




BMJ Open Understanding children's perceptions of, and priorities for, healthy neighbourhoods in Aotearoa New Zealand: study protocol for a cross-sectional study

Victoria Egli ¹, Sandra Mandic ², Tessa Pocock ¹, Anantha Narayanan,¹ Lisa Williams,¹ Terryann Clark,¹ Lisa Spasic,³ Ailsa Wilson,⁴ Karen Witten,⁵ Melody Smith¹

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For numbered affiliations see end of article.

Correspondence to

Dr Melody Smith;
melody.smith@auckland.ac.nz

ABSTRACT

Introduction Neighbourhood environments can have significant and enduring impacts on children's physical, psychological and social health. Environments can impact health through promoting or hindering physical activity, active travel, and healthy eating in addition to opportunities for social interaction, cognitive development, rest and relaxation. There is a paucity of research that has examined neighbourhood and health priorities, strengths and needs from the perspectives of the community, and even less that has focused on the perspectives of children within communities. The aim of this article is to describe the research protocol for a project to gather child-identified needs and strengths-based solutions for promoting child health and well-being in urban neighbourhood environments.

Methods and analysis This participatory research project is designed to partner with children in school settings in Tāmaki Makaurau Auckland and Ōtepoti Dunedin, Aotearoa New Zealand. An abundant communities approach will be used with children to identify needs and strengths related to neighbourhoods and health. Specific methods including collaborative, creative, play-based methods such as concept-mapping activities and co-creation of final dissemination material on the key messages are described. Plans for researcher reflections, data analysis and dissemination are also detailed.

Ethics and dissemination This research has been approved by the University of Auckland Human Participants Ethics Committee. Results will be disseminated through child and researcher co-created output, a technical report and academic journal articles. By using evidence-based child-centred approaches to knowledge generation, we anticipate the research will generate new localised insights about children's preferences and needs for healthy neighbourhoods which will be shared with stakeholders in planning and practice. The detailed session protocol including critical researcher reflections is shared in this manuscript for application, development and refinement in future research.

INTRODUCTION

Neighbourhood environments can have significant and enduring impacts on

Strengths and limitations of this study

- Child-centred research methods are being used to understand how children perceive healthy neighbourhoods and to identify children's needs and priorities.
- Children will be supported to develop knowledge-translation outputs for sharing their neighbourhood needs and priorities with stakeholders.
- An in-depth researcher critical reflection process will aid development and refinement of processes for future research.
- A detailed session guide has been developed that will support researchers when working with children to understand their environmental perceptions, preferences and needs.

children's physical, psychological and social health, through promoting or hindering physical activity, active transport (eg, walking, cycling or scootering for transport), independent mobility (unsupervised play and active transport) and healthy eating.^{1 2} Evidence demonstrates the important downstream impacts of these relationships, including promoting a healthy body size and positive mental health.³⁻⁶ Evidence also suggests a direct link between neighbourhood green/natural space and mental health.^{7 8}

Built environments are the places and spaces created and modified by people, encompassing a range of physical and social elements that make up the structure of a place and of a community.^{9 10} Built environments are likely to have more sustained influences on health behaviours and outcomes than individual factors. For example, individual, education-based strategies to improve physical activity have proven unsuccessful at

the population level, predominantly because the environmental context remains unchanged.¹¹ A WHO review concluded ‘Environmental interventions targeting the built environment, policies that reduce barriers to physical activity, transport policies and policies to increase space for recreational activity have been demonstrated to be effective.’¹²

There is widespread agreement that built environments can promote or hinder health behaviours and outcomes, and evidence exists for specific environmental features of importance.^{1 2 13 14} Inequalities may exist in terms of residential access to health-promoting environments (eg, public open spaces).^{15–17} An Aotearoa New Zealand (NZ) study has shown greater access to fast food, takeaway and convenience outlets around lower decile, compared with higher decile, schools.¹⁸ Similarly, our research has shown greater exposure to unhealthy food and beverage advertising marketed to children in more walkable and higher deprivation school neighbourhoods, compared with less walkable and lower deprivation school neighbourhoods.^{19 20}

The Child Friendly City Framework for Action was developed by UNICEF to facilitate implementation of the United Nations Convention on the Rights of the Child (UNCROC) in local government processes.^{21 22} A child-friendly city is one that fulfils children’s rights through enabling children’s voices, and integrating children’s needs, priorities, and opinions into public policy, programmes, and decision-making.²¹ A recent systematic review revealed numerous potential benefits to the child as well as their community when child participation is facilitated in urban design, however evidence of systematic policy drivers to enable this was limited.²³ There is also a need for increased understanding and application of best practice approaches for environmental design from the perspectives of children.^{23 24} Activities that fit with the Child and Youth Friendly Cities framework can be found in NZ, for example, in the Northland city of Whāngārei.

