

PHOTOVOICE: GIVING VOICE TO INDIGENOUS YOUTH

Derek Jennings
John Lowe

ABSTRACT

Children's voices and their perceptions of healthy behaviours have been argued as critical for understanding health policy and program design that affect them (Mcwhirter et al., 2000; Nic Gabhainn and Sixsmith, 2006). This study was conducted to elucidate and define the concept of health among Indigenous children in their own dynamic environment, which remains an ever-evolving culture. Through the use of photographic research methodology, middle-school children among one Indigenous (Native American) tribe defined their concept of health by taking photographs in their environment utilizing photovoice methods. The participants remained actively involved in the study as they assisted in consolidating and organizing their ideas. The location of each photograph was identified along with the environmental attributes depicting the location as *healthy*, *unhealthy*, or *both*. Findings were presented to tribal community leaders and stake holders to inform childhood health programs and policies. The findings indicate a complex, evolving, and culturally relevant idea of health that is tied to the current cultural environment in which Indigenous (Native American) children and their families live.

Keywords: Culture, diabetes, health, health education, Indigenous youth, Indigenous communities, obesity, photovoice, socioecological theory

Acknowledgments: We are honored to acknowledge all of the community members of the Menominee Native American tribe who participated with the project. We are grateful for the contributions of the Menominee tribal school to this study. We are also thankful to the reviewers for their comments and feedback on this article.

INTRODUCTION

Indigenous people of the United States (US) also identified as Native Americans, American Indians (AI), Alaska Natives (AN), or Native Hawaiians (NH), experience an alarming rate of health and social disparities (Johansen, 2010). One area of health disparity relates to pediatric obesity rates which are rapidly growing among Indigenous children in the US. This is of great concern since data from the Indian Health Service (IHS, 2001) indicate that 14.2% of American Indians and Alaska Natives aged 20 years or older who are receiving care from IHS are diagnosed with diabetes.

Health programs are needed to address pediatric obesity rates and other health disparity issues in Indigenous communities (Hedley et al., 2004). Identifying how Indigenous communities view health will assist in developing health programs to lower the increasing obesity and disease rates that exist in these communities. This is necessary because Indigenous communities often have different overall views of health than that of the mainstream (Adams et al., 2008). Disease prevention attempts need to be studied from an Indigenous perspective that utilize cultural health perspectives.

Indigenous populations within the US are culturally distinctive and diverse. In spite of the multiplicity of these Indigenous groups, there are striking cultural similarities and concepts that can be used in the design and implementation of disease prevention programs. These similarities include tribal values such as the importance of family and community, cooperation, sharing, harmony with nature, and an oral tradition that incorporates the lessons learned and values of the tribe in the form of storytelling and respect for others (Huff and Kline, 1998).

Most tribes appreciate the importance of research to their preservation and sustainability. At

the same time, most have reasonable concern about the cultural knowledge and competence of researchers. Several research key strategies should include attention to the cultural knowledge and competence of the researcher(s), planning in advance for conducting research with Indigenous communities, increasing local capacity, sharing results first with the community (Oberly and Macedo, 2004).

Overall, the purpose of this study was to fill a gap in the literature by documenting one Indigenous community's ability to give voice in defining health which can lead to a cultural framework for designing health programs and future research. The importance of cultural health frameworks prior to designing health education programs must be understood. This study was able to build the basis for a cultural health framework for one Indigenous community that has been targeted for health intervention. The tribal school and community selected for this study was chosen due to its current collaboration with University of Wisconsin-Madison health researchers with childhood obesity prevention expertise. This tribal community was also attempting to reduce childhood obesity by targeting behavioural changes that occur in a socioecological context.

LITERATURE REVIEW

Concepts of health and illness for Indigenous people in the US must be addressed and understood from social, cultural, and political perspectives. Many disease prevention and health promotion programs are not effective in Indigenous communities because a cultural health framework was not first established.

Cross et al. (2000) developed a global view of Indigenous health and well-being as based on the following concepts: spirit, context, mind, and body. Spirit is defined as the protecting against negative forces within the universe. The spirit also refers to one's intuition, grace, personal gifts, and one's dreams. Furthermore, for many Indigenous people, stories and symbols are spiritual in nature. The context is defined as the Indigenous person's family, tribe, environment, culture, and community history, as well as environmental factors, including the weather. The mind is referred to as the intellect of an individual. The mind also includes the individ-

ual's emotion, memory, and judgment. Finally, the body is referred to as the chemistry, genetics, nutrition, presence or absence of substance abuse, age, and overall condition of an individual.

Other definitions have been developed for identifying Indigenous concepts of well-being or overall health and illness. For example, many of the tribes that originated in the southeastern area of the US view disharmony as the result of being out of balance with unfocused or poorly focused energies. Well-being occurs with seeking and finding one's unique place in the universe and experiencing the continuous cycle of receiving and giving through respect and reverence for the beauty of all living things (Garrett and Pichette, 2000).

