

Development of a Child-Centred Community-Based Participatory Research Approach to Injury
Prevention

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Key Words: Community Research, Qualitative Research, Child

Word Count: 3000

Acknowledgements

This work will be conducted in partnership with the Society for Children & Youth of BC, for which Ildiko Kovacs is a representative, and the Thriving Kids Care Society in collaborations with Director Vincent Chan.

Competing Interests

No, there are no competing interests for any author.

Ethics Approval Statement

Ethics approval at this stage is not required as this is a methodological design for research that is developed for eventual use in research similar to previously ethically approved studies in the BC Injury Research and Prevention Unit with First Nations community of Akwesasne [#H17-01533] and Hupacasath [H19-00020].

Contributorship Statement

Michelle E. E. Bauer: Primary writer of manuscript, co-developer of approach ideas and design

Ian Pike: Guarantor, co-writer of manuscript, co-developer of approach ideas and design

Funding

This work is supported through the first author's Social Sciences and Humanities Research Council of Canada post-doctoral award under # 756-2021-0278.

Abstract

Background: Community-based participatory research (CBPR) approaches to injury prevention are conducted so as to foster inclusiveness and collaboration in research processes and settings. Despite the benefits of using CBPR approaches to represent voices in research that are typically marginalized, they are overwhelmingly used in collaborations with youth and adults. Developing a child-centred CBPR approach can serve the important purpose of fostering awareness for children's voices and needs in injury prevention, and can help future researchers engage communities of children in a genuine and respectful way. Purpose: To develop a four-staged model of a child-centred CBPR approach to injury prevention and outline the development.

Key Messages:

What is already known on this topic:	Community-based participatory research approaches are commonly used in injury prevention research with youth and adults, but are rarely used with children. They are considered a best practice for forming bi-directional research-participant communications and understanding participants' lived experiences.
What this study adds:	We outline the development of a child-centred community-based participatory research approach to injury prevention that centres the voices of children at preliminary stages of a research design and integrates them in each stage of study implementation.
How this study might affect research, practice or policy:	Future researchers can adapt and/or use our approach to inform their work with children in injury prevention research by becoming more involved in children's play cultures and understanding their needs.

In injury prevention scholarship, there are calls for research to be inclusive and representative of a diversity of populations,[1, 2] and for researchers to create meaningful and respectful collaborations with participants.[3, 4] The employment of community-based participatory research (CBPR) approaches can be beneficial for these purposes. CBPR approaches involve processes of scientific inquiry deriving from equal partnerships between community members and researchers, with the goals of increasing knowledge and creating local opportunities for healthful development.[5] They are used by researchers to ensure study topics are relevant to and desired by participating communities; enhance the quality, sensitivity, and validity of the research through the use of local knowledge;[6] and foster equitable, multi-sectoral, and interdisciplinary research-participant relationships.[6-8] Researchers can engage in them by, for example, positioning the community as a focal unit of identity, and facilitating an equitable, power-sharing partnership to address social inequities.[6] Although CBPR approaches have been used to address children's health and care more broadly,[9, 10] they are rarely used to understand children's injury prevention needs.[6, 11] CBPR approaches to injury prevention are important to employ with children, as they can be used to mitigate injury experiences in diverse populations,[1, 3] and they can result in the development of programmes, initiatives, and practices that support physical activity and outdoor learning.[12, 13]

The exclusion of children's perspectives on injury prevention topics is problematic. In developed countries, dominant societal discourses position childhood as a time of fragility,[14] where children are unable to articulate their needs and are dependent upon adult caretakers for basic provisions.[7] Parents can reinforce this discourse when they restrict children's independent navigations of outdoor environments [15, 16] and opportunities for unstructured self-directed play.[17] These restrictions can reduce opportunities for children to develop agency

and learn how to interact with their outdoor worlds without adult support.[18] Children have a right to have their voices heard on topics concerning them, and representing children's perspectives on injury prevention topics can serve the important purpose of drawing researchers' attention to previously unidentified threats to their safety.[7] Further, it can challenge the discursive positioning of children as passive agents in their own decision-making and navigation of their outdoor worlds.[18] Our development of a child-centred CBPR approach to injury prevention is thus timely to centre the perspectives of children in academic discourse on childhood more broadly.

