How do children with disabilities view 'healthy living'? A descriptive pilot study.

Amy C McPherson (Author for correspondence)

Scientist, Bloorview Research Institute, Holland Bloorview Kids Rehabilitation Hospital

Assistant Professor, Dalla Lana School of Public Health, University of Toronto.

150 Kilgour Road, Toronto, Ontario. M4G 1R8. Canada.

Toronto, Canada

amcpherson@hollandbloorview.ca

Tel: (001) 416-425-6220 ext. 6378

Fax: (001) 416-422-7037

Sally Lindsay

Scientist, Bloorview Research Institute, Holland Bloorview Kids Rehabilitation Hospital

Assistant Professor, Dalla Lana School of Public Health & Graduate Department of Rehabilitation Science, University of Toronto

Toronto, Canada

slindsay@hollandbloorview.ca

Tel: (001) 416-425-6220 ext. 3654

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ABSTRACT

Background: Childhood obesity is one of the greatest health problems of the 21st Century. Compared to their non-disabled peers, children with disabilities have been shown to be at higher risk of obesity and associated secondary conditions which can hinder independence and community participation. Health promotion initiatives for children are rarely tailored to those with disabilities, and children may have different perceptions of health and well-being than those without disabilities. These need to be understood for future health promotion programs to be effective.

Methods: This pilot study explored how children with disabilities perceive health and well-being and involved four discussion groups with children who were currently inpatients at a children's rehabilitation hospital. Descriptive thematic analysis was employed.

Results: Fourteen children (8 girls, 6 boys; aged 8-13 years) with a range of congenital and acquired conditions participated in one of four discussion groups. There was an awareness of 'healthy living' behaviours, nutrition and exercise examples being most commonly cited, although participants particularly discussed 'unhealthy' food preferences. Physical capabilities, both before their hospital stay and their expectations for future activities, were also prominent.

Discussion: Although children in this study had some basic understanding of healthy nutrition, it was not easily translated to their own food choices. Children may need assistance to engage in rewarding physical activities within the constraints of their disability. Exploring healthy living concepts with a

wider population and identifying specific barriers to positive health behaviours will help further inform health promotion strategies.

INTRODUCTION

The World Health Organization has identified childhood obesity as one of the greatest health problems of the 21st Century [1]. In 2009, 26% of Canadian 2-17 year olds were either overweight or obese [2], reflecting similar prevalence rates internationally [3-5]. Particularly concerning is the prevalence of overweight and obesity in children with disabilities, estimated to be two to three times that of their typically developing peers [6-8]. Life expectancy for many children with disabilities has vastly increased in recent years [9,10], yet this progress may be compromised by the increasing prevalence of overweight and obesity [11].

The physical consequences for any child who is overweight or obese can be significant; in the short-term, these include high blood pressure, type 2 diabetes mellitus, atherosclerosis, non-alcoholic fatty liver disease and sleep apnea [12-14]. Longer-term risks include potentially life-threatening conditions such as heart disease, stroke and respiratory disease [15,16]. The negative consequences associated with obesity are compounded for children with existing disabilities, risking secondary conditions and symptoms such as muscle loss, pain, pressure sores, mobility limitations and depression [17,18] which can further hinder independence and participation in the community, and limit leisure and physical activities [8,19-21].

Participating in physical activity can decrease or prevent secondary conditions in children with disabilities [14], resulting in better psychosocial outcomes [14,21-23] and provide valuable opportunities for social inclusion [14,24]. Despite this, young people with disabilities have lower participation rates in

physical activity than typically developing peers [25,26] and are more likely to withdraw due to low self-esteem and poor socialization [27].