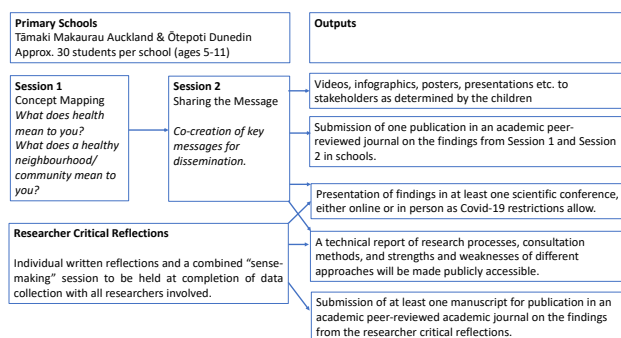


Figure 1. Structure of the data collection methods and associated outputs

As part of this, the Northland Inter-sectoral Forum, a collective of government agencies in the region, has committed to a 5-year challenge to develop individual agency plans that focus on child and youth needs, rights, voice and preferences.

Approaches to undertaking environment and child health research are intertwined with how childhood and children are constructed and defined. Here we draw from the UNCROC²² and the ‘new social studies of childhood’, whereby children are seen as competent social actors, and a socially constructed group in their own right (as opposed to being pre-adult ‘becomings’²⁵).^{26–28} It is important to situate research findings within wider socio-political structures.²⁹ This stance allows us to see children as unique and different to the adults who are responsible for the physical and political world in which children exist and to recognise the potential for this group to provide unique knowledge. This framing has provided us with the impetus and rationale to seek, respect, and share children’s perspectives with the aim of informing future policy and practice.

In this context, we take a ‘child-centred’ approach, by exploring and prioritising children’s perspectives through employing participatory research methods,³⁰ and facilitating children’s knowledge transfer with stakeholders in policy and practice. A range of participatory and co-creation/co-design approaches have been employed with children,^{23 24 31–34} with the depth of engagement and framing of children and their role in the research varying substantially.³¹ Here, we draw from Horgan,³⁰ in particular by being cognisant of power and representation, managing the potential risks of group thinking (which could exclude individuals), and using visual and activity-focused methods. Co-creation of information will draw from Paracha *et al*³⁵ including approaches to allow for multiple perspectives on effective communication, translating field data into usable insights, and idea-generation and rapid concept development. Concept mapping is likely to be a useful method to aid children’s generation of meaning frameworks,³⁶ as children are not required to come with pre-existing frameworks or understanding. Instead, the concept-mapping approach allows for multiple ideas, topics, and data inputs to be considered, collated, and structured to generate meaning, identify priorities, and understand links between concepts.^{37 38}

Previous consultation with children has highlighted the unique perspectives that children can bring to understanding communities and health.³⁹ For example, children (aged 5–12 years) expressed a clear desire for kind and caring neighbourhoods—an unlikely finding to arise had an adult-centric approach been taken to eliciting information. At face value, this may not seem to directly inform neighbourhood design, but a deeper examination of the priorities and rationale behind this can be extremely powerful, and can be used to inform neighbourhood design for those who might need it most (examples given by children include: provision of seats for the frail and streetscapes that support individuals with mobility impairments to get around safely). This project demonstrated the capacity and capability of young people to communicate effectively on the design of environments that will promote use and enjoyment of the space.

