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Lauren K Williams¹, Jenny Veitch¹, Kylie Ball¹

¹ Centre for Physical Activity and Nutrition Research, School of Exercise and Nutrition Sciences, Deakin University. 221 Burwood Highway, Burwood, Victoria 3125, AUSTRALIA. Email: (Lauren Williams) Lauren.Williams@deakin.edu.au; (Jenny Veitch) Jenny.Veitch@deakin.edu.au; (Kylie Ball) Kylie.Ball@deakin.edu.au

Keywords: Fruit and vegetable consumption; Socioeconomic disadvantage; Environmental determinants of nutrition; nutrition promotion for children

Word count (main text only): 5604
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Abstract

It is well known that persons of low socioeconomic position (SEP) consume generally a less healthy diet. Key determinants of unhealthy eating among disadvantaged individuals include aspects of the family and external environment. Much less is known about family and environmental determinants of healthy eating among social disadvantaged children. The aim of this study was to gain insight into the family and environmental factors underlying resilience to poor nutrition among children and their mothers living in disadvantaged neighbourhoods. Semi-structured interviews were conducted with 38 mother-child pairs (N=76) from disadvantaged neighbourhoods. Children were selected if they were a healthy weight, consumed adequate intakes of fruit and vegetables and were physically active. Two main themes emerged from the interviews: active strategies from parents to promote healthy eating and external barriers and supports to healthy eating. Mothers believed that exercising control over access to unhealthy food, providing education and encouragement for consumption of healthy food and enabling healthy food options aided their child to eat well. Children did not perceive food advertisements to be major influences on their eating preferences or behaviour. The results of the current study offer insight into potential avenues for nutrition promotion among disadvantaged children.
Introduction

A large number of studies have demonstrated that poor nutrition is disproportionally experienced by those with socioeconomic disadvantage (e.g. low income, low educated). For instance, individuals of lower socioeconomic position (SEP) reportedly consume diets higher in fat, lower in micronutrient density, and have lower intakes of fruit and vegetables than those of higher SEP (1-4). In children, an inadequate diet is associated with higher body mass index (BMI) and disease, both in childhood and adulthood (5-7). A key prerequisite to promoting good nutrition among low SEP children is to better understand the mechanisms underlying healthy eating behaviours among this group.

It is well recognised that the family environment plays a key role in the development of eating behaviours and food consumption among children (8-11). Parents are primary socialisation agents who transmit messages to children about their eating (12). Over the past decade, the association between parental feeding style and practices and children’s eating behaviour has received increased empirical focus. Children who describe their parents as authoritative (strict yet involved and supportive) have been found to have healthier dietary behaviours than those who describe their parents as authoritarian (also strict yet uninvolved) (13). Parenting practices that encompass both direct (e.g. verbal encouragement to eat specific foods) and indirect (e.g. modelling consumption of specific foods) communications have been found to influence children’s eating (14). For instance, prohibiting palatable foods and exerting excessive control over access to unhealthy foods has been found to increase taste preference and desirability for that food, leading to weight gain and poor eating habits (15). In addition, implementing ‘food rules’, such as offering dessert as a reward for consumption of vegetables, has been found to increase the child’s preference for the reward food (16-18). Furthermore, a recent review of qualitative data on parental perceptions regarding healthy behaviours for preventing overweight in young children revealed that several parenting strategies such as lack of time, lack of motivation and decreased perception of responsibility for child weight management acted as barriers to behaviours for promoting healthy eating and preventing overweight (19). In addition to parental feeding styles and practices, parents’ own eating styles have also been show to influence children’s eating behaviours. Parents food preferences, the foods they consume
and make available to their children, and their restrained eating (e.g. dieting), influence children’s eating behaviours, potentially as a result of social modelling, and by the choice of foods made available to their children (12).