In addition to engaging in more sedentary activities than children without disabilities, surveys conducted in school populations indicate that children with disabilities often eat less fresh produce, more 'fast food', more high-fat food and more chocolate than children without disabilities [15,25,26], increasing the risk of both obesity [28] and nutrient imbalances [29]. People with disabilities may also have different perceptions of health and well-being than those without disabling conditions [19,30]; for example, the concept of 'prevention' may have a different meaning for someone who already has functional limitations [30]. Therefore, it would appear that children with disabilities may have a different pattern of lifestyle behaviours and health promotion needs than children without disabilities [15,25,26]. Clearly, any future interventions to promote healthy living behaviours- such as physical activity and nutritional intake- in this population need to address specific environmental and personal barriers that children with disabilities may have or perceive, including their beliefs about what constitutes health and well-being [31]. By simply transferring health promotion strategies used with typically developing children, crucial elements that determine success may be lost.

In order to be efficacious, health promotion programs or initiatives must be seen as acceptable to the population they are designed for [19,24,32].

Otherwise, considerable resources will be dedicated to programs which are set to fail because they lack participant input into the design and direction [33].

Despite this, there is a lack of research seeking children's views directly, instead using parents or healthcare professionals as proxies [28,34-36].

However, involving children in all aspects of their life has been emphasised as a basic human right by the United Nations [37,38] and the benefits of engaging children in matters affecting their health have been repeatedly demonstrated [39-41]. Given that attitudes towards health behaviour in adulthood are often rooted in early experiences [13,42,43], it is vital for positive health behaviours to start in the early years [44-47]. The importance of asking children directly is highlighted by Dunn et al.'s findings that parents of children with cerebral palsy often do not rate their child's abilities the same as the child, including their athletic competence [48].

Gaps in research

Whilst substantial research efforts are being made in the area of health promotion for typically developing children [1,49,50], those with disabilities are largely excluded from both health promotion initiatives and research [51-53]. Little work has directly explored children's perceptions about healthy living and health behaviours. It is therefore vital to develop a better understanding of how children with disabilities view healthy living concepts to enable a more holistic approach to health promotion efforts with the aim that *"Youth with physical disabilities... know that they can have a disability and still be healthy and participating members of their communities"* [25] (p 13). This pilot study is the first step towards a more comprehensive exploration of the barriers and facilitators to healthy living perceived by children with a range of disabilities.

OBJECTIVE

The objective of this preliminary study was to qualitatively explore the perceptions of children with disabilities about what it means to be healthy.

Their understanding of physical activities and healthy eating was also examined, along with the activities the participants were currently engaged in and the food they enjoyed eating. The feasibility of expanding the pilot work to a wider sample was also assessed.

METHOD

Design

A qualitative focus group design was used for this study, which is particularly useful for exploring issues around health and lifestyle [54].

Sample

The sample was drawn from a large paediatric rehabilitation hospital in Toronto, Ontario, Canada. Ethical approval was obtained from the hospital's Research Ethics Board. Potential participants [n=14] were all receiving in-patient rehabilitation for musculoskeletal, developmental or neuro-motor conditions and/or acquired brain injury. They had registered to participate in a six-week health promotion program ('Busy Bodies') run by Therapeutic Recreation Specialists (TRS), one of a number of activities in-patients can join. The program promotes the fundamental components of a healthy lifestyle using experiential learning, aiming to increase the likelihood of continued involvement in healthy, active lifestyles once outside the hospital. It is introduced to patients as an opportunity for fun, fitness and learning and only requires children to have an interest in exploring different physically active leisure activities and be willing to socialize with peers.

A purposive sampling strategy for the research was used with the following inclusion criteria: 1) aged 7-14 years; 2) a registered in-patient at the rehabilitation hospital; c) can communicate in English, either verbally or with a communication aid; d) be cognitively and physically capable of participating in a group discussion, as judged by their attending physician; and e) attending the Busy Bodies program.

The adequacy of the sample size was determined when no new relevant data emerged regarding a category, a category was well developed in terms of its properties, dimensions and variation, and the categories were well established and validated [55-57]. We felt we had reached saturation by the fourth focus group.