Indigenous perceptions of illness have been described as being out of harmony, a loss of one's soul, a state of being cursed, a passage in one's life, or fate (Congress and Lyons, 1992). Being out of balance may also occur from not receiving adequate teachings from Elders as a result of cultural genocide and/or from not living a careful life (Lowe and Struthers, 2001). This differs from a "linear" or Western perspective, in which a symptom is seen as residing within a person rather than a result of her environment, or the interrelationship of the person and her environment (Duran and Duran, 1995). It is worth noting that most Eurocentric research on traditional healing has addressed the limitations of the Western healing paradigm to come to terms with events which Euro-centred scientists commonly consider anomalous, inexplicable, or nonexistent. They are attempts to better the individualistic paradigm without leaving or changing it. However, this approach may not address Indigenous models of health and illness, given their often described communal and holistic approach. Researchers could, instead, embed their research in a cultural context and allow the community to express their view.

A further problem exists in the conceptualization of the body as separate from the environment. Indigenous knowledge and culture often do not rely on the Western cultural concept of mind-body dualism (Simpson, 2000). To focus on disease as specifically a body problem ignores the complex interactions of the whole individual, as an interconnected being

with others, both from within and outside their home culture, and shaped by historical and political influences. Although the literature does yield a working definition of Indigenous health and illness, all Indigenous communities cannot be assumed to follow the same model. There exist important historical and cultural differences between each tribal community. Therefore, health education programs that focus on a static health and illness concept, may be in opposition to Indigenous culture.

Diabetes is an example of an illness that has often not been understood from an Indigenous perspective. Diabetes has been defined as a genetically predisposed illness characterized as a maladaptive thrifty gene, which implies that all Indigenous people are inferior and ill-suited for so-called modern society (Fee, 2006). This characterization led many Indigenous people to accept diabetes and other diseases as inevitable. More recently, diabetes among Indigenous people has been found to be highly correlated with stress and is therefore not a component of genetics alone (Ferreira, 2006). Researchers have moved from viewing Indigenous people as having faulty genetics to viewing contextual stressors that result from historical trauma, genetic memory, and socioeconomic status as factors influencing the risk for diabetes (Ferreira, 2006). The correlation of obesity and stress with colonialism, marginalization, and intergenerational trauma puts Indigenous people at higher risk (Ferreira, 2006). Health education programs must now emphasize these factors along with the importance of good nutrition and exercise for diabetes prevention.

INDIGENOUS-SPECIFIC OBESITY PREVENTION PROGRAMS

Several health education programs and behavioural interventions have targeted reducing high obesity rates, specifically among Indigenous communities (Adams et al., 2008; Roy, 2006). However, these programs have not been as successful as health officials and researchers have hoped. One explanation attributes the lack of success to the failure to address culturally based concepts of health (Adams et al., 2008). Roy (2006) contends that by attempting to formulate Westernized, scientific information into a culturally appropriate form, researchers reduce cul-

ture to a mere variable, whereas culture, in fact, is dynamic and complex (Brofenbrenner, 1979). Even if an Indigenous community has thoroughly learned the scientifically valid and culturally appropriate health information about how to reduce obesity, cultural complexities including their sociopolitical and environmental context, may prevent them from making behavioural changes. Hence, according to Roy (2006), the Indigenous population's specific social and ecological context affects behavioural changes and must be considered in Indigenous research.

Several obesity prevention and intervention programs also ignore lifestyle choices affected by Indigenous socioeconomic and political factors (Glanz et al., 2005; Roy, 2006). Ignoring what seems like simple variables such as "healthy" foods can have negative consequences. Many diabetes prevention programs resort to focusing on "traditional" foods, referring to pre-European contact foods. However, they neglect to consider the cultural changes within the community that have been affected by historical trauma. Other contributing factors related to poverty and the costs often associated with healthy eating must also be considered.

CULTURALLY RELEVANT HEALTH EDUCATION PROGRAMS

Health education programs that focus on health and illness as individual constructs are in opposition to Indigenous culture. A culturally relevant health education program must consider these possible differences by first identifying what contemporary differences exist between Western medical constructs of health and Indigenous communal viewpoints (Ladson-Billings, 1995). Research must avoid a focus on non-culturally relevant approaches that include an ethnocentric, static definition of health from a Westernized viewpoint. Instead, innovative research methods, such as photography, which has the ability to include contextual and environmental factors identified by the community members themselves, should be utilized.

The guidance of children's perceptions of health has been discovered as a culturally relevant approach to developing health education programs (Clark and Moss, 2001; Christensen, 2004; Nic Gabhainn and Sixsmith, 2006). Several studies have focused on chil-

dren's perceptions of health and well-being through the utilization of artistic expression in addressing abstract concepts (Nic Gabhainn and Kelleher, 2002; Nic Gabhainn and Sixsmith, 2006; Punch, 2002). Researchers have also found that children's perceptions must be utilized so that research methods can be tailored to them. As an example, one expert researcher, Kose (1985), studied 2nd–6th grade children's responses to their photographs and discovered that they were able to discuss abstract concepts.