This scenario is reflected in similar research conducted internationally.^{40 41}

The research outlined in this study protocol aims to extend this child-centred approach, by starting with the children themselves (rather than a predefined need/setting), identifying what they see as being important in their neighbourhood, where they would like changes made, and what changes they would like to see; and then empowering them to share this information with relevant stakeholders. In this context, we prioritise āta, or growing respectful relationships, through building and nurturing relationships, respecting children's thoughts, perceptions and needs, and recognising the research as a reciprocal process.⁴² An abundant communities philosophy prioritises people and communities as having something to contribute to impact positive change, and the competence to problem solve and generate change.⁴³ Such community strengths-based approaches are integral to developing health interventions and messages that are appropriate, acceptable, relevant and effective.

The aim of this research is to gather community-identified needs and strengths-based solutions for promoting child health and well-being in urban neighbourhood environments. This article will detail the protocol developed to undertake this research.

The key research questions are:

1. What does 'health' mean to children? How do they define/describe health?
2. What community and neighbourhood 'assets' do children draw on to promote health (of themselves or others)?
3. What are children's requirements, priorities and preferences for the design of their neighbourhoods?
4. How can children inform the design of their neighbourhoods for optimal health (what processes exist; what are children's preferences for communicating their thoughts; how can this be achieved)?
5. How can researchers, practitioners, and policymakers work with children to support knowledge transfer, and ensure health promotion initiatives and research are appropriate and effective?

METHODS AND ANALYSIS

This research will use a child-centred participatory research approach³⁰ in primary school (age 5–11 years) settings in Tāmaki Makaurau Auckland and Ōtepoti Dunedin, NZ (figure 1). Cross-sectional data collection will be undertaken with a convenience sample (ie, non-probability sampling based on ease of obtaining a sample⁴⁴) of schoolchildren. An abundant communities approach will be used with children to identify needs and strengths related to neighbourhoods and health.⁴³ Planned dates for data collection are June 2020–August 2021. The timeline for the process is flexible across the activities and will fit with school priorities (eg, the time gap between session 1 and session 2 could be anywhere between 1 day and 2 weeks depending on school schedules). Researcher

critical reflections will occur within 2 days of data collection at each school. The dissemination process will occur after all school data collection is complete and is anticipated to occur after August 2021.

Participant recruitment

Four primary schools (two each in Tāmaki Makaurau Auckland and Ōtepoti Dunedin) will be invited to participate in this research through the investigators' existing relationships. The study will be conducted in the cities of Tāmaki Makaurau Auckland and Ōtepoti Dunedin. Despite being a sample of convenience at this regional level (the research team currently works across these two cities), the two regions also have considerable differences in sociodemographic characteristics which was of relevance to the research. Ōtepoti Dunedin City has a population of 126 255 usual residents with a median age of 36.8 years, 86.6% of whom identify as being of NZ European ethnicity, 9.3% Māori, 3.2% Pacific and 7.8% Asian.⁴⁵ In comparison, Tāmaki Makaurau Auckland is NZ's largest city, with a population of 1 571 718; the population is slightly younger (median age of 34.7 years), and considerably more ethnically diverse (53.5% NZ European, 11.5% Māori, 15.5% Pacific and 28.2% Asian).⁴⁵ Schools will be purposively selected for invitation with the aim to have heterogeneity in area-level geographical and sociodemographic factors. All schools will be provided with an information sheet for the school and their board of trustees (Crown entity responsible for governance and control of school management). Researchers will also provide information on sessions to school staff and meet with the school principal where requested. Consent from an authorised school representative will be required for the school to be involved in the study.

Approximately 30 children participants per school will be involved in the research. Our extensive experience working with schools and children has affirmed the importance of being flexible and adaptive in research approaches and respecting school needs and preferences, and in the feasibility of recruiting the proposed number of children.^{46–48} Accordingly, participating schools will be asked to invite children to participate in this research. As we are not seeking representativeness or generalisability, and aim to conduct the research in a way that works for schools, we will not stipulate the method by which children will be identified and invited and instead we will work with the schools to recruit children. From the researcher perspective, all children attending the school are eligible to participate (ie, there will be no restrictions on age/year level). However, some schools may choose to identify one class/year group in the school to participate (for ease of scheduling activities around school timetables); and in other schools, all children across all primary school years may be invited on a first-come, first-serve basis.

Schools will be asked to provide children with research material prepared by our research team, comprising a child information sheet and invitation to participate, parent information sheet, child assent form and parent



consent form. Children will be asked to take this material home, and will be given at least 2 weeks to consider the invitation and ask any questions about the research (email and phone contact details will be provided in information sheets for the principal investigator and ethics committee representative). Both child assent and parent consent will be required in order for the child to participate in this research. The only exclusion criterion will be if the child is going to be away on any of the scheduled research activity dates.

