



Exploring cross-generational physical activity: who are the gate-keepers?

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Abstract

Aim Little is known about how parents and children perform physical activity together. Parents are described as gate-keepers of children's physical activity. We explored gate-keeping in cross-generational physical activity from child, parent, and family perspectives.

Methods A qualitative methodology was employed. Children and parents took part in semi-structured focus groups, family unit interviews, and individual interviews. Data was analysed thematically.

Results The starting of cross-generational physical activity involved co-construction. Participants were found to instigate and respond to invitations from their physical activity partners. Child participants were found to employ several strategies to influence their parents and *open-the-gate* on physical activity. In contrast, stopping cross-generational physical activity only required one participant to stop the physical activity for the physical activity to cease, and child participants volunteered no strategies to influence their parents during the stopping of cross-generational physical activity.

Conclusion Children of this age group were not passive recipients of parental gate-keeping in cross-generational physical activity. Cross-generational recreation, sport, and exercise was *co-constructed* by interplay between the child and parent. Physical activity health promotion policy and practice should recognise and promote the roles that both children and parents plays in the instigation of, and engagement in cross-generational physical activity.

Keywords Cross-generational physical activity · Child · Parent · Ecological model · Qualitative research · Gate-keeping

Background

The release of physical activity (PA) report cards from fifteen countries at the 2014 Global Summit on the PA of Children underlined the vast number of children and youth not meeting minimum PA guidelines to maintain health and well-being (Tremblay 2014). Australia's first report card on child PA concluded that organised sport was not enough to meet national PA guidelines, with overall PA levels of Australia's children assigned a grade of D — denoting that less than half

of Australian children (21–40%) were achieving adequate overall PA levels (Schranz et al. 2014). Adults too, particularly parents, have been found to be insufficiently active (Bellows-Reicken and Rhodes 2008).

Parents have been found to play an influential role in their child's engagement with PA, and consequently have been described as the gate-keepers of children's PA (Gustafson and Rhodes 2006; Rhodes and Lim 2017). Parents may help support their child's PA by: purchasing equipment, funding PA, providing transport, watching and supervising activities, encouragement, discussing the benefits of PA, and cross-generational physical activity (here after known as cross-gen PA) (Beets et al. 2010; Davison et al. 2003). Cross-gen PA is PA performed by a child and parent together. Dunton et al. (2012) have highlighted its importance by suggesting that it affords an opportunity for both children and parents to gain health benefits together, whilst providing positive parental role-modelling of active behaviours. Indeed, the focus of previous cross-gen PA research has been on cross-gen PA as an element of

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parental support for a child's PA. Even when the child's voice has been included in the research, the focus has been upon how parents supported their child's PA and not on the child's experience or influence upon the interaction (Brockman et al. 2009; Wright et al. 2010; Stanley et al. 2013). Thus, the current research focus leaves the impression that in cross-gen PA only the parent influences the child. There appears to be a lack of consideration amongst PA literature of the effect the child may have on their parent, and the possibility of influences of cross-gen PA that extend beyond supporting and modelling of PA from the parent to the child.

Bronfenbrenner (1989), using an ecological model, suggested that children have the capacity to act on and influence their environment. Ecological models would suggest that cross-gen PA might be more than just one-way PA modelling and support from parent to child. Taking a social ecological approach to cross-gen PA would suggest that cross-gen PA should be examined from the perspective of PA partnership. Viewing cross-gen PA as a PA partnership acknowledges the impact that a child may have upon their social environment, including their family, and is conceptually very different to the one-sided influence presumed in the suggestion of parents as the gate-keepers to child PA. However, it is acknowledged that this model is not novel outside the PA research space, as parenting literature has acknowledged the influence children can have upon their parents and environment (James et al. 1998), and that they should be considered in the social construction of knowledge about them (Prout and James 1990).

This paper reports on a study that formed part of a mixed methods program of research that sought to increase understanding of cross-gen PA from both a child and parent perspective. The study reported here used a qualitative research approach, to explore cross-gen PA perspectives and experiences of Year 5 and 6 children and parents. This paper presents findings associated with one major theme from this study — *gate-keeping*. The assumption that the parent is the gate-keeper and that the child plays a limited role in the PA partnership will be challenged based on evidence from this research, and implications for health promotion policy and practice will be considered.

Methods

The research was conducted within a constructivist paradigm, as we believed that individuals' experiences of cross-gen PA were likely to be unique and grounded within their social context. Constructivists believe that there may be multiple truths or meanings associated with a phenomenon (Guba and Lincoln 1994). Consistent with the constructivist stance, the research used a qualitative interpretive approach

employing hermeneutics to explore experiences and perspectives of children and parents of cross-gen PA. The broader study research questions were:

- Why do children and parents perform PA together?
- What influences child and parent engagement in cross-gen PA?
- What is the experience of cross-gen PA from both a child and parent perspective?

Approvals to conduct the research were gained from the Charles Sturt University Research Human Ethics Committee and the New South Wales (NSW) Department of Education.