Recruitment

The TRS staff distributed information letters describing the research to all children registering for the Busy Bodies program (n=14) and whom they considered met the inclusion criteria. If the child expressed an interest in participating, the researcher discussed the study further with them and screened them for eligibility. It was emphasized that attendance at the program was not dependent upon research participation. Parents were asked to provide written consent and children provided either written or verbal assent, according to their preference. Everyone invited agreed to participate.

Procedure

The Busy Bodies program was run four times between February 2010 and April 2011, with new children participating each time. The focus groups were conducted during the first session of the program before any other activities

had been undertaken, and took place in a quiet, familiar room in the hospital. After a brief introduction warm-up task, the TRS staff introduced the lead researcher (AM) who explained that the group would be having a discussion about 'healthy living' and once again obtained verbal assent. Open-ended prompts were used to guide the discussion, which included questions such as *"What is the first thing that comes into your head when you hear the word 'healthy'?"* and *"What things could you/do you do to be healthy?"* Further details or explanations were elicited through use of prompts such as *"Why is that?"* or *"Can you tell me more about that?"* (See appendix 1 for fuller guide). Direct questions on body image were not asked, given the topic's sensitive nature and the potential for distress. Participants were provided with paper and pens and invited to draw something that meant 'healthy' to them. Printed images from magazines of a wide range of objects and situations were also provided for those who did not wish, or were unable to draw. In this pilot study, the pictures/collages were not analysed as data but used as a child-friendly way to engage the children in discussing health issues [46].

The focus groups lasted between 45 minutes and one hour, facilitated by the lead researcher, with practical assistance provided by the TRS staff. At the end of each focus group, the pictures were reviewed and photographed with the children to sum up the issues discussed in the group as an informal 'debrief'. All discussions were digitally recorded and transcribed verbatim using pseudonyms.

Data analysis

Thematic analysis from a relativist ontological approach was undertaken [58], using a systematic, iterative approach [59]. Both authors independently read

through the transcripts a number of times using inductive coding with an interpretative perspective in order to create codes that looked beyond the written word to understand meaning and context [60]. Patterns and themes were identified around the areas of healthy living raised by participants. The authors met to compare and contrast the themes, which were then merged, relabeled or split as necessary. All codes were then re-read and compared with each other. This iterative process of organizing and comparing the data helped to identify the key themes. Excerpts from the data were then used to support themes and illustrate patterns in the experiences participants recalled. An effort was made to ensure that the themes were representative of the range of views expressed by all of the children and that the ideas from one participant or theme were not over or under represented. Code-recode and peer examination, in addition to regular discussion amongst the authors about the process and the ideas emerging from the data helped to establish the trustworthiness of the findings [56,57,61]. Rather than 'bracketing' and thus removing the influence and insight of the authors, the interviewer's interpretations of what participants were saying were recognised and incorporated into the analysis [62,63]. An audit trail of key analytical decisions was documented throughout the data analysis.

RESULTS

Four separate discussion groups were held involving 14 participants (six males, eight females) aged 8-13 years old (see Table 1). Seven of the children were admitted for rehabilitation regarding a congenital condition, while the remainder had acquired their condition at a later age. (NB. The terms of the ethical approval limited the information we could gather on individuals, so the children's specific conditions and other clinical details are

unknown). The participants varied in their level of mobility: some were able to ambulate independently, while others used mobility devices including power and manual wheelchairs. However, all children had physician approval to participate in physical activity. No child had been identified as clinically obese, although weight was not assessed as part of the program.

Three broad themes were identified within the four discussion groups: 1) Understanding of healthy living concepts; 2) The role of sedentary activities; and 3) Physical abilities and future aspirations. Most of the children seemed aware of what elements were involved in healthy living including eating and exercise, although less about emotional and mental well-being. Children also had little to offer on how they could incorporate healthy living within the constraints of their condition.