PURPOSE OF THE STUDY

This study was conducted to give the community voice in defining health, and to provide a cultural framework for health programs and future research. Adams et al. (2008) suggest that understanding cultural health frameworks prior to designing health education programs is necessary. This photographic study examined the cultural framework of health in one upper Wisconsin Indigenous reservation community who have voiced a feeling of disconnect between their definitions of health and Euro-American definitions.

Little research has focused on children's definitions of health in general. Understanding children's ideas about health is invaluable in assisting communities to assess support and barriers to health. Using photographs, this study demonstrated how Indigenous children define health. This information can be used in the development of culturally appropriate Indigenous health promotion and disease prevention programs such as childhood obesity

THEORETICAL FRAMEWORK

The socioecological theoretical framework considers both the social and ecological environments' impacts on individual choices and has been promoted by the Institute of Medicine for Health Research (Smedley and Syme, 2000). This framework focuses on the human and environmental interactions that occur at both the macro and micro levels, reciprocally influencing their behaviour and decision-making. The individual's behaviours should be considered as embedded within a larger social context and the environment. Smedley and Syme (2000) describe the socioecological framework as having **five** areas of

interactions: the intrapersonal, institutional, community, and policy levels. All of these levels interact simultaneously. Roy (2006) also used a socioecological framework to discuss Indigenous individuals who have been educated on healthy foods but still choose junk food for at least three reasons. First, they intrapersonally find these junk foods to signify wealth; second, they fear becoming socially marginalized for choosing white people's food; and, third, a lack of grocery markets on the reservation means there is little or no access to fresh fruits and vegetables.

METHOD

PHOTOGRAPHY AS A CULTURAL RESEARCH METHOD

An understanding of children's cultural representations of health must be sought when conducting research with Indigenous children. Their voices are becoming increasingly valued in developing health policies and guiding decisions (Clark and Moss, 2001). Researchers are beginning to find ways to have active participation of children in health research through creative abstract processes such as art (Christensen, 2004; Punch, 2002; Nic Gabhainn and Sixsmith, 2006). For example, the draw-and-write technique is frequently used in determining children's perceptions of health (Nic Gabhainn and Sixsmith, 2006). However, drawing has limitations, including the contextual influence of a school environment and the adults observing their work. **Children can step outside of the school boundaries within the child's place and get at deeper, broader conceptualizations.** Furthermore, children's artistic ability or confidence may limit what they draw or write (Backett and Alexander, 1991). Using photography to express their perceptions of health is recommended to reduce the limitations of the traditional draw-and-write technique.

Hall (1997) suggests that photographic representation connects meaning to culture. Photographs represent active construction of interpretations by the photographer and the cultural context in which the photograph was taken (Moran and Tegano, 2005; Sturken and Cartwright, 2003). With photography children can actively generate data, instead of having the data generated about them (Nic Gabhainn

and Sixsmith, 2006).

PHOTOVOICE METHODOLOGY

Photovoice methods ask participants to photograph a concept within their context which allows the participants to self-define as opposed to being defined by researchers. Having participants interpret their own photographs allows a co-constructive process of data collection and initial analyses (Moran and Tegano, 2005). For example, using this method with children in an Indigenous community improves understanding of their cultural context and other factors that may symbolize their definitions of health. Moran and Tegano (2005) further described the language of photography as structural, communicative, and generative. Therefore, photographs are invaluable as stimulators for discussion. The photographs can be analyzed in a series or coupled with discussions to reveal more culturally specific interpretations. Photovoice has also been considered as a research method within a participatory research paradigm, to allow participants to define health problems and solutions to overcome these problems (Wang and Pies, 2004).

The photovoice method has three stages (Nic Gabhainn and Sixsmith, 2006). In the first stage, the research participants are trained in basic photography skills, discuss ethics involved in the project, and receive instruction on how to view photographs. Researchers must emphasize that the community retains ownership of the photographs. Sessions with participants are necessary to explain the research process and distribute cameras. Following this, the actual photography skill instruction must begin followed by having participants take photographs. In the second phase, participants have group discussions about the photographs, categorizing and creating themes along with omitting photographs unrelated to the collective conceptualization. The third phase includes reaching community leaders, policy makers, and other stakeholders in the community.

SETTING AND PARTICIPANTS

A convenience sample of 22 summer school students, 11 boys and 11 girls enrolled in grades 4–5, were asked to participate in a photography class.

Participants for the study came from one up-

per-Midwestern Indigenous (Native American) reservation grade school in the US. This particular Indigenous community was currently working on reducing childhood obesity by targeting behavioural changes that occur in a socioecological context. Middle school students, ages 8–12, were selected based on Nic Gabhainn and Sixsmith's (2006) suggestion that this age group is capable of discussing abstract concepts of health and is able to take photographs. Student participants were selected by the head summer school teacher based on their previous positive classroom behaviour and attendance records with the school. Class time in a summer educational program was provided to conduct the study. The school's administrators were supportive of the study and the active involvement of the children in defining health for future health policy and prevention programs. Before beginning this research, Institutional Review Board (IRB) approval was received from the University of Wisconsin-Madison, the tribal health clinic, the tribal school, and the tribal language and culture commission which functions as the tribal ethics board. Informed assent was obtained for each participating student and consent by their parent or guardian.