Research Context

We are members of the BC Injury Research and Prevention Unit - a unit dedicated to conducting research that promotes the voices and experiences of children in Vancouver and across Canada. In the Fall of 2020, we proposed to conduct research in partnership with the Society for Children and Youth of BC. Our project was developed with goals aligning with previous VOICES projects. These projects employ an action-orientation to the research process,[19] where the results are used to improve neighbourhood environments in ways that are desired by and relevant to children's play and safety needs. Past VOICES projects led to, for example, children communicating with civic leaders to support physical changes in outdoor environments, such as the installment of a storage building for water safety equipment and guardrails in frequently navigated high-traffic areas. Importantly, these projects resulted in reinforcing the discursive positioning of children as active and empowered agents in civic systems.

By developing and employing a child-centred CBPR approach to injury prevention in our current VOICES project, we continue to reinforce opportunities for children's capacity

building.[20] In particular, they can have an active role in the civic system by gaining research experience and leading an initiative in their community to improve safety and play conditions.

We will work with the director and local staff of Thriving Kids Care Society, an organization hosting day camps in Victoria-Fraserview, where the day camps are hosted. Victoria-Fraserview is a multiculturally diverse neighbourhood of 31,065 people, with the majority of residents identifying as speaking primarily Chinese (43.4%) and English (27.1%), and approximately 10,525 children residing at home with their families.²¹ The goals of the Thriving Kids Care Society are to provide children with opportunities to learn leadership values, such as responsibility, optimism and team resolution, as well as provide them with environments in which they can learn safety strategies, develop friendships and engage in play activities. To this end, employing our approach in the day camp programming is an excellent opportunity to complement ongoing initiatives at the organisation.

Theoretical Development

The theoretical development of our approach is informed through a social constructionist [21] epistemological understanding of children's play and safety, as we believe children's perspectives are shaped through their social interactions and experiences, such as play with peers and family. Further, it is shaped through tenets of "empowering research relations" [7, p. 14] (i.e., a set of practices to connect with children while de-centring the authoritarian position often adopted by researchers). To this end, we attend to "learning the lives of children", [7, p. 14] such as understanding the meaning ascribed to their behaviours and language, and being involved in the cultures they create if they invite us to join their activities. We strive to de-centre our power in favour of transparent communications with them (e.g., being honest about the intentions of the

research and our involvement in their lives). Further, we will adopt a “least-adult role” [7, p.18] where their knowledge is not positioned as “less powerful” [7, p. 15] compared to our own.

We employ reflexive practices that promote inclusivity of children’s voices and challenge authoritarian roles we may adopt. First, we will conduct a needs assessment with the children during the initial stage. Vaughn et al. (2013) discussed the importance of needs assessments for providing an in-depth understanding of children’s perspectives regarding collaborations with researchers in CBPR approaches.[20] The children in our study can share what they hope we achieve with the research (e.g., using results to inform the re-structuring of outdoor play environments). Second, we will involve children in multiple stages of the research to strive towards achieving the “purest form” [20, p. 51] of CBPR. For example, during data collection, they can voice their needs for how the research is conducted, analyzed, and interpreted. The first author will provide opportunities for the children to share their perspectives on their involvement and the employment of the approach to help researchers identify potential ways to adapt it.

A Four-Staged Model of a Child-Centred CBPR Approach to Injury Prevention

In this section, we outline our development and implementation of a four-stage model of a child-centred CBPR approach to injury prevention.

Patient and Public Involvement

All anticipated weekly times and dates for the four stages of activities have been previously discussed with the director of Thriving Kids Care Society, the representative from the partner organization The Society for Children and Youth of BC, and the authors, but are subject to change. The director, representative, the authors, and the participating children who indicate their interest, will have the option of being involved in discussing the dissemination of results of

the study in the local community if/when this methodological approach is employed in a future research setting.