Understanding of healthy living concepts

Children in all focus groups agreed that people with disabilities can be 'healthy' and participants demonstrated a fair understanding of healthy foods and nutrition. They readily offered nutrition-related examples in response to the question "What is the first thing that comes into your head when you hear the word 'healthy'?" with fruits and vegetables commonly mentioned. Slightly more detail was occasionally offered, such as "*healthy things [are]...like...grains and....meats and alternatives*" (Sandra, 12).

However, despite being able to name nutritious foods, it was striking how much of the discussions were focused on *unhealthy* food items. When discussing 'favourite foods', pizza, milkshakes, burgers, chocolate, hot dogs

and other foods containing high levels of fat and sugar were discussed at length and were often associated with particular brand names. There was brief acknowledgement by one participant that unhealthy food such as this was often very appetizing, as she stated on her collage *"[It] might taste good but it's bad for you"* (Louise, 11) next to a picture of someone eating a burger. The juxtaposition between 'healthy' and 'unhealthy' food was evident in other participants' collages, as they selected images that represented both 'unhealthy' and 'healthy' food items. Sometimes the participants viewed a food as 'unhealthy', but could not explain why, such as one girl who said:

"Pizza is healthier than most junk foods like fries, or I don't know, something else, hamburgers. But it's still considered a junk food. So there still must be something in it that makes it fattening" (Sarah, 12)

Canada's Food Guide [64] was also identified, although participants did not demonstrate a detailed knowledge of its advice and did not appear to be translating the information into their own diet. When discussing how a person might be able to identify whether a food was 'healthy', participants in one group talked about the nutritional information displayed on most products, although again, they did not demonstrate a detailed understanding:

Nicole: *You read the...thingy... the nutrition table...[look for] vitamins, then onto calories, then fat, calcium, if there's any in it. Yeah, stuff like that.*

Researcher (to group): *So do you usually look at the labels?*

Nicole and group: *No*

A participant in a different group also suggested *"Check out the back...like, when you're eating chips, at the back, it says everything that it's made of"* (Sarah, 12), although she was not able to explain how she would then use the information to guide her food choices.

Therefore, despite having some knowledge of what constitutes a healthy meal and how nutritional information and guidance can be found, there was little evidence of it guiding the participants' own diets or food choices. Even when participants purported to have balanced diets, further discussion revealed that, in fact, this was not strictly the case. For example, Nicole (aged 13) said *"I'm a vegetarian, so all I eat is healthy"* at the start of the third focus group, but later confessed to having a 'sweet tooth' and a penchant for ice-cream, cake and chocolate.

Two groups briefly discussed the merits of drinking water with one participant asserting *"You have to drink water because you're made of that...so if you stop drinking water, then you'll die"* (Jacob, 9).

Physical activity was the other main 'healthy living' concept to be identified by participants. One participant (Sunil, 11) made a collage of being 'healthy', which was a collection of pictures depicting people doing very active sports. Participants said physical activity promoted fitness and prevented obesity, but were unable to elaborate upon the mechanisms by which it did so. One participant suggested a physiological benefit of exercise, saying, *"They [activities] make your lungs breathe"* (Natalie, 13) with a fellow participant adding *"Cardio, your heart"* (Sarah, 12), although neither were able to elaborate further.

Engaging in exercise was also thought to be beneficial *"so you don't get lazy"* (Michelle, 12), although it was unclear where this apparent value judgement had originated. The additional psychosocial benefits of exercise and activity were not raised by any of the participants (this is discussed further below). Physical activity was also discussed in relation to specific physiotherapy they were undertaking:

Researcher: *What else is 'healthy'?*

Jacob: *Doing exercise every day...my leg exercises.*

The role of sedentary activities

When participants were encouraged to identify any other aspects of life that contributed towards well-being, being healthy or 'feeling good', covering both physical and mental health, they identified solely sedentary activities. For example, reading was mentioned by participants, as was using the Internet - this in particular was useful for maintaining social contact with friends and family, both for the children themselves and for their parents, although the amount of time spent on this was not quantified. Peter (10) purported to use social networking websites, whilst Sunil (11) reported that his mother communicated via the internet with friends and relatives about his progress, whilst he went online for playing games, e-mailing and finding new music. One participant introduced an interesting concept when she described using the computer to talk to friends living away and said adamantly *"and don't consider it unhealthy, 'cos it's not, and I'm not addicted to it...I was only addicted to it the first month!"* (Louise, 11).

