



Children as Agents of Change: Parent Perceptions of Child-Driven Environmental Health Communication in the Apsáalooke (Crow Indian) Community

Journal of Health Disparities Research and Practice

Volume 11 | Issue 3

Article 8

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2018

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Recommended Citation

Milakovich, Jessica; Simonds, Vanessa W.; Kim, Frances L.; LaVeaux, Deborah; Pickett, Velma; Held, Suzanne; Martin, Christine; Cummins, Jason; and Kelting-Gibson, Lynn (2018) "Children as Agents of Change: Parent Perceptions of Child-Driven Environmental Health Communication in the Apsáalooke (Crow Indian) Community," *Journal of Health Disparities Research and Practice*: Vol. 11: Iss. 3, Article 8. Available at: <https://digitalscholarship.unlv.edu/jhdrp/vol11/iss3/8>

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Abstract

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Keywords

American Indian; parent-child communication; environmental health; agent of change model

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Journal of Health Disparities Research and Practice
Volume 11, Issue 3, Fall 2018, pp. 115-127
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School of Community Health Sciences
University of Nevada, Las Vegas

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ABSTRACT

While previous research suggests children have successfully acted as health change agents, no studies have examined the role of children in promoting environmental health knowledge and awareness. This study describes parent perceptions of the impact of a five-day water-focused environmental health summer camp on elementary school children in an American Indian community. We interviewed parents about their perception of changes in their child's environmental health knowledge, attitudes, and behaviors. Parents in this study confirmed that their child had shared information related to the camp activities. In addition, parents perceived that their children had increased knowledge and positive changes in attitudes and behaviors related to environmental health. We recommend programs promoting children as change agents develop and use materials for parents that facilitate bidirectional communication with youth so to not place the onus wholly on the child. Our study highlights parental perceptions of the ways the voices and actions of children have the potential to be valuable assets in addressing environmental-related health disparities.

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INTRODUCTION

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Access to safe, clean water is increasingly a major challenge of this century. Environmental hazards, exposures, and risks are not equally distributed across the population (Burger & Gochfeld, 2011). Rural and Native American communities who already experience considerable health disparities are also more likely to be exposed to environmental contaminants (Balazs, Morello-Frosch, Hubbard, & Ray, 2011; Balazs, Morello-Frosch, Hubbard, & Ray, 2012; Hoover et al., 2012). Understanding risks for exposure and knowing what actions can be taken to reduce risks are both important steps in eliminating these environmental health disparities.

The Crow Environmental Health Steering Committee (CEHSC), formed by members from the Apsáalooke (Crow) Nation, has led over fifteen years of community-driven research to understand water quality on the Crow reservation (Cummins et al., 2010; Doyle, Redsteer, & Eggers, 2013; Eggers et al., 2015; Hamner et al., 2014). These studies suggest unsafe levels of chemical and microbial contaminants in over half of home wells on the reservation (Eggers et al., 2015). These troubling findings have made the importance of spreading environmental health knowledge especially pertinent on the Crow reservation. Steering committee members are committed to addressing water-related health issues as well as inspiring their youth to understand the importance of water from both a biological and culture perspective. In 2014, the CEHSC committee identified children in their community as a potential avenue for disseminating water-related environmental health information in their community.

We have no knowledge of the child-as-agent-of-change model being applied to environmental health promotion. However, children have acted as agents of change in a broad range of other health-related community interventions to improve their own and their parents' health (Onyango-Ouma, 2003; Sedighi, Nouri, Sadrosadat, Nemati, & Shahbazi, 2012; Gadhoke et al., 2012; Mosavel & Genderson, 2016; Viera & Garrett, 2008). In these studies, children learn about a health topic and share that information with their parents or their community, which in turn, causes parents and others to increase their knowledge and engage in health promoting behaviors. For example, African American girls attended an hour-long workshop where they prepared messages to encourage their family members to get screened for cancer (Mosavel & Genderson, 2016). In another study, fifth graders educated about hypertension were encouraged to complete related homework with their parents which was intended to prompt parents to consult a physician about their blood pressure (Viera & Garrett, 2008).