In addition to the family environment, many factors within the broader environment have also been found to encourage or inhibit healthy eating among children. For instance, healthy eating behaviours among children have been associated with good accessibility to quality healthy food options in their local neighbourhood and involvement in the growing process of fruits and vegetables (e.g. from their home vegetable garden) (20). The media has also been consistently reported as exerting a negative influence on children’s eating and weight status. For example, children exposed to food advertising of unhealthy foods have been found to show increased preference for promoted foods and higher consumption and purchasing requests to parents for advertised foods (21-22). However, although the majority of food advertisements promote unhealthy foods (22), there is some evidence to suggest a relationship between advertisements promoting nutritious foods and positive attitudes and beliefs about these foods (23-24). Friends and peers have also been found to influence children’s food preferences and eating behaviour. For instance, a recent qualitative study highlighted parental reports that peer consumption of certain foods (i.e. from their school lunchboxes) encouraged preferences for obtaining and consuming these foods (20).

Whilst there is good evidence for an association between various family and environmental influences on children’s eating behaviours, the majority of studies have focussed on parent report measures only, and on child unhealthy BMI or risk of overweight/obesity as the main outcome. Rather than focussing on obesity-inducing behaviours, it may be fruitful to examine the characteristics of socioeconomically disadvantaged families with children who manage to eat well, despite increased risk of poor nutrition. To our knowledge, no study has simultaneously assessed parent and child perceptions of barriers and supports to healthy eating exclusively among a sample of low SEP children of normal body weight and with a diet including aspects of good nutrition. Enhancing our understanding of supports for healthy eating and methods employed to overcome unhealthy eating among disadvantaged children who eat adequate intakes of fruit and vegetables may inform nutrition interventions and obesity prevention among this
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group. The current study was designed to gain a better understanding of the barriers and supports assisting children to eat well. Specifically, we aimed to gain in-depth insights into the family and environmental factors underlying resilience to poor nutrition from children and their mothers living in disadvantaged neighbourhoods.

Methods

Participants

The participants were 38 mother-child pairs. A summary of the sociodemographic characteristics for the sample is provided in Table 1. Briefly, the mean age of mothers and children was 38 and 9 years respectively and the majority of the sample (79%) resided in rural regions of Victoria, Australia. Participants were drawn from a larger study of 4,349 women who participated in the Resilience for Eating and Physical Activity Despite Inequality (READI) study, a longitudinal cohort study examining resilience to obesity among socially and economically disadvantaged women and children residing in rural and urban areas of Victoria, Australia (25-27). Disadvantage was defined using area-level disadvantage, which has been shown to have associations with poorer health outcomes, independent of individual markers of disadvantage. Women in the READI study were randomly selected from neighbourhoods ranked in the lowest Victorian tertile of relative disadvantage, an index that considers area level income, education and employment (ref). For the READI study, all women completed a baseline survey that assessed individual, social and environmental factors potentially associated with physical activity, diet and weight. From the READI baseline cohort, women with young children (n=1680) were invited to complete a survey about the health and lifestyle of their child (n=685, response rate = 59%).

For the current study, participants were selected using purposive criterion sampling. From the cohort of women who had completed the baseline survey and a survey for their child (n=685), 67 children aged 8-12 years met the following criteria for participation in the current study; healthy weight range (using mother reported height and weight to calculate BMI for age percentiles), regular consumers of fruit (≥1 serves p/day) and vegetables (≥ 2 serves p/day) and physically active (ranked top 50% for participation in moderate-to-vigorous physical activity measured using objective accelerometry physical activity measures). Fruit and vegetable consumption was used as a marker for a generally healthier
diet in selecting participants and was assessed from survey data from an item that asked “How many serves of fruit (in a separate item- vegetables) do you usually consume each day?”. The child age range was selected, as we were interested in pre-pubescent children who were considered old enough to participate in an interview session. An analysis of qualitative data relating to physical activity and sedentary behaviours and their determinants in mother-child pairs is to be the subject of a separate paper. From these 67 eligible children, 12 parents did not respond to the study invitation, 8 women refused participation, 6 women had relocated, and following recruitment, there was a drop-out rate of 3 (7%) due to work commitments. The remaining 38 children (response rate 57%), along with their mother, participated in the current study.