Aside from sedentary activities such as reading and computer use, there was little acknowledgement of other aspects of life which promote health and well-being, for example, having friends, participating in groups or teams, having sufficient energy to engage in preferred activities and so on.

Participants in one of the groups also discussed the benefits of sleep, such as *"I feel refreshed [after a night's sleep]"* (Sandra, 12) and *"It is healthy"* (Jacob, 9). However, of note was that participants also chose to include pictures of people in bed or on sofas and other sedentary activities (e.g. watching television) in their 'unhealthy' part of their pictures (Natalie, Sandra, Anna). It was also interesting to note that health behaviours such as smoking and drinking alcohol were not raised in any of the discussion groups, although Louise included an image of a cigarette tray in her collection of 'unhealthy' images.

Physical abilities and future aspirations

When talking about exercise, participants were keen to talk about sports and exercise they had done in the past. This often emphasised how strong or fit they had been before they had come into hospital. For example, Nicole (13) volunteered *"I used to play volleyball, soccer, basketball, football and... badminton"*, whilst Louise (11) told her group *"I did lots of running and I went on the treadmill, lifted 20lb weights...with each arm"*. Sandra (12) talked about her physical abilities before she came into hospital saying *"I could do the things with my right hand [outside hospital]...tennis, badminton"* (Sandra, 12). Sarah talked about her previous enjoyment of dancing saying *"I used to be a dancer. I used to be able to do the splits!...I did tap, ballet and jazz"* (Sarah, 12).

This did not seem to differ between disability type (acquired/congenital), age or gender. It was striking that although they talked about past activities, the participants rarely discussed activities they were currently engaged in or capable of participating in. For example, after Nicole had listed the sports she did before her hospital stay, she was asked *"...are you looking forward to doing anything [activities] whilst you're here?"* To which she replied *"Not really"*. It was unclear whether she had simply not adjusted to her (recently acquired) condition or she was unaware of the adapted physical activities available (or both).

Participants also looked to the future, when they hoped to return to activities they had previously enjoyed. For example, Louise talked about how she had enjoyed going on her trampoline and another participant asked if she was planning to use it again, to which she responded, *"...when it's the summer, when I'm walking"*. Whilst a certain amount of this may have related to the realities of her post-operative physical rehabilitation, the overall focus of the discussions was very much about 'the future' as a somewhat vague time when they would be able to undertake any activities they chose, whether or not this was realistic. Jacob was confident that he would *"do more things"* than he had before, now that he'd had his leg operation. The participants showed no knowledge or consideration of activities or adapted sports they could participate in whilst they were rehabilitating from their surgery or their condition, although it is unknown whether this had previously been discussed with them.

DISCUSSION

The children in this pilot study appeared to have a fairly narrow view of 'healthy living,' concentrating mostly on nutrition and, to a lesser extent, physical activity. Whilst the broad physical benefits of exercise to reduce or prevent obesity were reported, participants did not seem to recognize the additional psychosocial benefits that exercise and activity can bring [14,21-23]. Indeed, none of the groups mentioned dealing with stress of any form, despite this being an important component of health [32]. This further reinforced that participants appeared to have a limited concept of 'health' and seemed to find it difficult to consider concepts outside of nutrition and exercise.