Interventions promoting children as agents of change are built on pre-existing bidirectional relationships between children and their parents (Gadhoke et al., 2012; Mwanga, Jensen, Magnussen, & Aagaard-Hansen, 2008; Onyango-Ouma, Aagaard-Hansen, & Jensen, 2005). Health messages are more easily transferred when verbal interactions are fluid and parents are eager to listen to health messages (Mwanga et al., 2008). Cultural norms for parent-child communication also influence information transfer. For example, in some families, children are expected to listen to adults as opposed to engaging as active communicators (Lansdown et al., 2002). Even if health messages are transferred to children who have the confidence to share that knowledge, they may need parental encouragement and support to be effective agents of change (Pridmore & Stephens, 2000).

Background

In 2014, members of the Crow Environmental Health Steering Committee joined new partners from Crow Agency Public School, Little Big Horn College, and Montana State University to establish the Guardians of the Living Water (GLW) project. Our project is situated on the Crow

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Reservation, home to the Apsáalooke Nation, in rural south-central Montana. As the fifth-largest American Indian reservation in the country and the largest in Montana, it covers 2.3 million acres of the original tribal homelands. An estimated 7,900 of the 11,000 enrolled Crow tribal members live on the reservation.

GLW uses a community-based participatory research approach to promote environmental health literacy using a child-as-agent-of-change approach. Children learn about the science of water, hear from community members about the importance of water to Crow culture, and engage in activities designed to support them in sharing what they learn at camp. Over the course of the first year of program development, with our community partners, we established characteristics we wanted to promote in Crow youth, or *Guardians*. First, camp activities focused on promoting *Respect*. Through camp activities we discussed the role of respect and responsibility that *Guardians* embody: respect for others, for their community, and for the environment. Second, we promoted an awareness of the natural environment including the importance of water to health. Third, we emphasized communication skills including sharing information with parents and other children, through interpersonal conversations as well as through more formal presentations. Program development and outcomes from this study are described in other publications (LaVeaux, Simonds, Pickett, Cummins, & Calkins, 2018; Simonds et al., 2018). The purpose of this paper is to describe parent perceptions of the impact of the 2016 summer camp on parent child-communication of environmental health topics and on changes in environmental health knowledge, attitudes, and behaviors of their children.

METHODS

The summer 2016 camp, held at the Crow Agency Public School, engaged eleven 5th and 6th graders in science and cultural-based activities. The camp focused on four main topics: *respect for water, effects of water on human health, effects of contamination on water, and water conservation*. After each session, we sent a newsletter home with the camper that prompted them to discuss the topic with their parents and to participate in a take-home activity related to what they learned that day.

The purposes of the camp, for children to learn about the science and cultural importance of water and to share that information with their families and their community, were explained to parents through the informed consent process. However, we did not tell parents that we would be asking them what their child had shared with them after the camp. We wanted to measure what was communicated without prompting parents that we would be “testing” them when the camp concluded. On the last day of camp, we invited parents to schedule interviews with project staff. The parents of ten eligible campers who attended more than half of the camp sessions were invited to set up times for interviews. We were unable to follow-up with three campers’ parents. After obtaining informed consent, project staff members conducted individual interviews with each parent. The GLW community steering committee guided all aspects of this program, and the study was approved by Montana State University’s Institutional Review Board.

Recommendations for sample size for qualitative studies vary, and most focus on the concept of saturation of data (Guest, Bunce, & Johnson, 2006; Mason, 2010; Ritchie, Lewis, & Elam, 2003). We employed a nonprobabilistic and purposeful sample consisting of parents of children who attended camp activities. This limited the pool of potential participants and simultaneously allowed us to focus on the resulting communication experiences of each parent-

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camper dyad. This approach reflects concern with meaning, rather than making generalized hypothesis statements (Mason, 2010).

With guidance from our community steering committee, we developed a set of interview questions for parents to determine what their child had shared with them and the extent to which their child exemplified characteristics of a *Guardian*. We first asked parents whether their child had shared each of the specific daily camp topics with them. Interview prompts also asked parents to discuss *Guardian* characteristics that their child exemplified, such as changes they had noticed in their child's communication skills, awareness of the environment, and/or demonstration of respect that they attributed to their child's participation in the camp.

We audio-recorded and transcribed the interviews. We used NVivo Pro v.11 to manage our analysis using a thematic approach to derive meaning from the conversations (Braun & Clarke, 2013). The first and second authors independently coded all interviews, met to compare codes, and came to a consensus on the list of codes. We discussed this list of codes with our full research team, including the interviewers. As a research team, we further refined the codes and then recoded some of the interviews. The final list of codes and their definitions were presented to the project's steering committee for confirmation. No changes were made in the codes or coding from this meeting.