Stage 1: Injury Information Workshops

Prior to their first day of weekly activities, the children's parents will be sent an injury information sheet electronically through e-mail. This sheet will serve as a background orientation to childhood injuries and safety information, and will provide a prelude to the Monday information workshops. The first author will conduct a 1.5 hour injury information workshop with the children on a Monday, which is the first day of camp programming. The workshop will consist of back-and-forth contact with children at the day camp site with the purpose of building child-researcher relationships through injury information exchanges. The first author will use a burden of injury approach to discuss leading causes of injury in the children's age group in the region (e.g., vehicle-related hospitalizations). The children will be asked to react to and interpret the data shared. This workshop will foster conversation on where in their communities of residence and/or the day camp neighbourhood they experience injuries or have safety concerns, and it will start the process of physical and mental mapping that will inform our adapted version of participatory photo-mapping (PPM).

PPM more broadly typically consists of integrated digital methods that are used in interdisciplinary community-based research contexts.[22] Its multi-method and integrated use can facilitate researchers' explorations of participants' understandings of health and place in society.[22] It is employed in participatory research to understand participants' lived experiences, such as their conceptualizations of and relationships with the geographical and social environments they navigate.[22] A more in-depth description of our use of an adapted version of PPM is described in Stages 2 and 3. In Stage 1, the injury information workshop will

provide foundational understanding of a potential excursion route in the day camp neighbourhood where the children may have play, injury, and safety concerns. Thus, Stage 1 will consist of a “storyboarding” phase, where the children share their insight with the first author and one another, and they and the day camp staff and first author decide on the geographic excursion to take in preparation for Stages 2 and 3.

Stage 2: Becoming “Junior Cub Reporters”

Our adapted version of PPM will consist of photo-mapping and narrative development using adapted journalism methods. The children will meet with a professional photojournalist in the presence of day camp staff and the first author on the Tuesday of the weekly day camp for a period of 1.5 hours to learn to become “junior cub reporters”. The concept of “junior cub reporters” resonated with children in a previous VOICES project, where it represented the process children took in familiarizing themselves with using digital technologies such as iPads that were used to capture photographs and document narratives of outdoor environments. In Stage 2, the first author will provide the children with a mobile device such as an iPad and they will work with the photojournalist to learn how to take photographs with it. They will learn ways to try and capture the “iconic” image to convey their story – a method that has resulted in photographs clearly conveying children’s positive or negative perspectives on injury prevention topics. The information session will provide time for the first author to re-state the purposes of the research and answer children’s questions related to the project. The first author can learn what the children are expecting from their involvement in the excursion in Stage 3, and the children can discuss what they are learning about injury prevention.

Stage 3: Excursion in Community

Stage 3 will consist of a half-day Wednesday excursion in the community with the children, researcher, and the staff that participated in the photo-mapping and -journalism information sessions in Stage 2. The group size in this excursion will consist of the number of children enrolled in the weekly day camp activities, with the expectation based on past camp enrollment of approximately 15 students per week. As this research will be conducted over a period of two weeks, we anticipate to recruit 30 children. The excursion stage will consist of a journey with the children into the neighbourhood where they will take photographs and capture notes and narratives of what they deem important given the research topic (e.g., activities or environments they believe are threatening to their safety, physical environments in which they like to engage in play). The excursion will consist of child-centred communications where children will decide what is important to them. Although their mobilities will be guided through the excursion path (e.g., starting from the determined meeting spot and ending at a designated location such as a local park), they may “stray” somewhat from this path in the company of an adult on the excursion if they feel there are spots nearby (discussed with the first author) that are particularly relevant to the study and their interests. The first author will take observational notes in order to engage in reflexive practices at the end of the excursion (so as to not interrupt communications with the children during the excursion) and throughout the remainder of the research stages.

Stage 4: Reflection Period

The first author will meet with children in a group on the Friday at the day camp site for a period of approximately 1.5 hours. Stage 4 will consist of a time for reflection, where the children can connect with one another and the researcher and discuss the events of the excursion (e.g., how they felt about navigating their neighbourhood and gathering photographs and notes).