Data collection

Over two sessions of approximately 2.5 hours each, the research team (comprising three to four researchers with at least Master's level qualifications in health promotion or related fields) will come to each school to conduct data collection sessions.

In session 1, the focus will be on concept-mapping,³⁶ where researchers will work with students to generate definitions and meanings for the two focus areas: (1) What does health mean to you? and (2) How does your community/neighbourhood help you/others to be healthy? After an introductory session to introduce each other and the project and share ideas about key concepts, children will be organised into small groups (approximately four to six children) to brainstorm answers to each question as a group. Research team members will move throughout the space and provide intermittent facilitation where required. Once potential ideas are recorded, groups will be encouraged to organise ideas into themes, again with facilitation where required. A whole-group voting session will then be undertaken—this involves children covering their eyes (in order not to see other children's preferences) while raising their hands to vote for priority topics. Data collected during these sessions will be in the form of photos and/or video (with no child identifiable) of post-it notes, whiteboards, drawings, craft-work, and/or models. For each of these forms of data, information will be entered into a Microsoft Excel spreadsheet for analysis (eg, where available, information will include group number/name, and for each stage of the process any words/phrases written and photographs of drawings or sculptures, etc). In addition, descriptive data will be collated on the number of children participating, number of groups, numbers of children in each group and number of votes for identified topics. The research team will work with children to generate key messages for child-selected priorities for a healthy neighbourhood to share with stakeholders. This could be achieved through discussions, mapping out ideas on whiteboards, or acting out scenarios with children depending on their preference. Depending on the key message of choice, target stakeholder audiences could include local or regional boards, councils or transport agencies.

In session 2, following reorientation activities to remind children of the concepts from session 1, the children will select a concept from session 1 and will co-create dissemination materials to share with stakeholders.³⁵ It is possible

that these dissemination materials, determined by the children, will include posters, flyers, written speeches and/or a video made using models and other materials. Research team member roles will be to support children in creating these materials which may include helping to finalise and fine-tune wording, but their role will not include determining the topic of interest or key messages.

After each data collection session in each school, researchers will reflect on the session and document these reflections within 2 days, following the critical reflective practice questions of Fook and Gardner.⁴⁹ Specifically, members of the research team will be asked to reflect on what they did, what different perspectives arose (or may have been missing), the researcher's potential influence on the situation, personal theories of practice and how these theories could be trialled. Reflection on group dynamics as described by Van Mechelen *et al*⁵⁰ including what occurred and how this may impact the findings may also be completed. These reflections will be recorded by each researcher individually in the form of written Microsoft Word documents. At the completion of all data collection, researchers will meet again to consider these reflections and make sense of the data, drawing again from the approach of Fook and Gardner.⁴⁹

Detailed methods that will be used in all data collection sessions are provided in full in the session guide (attached as online supplemental material).

Analysis plan

Quantitative data, including counts of ideas and themes generated during the concept-mapping activities and the results of voting on key messages, will be analysed descriptively using SPSS V.24 (IBM). Qualitative data including images, pictures, videos and researcher critical reflections will be uploaded into NVivo V.13 (QSR International, Melbourne, Australia) and analysed using thematic analysis.⁵¹ Analysis will be checked by a Māori team member to ensure that Māori understanding is amplified and understood within their context.

Patient and public involvement

While the development of the research aims was informed by our previous research with children,^{15 46 52 53} children did not inform the research aim or study design directly. School representatives were involved in child recruitment as outlined above, and to some extent informed the conduct of the study (in terms of timing and location of data collection sessions). Study participants will be involved in developing outputs for sharing with stakeholders as outlined above. Participants who have indicated on the participant consent form that they wish to receive study results directly will be sent published articles from the research. Published research will also be shared with schools.