Research setting

The research was carried out between August and December 2013 in a two postcode area of a town in regional NSW, Australia. A regional population was chosen, as those living in regional and remote areas have been found to be sedentary, with less access to facilities such as gyms and childcare than those in metropolitan areas (Australian Bureau of Statistics 2011).

Recruitment and participants

Children, parents, and families were invited to take part in separate child and parent focus groups, family unit interviews, and in-depth interviews. A multi-method approach was employed to permit child and parent participants to speak freely about their individual perceptions and to discuss themes that were important to them but might not have been to the other generation.

Two methods of recruitment were used. Recruitment of participants for parent-only focus groups, family unit interviews, and in-depth interviews was through invitation to parents who had provided their contact details while completing a survey on cross-gen PA, conducted as part of the broader program of research, having been recruited for the survey via schools in the same location. Maximum variation sampling (Patton 2002) (based on overall PA level, cross-gen PA level, and family composition) was used to ensure that participants with a broad range of perspectives and experiences were identified.

In addition, permission was gained from the NSW Department of Education and Principals of both public and independent schools to run child-only focus groups in schools within the two postcode area. Four schools (three public, one independent) provided permission, and information sheets (child and parent) and parental consent forms were sent out to all Year 5 and Year 6 parents via the children at those schools. Parental consent and child assent for child participation were obtained. Thirty-one child participants (23 females,

eight males) took part in the study, along with 15 parent participants (ten mothers, five fathers; Table 1).

Data collection

A topic guide specifying the subject areas to be explored was developed to guide each method of data collection (Table 2). A broad definition of PA (recommended by the World Health Organisation 2004) was used and provided at the beginning of every focus group and interview (Table 3). This enabled information about a wider range of potential cross-gen PA categories rather than the narrow emphasis of much previous research of exercise and sport only, and included categories of active chores, active transport, and recreation as well as sport and exercise. Participants were asked to compile a list of the types of PA that they performed as cross-gen PA, and the list was employed throughout the subsequent conversation to prompt discussion. In order to use a research strategy that was respectful of a child’s view and opinion and draw on the communication strengths of children (Horstman et al. 2008), whenever a child was present in a focus group or interview, all participants were asked to draw or write cartoon bubbles depicting an episode of cross-gen PA of their choice. Participants’ drawings were then used as a starting point to initiate discussion, as they were asked to talk about and interpret their own drawings (Liamputtong 2006). This meant that initial discussion in any interview that involved child participants evolved from the child participants’ frame of reference for cross-gen PA, and what was important to them. This was deemed to be an important strategy in the facilitating the child’s voice in this research and reducing the capacity for their voice to be lost through the influence of adult (parent and researcher) frames of reference. During the interviews, the researcher used confirming summaries to ensure participants’ views were fully understood. Table 4 provides a summary of data collection methods.

Data management

All discussions were digitally audio-recorded and were transcribed verbatim by the principal researcher. The transcripts were de-identified and pseudonyms were assigned to each participant and family group.

Table 1 Demographic information of parent participants

Parent age range (years)		Frequency of moderate to vigorous PA		Frequency cross-gen PA	
35–39	n = 1	Regularly active (most days)	n = 7	Daily	n = 6
40–44	n = 8	Occasionally active (2-3 x/week)	n = 5	2 – 3 x / week	n = 5
45–49	n = 6	Rarely active	n = 3	Weekly	n = 2
				Monthly	n = 1
				Rarely	n = 1

Table 2 Example of topic guide

<p>Child Focus Group Guide</p> <ul style="list-style-type: none"> • First name introduction of all group members including me • Purpose — chat about your experiences of doing PA with your parents. I know that it is likely that there will be some experiences that are similar to your friends and also some differences, and that’s to be expected and does not mean that your experiences are any more or less important or any more or less right, because there isn’t a right or wrong here. I am trying to find out more about cross-gen PA in general; what’s good about it, what’s not so good about it. Up to now they have mostly only spoken to adults about this, and I think that that is not a good thing because it means we only hear what the adults have to say. So today I want to hear what you think, feel and have to say about doing PA with your parents. • Information sheet • Questions? • Ground rules (see attachment) for discussion — read out ground rules and ask if any suggestions for more. • Definition of PA • Assent form <p>Activity One — Brainstorm – types of physical activity children do with their parents.</p> <p>Activity Two — Write ± draw “Think about doing PA with your parent or parents. Write and draw your experience with cartoon bubbles to explain what you are thinking”; or with bubble thoughts on cross-gen PA.</p> <p>Activity Three — talk through drawings and bubble thoughts/feelings</p> <ul style="list-style-type: none"> ■ Why do you do this activity with you parents? ■ Has anyone else thought this? ■ How does it make you feel? ■ How does doing the activity with your parents differ to doing it with your siblings/friends, individually etc.? ■ Are you and your parents equally skilful/fast at this? How do you manage the difference? Can you think of any other examples when there has been a difference in skills, speed etc. <p>Activity Four — quotes</p> <ul style="list-style-type: none"> ■ What do you think about what this person has said? ■ Is your experience similar or different? ■ How does it make you feel? ■ Who do you think said that — a parent or child and why? <p>Wrap Up</p> <ul style="list-style-type: none"> ■ Ask if the group has covered everything they would like to tell the researcher about cross-gen PA? <p>Ask if the researcher can keep the drawings and writings. Take scan if necessary.</p>