Of concern was the apparent discrepancy between children's knowledge of healthy foods (e.g. fruit and vegetables) and their reported food preferences and diet (e.g. fast food). This proclivity towards unhealthy food is troubling since food preferences and eating patterns as a child often track into adulthood [65-67]. This knowledge-behaviour gap around nutrition has also been reported for typically developing children [66,68] and highlights how crucial it is for all children to develop good eating patterns and nutritious food preferences from an early age [13,69]. However it may have even more importance for children with disabilities, given the high risk of becoming obese and the implications for their health and participation in life [11,70]. The participants in this study appeared unable to translate their (limited) knowledge of the national food guide into their own diet, suggesting that a significant health promotion need was currently unmet.

A dominant theme in the focus groups was a desire to be perceived as fit and strong at some point in their life, which may have been an attempt to

demonstrate their 'normality' within a medicalised environment. Children with disabilities often have a reduced self-concept around their athletic ability [71], particularly females [72], so health promotion activities need to take this into account. If children are using their non-disabled peers as their 'social norm', it could lead to frustration and feelings of inadequacy, which are unlikely to lead to lasting behaviour change [73]. Bringing the child into the 'here and now' and discussing their expectations for themselves may help them to develop sustainable activities that impact positively upon their fitness, independence and identity [48,53,74]. Children's self-efficacy or 'self-confidence' around physical activities is also likely to play a key role [75,76], which requires exploration as part of a larger study.

The surroundings and timing of the focus group undoubtedly influenced the children's responses. All participants were experiencing active rehabilitation for their condition at the time of the focus group, which may have hampered their usual abilities and focused them more upon body function.

Unfortunately, we do not know how realistic different activities were for individuals. Furthermore, as the groups were conducted in an in-patient setting, participants were also out of their usual environment and their choices over activity and food were more restricted than usual. However, we encouraged the children to think about the concept of healthy living more globally than just their current circumstances. The Busy Bodies program is innovative in this respect, as health promotion programs are usually run for out-patient populations [53,77]. However, preparing children for life beyond the hospital is an important part of the rehabilitation process, so that children and young people have adequate tools once they have more autonomy over

their lifestyle behaviours [66]. More research is clearly required to explore the experiences and perceptions of children at different stages of their healthcare.

Participants also mentioned sedentary activities they engaged in, such as reading and using the computer. Previous research has shown that children with disabilities engage in more sedentary activities than their typically developing peers [15,78], although the children in our study did not quantify their activities in any way so we cannot make such comparisons.

Interestingly, although some participants described sedentary activities as contributing to their well-being, others also depicted them in their drawings and collages as being 'unhealthy', which warrants further exploration in future studies.

As with other health promotion activities, it is important to look at the child's wider environment and engage the child's family [12,79]. For example, exploring parental perceptions of their child's physical activity involvement could be particularly fruitful when designing programs for children with disabilities [80] given that exercise patterns can be heavily influenced by parents [13,18,80]. It is therefore important to address parental barriers to implementing different healthy lifestyle behaviours [28,81]. However, it is still vital to ask children directly, especially as many parents of children with disabilities underestimate their child's abilities in this regard [6,7,78]..

Implications for healthcare professionals/ health promotion programs

Although participants in this pilot study demonstrated a basic understanding of nutritional information, it appears that healthcare professionals still have a role in reinforcing healthy choices when discussing diet. However, to ease the

translation of theory to practice it seems likely that any information requires grounding in daily life, for example, demonstrating what to look for on food labels and healthy options to take to school. This may be particularly salient for children with cognitive impairments.

One of the goals of Busy Bodies is to introduce participants to a wide range of sports and activities, using adapted equipment where necessary. It would appear that this is a particularly pertinent issue for health promotion with children with disabilities, as they may not know what options are available to them if they are unable to participate in sporting activities in their usual manner, whether that's due to a newly acquired injury or the exacerbation/treatment of an existing condition. No one in this study identified the additional advantages of exercising, such as the psychosocial benefits of making friends, increasing participation and improving psychological well-being. Therefore, it may also be useful to emphasize these additional benefits of exercise to children [77]. Breen and colleagues suggest a 'strengths-based' notion of well-being, whereby healthcare professionals look at the child's abilities and environment, and capitalise on their strengths [74]. This is in keeping with the International Classification of Functioning, which looks at how all aspects of the person's life affect their participation in life and therefore emphasises a broader definition of healthy living [31].