RESULTS

We interviewed seven Crow tribal members, including six mothers and one father between the ages of 28 and 49 years. Interviews lasted approximately half an hour. Table 1 includes topics and daily activities covered in camp, the take-home activities, and the number of children who shared that topic with their parent ($N=7$). Of the seven campers whose parents were interviewed, five attended all five days of camp, one attended four days of camp and one attended all five days, but only in the afternoon.

Table 1. Camp activities and number of campers who discussed the camp topic with their parents.

Topics and Daily Activities	Take-home activities	# of children who shared (n=7)
<u>Being a Guardian:</u> Integrated through all activities	No specific activity—integrated through all activities.	5
<u>Topic 1: Respect for Water</u>		7
<u>Guardian logo:</u> Campers colored in the <i>Guardian</i> logo and discussed culturally significant aspects of logo: Four elements, four seasons, and important mountains and rivers on the reservation.	Discuss logo with a family member. Campers received stickers with logo.	4
<u>Water cycle:</u> Campers watched a video, made their own water cycle, and played a game acting out moving through the water cycle.	Crossword puzzle and diagram in newsletter.	4
<u>Topic 2: Effects of Water on Human Health</u>		7
<u>Handwashing:</u> Campers learned about germs and how to wash hands appropriately.	Teach a family member how to wash their hands properly.	6
<u>Hauling water:</u> Campers heard from a local elder about access to water when she was a child and played a game “hauling water.”	Talk to an elder about a time when they may have had to haul water.	2
<u>Topic 3: Effects of Contamination on Water</u>		4
<u>Stream Health:</u> Campers collected insects from the local river to learn about the health of the stream.	Share the river insect chart and ask a family member about a time they saw insects at a river.	6
<u>Water Contamination:</u> Campers collected water samples from the river, tap water in local buildings, and puddles to test for bacteria.	Share the plume diagram and ask a family member if they have ever had to stop using the water from the faucet.	3
<u>Topic 4: Water Conservation</u>		4
<u>Conserving Water:</u> Campers visited local water treatment plant and learned about indirect and direct water usage.	None	4

Figure 1 illustrates the themes we identified in parent interviews. This figure demonstrates how camper’s potential for change agency is bound within the unique *bidirectional relationship*

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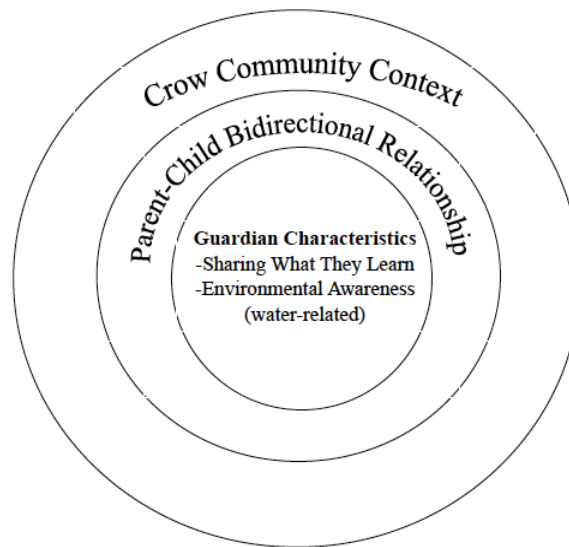
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with their parents that occurs within the specific *Crow community context*. We also identified two themes for changes that the program aimed to promote in the children: *Sharing Environmental Knowledge and Environmental Awareness*. Within these two themes, we identified additional categories. Under *Sharing Environmental Knowledge*, parents discussed *evidence of their child sharing information, barriers to communication and misunderstanding of camp concepts*. Under *Environmental Awareness (water-related)*, parents described *evidence of environmental awareness and reinforcing parent teachings*.

Figure 1. Parent interviews revealed an overarching community context that provided a basis for the parent-child bidirectional communication which facilitated the potential for change agency within the children attending the camp.