PROCEDURES

BUILDING RELATIONSHIPS

During the first four days of the study, building trust and getting to know one another was the focus. Approximately one-half of the students previously knew one another. Time was spent to learn each other's names, where they were from, and their interests. To facilitate this relationship-building process, they engaged in some social activities. For instance, during one activity, they took pieces of paper and wrote their name, favourite colour, and three things they liked to do for fun. They took these papers, wadded them up into balls, and proceeded to throw them like snowballs at one another for 30 seconds. Once the 30 seconds concluded, they picked up the closest ball of paper and took turns reading the information. Not only was this a fun opportunity to learn names and interests, it was also noticeable which students were becoming comfort-

able speaking out loud in front of the group and which were not.

INTRODUCTION TO IMAGERY AND PHOTOGRAPHY

The first step entailed teaching the students about imagery and photography. Photographic images were presented to the students and they were asked to interpret them and discuss the contexts of these images. This was to generate discussion about images and to show the students how to tell stories about them. Images can mean many different things to many different people. Thus, the words and stories placed alongside those images are important and subjective. Personal narrative processes and meaning applied to photographic images were demonstrated to the students.

Once the students understood the process of attaching meaning to photographs, they were allowed to practice this newfound skill. Images from magazines were used so that each student could select one image that he or she "liked" and one that he or she "disliked." Then, each student had to write an explanation for liking or disliking the image. This allowed the students to think about imagery and linking words and meaning to them. During the process, they also began constructive discussions and disagreements about certain images and their meanings. This was instrumental in setting the stage for later discussions about their community. These discussions also facilitated the students' comfort with sharing personal ideas and thoughts in the classroom's group setting.

THE CAMERAS

The introduction of the cameras led to a large increase in engagement in the research process. The students excitedly began taking pictures with the cameras with little to no instructions on use. After each student was assigned his or her own camera, they took them outside to take as many photographs as possible. The immediate use of the cameras was to have the students become accustomed to using them. This initial student excitement faded after about 45 minutes replaced by interest in more goal-directed activities. When they returned to the classroom, they were asked to set their cameras on

a desk as they entered. A discussion followed concerning the idea of photography as a passive process. At the end of the discussion, the students seemed to understand that the camera is no different than a pencil and paper. Images exist within a context, which is defined by the viewfinder of the camera and the person who has control over setting the frame for the image.

CONTEXTUALIZING IMAGES WITHIN A NARRATIVE PORTRAITURE EXERCISE

The next exercise practiced contextualizing images within a personal narrative. First, the students were asked to take 20 images that told a story about themselves. Objects, such as items on a key chain, a driver's license, a notebook, shoes, and scars on the researcher's hands from various accidents were shared. Stories about who the researcher was, ifrom the charms on the keychain to how each scar was obtained on his hand, were shared as a way to narrate how these images comprised a story of the researcher. This provided an understanding that a portrait is not always only someone's face.

The technical aspects of photography such as being conscious of the edges of the viewfinder and where to point the frame of their pictures was emphasized. Before they took a picture, the students were asked to look at all four corners of the frame and determine how they could alter the image in the frame for their desires. The students learned how to use the viewfinder to selectively see their world, as well as to understand how framing allows a photographer to purposefully manipulate what is viewed in an image. Each student was given a camera and asked to navigate their exit from the classroom using only the viewfinder on the camera and closing their other eye. Once outside, the students were instructed to begin taking their self-portraits. As they completed this assignment, they returned their cameras and the class ended.

REVIEWING IMAGES AND ETHICS

By the time the above processes were done, the study was into its fourth day. The students then were able to take their cameras to tech-time (the schools computer lab class) and learn how to download the images from their cameras. Once the students be-

came efficient at the process, they were given the next photographic assignment.

The next day, the images were downloaded and ready for the students to share with the class. Each student was given a chance to display their 20 images and discuss the images of themselves and how the images represented their personalities and experiences. Many students noted that they were uncomfortable taking pictures of themselves. This discomfort with taking self-portraits led to a rich discussion.

The class discussed some possible reasons why some people do not like their image taken, which led to a discussion about ethics, specifically, when it is okay to make a picture. The class then decided that they needed consent when photographing someone. A list of times when consent is needed to take a photograph was provided which included a person's image and when on private property.

The students became more comfortable with talking about their images and why they took them, as well as with attaching more in-depth abstract analysis of the image's meaning. The last important step of the portraiture exercise was to help them to achieve technical skills of image-making. This included becoming more aware of the framing of their image, the importance of holding the camera steady, and actively selecting the image to be recorded.