**Procedure**

In July 2009, mothers were mailed a letter explaining the study and inviting them (and their child) to participate. After receiving the letter, each potential participant was contacted by phone (no more than twice) by the field manager in order to arrange a time and date for the interview. Interviews were conducted from July to October 2009.

Two trained research staff conducted each interview at participant’s homes. At each visit, two separate interviews were conducted, one for the mother and one for the child. The child interview was conducted first, without the mother immediately present (i.e. the mother was in the family home but not sitting in on the interview), to eliminate the child being influenced by the mother’s responses. The child was not present for the mother interview. With the participant’s permission, an electronic dictaphone was used to record each interview and handwritten notes were also taken by a staff member. Interviews followed a specific interview schedule and lasted approximately 20-45 minutes. Participants were advised that they had been selected because the child consumed relatively more fruit and vegetables compared with other children in the READI cohort and that we were interested in finding out how and why this was the case. At the end of the interview, mothers’ were presented with a $25 gift voucher and children a $10 voucher in recognition of and gratitude for their time. Ethics approval for this study was granted by the Deakin University Human Research Ethics Committee.

**Materials**
A semi-structured interview schedule was developed that included questions that assessed mother and child perceptions on supports and barriers to fruit and vegetable consumption, patterns of healthy eating more generally and physical activity. The existing evidence, our own previous research, and a series of pilot interviews were used to develop the interview schedule items. Only the healthy eating questions were examined for this paper. Different interview schedules were used for mothers and children. Sample questions from the interview schedule include [mother] “What do you think helps your child eat a healthy diet?” “Is there anything that you think makes it difficult for your child to eat a healthy diet?”, “Do you actively do anything that you think helps your child to eat a healthy diet?”, [child] “What do your parents do to help you eat healthy food?”, and “Does what your friends eat make a difference to what you eat?”, if yes “How?”. Probing questions were also employed when responses were dichotomous (i.e. yes/no) and to follow-up on participants’ responses.

The children’s interview also involved the researcher presenting the child a slide show on the computer that displayed various pictures, such as family meals, breakfast, fruit choices and after-school snacks. Pilot interviews with children indicated that the inclusion of visual aids, such as a computer slide show, helped to make the interviews feel less threatening and also provided children with a prompt that helped them to think and comment on their eating habits and food preferences. The mothers’ interview included similar types of questions regarding what they believed was helping (and making it difficult) for their child to eat a healthy diet and what they did as parents to influence their child’s eating behaviours.

Coding and analysis

Interviews were transcribed verbatim. The first author then read all of the transcripts to develop a detailed hierarchical numerical coding scheme that was used to code all transcripts. Open, axial and selective coding, utilising NUD*IST (QSR International, 2002) version six qualitative software program, was used to code, sub categorise, and unify coding of transcript text (28). Transcripts were coded to identify mother-child pairs (e.g. 1 (mother) and 1.1 (child of mother 1). Template analysis (29) and inductive thematic analysis (30), were used to develop and interpret the themes (31). For instance, some themes
emerged from a list of codes (template analysis) identified in the textual data of the interview schedule whilst our knowledge of the literature shaped a further set of themes that emerged from transcript data, not directly related to the interview schedule items (thematic analysis). Researcher triangulation (REF) was employed to increase the validity of the data and its interpretation. The second author read the transcripts and then selected a random sample of 10 mother-child transcripts that were cross-coded to check for inter-coder agreement. No major discrepancies in coding or interpretation were observed.

Results

The results are presented around two main themes that emerged from the data; 1) active strategies from parents to promote healthy eating behaviours and 2) external barriers and supports to healthy eating. Active strategies from parents to promote healthy eating encompassed four sub-themes; parental control and moderation, support for healthy eating, eating rules, and parental role modelling. External barriers and supports to healthy eating included three sub-themes; access, advertising and friends/family. Each of the above main themes is illustrated with excerpts from participants. Excerpts from children include their code (calculated as their mothers code plus 0.1), gender and age in parentheses. Excerpts from mothers include their code and the gender and age of their child in parentheses. The code is used in replacement of pseudonyms (pseudonyms are used in excerpts where names have been provided by participants) and to identify mother-child pairs (e.g. participant 10 is the mother of participant 10.1).

