machines at local sporting venues is reduced?	K		7	15	20	45	14
	S		11	17	22	41	9
Supermarkets stop displaying junk foods at checkouts?	K		3	6	14	78	0
	S		4	11	17	64	4
Less junk food is sold at local sporting venues?	K		1	7	15	71	5
	S		4	9	29	54	3
Fewer takeaway outlets are available in your community?	K		17	26	26	29	1
	S		16	24	28	26	5
Healthy foods are promoted in your community (i.e. at canteens, supermarkets, sports venues)?	K		3	0	14	84	0
	S		1	2	22	74	1
Television advertisements refrain from promoting unhealthy foods?	K		4	4	20	71	0
	S		2	12	26	59	1
Affordable, good quality fresh fruit and vegetables are available?	S		3	1	4	92	0

[†] K = parents of children attending kindergarten; S = parents of children attending school. [‡] Chi-square tests of significance comparing responses between parent groups. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

parents, of both kindergarten children and primary school children, reported that they had thought about or had tried to bring about changes in their community.

DISCUSSION

This study explored the kinds of changes that parents would like to see made in settings that have the potential to shape children's eating and physical activity behaviours, and to influence their risk of obesity. Parents of children in kindergarten most commonly rated changes to the eating environment, such as limiting food availability to healthy food and drinks, excluding unhealthy foods from fundraising drives, ensuring children have enough time to eat before play and the provision of lunchbox guidelines for parents, as important. In contrast, parents of primary school children believed changes related to both eating and physical activity in school were important, with the most salient changes encompassing the curriculum, school policies and the physical environment. In childcare and after-school settings, the most common changes parents considered to be important included the provision of greater opportunities for physical activity and a reduction in the time children are allowed to watch television. There is some evidence in the literature to suggest that changes made in school settings, similar to those nominated here by parents as being important, can positively impact on children's eating and physical activity.^{14, 15} Given this, parent's views should be considered by those concerned with the development of obesity prevention initiatives.

The types of changes that parents most commonly considered to be quite or very important in the local neighbourhood included changes to the built environment that would improve the safety of the street environment for children's active transport, improving the cleanliness and safety of recreation facilities and efforts to ensure opportunities for physical activity (e.g., through parks or formal organised activities), point-of-purchase changes in supermarkets and within sporting venues to limit the amount of 'junk foods' sold or positioned prominently, promotion of healthy food in the local community and increasing availability of good quality, affordable fruits and vegetables. Despite the fact that many of these changes require systemic or organisational change within local government or private industry, the majority of parents believed it was possible for parents to bring about changes that would improve opportunities for healthy eating and physical activity for their children. However, relatively few reported that they had either considered doing so or had made an attempt to do so in the past. Thus, harnessing parent's energies to bring about changes that they consider important and feasible may be one strategy that can be used to help to create more opportunities for healthy eating and physical activity for children, although the difficulties of translating these beliefs into action is acknowledged. Future research should examine the feasibility of this translation process. However, one potentially feasible strategy could be encouraging community sporting clubs and venues to limit the availability of unhealthy foods to children.

Given community concerns regarding childhood obesity and their views regarding the need for change, it is

timely to consider whether it might be feasible to harness parental concerns and intervene to mobilise the community to advocate for changes in policies and practices that impact on children's eating, physical activity and risk of obesity. Community mobilisation involves assessing community needs, wants and resources, and identifying key supporters to form a core coalition, who in turn plan and advocate for identified changes to their community. Such a community mobilisation approach has successfully been used in the USA in relation to other health issues. For example, in Minnesota, a community mobilisation intervention resulted in policy adoption to reduce youth access to tobacco, and consequently, saw the reduction in adolescent smoking rates.¹⁶ Community mobilisation techniques have also been successfully employed to change alcohol-related behaviour of 18-20 year olds in the USA via significant reductions in under-age alcohol sales and a cultural shift in community acceptance of alcohol sponsorship and marketing.¹⁷ As far as we are aware, the feasibility of a community mobilisation approach has not been explored in relation to the promotion of children's eating and physical activity, or to prevent obesity, although it is noteworthy that in the USA many schools have refused to negotiate contracts with soft drink companies after powerful protests by parents, students and school officials.¹⁸

While based on a small sample of well-educated parents, this exploratory study is unique in identifying the kinds of changes that parents would like to see made within kindergartens, schools, childcare, after-school care and in the local neighbourhood that support children's opportunities to make healthy food choices and to be physically active. These findings could be used to inform interventions that are likely to receive support from parents. They also suggest that mobilising parents to take an active role in advocating for change in those settings that have the potential to shape their children's physical activity and eating behaviours may be feasible.

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AUTHOR DISCLOSURES

David Crawford, Anna Timperio, Karen Campbell, Clare Hume, Michelle Jackson, Alison Carver, Kylie Hesketh, Kylie Ball and Jo Salmon, no conflicts of interest.