THE CAMERAS AND IMAGES IN CONTEXT AND ESTABLISHMENT OF THEMES

This assignment was the first time they were allowed to take their cameras home and begin data collection. From this point on, the students were able to keep their cameras with them all day long, for documenting their lives at home, where they traveled, and what they saw as healthy and unhealthy in their community. The remaining class time was spent downloading images and storing them as well as discussing the images. Prints (4x6" size) of all the students' images were made so they could be shared in group discussions.

ONE-ON-ONE DISCUSSIONS

Before and during the group discussions, one-on-one discussions were conducted with each student to review their produced images and begin practicing ways to discuss the context of images. The dis-

cussions gathered data about why particular images were taken in particular contexts. This also gave students the opportunity to edit any images they wished not to show their peers. Students who were less comfortable speaking in front of a group could express their feelings about their created images, and summarize their thoughts prior to speaking publicly.

These one-on-one discussions sometimes became more personal and serious in nature. When the contexts of images were talked about, some students frankly discussed personal tragedies and family dynamics. During the discussions, the students decided whether or not they wanted to share an image or story with the rest of the group. These discussions provided scaffolding as students began attaching stories to the images. Thus, students had processed and reflected on the images prior to them sharing with the class.

TAKING PICTURES AND FIELD TRIPS

After the individual interviews and sharing, the students seemed very comfortable with each other and excited about revealing their images and stories. They downloaded their images and decided where they would like to take a field trip to identify their community. Many destinations were proposed and then narrowed down by the group. On the way to the river, the students decided that we should stop at a community convenience store to get snacks. When getting off the bus, most of the students grabbed cameras and photographed the foods they normally purchase. All students in the study frequented convenience stores since the closest grocery store was in a neighbouring town not located on the reservation. After the convenience store, we visited an area near the river that many families used as a swimming hole. The students that lived nearby this river gave tours of the area. The tribal complex where the tribal courts, police station, and health clinic were housed was also visited and toured. Some of the students had never been there before, while others had relatives that worked in one of the offices.

CONTEXTUALIZING AND STORYTELLING

The tours at the tribal complex generated many discussions about whether the police department was "good" or "bad," how one attended a health clinic,

and for what reasons. After spending over an hour at the tribal complex, which included talking to various tribal employees, the class returned to the bus and headed towards their next destination: Spirit Rock and the tribal pow-wow grounds. Spirit Rock is a historical marker positioned along a main highway that many students knew.

Spirit Rock had a plaque that explained the historical significance of the area and was decorated with many offerings such as tobacco, feathers, and food. Next to Spirit Rock are the pow-wow grounds where the annual tribal dance occurs and many student families have campsites. The students took multiple photographs at both locations. Heading back to the school, the bus drove through reservation towns, passing basketball courts, parks, the river, and the tribal logging mill which is the largest employer on the reservation. These areas were all enthusiastically photographed and sparked many discussions.

ANALYSIS

REVIEWING AND CATEGORIZING THE PHOTOGRAPHS

Within ten days of the study, the students had used their cameras in the context of their home life. This included their preferred forms of entertainment, their bedrooms, refrigerators and holdings, individualized locations for their “special food,” their peers, and their social activities with friends and family. The students also photographed their view of their larger reservation community and environment.

The class as a whole edited and shared roughly 1500 images. To begin the process of selection, the class spread the pictures on numerous tables throughout the classroom and began to discuss each image. Throughout the discussions, a category of images developed that were voted as both healthy and unhealthy. The “both” category was talked about extensively with students debating the merits of healthy and unhealthy. These conversations were tape recorded for further review. The audiotapes were transcribed and expert researchers discussed and reviewed the findings for the emerging themes. The student participants were presented with the findings and asked to correct, expand, and confirm the interpretation analysis.

The photos were categorized into three overall themes of healthy, unhealthy, and both healthy and unhealthy. They did this by taking colored Post-It notes and voting on which were the healthy images, which were pictures of the unhealthy things, and which pictures represented things that were both healthy and unhealthy. After the voting took place, the class was broken up into three discussion groups. The images were then divided into three groups and spread on the table.

Each student was given a chance to express his or her views as to why an image was healthy, unhealthy, or both. The individual photographers were encouraged to talk about the contexts in which the pictures were taken and the motivation behind taking each picture. These three groups of images were then rotated to a different table and group, thus allowing all groups to view all of the images.

The students were able to assign a narrative around each image and collectively give voice to the representation. Deeper meanings behind the three major themes resulted from the conversations and discussions which resulted in identification of subcategories for each theme.

Healthy theme subcategory 1: Family

Family was considered the most important factor for being healthy. If one had family to rely on, one was seen as being healthy. Furthermore, health was viewed as consistently having a place to sleep and eat, as well as feeling wanted and loved. Family was referred to in the context of meeting the basic needs of food, shelter, and support.