ETHICS AND DISSEMINATION

This research was approved by the University of Auckland Human Participants Ethics Committee in 2019 (reference number 022910). Community dissemination activities will include: a child and researcher co-created output³⁵ that outlines community needs and strengths-based solutions for promoting child health and well-being in urban neighbourhoods for sharing with the general public and stakeholders (eg, in urban design or transport planning, dependent on the topic chosen by children) and a technical report (that can also be used for academic dissemination purposes). The research team have existing relationships with a wide range of stakeholders in urban design, child health and transport planning through previous research. We will draw on these relationships to ensure children's messages are shared with appropriate stakeholders effectively. Academic dissemination is proposed to include a scientific journal article articulating child-identified neighbourhood health definitions and priorities, and a second scientific journal article focusing on researcher critical reflections. Findings will also be submitted for presentation at relevant scientific conferences (eg, Child in the City) and local stakeholder-relevant conferences (eg, Living Streets Aotearoa New Zealand Walking Summit, 2WalkandCycle).

DISCUSSION

This research will provide new information and localised understanding of how neighbourhoods can impact child health and how these might differ across geographical contexts (and where possible, across sociodemographic contexts), with a priority placed on identifying strengths and needs from a child's perspective. A wealth of evidence demonstrates children bring unique perspectives and playfulness to understanding how environments can support optimal health outcomes.^{24 31 54} This information is essential for the development of effective interventions for improved health and health outcomes in young people.^{1 55} Yet such community-driven approaches are scarce, likely due to the time commitment required to nurture relationships and ensure reciprocity^{56 57} and a lack of mandating legislation.²³ Through co-creating outputs to share with stakeholders, we aim to bridge the gap between children and policymakers/practitioners and lay the foundation for future research to improve these links and knowledge-transfer pathways. In-depth researcher critical reflections will be used to produce new knowledge for refining the protocols used in this study and for developing research in this field.

The strengths-based and child-centred research methods used in this research are well placed to elicit local understanding and ascertain specific areas of importance to children.^{23 24 40} The study design will also facilitate the sharing of children's knowledge, talents and gifts to stakeholders. This approach embodies the abundant communities philosophy which posits that within neighbourhoods, communities have the capacity to address

human needs and that this occurs by listening to and providing space for all community members (including children and other marginalised people) to contribute.⁴³ As child health and well-being is no longer solely the responsibility of the health profession,⁵⁸ our methodological approach answers the call by Clark *et al*,⁵⁸ on behalf of the WHO and UNICEF (2020) to 'find better ways to amplify their (children's) voice and skills for the planet's sustainable and healthy future.' The inclusion of creative and arts-based dissemination and knowledge-translation materials is a vital component of this research which specifically aims to address this need.^{59 60}

Anticipated challenges to the research include school recruitment, issues with engaging children in the activities, ensuring depth of information collected, researcher perspectives impacting the research or over-riding children's perspectives, and challenges of knowledge transfer with stakeholders. Specific methods being employed have been drawn from previous research while recognising the importance of being flexible and adaptable in school settings. Proposed approaches to deal with each of these challenges are as follows:

1. School recruitment: we recognise the considerable time challenge schools have due to numerous competing priorities. Methods for engaging with schools and recruiting children have been informed by previous environment and health studies involving school-aged children.^{47 48 61} In this research, we are proposing to approach schools where the researchers have existing relationships or connections to aid school recruitment. We will make the research process as streamlined as possible for schools by having clear documentation and processes to share with the school over one face-to-face meeting and having one key point of contact for the school (as opposed to multiple forms of communication over multiple contact points with multiple people). In our documentation, we will be clear that the process can be flexible to meet the school's needs and preferences (eg, providing a range of dates, allowing for flexibility in timing between sessions 1 and 2, and enabling the school to choose the optimal participant recruitment approach for them). We will offer to bring knowledge-transfer materials back to the schools and share these with the school community in a way that the school chooses.
2. Engaging children: it is possible that perspectives of some children are not gathered due to group dynamics, or that children are not engaged in the process at all. To increase engagement, the full session guide allows for preliminary games with the aim of having the children connect with each other and the research team, and to release some energy before the concept-mapping activity. Consideration of group dynamics and qualitative research with children is grounded in the work of Van Mechelen *et al*⁵⁰ and Darbyshire *et al*,⁶² respectively. In particular, all data collection team members must have familiarised themselves with possible group dynamics identified by Van Mechelen *et al*⁵⁰