Crow Community Context

None of questions specifically asked about the role of water in Crow culture. Nevertheless, three of the parents discussed ways that water is integral to their culture. One parent explained the importance of taking care of water and respecting it as its own entity. She described how respect for water is demonstrated through a specific Crow practice, called "feeding the water" or *Aáshé eékúuok*, which translates to "River was given his portion" in the Crow language. She stated,

Mother 1: *"My husband always tells them to feed the water...the water will take care of you and it's an essential part of life."*

Another child's father emphasized that,

Father 6: *"We really do respect the water in the Crow way of life. We pray with water. We consume it. It makes all living things grow. We need to keep water clean and have good drinking water."*

In addition, water is a central part of many Crow ceremonies, as this parent explained,

Mother 3: *"I'm a Sun Dancer, and our family...they Sun Dance...water is really important to us."*

Parent-Child Communication

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In a bidirectional communication relationship, both parents and children have the responsibility to engage. One mother explained how she regularly asks her child what he is learning. This mother demonstrated the role of a parent in initiating conversation and participating in reciprocal parent-child communication.

Sharing Environmental Knowledge

We asked parents if their child had mentioned each of the four topics generally and then asked for more detail about specific camp activities. All parents shared that their child mentioned the topics *respect for water*, and *effects of water on human health*. Four parents confirmed that their child had shared the topics of *effects of contamination on water* and *water conservation*. Children discussed their role as a *Guardian* with five of the seven parents. Fewer parents reported that their children had shared specific daily activities with them (see Table 1).

Evidence of Their Child Sharing Information. All the parents described activities or concepts from the camp that their child had explained to them (See Table 1). However, some parents explained more details than others. One mother described how her child was excited to tell her and other family members what she had learned at camp.

Mother 3: *“She told my dad about it, and my dad was telling me...Every day she would tell us something new.”*

Another mother described several of the camp activities that her child had enjoyed.

Mother 5: *“She talked about conserving water, about how she was supposed to turn off the water when they are brushing their teeth, and how long they are supposed to leave it on when they wash their hands. I think she liked it when you went down to do the bugs in the water. She said she liked it because she didn’t know that bugs could be good for the water too. I didn’t know they were good. I was like, why would you want bugs in your water? And then, the power plant [water treatment plant], she kind of liked that too.”*

Barriers to Communication. The strength of the bidirectional relationship between some children and their parents allowed for smoother transfer of messages from camp; however, some barriers to parent-child communication were also present. Two of the mothers who provided fewer details regarding their child’s camp experiences described how their children had spent time with another trusted adult or their friends each day after camp. Limited time for conversations was a barrier, as this mother stated,

Mother 2: *“And then by the time I would ask him, because he’d already take off after [camp] with his friends, and so by the time we got around to talking about it, it was already the end of the day or the next day.”*

Misunderstanding of Camp Concepts. Another barrier to parent-child communication was the misunderstanding of camp concepts. This occurred when a parent expressed a concept their child shared with them that did not correspond with what was taught at camp. For example, one mother stated,

Mother 3: *“That’s a tolerant bug because it comes in the fresh water, but they’re not supposed to be in moving water, so I don’t know what it was doing in there.”*

Campers were taught that both tolerant and intolerant bugs can survive in moving water, but tolerant bugs are more likely than intolerant bugs to survive in contaminated water. Either this

camper did not share the concept from camp accurately or the parent misunderstood what their child shared.

Environmental Awareness (water-related)

Six of the parents discussed changes in their child's behavior or attitudes that they attributed to the camp. While the seventh parent did not specifically mention changes he attributed to the camp, he listed many of the topics his child had discussed with him.

Evidence of Awareness of the Environment. One mother, who did not notice any changes in her daughter's communication skills after the camp, did notice increased environmental awareness.

Mother 5: *"Even outside watering and stuff, she'd make sure she'd go shut off the hose, so it wasn't on too long and that kind of stuff."*

Turning the water off demonstrated an awareness of water conservation, which was a topic shared at camp.

Six of the seven parents noted that their child had discussed the hand-washing activity with them. This mother explains further changes she attributed to the camp,

Mother 3: *"She's washing her hands more thoroughly. She's aware of her surroundings when we go to the water. We went out to [the river] and we jumped in the water, and she was telling me about the bugs and stuff. She noticed how the quality of the water is better over there compared to here."*

It is possible that this child recognized a change in water quality because of participating in activities at the river during camp and becoming familiar with the connection between water quality and water health.