During this period, the children will be able to show their photographs to other children and the researcher. Children will have the option of participating in a reflexive practice of categorizing their photographs. Specifically, the children will have printed versions of the photographs they took during the excursion, and will be asked individually and in groups to organize their photographs according to various themes. For example, individually, they may be asked to put their photographs into categories depending on themes such as “emotions”, where they may compile photographs based on feelings of happiness or fear; or “play”, where they may choose to group photographs based on the playful properties they associate with environments depicted in them. In the collaborative game, the children will be paired up or work in a larger group to use all of their photographs for the purposes of categorizing them. This practice will provide in-depth insight into children’s perspectives on the environments they navigated during the excursion, and will provide the researchers with more context concerning their perspectives of neighbourhood safety, injuries, and play.

In Stage 4, children will discuss ways to use the results of the research to inform safety and play initiatives in their community. For example, the researcher can suggest ways to disseminate the results of the study in local places (e.g., through photo booths in community halls). The children will be asked to provide their input on what outdoor environmental improvements could be made that would make them feel safer and facilitate better access to desirable play areas and activities. The researcher will then strategize with the children and partners to enact best practices for using the results to improve neighbourhood safety and play conditions.

Considerations and Implications of Approach

In summary, our development of a child-centred CBPR approach to injury prevention follows best strategies of employing CBPR. In particular, it is organized according to reflexive and empowering practices,[7, 20, 23] where we attempt to not mirror the unequal power relationships that commonly exist between children and adults in society more broadly.[7] We will exercise processes of transparency by frequently discussing the research with the children and answering any questions faithfully and honestly, with the ultimate goal of representing children's experiences and knowledge on their safety and play in their neighbourhood.[7] It is our hope that our four-staged model for this approach can be used and/or adapted by future researchers who wish to connect and communicate with children to address their injury prevention needs as it relates to their views of safe and unsafe places in their neighborhoods.

References

1. Forst L, Ahonen E, Zanoni J, Holloway-Beth A, Oschner M, Kimmel L, Martino C, Rodriguez E, Kader A, Ringholm E, Sokas R. More than training: community-based participatory research to reduce injuries among hispanic construction workers. *Am. J. Ind. Med.* 2015;56(8):827-37. doi:10.1002/ajim.22187
2. Yonas MA, Burke JG, Rak K, Bennett A, Kelly V, Gielen AC. A picture's worth a thousand words: Engaging youth in CBPR using the creative arts. *Prog. Community Health Partnersh.: Res. Educ. Action.* 2009;3(4):349-358. doi:10.1353/cpr.0.0090
3. Leff SS, Thomas DE, Vaughn NA, Thomas NA, MacEvoy JP, Freedman MA, Abdul-Kabir S, Woodlock J, Guerra T, Bradshaw AS, Woodburn EM. Using community-based participatory research to develop the PARTNERS youth violence prevention program. *Prog. Community Health Partnersh.: Res. Educ. Action.* 2010;4(3):207-216. doi:10.1353/cpr.2010.0005
4. Wallerstein N, Duran B, Oetzel JG, Minkler M, editors. *Community-based participatory research for health: Advancing social and health equity.* John Wiley & Sons; 2017 Oct 23.
5. Minkler M, Wallerstein N, editors. *Community-based participatory research for health: from process to outcomes.* John Wiley & Sons; 2011 Apr 18.
6. Israel BA, Parker EA, Rowe Z, Salvatore A, Minkler M, López J, Butz A, Mosley A, Coates L, Lambert G, Potito PA. Community-based participatory research: lessons learned from the Centers for Children's Environmental Health and Disease Prevention Research. *Environ. Health Perspect.* 2005;113(10):1463-71. doi:10.1289/ehp.7675