Theme 1: Active strategies from parents to promote healthy eating behaviours

Parental control and moderation: Limiting and controlling access to unhealthy food

The most salient theme that emerged from the interviews from both mothers and children was the perception that children consumed a healthy diet because parents had control over the amount and type of food the children consumed. In some instances, this was directly related to the child’s age, with mothers articulating an anticipated decrease in control as their children became older. Parental control over food was enforced by limiting access to unhealthy food, limiting food choice, emphasising moderation and restricting unhealthy food options to special occasions (e.g. weekends, celebrations). For many
mothers, the responsibility of consuming a healthy diet was reportedly in their control and not the responsibility of the child. This involved much more than simply providing and encouraging consumption of healthy food, it was also about refusing requests for less healthy food choices, emphasising moderation and maintaining an ‘eat this or nothing’ approach to food and healthy eating.

“I do give them treats occasionally,..... I try and get them to eat really healthy. I do buy the odd treat for them. Like, there’s a box of Nutrigrain up on the shelf... but the kids know that during the week they’re to eat Weetbix or something healthier and on the weekend that’s a treat for them. So, it’s still... they still get their treats. But, in moderation.” (11: mother of son aged 7)

The impact of such parental control of food was clearly articulated by many children. For the majority of children, food preferences (whether unhealthy or healthy) were directly dictated by taste. Although a small number of children reported eating certain foods to reduce the risk of weight gain, or to sustain energy, most children reported taste as the deciding factor for preferred foods, rather than health benefits. However, whilst taste strongly dictated preferences, preferences did not always dictate consumption. Food consumption was reportedly largely governed by parental control. Hence, whilst a large proportion of children articulated a strong preference for unhealthy foods, they reported that access to these foods was restricted or limited by their parents.

“Chocolate balls (cereal), they’re not allowed to have that as breakfast because I consider them lollies because there’s so much sugar in them. ..... we buy a jar of Nutella and it’s for school holidays .....” (24: mother of son aged 8)

“My mum sometimes buys chocolate balls which are these round things that are chocolate. It’s actually a type of cereal that we’re not allowed to have as cereal, we’re just allowed to have them as snacks, treats. A treat, it’s very rare.” (24.1: male aged 8)

“And we just get healthy breakfast so on the holidays, every holiday we get one packet of Coco Pops...That’s four times a year.” (6.1: female aged 10)

[Interviewer]: ”So what would you like to have for breakfast if you could have anything?”
[Respondent]: “Well I would like ice-cream but I know I wouldn’t be able to have that.” (28.1: female aged 10)
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[Interviewer]: “What would you like to eat for breakfast? It could be anything in the world?” [Respondent]: “Want to eat it but she doesn’t let me...[Interviewer]: “Yeah what’s that?” [Respondent]: “Fruit loops.” [Interviewer]: “And what do you think would be a healthy breakfast?” [Respondent]: “I hate it but its Weetbix.” [Interviewer]: “And what do you normally get to eat for breakfast?” [Respondent]: “Weetbix.” (38.1: male aged 8)

Support for healthy eating: Encouragement to consume fruit and vegetables, healthy eating education and provision of fruit and vegetables

Some mothers reported that they verbally encouraged their children to eat fruit and vegetables, a theme that was reiterated by a small number of children.

“Maybe if we go down the street and she wants afternoon tea I try and coach her into choosing something that’s healthier than something else.” (2: mother of female aged 8)

“If I’m asking for something to eat they’ll say eat a banana or something.” (19.1: daughter aged 10)

Mothers reported that encouragement to eat well was also communicated by educational messages about the benefits of healthy eating. However, although many children reported that they received encouragement to eat well, none of the children specifically reported receiving messages of an educational nature. Although children did not report receiving encouragement for healthy eating, many children appeared to have a good knowledge of foods, in addition to fruit and vegetables that were and were not healthy.