Campers tested water samples, and one mother described how this was her child's favorite activity during the camp. Another mother stated,

Mother 4: *"She was worried about the trash and dirty water, she wanted to test everyone's water. [laughing]"*

Several parents noticed changes in the habits of their children because of the camp. For example, we discussed water conservation at the camp and provided campers with shower timers. One mother explained how her children had shared the timer with several family members,

Mother 1: *"They take quick showers now. [laughing] Yes, they used to sit there and sing, play with each other, and fix each other's hair. Now they use that timer. They even got their [dad] to use it...They're always hurrying up their little sister. 'We have to take a quick shower!'"*

Reinforcing Parent Teachings. Three mothers mentioned that they had already exposed their children to ideas we were promoting in camp and that the camp had helped reinforce these concepts for their child. A mother stated,

Mother 1: *"Ever since they were little babies, [their dad] always said, 'Drink a cup of water every morning,' and so they always drink water every morning, and that's still in them. Going through this [camp], and she was like, 'Dad you are right! Water is important.'"*

Another mother described how she had warned her children about swimming in the local river.

Mother 2: *"Because even now I don't let them swim in the water, just because of all the [contaminants]—and you know I've explained it to them before, but I don't think he really understood until after this camp."*

Three parents described how they had told their children to respect water. For example, Mother 3: *"You can tell your children this all the time. You got to respect the water, but then if they hear it from someone else, then of course they are going to listen. [laughing] Maybe because she thinks you guys know more because you're in college or something. I don't know...because they're probably used to us talking every day. [laughing]"*

DISCUSSION

Parents in this study confirmed that their child had shared information related to the camp activities. In addition, parents perceived positive changes in attitudes and behaviors related to environmental health. Although several studies have explored the effectiveness of children serving as change agents, none have explicitly examined parent perceptions of their child's potential to be a change agent promoting environmental awareness (Gadhoke et al., 2012; Mosavel & Genderson, 2016; Onyango-Ouma et al., 2005; Sedighi et al., 2012; Viera & Garrett, 2008). Our study also highlights the influence of parental initiation of parent-child communication as a catalyst for a fluid bidirectional relationship (Gadhoke et al., 2012; Mwanga et al., 2008; Onyango-Ouma et al., 2005). The transfer of health messages occurred most consistently when parents were willing or able to engage and children were willing and able to reciprocate.

Strengthening the bidirectional relationship is an important lesson for those interested in utilizing the child-as-agent-of-change approach. Although parents in the community expressed their receptivity to the concept of promoting children as change agents, our program staff only minimally prepared parents to receive information from their children. Mitigating environmental health risks related to contaminated water is a complex endeavor. Therefore, we recommend developing materials for parents that facilitate bidirectional communication with youth so to not place the onus wholly on the child. In subsequent camps, we developed educational brochures with more specific information about water contamination and mitigation strategies to facilitate child-parent communication. Families' busy schedules can also impede bidirectional communication between parents and children. There may be an essential timeframe after each camp day for engaging in conversation. Therefore, assisting parents with identifying the best time for promoting communication may facilitate deeper and more productive conversations related to change agency goals.

The topic of water-related environmental health within the Crow community provided a unique opportunity to examine bidirectional communication between parents and child change agents. For Crow people, water is a living entity to be respected. This underlying community way of knowing likely impacted the comfort level of parents and children to discuss the topic of water. With an existing foundation of the importance of water and the community-level support for respecting water, camp staff could reinforce healthy attitudes and behaviors that parents and families had already imparted to their children. Parents expressed having previously shared health advice with their children but hearing advice from leaders at camp enabled children to heed the advice. The comfort of a parent-child bidirectional relationship may inhibit some children from heeding parental advice, while new relationships with adult camp leaders may result in some campers following the same instructions and advice from this new source.

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Although effectiveness of sharing and potential for change agency was evident in that all parents reported that their child had shared something related to topics covered on the first three days of camp, some topics were discussed by only a few campers, and some topics were miscommunicated to parents. Potential barriers to accurate and effective sharing include the way the content was delivered, or the extent children participated. For example, children engaged in several activities each day, and it may not be reasonable to expect children to mention or remember all these activities each day. In addition, the degree of child involvement in the daily activities likely impacted communication. Some campers may not have been as interested in the activity or may have been absent. Campers may have received information from another source, or there may be other external inhibitors that hindered the transfer of messages from child to parent (Kernis, Brown, & Brody, 2000).