Data analysis

Thematic analysis, using the systematic approach described by Fleming et al. (2003), to Gadamer’s hermeneutic analysis,

Table 3 Definitions of categories of physical activity

Physical activity might include:

- Transport activity: such as walking or riding a bike to school
- Exercise and sports: such as walking, running, basketball, netball, football, touch football, swimming, dancing, exercise classes
- Recreational activities: such as bush walking, ‘chasies’, throwing a Frisbee, kicking a ball, rollerblading, playing in the park, active games such as twister
- Active chores: such as vacuuming, cleaning, gardening

As you can see, there are several different categories of physical activity and many different types of physical activity within each category. It is any activity where you move about.

Watching television or playing non-active computer games where you sit still (and do not move about) is not physical activity, and we will not be asking about them today.

was used to interpret the data according to the research questions, with preliminary analysis occurring concurrently with the data collection process. Concurrent data collection and analysis continued until we ascertained that new themes were not emerging with the addition of new participants. This was the point of data saturation, after which participant recruitment ceased. Once data saturation was reached, deeper analysis of the transcripts ensued, beginning with separate analysis of child and parent texts. Transcripts were read individually line by line, and thematically descriptive codes were identified using the participants’ language where possible to maintain a strong link with the child or parent voice. These were then considered in relation to those identified in other transcripts. The final phase of analysis was analysis of the phenomenon of cross-gen PA across the entire data set. Thus, child and parent data was analysed both separately and together to allow themes specific to child or parent participants, as well as common themes, to emerge. Regular meetings between the researchers during the data analysis enabled consideration of alternate explanations, and enhanced our capacity and awareness of reflexivity during the analysis phase. To enhance trustworthiness, a reflective journal was kept by the lead researcher throughout the study to provide an audit trail of the process and decisions made during the study.

Table 4 Summary of data collection methods

Data collection method	Number performed	Details
Child focus groups	5	one Year 6 only, one Year 5 only, three mixed Years 5 and 6
Parent focus groups	2	mothers only (additional round of recruitment performed but no father consented to take part in focus groups)
Family unit interviews	4	two with daughter and both parents, one with son and mother who was in a partnered relationship, and one with daughter and single mother
Child interviews	3	two male students and one female
Parent interviews	5	three fathers and two mothers

Findings

An imbalance of control and authority was apparent between child and parent participants for both opening-the-gate (starting) and closing-the-gate (stopping) on cross-gen PA. However, the two events had distinctive practical characteristics which subsequently impacted on the balance of power within the cross-gen PA relationship. Although opening-the-gate necessitated accord from both participants, the decision to stop and close-the-gate on a cross-gen PA episode could be made unilaterally by one participant — usually the parent. This meant that child participants were found to have more influence over starting an episode of cross-gen PA than ending it. The findings presented below explore opening-the-gate and closing-the-gate of cross-gen PA from both the children’s and parents’ perspectives (Table 5).

Opening-the-gate

Child’s approach

Children used a number of strategies to influence their parents to engage in cross-gen PA:

- they were opportunistic;
- they asked their parents to do a particular type of cross-gen PA;
- they brought along their siblings to turn up the volume of their request; and
- they would ask to join in a parent’s PA session.

Daniel, the youngest of three siblings, had a very direct, opportunistic way of instigating a wrestling match with his father.

Daniel (Child): *If it’s wrestling it’s me. I jump on Dad’s back. It’s random and I don’t tell him so he doesn’t get a warning.*

Table 5 Summary of findings

Starting cross-gen PA	Stopping cross-gen PA
<ul style="list-style-type: none"> • Starting cross-gen PA was co-constructed. • Children were found to use a number of strategies to influence their parent to engage in cross-gen PA. • Parents insisted children join them in some cross-gen PA, in particular cross-gen chores. • Parents were also found to invite their children to join them, in particular cross-gen sport and exercise, thereby giving the children a choice. 	<ul style="list-style-type: none"> • Stopping did not always require gate-keeping, but could be a result of reaching the destination or finishing the game. • Children of this age group did not identify strategies to influence their parents in prolonging cross-gen PA. • Stopping of cross-gen PA appeared to be the area that children had the least amount of influence and power, and parents the most amount of influence and power.

See accompanying text for detail on these themes

Kate (Researcher): *Are there times that he won't wrestle you?*

Daniel: *Yeah, I sort of feel annoyed, but then again I don't, as sometimes I feel like he's just scared. But then I don't think he is! I'm happy though when he wrestles me and he makes me laugh as he tickles me.* (Child Interview)

When Daniel felt like playing he would jump on his father's back and see what response he provoked. There was a sense that part of the ad-hoc nature of rough-housing with his father was a deliberate tactic to help give him the initial upper hand in the ensuing wrestling match in which he was the under-dog.