Healthy theme subcategory 2: Pets

Pets were also identified as healthy; dogs first and then cats. A few dogs were allowed inside the homes of the students, but most were outside animals contained in some way, either by a fence or through being tethered to a chain, or free to roam. All students cited feeling more comfortable knowing that they had a dog that would bark at strangers.

Most of the students remarked they had been bitten by a dog. This did not deter students from identifying a dog as healthy. Cats were valued as healthy because they could “love on them.” The students inferred that a pet, like family, could provide

protection, as well as give and accept love.

Healthy theme subcategory 3: Cultural teachings and activities

The subcategory with the most representing photos was cultural teachings and activities. The tribe has seven teachings that the students have learned and memorized at their tribal school. Figure 1 portrays the photos of the words that are posted throughout the reservation. The majority of the students took several photos of these and categorized them as healthy with subcategories of cultural teaching teachings and activities. Other pictures depicted pow-wows where students went with their families to sing and dance. The students perceived spending time with family while singing and dancing as being healthy. They also took images of tobacco offerings and referred to it as healthy because “it is a prayer.”

Healthy theme subcategory 4: Play and exercise

Play and exercise included images related to sport activities such as basketballs, footballs, and bicycles. The basketball courts were used for playing basketball, as well as other activities such as chalk drawings. This is an area where a group of girls played regularly in the summer months. The girls would draw elaborate castles to engage in fantasy play. When it rained and washed away their drawings, they would change the games that they were playing and begin anew. These basketball courts that were seen as healthy were located at a residence and not at a town park.

Bicycles were the main mode of transportation

for all of the students. They rode their bikes around neighbourhoods along the highways. The students prefer to ride on the highway, which has no shoulder, rather than the dirt logging trails throughout the reservation. Students reported feeling safer riding on the highway than in the woods. Many talked about a story of a young boy who was beaten to death by a group of boys in the 1960s. Other students discussed being fearful of encountering animals such as bears, getting lost, and being scared by stories of ghosts told to them by older siblings. Compared to these daily stories, the highway appeared much safer to them.

Exercise was further discussed in the context of public employees. While reviewing photographs, the students recalled the police station field trip and the sequence of events. During a tour of the police department the police chief asked the students to explain their project. After learning the theme of health, he immediately took them into the basement of the police station. This was the workout room for the employees of the police station and the emergency response team. This included a group of elliptical bikes, free weights, and exercise machines. The police chief explained that everyone working in the building could get paid 30 minutes a day to work out. The students noticed the space looked like it had not been used in awhile and asked how often the workout room was actually utilized. The police chief responded, “not very often.”

Healthy theme subcategory 5: Nature and lack of environmental pollution

Figure 1. Cultural Teachings/Activities



Nature and a lack of environmental pollution was the last subcategory that the students thought was necessary for being healthy. The students considered nature as being anything in the outdoor environment. This included the water and the trees that were culturally important to the tribe. The students continually discussed the healthiness of nature in the context of a lack of environmental pollution.

Healthy theme subcategory 6: Food and water

The community garden next to the police station was the only reference to food as being healthy. The water fountain was seen as healthy because water is healthy.

Unhealthy theme subcategory 1: Screen time

Screen time, which included images of televisions, video games, and the computer, was most quickly and easily categorized as unhealthy by the students. Most of the students reported that they spent more time watching television than doing anything else related to entertainment. Out of the 23 students involved in the study, each reported having a private television in their bedroom and a video game console accompanying it. However, the students appeared to vary in responses by gender for screen time preferences. The girls reported spending more time playing on the computer with social networking, while the boys reported preferring to play more video games.

Unhealthy theme subcategory 2: Geographic locations

Students discussed their most disappointing unhealthy subcategory as being that of geographic locations. Images of the location of the basketball courts at the town park resulted in the students discussing the location as unhealthy because these were sites where drug dealings, gang activity, and alcohol abuse occurred. Most of the students said their parents or grandparents would not allow them to go to these areas.

Unhealthy theme subcategory 3: Food

The majority of the unhealthy images concentrated on the subcategory of food. These food images represented what foods were eaten on a daily basis and the foods that were available to the students

and their families. With no grocery store on the reservation, many students discussed buying their daily food items at the convenience stores. In addition, the students regularly showed up to class with the same types of food displayed in the images such as chips and soda.

The food images revealed another interesting trend. Many images involved food that was not located in the kitchen, but was actually found in the students' bedrooms. Many of the students described a "secret stash" of food located near their bed. This secret stash usually consisted of chips, candy, and their favorite soda. The students described this food as "hidden" or "protected" because they had purchased it with their own money and therefore did not have to share it with anyone else in the household. The students apparently hid this food to save for later. The students boldly discussed the unhealthy factor of these foods. They also selected images of the soda machine next to the police chief's office, the soda and alcohol advertisements at the convenience store (as well as the convenience store's shelves), and the candy and sugar-based snacks that were in their refrigerators, freezers, and kitchen drawers.