A limitation of our study is the small sample size. However, within the context of this qualitative study we were interested in each individual response, even of single pieces of data that could inform our study, rather than frequencies of responses (Mason, 2010). Although we tried to contact appropriate caregivers for each camper, several parents mentioned other family members who may have spent more time with their child the week of camp who may have communicated more consistently with the child that week. Also, parents participated in interviews two to three weeks after the camp, which may have affected the quality of responses. In a small close-knit community, our interviewers were more familiar with some of the parents as compared to others. In those cases, the interviewee may have felt more comfortable sharing information depending on the relationship. Previous research and our own experiences suggests the importance of relationships to developing trust when engaging in research with Native communities (Christopher, Watts, McCormick, & Young, 2008; Kovach, 2000). In addition, parents who agreed to participate in the interviews may be more motivated than those who chose not to participate due to a higher level of interest in health or environmental issues. Finally, this study is specific to the Crow community and may not be generalizable to other populations. However, future research may expand upon our processes in other communities. We have held two subsequent summer camps and are continuing to explore the role of children as change agents in the Crow community.

CONCLUSION

This is the first study we are aware of that explores parental perceptions of a child-change-agent approach with an environmental health topic. Our study highlights parental perceptions of the ways the voices and actions of children have the potential to be valuable assets in addressing environmental-related health disparities. However, our study also demonstrates how parent-child relationships can foster or inhibit the transfer of communication. Therefore, communities who want to use the child as agent of change approach may benefit from enhanced efforts to prepare parents to receive information from their children.

ACKNOWLEDGEMENTS

This project was made possible by the Center for American Indian and Rural Health Equity Montana (CAIRHE), grant P20GM104417 [PI: Alex Adams], and the MT INBRE II grant P20GM103474 [PI: B. Bothner] both sponsored by the National Institutes of General Medical Sciences. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health. Special thanks to project partners including

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Grant Bull Tail, Jonna Chavez, Sara Young, John Doyle, Lisa Stevens, Frederica Left Hand, as well as youth, their parents and many other project partners who participated in this study.

REFERENCES

- Balazs, C., Morello-Frosch, R., Hubbard, A., & Ray, I. (2011). Social disparities in nitrate-contaminated drinking water in California's San Joaquin Valley. *Environ Health Perspect*. doi:10.1289/ehp.1002878
- Balazs, C. L., Morello-Frosch, R., Hubbard, A. E., & Ray, I. (2012). Environmental justice implications of arsenic contamination in California's San Joaquin Valley: a cross-sectional, cluster-design examining exposure and compliance in community drinking water systems. *Environ Health*, 11, 84. doi:10.1186/1476-069X-11-84
- Braun, V., & Clarke, V. (2013). *Successful Qualitative Research: A Guide for Beginners*. Thousand Oaks, CA: SAGE.
- Burger, J., & Gochfeld, M. (2011). Conceptual environmental justice model for evaluating chemical pathways of exposure in low-income, minority, Native American, and other unique exposure populations. *Am J Public Health*, 101 Suppl 1, S64-73. doi:10.2105/AJPH.2010.300077
- Christopher, S., Watts, V., McCormick, A. K., & Young, S. (2008). Building and maintaining trust in a community-based participatory research partnership. *Am J Public Health*, 98(8), 1398-1406. doi:10.2105/AJPH.2007.125757
- Cummins, C., Doyle, J., Kindness, L., Lefthand, M. J., Bear Don't Walk, U. J., Bends, A. L., . . . Eggers, M. J. (2010). Community-based participatory research in Indian country: improving health through water quality research and awareness. *Fam Community Health*, 33(3), 166-174. doi:10.1097/FCH.0b013e3181e4bcd8
- Doyle, J. T., Redsteer, M. H., & Eggers, M. J. (2013). "Exploring effects of climate change on Northern Plains American Indian health". *Clim Change*, 120(3). doi:10.1007/s10584-013-0799-z
- Eggers, M. J., Moore-Nall, A. L., Doyle, J. T., Lefthand, M. J., Young, S. L., Bends, A. L., . . . Camper, A. K. (2015). Potential health risks from uranium in home well water: An investigation by the Apsáalooke (Crow) Tribal Research Group. *Geosciences*, 5(1), 67-94. doi:10.3390/geosciences5010067
- Gadhoke, P., Christiansen, K., Rowan, M., Aniliker, J., Frick, K., & Gittelsohn, J. (2012). Formative research supports a change agent approach to prevent obesity in American Indian households. *The FASEB Journal*, 26(1). doi:10.1096/fasebj.26.1_supplement.389.7
- Guest, G., Bunce, A., & Johnson, L. (2006). How many interviews are enough?: An experiment with data saturation and variability. *Field Methods*, 18(1), 59-82. doi:10.1177/1525822X05279903
- Hamner, S., Broadaway, S. C., Berg, E., Stettner, S., Pyle, B. H., Big Man, N., . . . Camper, A. C. (2014). Detection and source tracking of Escherichia coli, harboring intimin and Shiga toxin genes, isolated from the Little Bighorn River, Montana. *Int J Environ Health Res*, 24(4), 341-362. doi:10.1080/09603123.2013.835030
- Hoover, E., Cook, K., Plain, R., Sanchez, K., Waghiyi, V., Miller, P., . . . Carpenter, D. O. (2012). Indigenous peoples of North America: environmental exposures and reproductive justice. *Environ Health Perspect*, 120(12), 1645-1649. doi:10.1289/ehp.1205422