Other children used a strategy of turning up the volume of their request in order to tip the answer in their favour and open-the-gate on cross-gen PA. For example, Suzy (Child, Child Focus Group) said *"I go up to Dad with my sister and say Dad can we go to the park?"* and Liam (Child, Child Interview) brought his younger brother with him *"Me and Angus will go and ask Dad to have a kick. Dad doesn't start it, we do"*. When children instigated cross-gen PA by asking their parents to do a particular PA, they had to await their parent's response. Both Suzy and Liam recruited their siblings to assist them in opening-the-gate on PA with their parents. They used their numbers to increase the pressure on their parents, thus trying to influence the outcome and their parent's consent.

Sometimes, children asked to join in a parent's PA. *"Mum and Dad plan it the night before and I ask if I can come"* (Daniel, Child, Child Interview). Daniel's excerpt was an example of how proactive and opportunistic children of this age group were in instigating cross-gen PA and how it required the response of parents to the invitation for cross-gen PA to begin. That is, this shows that starting cross-gen PA was co-constructed.

Parent's approach

Parents also reported joining in their child's PA, but parents tended to be more assertive in joining in rather than seeking

permission to join. *"Sometimes if they are playing, sometimes I'll just jump in"* (Melanie, Parent, Parent Focus Group). Although both children and parents essentially described the same strategy, the difference in power between parents and children resulted in slightly different approaches: children sought permission from their parent to join in their PA whereas parents tended to just join in, with a sense of assumed consent.

Providing a choice Contrasting strategies used by parents to instigate cross-gen PA were dependent in part upon the type of PA, e.g. cross-gen recreation, exercise, and sport, and cross-gen active chores. A more permissive tone was taken towards cross-gen recreation, sport, and exercise, and both children and parents recounted parents offering their children a choice of whether or not they wished to take part. In contrast, a more authoritative approach was taken towards active chores; parents insisted that their children perform chores with them.

Children were given a choice of whether they wanted to join their parents in cross-gen recreation, sport, or exercise.

Kate (Researcher): *What else have you drawn?*

Rachel (Child): *Walking with Mum. We go to the monument and back.*

Kate: *How does walking with Mum start?*

Rachel: *She says does anyone want to go for a walk?*

Kate: *So you get to decide?*

Rachel: *Yeah.*

Kate: *Why do you choose to go?*

Rachel: *Because it's some exercise and it's interesting looking at things. We usually walk a loop.* (Child Focus Group)

Although Rachel described being given a choice, it appeared that she usually agreed to walk. For many of the children, the lure of time with their parent was an opportunity not to be missed. However, some parents found that their children would consent to join them for some types of PA but not for other types of PA.

Melanie (Parent): *If we want something down the street we'll walk. I very rarely say, let's go for a walk. I'll go for a jog but the kids won't come with me jogging, they say, you're mad! Rather than take the car we'll walk down the street. It's not an issue for them, walking down the street to get some bread or whatever; but I tend to ask them, do you want to come, and they both always come.*
(Parent Focus Group)

Thus, children's exercise preferences seemed to play a role in child decision-making.

Being offered a choice changed the power and dynamic within the cross-gen PA relationship. Choosing not only gave children the opportunity to refuse, it also provided opportunities to negotiate rewards.

Use of rewarding provoked strong contrasting opinions from participants. Some participants valued rewarding, whereas other participants were strongly against rewarding, particularly food rewards. Some child participants reported that they chose to join in with PA that they might not normally do because of the reward. *"Mum mostly starts the gardening. I do it when I want to make some money"* (Pete, Child, Family Interview). Carol, Pete's mother, was a keen gardener, who used gardening for her relaxation. She was happy to have Pete's company in the garden and would find jobs that they could do together and that Pete would be more likely to enjoy, such as digging tasks. Pete was also paid for helping his Mum in the garden. Although there was a transactional aspect to Pete and Carol's cross-gen gardening, there was also a sense of understanding and tolerance of each other's perspectives and approaches to gardening together.

Using sweeteners had both benefits and drawbacks. Although it might appear that influence was retained by the parents who persuaded their children to complete PA that they might not have otherwise performed by use of reward, sometimes children turned this situation to their advantage.

Abby (Child): *I don't like gardening if the sun is too hot. If it's something I don't want to do and I still help, I get sweets.* (Child Focus Group)

Abby appeared to have some control over her situation. If her parents asked her to do something she did not want to do, and she did it, she was paid in sweets. Therefore, the influencer could have the tables turned on them. There was no incentive for Abby to seek intrinsic enjoyment (and Abby did not reveal whether she gained any intrinsic enjoyment) from this type of cross-gen PA, as she was rewarded and paid in sweets for her toils.

By offering their children a choice, parents were not the sole gate-openers of a particular episode of cross-gen PA. The parents had unlocked the gate on the activity but it was left up to the child to open-the-gate; and in some cases, children chose not to.

Exceptions to providing a choice to children to engage in cross-gen exercise and sport were found. There was a sense from some parents that children needed encouragement and motivation to begin, but once they started they continued without further intervention. The excerpt below shows this:

Nicole (Parent): *Children turn into zombies when the TV goes on. I like action and I like them to be active. I use physical activity as a way of getting them outside, and then they stay outside and play. They'll often end up trampolining or playing.* (Parent Interview)

Like many parents, Nicole was time-poor and performed limited amounts of cross-gen PA with her children. However, she used cross-gen PA as a way of getting her children outside and playing actively. Nicole and some other parents had noticed that once they had managed to get their children up and moving with them, their children were then more likely to continue with an active pursuit rather than returning to sedentary activities.