“We talk about food and what’s in season and all that sort of stuff, about your body, about your emotions and feeling good ......Because you want to feel good physically and emotionally and calm so you can function in life. So I suppose I educate him and we look at the food charts from the market and stuff.” (30: mother of son aged 8)

“And yeah we had that discussion, the content of sugar in cereals and I showed them on the side of the packet the rice bubbles and they were amazed at that at the time.” (24: mother of son aged 8)

Support for healthy eating from mothers was not always communicated through verbal encouragement and healthy eating education. Both mothers and children reported the positive impact parental provision of adequate fruit, vegetables and healthy food
options had on healthy eating. Mothers reported their child maintained a healthy diet because they provided healthy food; in lunchboxes, for dinner, and by having a well stocked supply of fruit and vegetables for snacking. When children were asked what their parents did to help them eat healthy food, almost all respondents reported that their parents provided them with fruit and added vegetables to their meals.

“Look there’s a big fruit bowl I keep on the bench and the kids know they can eat that any time. There are certain foods they can graze on whenever but then there are other foods that it’s, you know, off limits. With fruit I mean yeah always two or three pieces in their lunch box.” (37: mother of daughter aged 10)

“They usually make healthy food like vegetable soup and when they make food they put in peas and carrots and lettuce.” (7.1: female aged 8)

“They give me vegetables and fruit. Like for that and we eat healthy hamburgers on Friday.” (38.1: male aged 8)

Eating rules

Many mothers reported that they mandated eating certain meals, namely breakfast. Some mothers also mandated three meals a day. Whilst almost all the children reported consuming breakfast, lunch and dinner, they did not articulate an awareness of this eating rigidity or report any concerns with eating the standard three meals a day.

“Sometimes Jessica will be ‘I’m running late for school, I haven’t had breakfast yet,’ or ‘I’ve still got to have breakfast.’ ‘Yes you do have to eat breakfast before you leave, you don’t skip breakfast.’ You can skip other things if you’re running late but yeah you don’t skip your breakfast or your tea.” (19: mother of daughter aged 10)

In addition, many mothers reported implementing specific rules to promote healthy eating. These included prohibiting dessert until vegetables were consumed, consuming leftover fruit from lunchboxes before further food is made available, prohibiting “junk food” before lunch, and mandating a minimum fruit and vegetable daily consumption quota (e.g. must eat two pieces of fruit a day). Many children also articulated an awareness of these eating rules.
“The rule is you’ve got to eat three different coloured vegetables.... You can choose which three but you’ve got to have three.” (24: mother of son aged 8)

“Mum says you have to eat one piece of broccoli to have dessert.” (10.1: female aged 8)

**Parental role modelling**

Compared with direct influences on healthy eating, indirect influences, namely role modelling (both positive and negative) reported by mothers emerged as a less salient theme. Only one child reported an awareness of her parents’ eating habits.

“[I] lead by example. I think we eat a fairly healthy diet.” (23: mother of son aged 9)

“Mum is very healthy. Dad’s not completely healthy.....Dad’s nowhere near as healthy as Mum. Mum’s always having the healthy yoghurts and...the healthy food and always having salads for lunch and things...And Dad’s just happy with a sandwich or if he’s down the street he might get a pie.” (20.1: female aged 10)

**Theme 2: External barriers and supports to healthy eating**

**Access**

The majority of mothers reported good access to fruit and vegetables within their local community. Some mothers reported the poor quality and range of fruit and vegetables available at supermarkets, yet overcame this barrier by growing their own fruit and vegetables or travelling further to access better quality produce. Some of the mothers resided in rural and provincial areas where fruit and vegetables are the towns primary industry and hence access to fresh seasonal produce (e.g. from orchardists and ‘pick your own’ produce outlets) acted as an environmental support to healthy eating. Residing in these rural areas, for some, also resulted in less access to mainstream take-away options and fast food, which mothers reported reduced their child’s consumption of these unhealthy options.