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- Kernis, M. H., Brown, A. C., & Brody, G. H. (2000). Fragile self-esteem in children and its associations with perceived patterns of parent-child communication. *J Pers*, 68(2), 225-252. doi: 10.1111/1467-6494.00096
- Kovach, M. (2000). Conversational method in Indigenous research. *First Peoples Child & Family Review*, 5(1), 40-48.
- Lansdown, R., Ledward, A., Hall, A., Issae, W., Yona, E., Matulu, J., . . . Bundy, D. (2002). Schistosomiasis, helminth infection and health education in Tanzania: achieving behaviour change in primary schools. *Health Educ Res*, 17(4), 425-433. doi: 10.1093/her/17.4.425
- LaVeaux, D., Simonds, V. W., Pickett, V., Cummins, J., & Calkins, E. (2018). Developing a curriculum for change: Water & environmental health literacy in a Native American community. *Progress in Community Health Partnerships: Research, Education, and Action* 12(4).
- Mason, M. (2010). Sample size and saturation in PhD studies using qualitative interviews. *Forum: Qualitative Social Research*, 11(3). doi: 10.17169/fqs-11.3.1428
- Mosavel, M., & Genderson, M. W. (2016). Daughter-initiated cancer screening appeals to mothers. *J Cancer Educ*, 31(4), 767-775. doi:10.1007/s13187-015-0949-2
- Mwanga, J. R., Jensen, B. B., Magnussen, P., & Aagaard-Hansen, J. (2008). School children as health change agents in Magu, Tanzania: a feasibility study. *Health Promot Int*, 23(1), 16-23. doi:10.1093/heapro/dam037
- NVivo qualitative data analysis Software; QSR International PTY LTD. Version 11, 2016.
- Onyango-Ouma, W. (2003). Children as partners in health communication in a Kenyan community. *Anthropology in Action*, 10(1), 25-33.
- Onyango-Ouma, W., Aagaard-Hansen, J., & Jensen, B. B. (2005). The potential of schoolchildren as health change agents in rural western Kenya. *Soc Sci Med*, 61(8), 1711-1722. doi:10.1016/j.socscimed.2005.03.041
- Pridmore, P., & Stephens, D. (2000). *Children as Partners for Health: A Critical Review of the Child-to-Child Approach*. New York, NY: Zed Books.
- Ritchie, J., Lewis, J., & Elam, G. (2003). Designing and selecting samples. In J. Ritchie & J. Lewis (Eds.), *Qualitative Research Practice. A Guide for Social Science Students and Researchers* (pp. 77-108). Thousand Oaks, Ca: Sage.
- Sedighi, I., Nouri, S., Sadrosadat, T., Nemati, R., & Shahbazi, M. (2012). Can children enhance their family's health knowledge? An infectious disease prevention program. *Iran J Pediatr*, 22(4), 493-498.
- Simonds, V. W., Kim, F. L., LaVeaux, D., Pickett, V., Milakovich, J., & Cummins, J. (2018). *Guardians of the Living Water: Using a health literacy framework to evaluate a child as change agent intervention. Health Education & Behavior* . doi: 10.1177/1090198118798676
- Viera, A. J., & Garrett, J. M. (2008). Preliminary study of a school-based program to improve hypertension awareness in the community. *Fam Med*, 40(4), 264-270.