Insisting Thus far, it has been shown that both children and parents instigated episodes of cross-gen PA. However, there was one type of cross-gen PA that was almost entirely instigated by parents, and that was household chores.

Denise (Parent): *Unpacking the car. Every single day as we get home I say: "make sure you get your bag" and "can you come back, I've got x amounts of groceries. Can you go back to the car and make sure you get the last load". I designate where things go and there's usually a bit of reluctance. "Do I have to get another load?" Usually one runs off to the toilet trying to get out of things. We go away a lot and so we seem to be endlessly packing the car, carrying bags, and unpacking the car.*
(Parent Focus Group)

Denise insisted that her children help her unload the car. She was a busy mother of four children, the youngest in Year 5 at the time of the interview. All four children were engaged in regular organised sport and after school activities. They lived out of town, and they would often not return home till the early evening. The family experienced pressure upon arriving home to complete homework, dinner, and getting ready for the next day. Denise was asked at the start of the interview to think of an episode of cross-gen PA that she would like to describe. She chose unpacking the car. Denise was a sporty person who regularly swam in a group and during the interview described how she would swim, run, and walk with her daughter in Year 5, with obvious enthusiasm and enjoyment. Yet, when she was given the choice, she chose to describe unpacking the car. Her choice and subsequent description suggested that unpacking the car was a cross-gen PA that frustrated her.

Ensuring that their child contributed to the household through active chores often required parents to conduct quality checking or monitoring for safety elements. Perhaps, it was the presence of these elements that ensured that the PA was a cross-gen PA rather than solo PA for the child.

Melanie (Parent): *We do it together, Jim, my son and I. Otherwise there will be patches 3 inches wide with 2 foot of grass on the lawns! It's just teaching him. No, you haven't got your right shoes on, go back and put your boots on. Emptying the catcher, turn it off; I make him turn it off rather than turn it down. Take the catcher off, empty it and bring it back, and then pull the [indicates pulling cord] and he says but it's really hard. So I tell him it will build up his muscles. Molly will come out and she'll help me weed. We're all outside and we'll just do it, it's good.* (Parent Focus Group)

Melanie controlled the chore of mowing the lawn. She initiated and directed Jim, her son, for safety whilst also monitoring the quality of his work.

Children's descriptions of cross-gen chores did not convey the same level of enthusiasm as their descriptions of cross-gen sport, exercise, and recreation. But they did identify advantages of performing cross-gen chores when their parent insisted that they join them.

Ryan (Child): *My mum helps me clean my room because I'm terrible at it. I like doing it with my mum because she cleans up quicker than me so it's done faster* (Child Focus Group).

The advantage of being “terrible” at something had not been lost on Ryan. He sounded as though he might be quoting his mother when he said he was “terrible at it”, but he was not in the least bit bothered by that label in that context. There was a sense of learned strategic helplessness in his excerpt. There was no incentive for Ryan to become better at cleaning his room. Quite the contrary, the reward for being “terrible” was that his mother helped him to clean his room and this expedited the finishing of the onerous task.

Contributing to the family was a distinctive purpose of cross-gen chores. Therefore it was possible that the responsibility parents felt to teach and enable their children to contribute to their family influenced their decisions to insist that children participate in cross-gen chores.

Insisting was an onerous element of cross-gen PA, not only for the children on the receiving end of the insistence, but also for those doing the insisting, the parents. Carol (Parent, Family Interview) said: “*It is a chore to get them to do a chore!*” Even though parents did not enjoy insisting that their children perform active chores with them, they nevertheless considered that it was a necessary aspect of family life, and they considered that it was part of their job as a parent.

Responding to the invitation

Daniel (Child): *Sometimes it is “yes” and sometimes it's “no, stay in bed and have a sleep in” and sometimes it's a “ummm, maybe if you want to”.* (Child Interview)

This excerpt showed the differing responses to Daniel's request to join in his parent's PA. The variability in Daniel's parents' responses indicated that they were ‘gate-keeping’ Daniel's inclusion in their PA.

Agreeing to take part in cross-gen PA (or allowing the other participant to join in) was undertaken with varying amounts of enthusiasm, and appeared to be dependent on the participant's enjoyment of and purpose for the episode of cross-gen PA.

Alan (Parent): *Hopefully now the days are becoming longer, the sun is up at 6, I can get back into walking. Whether Anne will come with me when she's not down the pool?*

Anne (Child): *I don't really like going for walks if it's in the morning because if I have not got anything else on I like to stay in bed and read for quite a while.* (Family Interview)

Anne began many of her days early, as during term time she had squad swimming and orchestra practise before school. Walking in the early morning with her father did not appeal to her, as it was another early morning activity. This illustrates how an individual's context, including their other PA contexts might influence their cross-gen PA engagement.