Strengths and limitations

This study is one of the first to directly explore how children with disabilities perceive healthy living and benefited from using a qualitative approach with child-friendly methods. The involvement of key informants with a range of experiences contributes to the credibility of the findings, along with the provision of exemplar quotes for the themes identified by the authors [82].

Such qualitative work can provide more detailed insight into children's experience of living with a disability than survey data can provide (e.g. [25,78,83]) and the findings suggest some potentially fruitful directions around health and well-being to explore in more detail.

However, it is still important to interpret the findings with some caution, as this was an exploratory study conducted in only one rehabilitation hospital. Therefore, research with a wider sample of participants from a broader range of settings is required to investigate whether similar patterns exist and establish both the confirmability and transferability of our findings [61,84]. Similarly, the sample was heterogeneous in that it included participants with both acute and congenital conditions across a range of ages, both of which are likely to affect people's perceptions and health behaviours [66,85]. However, grouping the participants on the basis of their condition and age was not possible in this study due to the small numbers. The potential differences between children who have had their condition for life and those who acquire impairments later on clearly requires further exploration.

All of the children in the study were starting in a program around healthy living ('Busy Bodies'), so were possibly already sensitized to the topic. However, this also provided a relevant context within which to hold the focus groups, so that the participants were already focused on healthy living topics. Because the discussion group took place before any teaching or activities had started, children were not merely reflecting back material from their short-term memory.

The role of the researcher in qualitative research is key [60]. In this study, the lead researcher who facilitated the discussion groups had extensive experience working with children as research participants within a social sciences/health psychology paradigm. Even though the researchers were not health professionals or introduced as such, it is still possible that being identified as member of hospital staff could have affected participants' answers. The Therapeutic Recreation staff that were familiar to the participants were also present to provide practical support, which may have influenced the respondents' contributions. However, the children and youth who took part were encouraged to be honest, assured that there were no 'right answers' and that there would be no repercussions from anything they contributed to the discussion. The discussions around unhealthy food choices suggests that participants did not censor themselves in this regard. It may explain the lack of discussion of behaviours such as smoking and drinking alcohol, but previous work has demonstrated that young people with disabilities have lower rates of using substances [26], so those risky behaviours may not have been salient for the young people at that time.

One key methodological issue was the use of the child-centred art activity, intended to engage the participants and provide a non-threatening environment for discussion. Participants engaged in the task readily and took great pride in their artwork. However, the flow of conversation was slightly limited by the children's intense concentration on the task, reflected in the fairly brief nature of many of the exemplar quotes. Careful consideration must be given regarding the timing of activities when requiring participants to do two things at once i.e. draw and talk. Many of the key quotes came from a small number of the more talkative participants, but careful review of the

transcripts showed that these were representative of the wider group, including the quieter members.

CONCLUSION

This preliminary work has highlighted some potential health promotion needs that require exploring in more detail. Although some may be common to all children, others may have more salience for those with disabilities, or require an alternative approach. The specific environmental and personal barriers that children with disabilities may have or perceive, including their beliefs about what constitutes health and well-being, require further elucidation. Future health promotion interventions will require much more in-depth information to ensure that they both efficacious and seen as acceptable by children with disabilities.

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CONFLICT OF INTEREST

Neither author has any conflict of interest to declare.

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Table 1- Participant characteristics

* All names are pseudonyms

Participant*	Gender	Age	Condition
Sunil	male	11	Congenital
Peter	male	10	Acquired
Louise	female	11	Congenital
Owen	male	11	Acquired
Eric	male	8	Acquired
Sandra	female	12	Acquired
Jacob	male	9	Congenital
Nicole	female	13	Acquired
Amelia	female	10	Acquired
Terri	female	12	Acquired
Michelle	female	12	Acquired