REFERENCES

1. Seidell JC. The epidemiology of obesity: A global perspective. In: Crawford D, Jeffery RW, editors. Obesity prevention and public health. New York: Oxford University Press, 2005. p. 3-19.
2. Booth ML, Wake M, Armstrong T, Chey T, Hesketh K, Mathur S. The epidemiology of overweight and obesity among Australian children and adolescents, 1995-1997. *Aust N Z J PubHealth*. 2001;25:162-9.

3. Magarey AM, Daniels LA, Boulton TJC. Prevalence of overweight and obesity in Australian children and adolescents: reassessment of 1985 and 1995 data against new standard international definitions. *Med J Aust.* 2001;174:561-4.
4. Hill AJ, Silver EK. Fat, friendless and unhealthy: 9 year old children's perception of body shape stereotypes. *Int J Obes.* 2004;28:11233-7.
5. World Health Organization. Obesity, preventing and managing the global epidemic. Geneva: World Health Organization, 1997.
6. Crawford D. Population strategies to prevent obesity. *British Medical Journal.* 2002;325:728-9.
7. Cook T, Rutishauser IHE, Allsopp R. The Bridging Study – Comparing results from the 1983, 1985 and 1995 Australian national nutrition surveys. Canberra: Commonwealth of Australia, 2001.
8. Salmon J, Timperio A. Prevalence, trends and environmental influences on child and youth physical activity. In: Tomkinson GR, Olds TS, editors. *Pediatric Fitness: Secular trends and geographic variability.* Basel: Karger, 2007. p. 183-99.
9. Kranshntoever Davison K, Campbell K. Opportunities to prevent obesity in children and their families. In: Crawford D, Jeffery RW, editors. *Obesity prevention and public health.* New York: Oxford University Press, 2005. p. 207-30.
10. Crawford D, Timperio A, Telford A, Salmon J. Parental concerns about childhood obesity and the strategies employed to prevent unhealthy weight gain in children. *Public Health Nutr.* 2006;9:889-95.
11. Hardus PM, van Vuuren CL, Crawford D, Worsley A. Public perceptions of the causes and prevention of obesity among primary school children. *Int J Obes.* 2003;27:1465-71.
12. Australian Bureau of Statistics. *Socio-economic indexes for areas, 2001.* Canberra: Australian Bureau of Statistics, 2003.
13. SPSS, Inc. *SPSS for Windows, Release 11.0.0.* Chicago: SPSS, Inc., 2001.
14. French SA, Story M, Fulkerson JA, Hannan P. An environmental intervention to promote lower-fat food choices in secondary schools: outcomes of the TACOS study. *Am J Pub Health.* 2004;94:1507-12.
15. Sallis JF, McKenzie TL, Conway TL, Elder JP, Prochaska JJ, Brown M, Zive MM, Marshall SJ, Alcaraz JE. Environmental interventions for eating and physical activity: a randomized controlled trial in middle schools. *Am J Prev Med.* 2003;24:209-17.
16. Forster JL, Murray DM, Wolfson M, Blaine TM, Wagenaar AC, Hennrikus DJ. The effects of community policies to reduce youth access to tobacco. *Am J Pub Health.* 1998;88:1193-8.
17. Wagenaar AC, Gehan JP, Jones-Webb R, Toomey TL, Forster JL, Wolfson M, Murray DM. Communities mobilizing for change on alcohol: lessons and results from a 15-community randomized trial. *J Community Psychol.* 1999; 27:315-26.
18. Schwartz MB, Brownell KD. The need for courageous action to prevent obesity. In: Crawford D, Jeffery RW, editors. *Obesity prevention and public health.* New York: Oxford University Press, 2005. p. 307-30.

Original Article

Parent's views of the importance of making changes in settings where children spend time to prevent obesity

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父母對改變兒童滯留的場所以預防肥胖的重要性的看法

目的：調查父母會在政策及實際上，想如何改變兒童長時停留的地方（幼稚園和學校，育兒中心和課後輔導中心和住家鄰近地區），對兒童肥胖風險的影響。並且確認父母是否願意支持改變這些環境。**材料與方法：**175 對父母隨機選自墨爾本郊區的 5 所小學和 5 個幼稚園。他們完成一份問卷，針對那些對他們小孩有潛在促進健康的飲食及增加體能活動的改變的重要性予以評分。**結果：**幼稚園兒童的父母多數認為改變用餐環境是重要的。相對的，小學兒童的父母相信用餐和在學校的體能活動同等重要。95% 幼稚園兒童的父母和 89% 小學兒童的父母相信父母可以帶來改變可以提供更多機會，讓他們小孩吃得更健康及更活躍的體能活動。四對中有一對父母報告他們曾經考慮過或試著為社區帶來改變。**結論：**本研究指出應該動員父母，讓他們積極倡導改變他們孩子體能活動和用餐行為的環境是可行的。

關鍵字：幼稚園、學校、肥胖預防、認知、父母。