Children's requests were not always granted by parents.

Greg (Parent): *The games in the shed are completely unplanned. Sometimes she asks to play table tennis or something but she might not get it straight away. I might play later in the day, or even a day or so after, it depends on what we have on. I try and do it.* (Parent Interview)

Parent's postponement of cross-gen PA episodes (i.e. promising to participate at a later, more convenient time for them) transformed requests from children for spontaneous cross-gen PA into planned episodes. Being put off to a later time appeared to be a satisfactory response for children.

Liam (Child): *I play with my Dad and my brother. I usually ask Dad if we can play cricket and sometimes he'll put it off for a bit, 'til later in the day. I don't really mind waiting as I can play by myself, bowling against the trampoline.* (Child Interview)

Postponing cross-gen PA to a later time took the timing of the PA out of the control of the child and into the parent's domain.

Individual's preferences also influenced cross-gen PA partnerships. The need to enjoy a type of cross-gen recreation or sport strongly influenced decisions to engage, even though

some parents experienced guilt if they refused a child's invitation to cross-gen PA.

Clare (Parent): *Absolutely, he bought me a bike and I don't have an excuse. It's that guilt thing that goes with it, when you don't fulfil these ideas that you should be doing. I have guilt all the time.*

Kate (Researcher): *Guilt?*

Clare: *Self-guilt for me, and not enough with my children. If my son's asking to go and do something and I'm saying "no". I mean I could, I really could. I use the excuse of I've got to make dinner or I've got to do something. But I could do it. I don't because it's not what I want to do. It's not what I want to do now that I've come home from work and I just want to veg. I don't want to think about doing anything. I know he's going to want to play tennis or something and I'm thinking no I don't want to do it. I feel bad. I feel bad that I don't always go, "yes, of course darling, we'll go". (Parent Focus Group)*

Clare's objectives for cross-gen PA with her son were to talk and spend time with him. She did not enjoy sport activities, and she struggled to motivate herself to engage in PA even though she felt guilty refusing her son's invitations.

Fatigue and other duties were two elements that were often mentioned as components in a participant's refusal of a cross-gen PA invitation.

Jody (Child): *Sometimes when I'm really tired; then if I have to go, I go and try my best and sometimes I shake it off and sometimes I don't. (Child Interview)*

Jody was sometimes able to overcome her feeling of fatigue, but it appears as though her fatigue had little influence over her engagement in cross-gen PA. In contrast, when parents were tired, cross-gen PA might not happen at all. This illustrates the finding that parent's experiences were more influential than children's experiences in determining whether cross-gen PA occurred.

Julie (Parent): *Sometimes he asks and we can't go as it's not going to fit in around getting dinner ready, or something has to be done, or I'm feeling exhausted. (Family Interview)*

Parents could refuse cross-gen PA at will, citing any one of several different reasons. However, children were not always afforded the same level of control as their parents, and at times children were compelled by their parent to engage in cross-gen PA.

In summary, the starting of cross-gen PA was co-constructed. Both children and parents were found to instigate cross-gen PA and to respond to invitations from their cross-gen PA partners. Starting appeared to be influenced both by

the family's fabric, in the form of habits and routines, and by the individual participants' preferences and feelings. In relation to the latter, offering to perform a PA that their partner enjoyed and selecting a time convenient to their potential partner were both found to be important factors in gaining assent from a cross-gen PA partner. They were also important factors in ensuring the cross-gen PA episode did not stop prematurely.

Closing-the-gate

Stopping cross-gen PA happened in a number of ways, and not all of them required gate-keeping. Stopping was sometimes the result of reaching the destination or finishing the task or game according to the habits and routines set within the family. Those scenarios were described in a matter of fact manner.

Yasmine (Child): *I've drawn playing tennis with my Dad*

Kate (Researcher): *How does that start?*

Yasmine: *I go Dad can we play tennis? He's just like 'Yup'. We have a tennis court in our garden you see.*

Kate: *Does he sometimes start it?*

Yasmine: *I don't think he starts it at all. We play a set and then stop. (Child Focus Group)*

Yasmine already knew what asking her father to play tennis would involve "a set and then stop". Thus, families created habits for cross-gen PA that provided a timeframe or limit on the PA, and may therefore have increased each participant's willingness to agree to the cross-gen PA episode. Although it was not clear who decided that tennis ought to be limited to one set, both participants were aware of the unwritten 'rule'. Yasmine's excerpt revealed her sense of control, as she described how she always started it, thus controlling the timing of the game. However, due to the 'one-set rule', it was a 'modulated' influence.

There were times that the children stopped cross-gen PA, usually because of a lack of interest in the particular type of PA. For example, in a previous excerpt presented in this article, Hugo and his daughters went bush walking and his oldest and youngest daughters walked around with them for a while and then returned to the car, even though Hugo and his middle daughter continued their walk. However, repeatedly the data showed that stopping cross-gen PA involved parental control.