“We basically have to buy our fruit and vegetables from a supermarket whereas if we went to much of the bigger towns that are nearby you’ve got access to the mini-markets and more of a range. I think that we’re very limited. So we’re going to extend the veggie patch this year. [Interviewer]: “So do you eat any of the veggies you grow?” [Respondent]: “Yeah, yeah, we’ve got lettuce, at the moment we’ve got silver beet in there, garlic, we’ve got the
herbs out the front…and peas, yeah. We grow it to eat it.” (20: mother of daughter aged 10, rural resident)

“We’ve got a huge garden. Front yard, back yard, the whole bit and the kids…when he was a lot younger he was involved in that. He was involved in setting it all up in the first place when he was younger. The school have the Stephanie Alexander program so they cook and they’ve got the garden and they grow everything at school as well. And living out here you’ve got the market gardens, down here we’ve got all the fruit stalls and everything out there. So the special treat when they go shopping is they used to get given an apple.” (24: mother of son aged 9, rural resident)

“Yeah seasonal fruit is fantastic and so this area for seasonal fruit is really good. It’s free and it’s fresh and it’s off the tree so you can’t get better than that….A good thing about this region is when its summer and stuff there’s beautiful peaches, apricots, like all our friends are mostly orchardists so we just duck around and pick some peaches or pick some apricots. Yeah so seasonal is a big deal. But like anything when they’re not in season the main fruits we keep is like bananas, strawberries because we know the chemicals some of those fruits have been stored with we try and avoid having apples or things that are out of season.” (29: mother of daughter aged 13, provincial resident)

For those children who had access to a school canteen, it was reported that canteens acted as a support for healthy eating with almost all school canteens banning or limiting unhealthy food items.

“There’s no lollies or chocolates or chips or anything like that [at the canteen] anymore, it’s all just… they have like lasagna and they have spaghetti bolognaise, and… those sort of… soups and things, yeah it’s all healthy options now. [1: mother of son aged 11]

“[The] school canteen, which is just starting this, just the end of last semester. It’s, it’s pretty healthy…. I’m sort of part in there, helping out. And we’re all doing healthy food.” [16: mother of daughter aged 8]
The majority of mothers and children did not report that advertising negatively influenced their food purchasing or consumption behaviours. In fact, many mothers and children reported the positive influence that some advertisements had on healthy eating. Some children also reported that whilst some of the unhealthy advertised foods appeared appealing, they did not pursue attaining advertised products due to knowledge of them being unavailable to them (due to geographical or parental restrictions).

“Actually we both enjoy watching... there’s a Safeway ad that tells you about what fruit and vegies to eat now and we both watch it. If one of us misses us the other will come and say, ‘Look this is the one that’s in season. Let’s get this and try this’. Or if it’s a new fruit we haven’t seen we always try to get it.” (34: mother of daughter aged 12)

[Interviewer] “Okay and so do the TV ads that you see for food make a difference to what you eat?” [Respondent] “No.” [Interviewer] “No and how come?” [Respondent] “Cause they’re just advertisements trying to sell you stuff and at school we’ve been shown what advertisements do so it kind of puts you off ads and stuff.” [34.1: female aged 12]

[Interviewer] “And when you’re watching TV do you think the ads on TV make a difference to what you eat? So you know like the McDonalds ads or cereal ads?” [Respondent] “Not really. We don’t really eat a lot of McDonalds or anything anyway..., so.” [Interviewer] “Do you ever see any food ads on the TV and you think oh, maybe I want to try them or something?” [Respondent] “I’ve seen a couple of the burger ones they look nice. Like the McMuffins. They’re always looking good. But never really had one.” [20.1: female aged 10]

Friends/Peers

Children and mothers reported both the negative and positive influence of their siblings, friends and peers on healthy and unhealthy eating predominantly through verbal comments, peer modelling and from the presence of desirable healthy and unhealthy food items in friends’ lunchboxes.