- (unequal power, free riding, laughing out loud, apart together, deconstructive conflict, groupthink), and associated strategies to overcome these.
3. Ensuring depth of information: even with high levels of engagement, it is possible the planned duration and number of sessions will be insufficient to collect meaningful information with participants. Participatory approaches and associated methods exist across a spectrum.⁶³ At the higher end of this spectrum, allowing time to explore the study area; providing opportunities to learn about the area's history; understanding what transformations are possible (eg, through site visits); and having sufficient time to accumulate this information alongside individual experiences to formulate ideas and to generate inputs are important.⁶⁴ In the current study, time and funding constraints alongside the aim to collect information in geographically diverse school neighbourhoods restrict such deep engagement with children. Strategies to support the collection of meaningful information include having a team experienced in working with children, participatory methods and group work; having a robust, evidence-based and piloted protocol to keep the data collection on track; and having clear objectives for children to work to during the sessions. It will also be important to consider the limitations of this work in terms of depth of information when we undertake study dissemination.
 4. Researcher perspectives: drawing from Van Mechelen *et al.*,⁵⁰ we see the researcher role as orchestrating 'dialogue with and among children and to make sure value conflicts are transcended and translated into meaningful design concepts'. The research team are all experienced in child and health research, and are cognisant of the potential role of researcher bias and positionality in how research is conducted and interpreted.⁶⁵ The full session guide provides clear guidance for the team, for example, providing lists of prompting questions rather than researchers using leading questions. The concept-mapping protocols have been drawn from the work of Novak³⁶ and reformulated for use with children based on pilot work. Researcher critical reflection is also an important component of the research; critical researcher reflections are informed by Van Mechelen *et al.*⁵⁰ and Fook and Gardner.⁴⁹
 5. Stakeholder knowledge transfer: as noted above, the research team will draw existing relationships to ensure children's messages are shared with appropriate stakeholders effectively. Importantly, three of the team members (TC, LS, AW) have roles in relevant stakeholder organisations (a primary health organisation, council and a local board, respectively). This multidisciplinary team will help inform approaches for effective knowledge transfer to stakeholders. Finally, we aim to undertake additional research in the future to focus on this area of research with the aim of optimising knowledge uptake and developing strong knowledge transfer processes for this and future projects.

This research will provide urban planners and policy-makers with a practical understanding of how participatory research approaches with children can be employed. We have provided the full session guide in the online supplemental material of this paper to be of practical benefit to others wishing to conduct strengths-based participatory research with children. In the full session guide, we have described the activities in sufficient detail to allow the study materials to be reproduced, adapted and modified to fit a variety of contexts. This approach has been chosen since previous NZ-based case studies showed that planners wanted practical guidelines to be able to engage confidently and effectively with children and young people.⁶⁶

A strength of this research is the evidence-based, robust and reliable method for engaging with children and eliciting their perspectives and experiences. Limitations of this study include a small number of participating schools and children. Within the social construction of 'childhood', it is essential to recognise that children are not a homogeneous group and that intersectional differences will exist across experiences, perceptions and ways of sharing knowledge (eg, across age, gender, ethnicity and geography). This research does not allow for the exploration of intersectionality and associated differences in perceptions and priorities. However, aligning with the work of Holloway and Valentine,²⁸ this research prioritises 'children' as a primary group of importance. We aim to apply a range of methods to draw out multiple perspectives from children, have wide inclusion criteria so as to not exclude any particular groups (eg, based on age), and to work with children across diverse geographical regions in order to generate localised understanding and to identify any differences between study areas.

Author affiliations

¹School of Nursing, University of Auckland Faculty of Medical and Health Sciences, Auckland, New Zealand

²Faculty of Health and Environmental Sciences, Auckland University of Technology, Auckland, New Zealand

³Development Programme Office, Auckland Council, Auckland, New Zealand

⁴Community Empowerment Unit, Auckland Council, Auckland, New Zealand

⁵SHORE and Whariki Research Centre, Massey University, Auckland, New Zealand

Twitter Victoria Egli @EgliVictoria and Melody Smith @MelOliverSmith

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ORCID iDs

Victoria Egli <http://orcid.org/0000-0002-3306-7709>

Sandra Mandic <http://orcid.org/0000-0003-4126-8874>

Tessa Pocock <http://orcid.org/0000-0002-7692-2031>

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