Kate (Researcher): *How does it end?*

Greg (Parent): *I get an idea of what she wants to do and judge it accordingly. If she's tired I make sure we don't overdo it. If she's keen to do lots I'll quite happily go and do a fair bit but generally I judge it. She sometimes says she wants to do a bit more and I decide she's done enough. That's when we stop. (Parent Interview)*

In the previous excerpt it can be seen that Greg had ultimate control over stopping or closing-the-gate on an episode of cross-gen PA and he overruled his daughter's wishes if he considered that she had done enough.

Stopping of cross-gen PA appeared to be the area of cross-gen PA in which children had the least amount of influence and power, and parents the most. The children's lack of control over this aspect of cross-gen PA seemed to cause them annoyance and angst. They were irritated by their parents' closing-the-gate on an episode of cross-gen PA.

Suzy (Child): *Like when they have to go to work or do things.*

Ginny (Child): *Or have to go home to cook dinner.*

Rachel (Child): *Or when they have to go and clean, or do something and it's time to pack up or finish.*

Kate: *Sounds like you've had experience of this?*

Rachel: *It's annoying.*

Suzy: *Sometimes we haven't had much of a go at it, it's annoying.* (Child Focus Group)

In the excerpt above, the child participants' annoyance was palpable, particularly when they felt cross-gen PA had ended prematurely and they had been short-changed. However, being short-changed was relative to the experiences of each individual child participant.

Adam (Child): *We go to the soccer field but we don't get that much time.*

Kate (Researcher): *Who do you go down to the soccer pitch with?*

Adam: *My dad. It's fun. My bubble says I'd like to go down there more often and I'd like more time when I go.*

Kate: *Why do you think it is that you don't get more time?*

Adam: *Mum and Dad are busy.*

Kate: *Do you know how long you get there, have you got a watch?*

Adam: *An hour or 2 hours.*

Kate: *Is it reasonable do you think to spend longer?*

Adam: *No, but I'd still like more time.* (Child Focus Group)

Adam's expectations might not have been realistic or feasible but they do underline the enjoyment and the depth of children's feelings for performing cross-gen PA with their parents and the sometimes unrealistic expectations that children might have of their parents.

In contrast to starting cross-gen PA, where children identified strategies to influence their parents, the children did not appear to have strategies to prolong cross-gen PA. Cross-gen PA was sometimes prolonged but not because of child influence.

Harry (Child): *I've drawn swimming with my Dad. I like relaxing after a hot day at school. I don't like having to leave. I always want to spend longer there. Luckily my Dad often loses track of time. Usually he sets a time to leave, but he loses track and we get to stay for another half an hour.* (Child Focus Group)

Harry's delight in playing with his father linked to his enjoyment of the pool on a hot day was obvious and enhanced by his father's engagement with him. That this caused his father to lose track of time and stay longer than intended was an added bonus. Harry attributes luck as allowing him additional time, rather than a deliberate strategy of his own to distract his father.

These findings highlight the complexity of cross-gen PA relationships and demonstrate that, although an imbalance of control and authority was apparent between children and parents, children were active and influential players in opening-the-gate on cross-gen PA. In contrast, closing-the-gate on cross-gen PA required only one participant to stop the PA and children of this age group volunteered no strategies to influence their parents during the stopping of cross-gen PA. The stopping of cross-gen PA appeared to be the time that children had the least influence and control over their cross-gen PA partnership with their parent, and parents exerted the most influence and control over the cross-gen PA partnership.

Discussion

This study is the first to explore multiple perspectives of cross-gen PA by including both child and parent voices. The study findings highlighted that cross-gen PA is a reciprocal partnership to which both child and parent contribute. Whatever configuration the cross-gen PA partnership assumed, it was an authentic partnership in which each partner influenced the cross-gen PA that occurred. Children acted on and influenced the cross-gen PA and family PA contexts, in addition to being influenced by their parents and family PA contexts. Although finding reciprocity seemed obvious for those viewing cross-gen PA through a socially constructed model of childhood (James et al. 1998; Prout et al. 1990), this research is the first to present findings that challenge the assumption of parents as the sole gate-keeper of family PA. Cross-gen PA is not a uni-directional model of parent influencing child. The findings revealed evidence of the critical influence that child participants exerted over opening-the-gate on episodes of cross-gen PA, and thus it is clear that parents are not the sole initiators of cross-gen PA. Cross-gen recreation, sport, or exercise was co-constructed through the interplay between child and parent. Therefore, children of this age group were not passive

recipients of parental gate-keeping and support, as broadly assumed in current PA literature (Rhodes and Lim 2017). This finding regarding the power and control that a child of this age group can exert over some aspects of the cross-gen PA partnership illustrates that it is necessary to include children's voices in PA research. In previous PA research, the lack of children's perspectives may have led to incomplete assumptions about how PA is experienced by children and families. Child participants' instigation of cross-gen PA and their requests to join in their parent's PA emphasise the relational focus of cross-gen PA and show the possible influence that some children have on a parent's overall PA, in addition to their own. Thus, the current findings build upon those of Rhodes et al. (2010), who concluded that "family PA is dependent upon the planning and regulatory capabilities of parents" by suggesting that family PA involving children of this age group is *also* dependent upon a child's planning and regulatory capabilities.