BOTH HEALTHY AND UNHEALTHY THEME

The theme of both health and unhealthy consisted of images that the students voted equally healthy and unhealthy. After a lengthy class discussion, the students were ambivalent about which category to place them in. Therefore, the researchers suggested placing them into a "both" theme category to represent their dual nature. The subcategories relating to the theme of both healthy and unhealthy included nature and environmental pollution, specific pets, music, tribal cultural ways, and food.

Both healthy and unhealthy theme subcategory 1:

Nature and environment

Elements of nature and environment were the most ambivalent for the students. For example, images of tires in the water became an item of debate. Since there was water in the picture, students argued that it was healthy. Other students argued that the tires would pollute the environment and thus the image should be categorized as unhealthy. A picture of the logging mill was a second highly contested topic.

Many students argued that logging was not environmentally friendly and caused important trees to be cut down. Other students argued that their parents worked at the mill, and it was an important industry on the reservation.

Both healthy and unhealthy theme subcategory 2:

Specific pets

A photograph of a hamster created an interesting discussion where students argued about whether having a hamster as a pet can be considered healthy since it is a rodent. The dog photograph was also debated, as the dog was stated to have a sordid past of biting someone in the class. The other students who did not know the dog believed the dog as an image would be healthy. Other students agreed that this individual dog could not represent health given its biting nature. Hence, this image stayed in the both category.

Both healthy and unhealthy theme subcategory 3:

Music

Images representing music also created ambivalence. Students could not agree if the images, such as MP3 players, should abstractly represent music which was considered to be healthy or only as electronic devices which was considered to be unhealthy.

Both healthy and unhealthy theme subcategory 4:

Tribal cultural ways

Photographs of two paintings on display at the health clinic depicting tribal history created an interesting debate. One painting portrays the subsistence living setting as a historical depiction of the tribe and the other painting depicts a more present day representation of the tribe. Some students argued that the historical, subsistence setting was too hard and unhealthy, while other students argued that the tribe needed to "get back to old ways." They explained that subsistence living was healthier because they had easy access to food. Other students argued that contemporary modes of living are easier. Still other students argued that the painting should be categorized as unhealthy because of the train image and the smoke depicted in the painting.

An image of a "true native" shirt image evoked similar cultural debates. Some students were of-

fended and argued that one should not claim to be a true Native.

They explained that this was bragging and saying, "we're better than everybody else." They further argued that this shirt was seen as "gangster" and not a healthy way of being, while other students argued that the shirt was healthy because it represented being proud of one's ethnic identity.

Both healthy and unhealthy theme subcategory 5:

Food

Several images of food were also heavily debated and ultimately placed in the both category. Photographs depicting foods such as chicken fried steak with gravy, vegetables, and mashed potatoes from a local restaurant, breakfast sandwich from a fast-food restaurant, and fish caught from the local river resulted in much debate concerning how healthy or unhealthy these foods were. Some students believed that homemade food was healthier than store bought or restaurant made food. Others disagreed and commented that the "homemade look" of this meal made it unhealthy. Others believed that it was a healthy meal and should be classified that way. Another contested image was a fast food restaurant breakfast sandwich. Some students believed the sandwich to be healthy, while others decided that it was an unhealthy breakfast. Fish that came from the local river received similar controversial views. Some students argued that the fish was unhealthy or not clean because it came from the local water. Their reasoning was that if the fish had not been cleaned at a store and then sold, it would not be healthy. Other students disagreed and viewed fish caught directly from the river as healthier. The students agreed that these photographs belonged to the overall theme of both.

CONDUCTING THE FORMATIVE EVALUATION

The students codified ideas from the photos which led to the three overall themes. Subcategories were identified by the students by relating each idea to one of the three themes. Codes were generated inferentially and deductively using the supporting theoretical notions of Indigenous health in a sociopolitical framework (Graue and Walsh, 1998). These themes

were validated by the student participants. A conceptual themes memo (Graue and Walsh, 1998) was also completed and validated by expert researchers to examine emerging themes compared with the notes and interviews from the students. After the subcategories were identified for each of the three overall themes, an expert researcher reviewed the subcategories with the students in the context of notes and interviews. The students agreed that the subcategories accurately reflected their group discussions and thoughts.

The formative evaluation also included the involvement of the tribal Language and Culture Commission. This group of tribal Elders had agreed to review the student's information and offer feedback on the images, themes, and subcategories. They approved the dissemination of the information.

DISSEMINATION OF FINDINGS

The tribal Language and Culture Commission were very interested in the students' findings for health, but they were also disturbed by some of the findings. The commission's Elders voiced concern about historically based, tribal cultural activities not being included in the healthy section by the students. The Elders explained that the students were attending a tribal school in which healthy tribal activities were practiced and encouraged, such as a maple syrup camp, deer hunting camps, and netting and spear fishing. They also expressed concern that the students did not take photographs of these activities as examples of healthy activities. They viewed these tribal activities as integral parts of the tribal culture that the students should be willing to express. This resulted in the tribal Language and Culture Commission expressing a desire to promote a healthy view of their culture to their youth within the tribe.