[Interviewer]: “So does what they [friends] eat make a difference to what you eat?” [Respondent]: “Yeah....If you’re over at a friend’s house they’ll go and get chips or something...Then I’ll normally have chips with them.” (25.1: male aged 12)
“[My child] is in prep and he’ll see something in someone’s lunch box and he’ll come home and say “I want that tomorrow”…he definitely does that.” [1: mother of son aged 11]

“I made some dairy gluten free vegetable slice and it was lovely cold. We sat there and had it together. She came home from school, ‘I’m never having that again’. ‘Why not?’ ‘The kids said it was disgusting and they was teasing me’. I said, ‘That’s okay, you just tell them that they’re missing out on good stuff’.” [2: mother of daughter aged 8]

**Discussion**

The purpose of the current study was to explore the family and environmental factors underlying resilience to unhealthy eating. Individual interview discussions with mothers from disadvantaged neighbourhoods and their children revealed the presence of parental strategies and external barriers and supports to promoting healthy eating behaviours. This is one of the first studies to include both mother and child reports and focus exclusively on low SEP families of children who eat well. Our study underscores the importance of focussing specifically on ‘resilient’ children (i.e. those eating relatively well) to further elucidate potentially effective parent-child attitudes and behaviours in preventing unhealthy eating.

Compared to previous studies which have predominantly focussed on the barriers to healthy eating and a healthy weight status, our results highlighted the active role mothers played in promoting healthy eating. For instance, almost all of the mothers in the current study believed that parents were the main vehicle for influencing healthy eating and as a result they exercised significant control over their child’s food by implementing ‘food rules’, providing access to fruit and vegetables and restricting unhealthy food items.

Although there is some evidence to suggest that excessive control over access to certain foods and implementing food rules has a negative effect on eating and weight (15-16, 18), the children did not report their mothers to be too strict or controlling. Perhaps this was because mothers also offered education and explanations about unhealthy food items and promoted the importance of being healthy. It is also possible that the children in the current study, particularly those who were younger, were also accustomed to this parenting style (or unaware of anything different) and shared similar attitudes about food and eating.
These parenting attributes (i.e., strict, restrictive, yet encouraging and supportive) are consistent with an authoritative parenting style which has been demonstrated as a positive predictor of healthy eating and weight status (32). The emotional climate created by authoritative parents is one of high strictness and involvement, warmth, emotional support, appropriate granting of autonomy and clear, bidirectional communication (33). As parenting is a learned process, teaching parents to implement practices inherent in an authoritative parenting style (e.g. by accepting responsibility for their child’s diet, prohibiting unhealthy foods and encouraging and modelling healthy food choices) is a viable avenue for nutrition promotion interventions among low SEP families.

In addition, children in our study had a good knowledge of healthy and prohibited foods, despite not articulating an active awareness of specific food-related education. The finding that transference of healthy eating education from mother to child was likely internalised by children highlights potential limitations with children’s self-report learning from health promotion interventions.

The results from our study also highlighted some environmental influences as both barriers and supports to healthy eating. Previous research has indicated the negative impact on eating of advertising and poorer access and availability of healthy food options (34-35). Some mothers from our study reported instances of poor availability and quality of healthy produce yet many had developed strategies to overcome these barriers, namely, through responding to and creating more sustainable access to fruit and vegetables and other healthy food options. For instance, many families had their own fruit and vegetable garden, a practice consistently associated with increased fruit and vegetable consumption (20, 36). Although a number of families in the current study benefited from residing in rural or provincial areas where fruit and vegetables were the town’s primary industry and accessibility to larger garden space was more available, it is possible that provision of skills and resources for home grown produce is a potential avenue for increasing fruit and vegetable consumption among low SEP families.