It was not clear how long children in the current program of research had been offered a choice to join their parents in PA, or if they fully understood the implications of their choices. Many child participants acknowledged the health benefits of PA but previous qualitative research about parent and child perceptions (Years 2 and 5) of healthy eating, activity, and obesity prevention has found that health knowledge does not necessarily translate into healthy behaviour (Hesketh et al. 2005). The types of choice offered by parent participants were interesting. No participants gave examples of being offered or offering multiple PA choices. The choice offered by parents to children of this age group was a clear-cut one, either to perform specific PA with them or not. Offering multiple healthy choices has been found to be more reinforcing of health choices in children of this age group (Epstein et al. 1991). However, it should be acknowledged that the choices offered to children in the study of Epstein et al. (1991) were between active and sedentary computer games, representing a very different context to that of the current research.

Being offered a choice adds weight to the importance of child decision-making in cross-gen PA. It underlines the intuitive logic that children are involved in decision-making on things that affect them (a principal enshrined in The 1989 United Nations Convention on the Rights of the Child). Contemporary children have been found to be active and influential members of the family in other aspects of family decision making (Flurry 2007). Flurry (2007) argued that contemporary children are encountering decision-making at an earlier age, and found that they have a strong influence on their parent's spending on products such as beverages, home décor, cars, and home electronics. A number of different models have been developed to depict a child's influence in the family. For example, consumer socialisation theory is a bi-directional model which proposes that through contributions to family decision-making, children learn norms, skills, and

knowledge pertinent to their functioning as consumers (Martens et al. 2004). Socialisation theory has also been examined in the PA context, but mostly in relation to a uni-directional model of influence. Parental socialisation of child PA has been examined in terms of the role played by various parental support behaviours, including cross-gen PA, and recent meta-analyses have found a small to moderate positive association between parental support behaviour and child and adolescent PA (Pugliese and Tinsley 2007; Yao and Rhodes 2015). The authors found two previous papers (Belanger-Gravel et al. 2015; Haye et al. 2014) that had examined cross-gen PA as a bi-directional relationship between a child and parent. Both studies based their research on social ecological models. Belanger-Gravel et al. (2015) used family systems theory, whereas Haye et al. (2014) used the communal coping model. Together, their findings of bi-directional PA relationships between children and parents and the findings of the current program of research underline the need for further research and for public health programs to acknowledge and consider the critical influence that children may exert upon the health and well-being of their families, including through their influence on cross-gen PA and possibly other possible PA contexts.

This study explored gate-keeping within a cross-gen PA environment, and thus has the major strength of investigating two target groups within the PA domain whose interplay is poorly understood. In addition, by exploring a broad range of cross-gen across the PA categories of chores, active transport, and recreation as well as sport and exercise, differences and similarities between those categories emerged which provided deeper insight into the individual categories themselves. For example, the more permissive tone of parents toward cross-gen recreation, sport, and exercise might not have been identified if comparisons were not available, and these findings provide avenues for further investigation and health promotion.

Limitations of the study

The study was conducted with participants drawn from a single, geographically-defined region of Australia, and it is acknowledged that this, together with the qualitative nature of the research and the small number of fathers that took part, limits the generalizability of the findings.

Although the study adds to existing knowledge of cross-gen PA, it is acknowledged that different participants and different age groups of children are likely to produce differently nuanced results. In addition, the study used several different approaches to gain and triangulate self-reported data on cross-gen PA. Future research should consider the use of observational data in addition to self-reported data to enhance the strength of the study further by providing an additional data set to triangulate with the other approaches.

Conclusion

The study highlights the co-constructed nature of cross-gen PA and the important role that both partners, child and parent, play. In addition, it highlights ways in which cross-gen PA should be understood as being much more than just a parental support factor for child PA. The findings support the need for a more inclusive approach to research on PA partnerships and PA within the family context, by increasing our understanding of the complexity of the child–parent cross-gen PA partnership. Of importance is the finding that children were not passive recipients of parental gate-keeping, as it was found that engaging in cross-gen recreation, sport, or exercise depended upon co-constructed negotiation between the child and parent. Increasing understanding of cross-gen PA and its role for the individual, in the child–parent relationship, and in the broader family unit, depends upon exploration of the multiple reciprocal influences that exist between children, their parents, the family, and the context.

This study leads to a number of implications for physical activity health promotion policy, practice, and research, including:

- An acknowledgement of the control that children have over their own PA, including cross-gen PA.
- Recognition and promotion of the role that both children and parents play in the instigation of, and engagement in cross-gen PA. Future research of cross-gen PA should consider the phenomenon as a bi-directional relationship, acknowledging the influence of child participants.
- Recognition that children contribute a unique voice to the cross-gen PA partnership. Recognition that a child's experience of cross-gen PA is different to that of their parents. Thus, the parent's voice, experience, and impact upon the cross-gen PA partnership should not be used as a substitute for the child's voice and experiences.
- Research all the benefits of cross-gen PA: social, emotional, and cultural benefits as well as physical and psychological in order to provide a holistic understanding of cross-gen PA.

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Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

Ethical approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

Informed consent informed consent was obtained from all individual participants included in the study.

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