7. Holt L. The 'voices' of children: de-centring empowering research relations. *Child. Geogr.* 2004;2(1):13-27. doi:10.1080/1473328032000168732
8. Perera FP, Illman SM, Kinney PL, Whyatt RM, Kelvin EA, Shepard P, Evans D, Fullilove M, Ford J, Miller RL, Meyer IH. The challenge of preventing environmentally related disease in young children: community-based research in New York City. *Environ. Health Perspect.* 2002;110(2):197-204. doi:10.1289/ehp.02110197
9. Liu J, McCauley L, Leung P, Wang B, Needleman H, Pinto-Martin J, Group JC. Community-based participatory research (CBPR) approach to study children's health in China: experiences and reflections. *Int J Nurs*, 2011;48(7):904-13.
<https://doi.org/10.1016/j.ijnurstu.2011.04.003>
10. Rosales A, Fortier MA, Campos B, Vivero M, Martinez A, Huerta N, Zolghadr S, Adlard K, Kain ZN. Community-based participatory research: an innovative approach for improving perioperative care of underserved children. *Paediatr Anaesth*, 2017;27(2):126-36. <https://doi.org/10.1111/pan.13044>
11. Inoue M, Nishida Y, Kitamura K, & Joh H. Childhood injury prevention through community-based participatory research - A multidimensional approach in the Love & Safety Omura Study in Nagasaki Japan. In Proc. of the 3rd International Symposium on Society and Information Technology (ICSIT 2012) 2012: (pp. 244-250).
12. Berge JM, Jin SW, Hanson C, Doty J, Jagaraj K, Braaten K, Doherty WJ. Play it forward! A community-based participatory research approach to childhood obesity prevention. *Fam. Syst. Health.* 2016;34(1):15. doi:10.1037/fsh0000116

13. Zephier E, Himes JH, Story M, Zhou X. Increasing prevalences of overweight and obesity in Northern Plains American Indian children. *Arch. Pediatr. Adolesc. Med.* 2006;160(1):34-9. doi:10.1001/archpedi.160.1.34
14. Morrow V. Ethical dilemmas in research with children and young people about their social environments. *Child. Geogr.* 2008;6(1):49-61. doi:10.1080/14733280701791918
15. Santos MP, Pizarro AN, Mota J, Marques EA. Parental physical activity, safety perceptions and children's independent mobility. *BMC Public Health.* 2013;13(1):1-6. doi:10.1186/1471-2458-13-584
16. Witten K, Kearns R, Carroll P, Asiasiga L, Tava'e N. New Zealand parents' understandings of the intergenerational decline in children's independent outdoor play and active travel. *Child. Geogr.* 2013;11(2):215-29. doi:10.1080/14733285.2013.779839
17. Laird SG, McFarland-Piazza L, Allen S. Young children's opportunities for unstructured environmental exploration of nature: links to adults' experiences in childhood. *IJECEE.* 2014;2(1):58-75.
18. Mackey G. Strengthening children's agency in outdoor learning environments. In *Outdoor Learning Environments* 2020 Jul 25 (pp. 145-163). Routledge.
19. Banks S, Armstrong A, Carter K, Graham H, Hayward P, Henry A, Holland T, Holmes C, Lee A, McNulty A, Moore N. Everyday ethics in community-based participatory research. *Contemp. Soc. Sci.* 2013;8(3):263-77. doi:10.1080/21582041.2013.769618
20. Vaughn LM, Wagner E, Jacquez F. A review of community-based participatory research in child health. *MCN Am J Matern Child Nurs.* 2013;38(1):48-53. doi:10.1097/NMC.0b013e31826591a3

21. Crotty M. *The foundations of social research: meaning and perspective in the research process*. Sage; 1998 Oct 15.
22. Dennis Jr SF, Gaulocher S, Carpiano RM, Brown D. Participatory photo mapping (PPM): Exploring an integrated method for health and place research with young people. *Health & Place*, 2009;15(2):466-73. <https://doi.org/10.1016/j.healthplace.2008.08.004>
23. Stack EE, McDonald K. We are “both in charge, the academics and self-advocates”: empowerment in community-based participatory research. *J. Policy Pract. Intellect. Disabil.* 2018;15(1):80-9. doi:10.1111/jppi.12236