Previous research has consistently highlighted the negative impact advertising has on children’s eating, yet our results indicated that although some children reported an awareness of the negative influence of food advertising, most children did not feel negatively influenced by televised food advertisements. There are three plausible
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explanations for this finding. Firstly, many children reported low access to outlets selling unhealthy food, a likely outcome given the large proportion of rural residencies (e.g. limited fast food outlets, small supermarkets). Therefore, children may not be affected by advertising of foods unavailable to them. Secondly and unsurprisingly given the high control over unhealthy food practices exhibited by mothers, when children reported desirability for unhealthy advertised foods they perceived these foods as prohibited by their parents. Thirdly, parents who restrict access to unhealthy food may also be more likely to restrict television viewing time, making exposure to these advertisements less prominent. It is possible that these factors offer protection against the negative influence of unhealthy food advertising.

Another external support for healthy eating articulated in the interviews was school canteens. At present Victorian Government only stipulates canteen ‘guidelines’ which are not consistently implemented at each government school (37). Our data suggest little evidence of canteens serving unhealthy food or acting as a negative influence on children’s healthy eating. Although it has been previously reported that consumption of foods from Australian canteens contributes a small amount of daily food intake for children (38) the suggestion that schools are limiting their options to healthy choices is positive.

Strengths of this qualitative study are the large sample, inclusion of both mother and child reports, and a focus on healthy eating among ‘resilient’ children from low SEP families. Some limitations of the current study warrant consideration. Reports of external supports and barriers particularly, rely on participants’ perceptions of their own local environment, which may differ from objective supports/barriers. They may also differ across samples, population groups or geographic areas. This limitation was most notable given the large proportion of participants residing in rural and provincial areas. It is interesting to observe that the majority of children identified as resilient to overweight, obesity and unhealthy eating from the larger study resided in rural areas. Although there is no clear evidence that a difference in BMI exists between Australian rural and urban children (27, 39-40) the results from the current study suggest certain factors that may be protective of unhealthy eating and potentially overweight and obesity, among rural children from disadvantaged neighbourhoods.
Given that the study focused exclusively on women and mothers, it does not offer any insight into the role that fathers and other extended family members have on their child’s eating. For instance, almost 95% of the sample was married, and although only one child mentioned her father, it is possible that fathers are potential sources of influence on children’s healthy eating. A further limitation present in most research that involves interviews is that participants may answer in a socially desirable manner. This limitation is perhaps more salient in the current study where participation in the larger survey had occurred and exposed adult participants to the broad aims and objectives of the research conducted. In the current study, effects of social desirability were minimised by conducting interviews independently for parents and children. In addition, children were not privy to the main aims and objectives of the project. Finally, we only assessed barriers and supports to healthy eating among children who consumed a relatively healthy diet, rather than to draw comparisons of those who consume less adequate diets. There has been much research that has focussed on predictors of unhealthy behaviours and by using a qualitative study design and restricting our sample in this way, it enabled us to generate hypotheses from those who manage to remain resilient about potential avenues for nutrition promotion among disadvantaged children.

The results of the current study offer insight into potential avenues for nutrition promotion amongst disadvantaged children residing in socioeconomically disadvantaged areas. Further research should focus on comparisons of the barriers and supports to healthy eating identified from the current sample among disadvantaged families with children who don’t manage to eat well. Although our findings need to be replicated in a larger sample using survey methods, the results tentatively suggest that active parental strategies such as exercising control over access to unhealthy food, provision of education and encouragement for consumption of healthy food, provision of healthy food options and positive role modelling may aid the prevention of unhealthy eating among disadvantaged children. Lessons learnt from families equipped with strategies to overcome environmental barriers to healthy eating, such as skills in sourcing local and home grown produce, may also facilitate healthy eating among disadvantaged children.
**Funding**

This work was supported by the National Health and Medical Research Council [374241; and 425845 for L.W., and 479513 for K.B.]; and the National Heart Foundation of Australia [08M3912 for J.V].
Acknowledgements

Authors acknowledge the support and guidance from Professor David Crawford, Dr Clare Hume and Dr Michelle Jackson who contributed to the projects inception, coordination and execution, and to the Research Fellows who conducted the interviews.
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