The students also presented their results to the tribal council, tribal school board, and the students' parents. Additionally, tribal health care leaders and community representatives were presented with the findings and asked to discuss how the perceptions of health differed from their own as a way to initi-

ate discussions concerning decisions about health policy and prevention programs.

DISCUSSION

THE CONFLICT BETWEEN INDIGENOUS AND WESTERN EURO-AMERICAN VIEWS OF HEALTH

The purpose of this study was to give a tribal community voice in defining health which could lead to the development of health programs and future research. The findings provide insight into the tribal students' view of what can be classified as healthy, unhealthy, and both healthy and unhealthy. The tribal students participating in this study do not operate in a vacuum and are exposed to daily experiences with television and hegemonic American cultural influences. According to socioecological theory, the interaction between the micro level (individual) and the macro level (media, sociocultural, and community) views must be considered in determining what influenced the students' selection of images.

Two common views emerged around food capital and screen time (i.e., television, computer use, and gaming) from images taken by the students. The images of food stashes in their personal bedrooms or bathrooms can be interpreted from both macro and micro level influences. From the social context, these food stashes were uniquely illuminated by conversations that occurred in the classroom. The students were influencing one another's perceptions of this food as social capital also historically termed food capital (Hanifan, 1916). Certain foods were identified as more desirable than others (for example, chips and soda were imbued with a great deal of social capital), and personal possession of these items appeared to give the students a certain status within their peer groups. The foods were popular due to the influence of mainstream American culture such as pop culture and the desire to have junk food. Preoccupations with junk foods, despite the knowledge that they are unhealthy, may be influenced by the notion that they are a treat representative of a higher status. This would explain the food stashes that the students had, and why they

appeared proud of these stashes and bragged about them during the discussions.

The possession of junk food and food stashes can also be considered as food capital. In other words, food capital represents a reserve of superfluous foods that give the consumer a heightened status from having these foods readily available. This is similar to junk foods viewed by Canadian First Nations peoples (Roy, 2006). Perceiving junk food as food capital implies that not possessing and consuming junk food can lower one's social status. Subsequently, junk food capital can interfere with health preventions and interventions targeting childhood obesity.

Similarly, screen time was discussed as possessing a high social value. The students reported their family's valuing of the Internet and cable. For instance, the students discussed that when finances were tight their families were likely to pay the cable bill above all else. This entertainment medium was valued despite students noting that it was unhealthy. Media is often valued based on US cultural values of television, gaming, and the Internet. Furthermore, since this tribal community is isolated, one way to feel connected with the larger US society is through these media-based mechanisms.

The geographic environment provides a macro-level influence on the students' selection of images, particularly in the area of nutrition. The students' selection of healthy images contained no images of healthy foods. Though the students appeared well-educated about unhealthy foods, they were not able to decide on a healthy food selection. Healthy foods are not readily available on the reservation as there are no grocery stores. Most of the students discussed eating frozen pizzas and potato chips throughout the week. Because of the geographic isolation of this community, a food desert may exist. The Centers for Disease Control describe a food desert as a community lacking access to fresh fruits and vegetables which decreases the nutritional diet for children (CDC, 2006).

Geographic barriers to exercise were noted to have influenced the students' selection of images. Within the community, there were no bicycle paths for the children to use. The students preferred the

highway to the logging trails that were isolated in the woods for travel. However, the unsafe highway brings up other health concerns and likely decreases students exercising by bicycles.

The students remarked they selected exercise related images as healthy and sedentary activities such as watching television and playing video games as unhealthy. These selections were based on messages they had received from their school, parents, and other macro-level influences such as public service education and announcements. For example, in the school cafeteria, healthy and fit flyers indicating that exercise was a healthy endeavour were posted.

Students also selected images as unhealthy when they referred to butchering one's own food, harvesting eggs, fishing, or hunting. The students' evaluation was due to social perceptions that the "cleanest" food comes from a grocery store. The students noted that exposure to advertising and popular US culture concerning the high value of "store bought food" have influenced them to be ambivalent about how to categorize food that comes directly from their local environment as being healthy or unhealthy.

The Elders who comprised the tribal Language and Culture Commission were surprised and dismayed at the students' selections of images in accordance with the established themes and subcategories. The Elders described teaching the students traditional skills, such as how to collect maple syrup and the processes involved with eating traditional foods. On the other hand, the seven tribal teachings, trees, and water were all selected as healthy images. The seven tribal teachings were taught at the tribal school, and the association of trees and water with healthiness may have been received from the Elders in the community as well as through the school curriculum. Given that the questions were asked at school, the students may have automatically selected these as healthy. Thus, the students' view for health appeared influenced by their contextual environment and this may differ from a childhood obesity program focused on diet and nutrition for the individual.

The students also strongly viewed pollution of the natural world as unhealthy. This view certain-

ly could have been influenced by both mainstream American culture and even global cultural messages about the dangers of pollution. However, the students' overwhelmingly identifying environmental pollution as unhealthy may have also been influenced by specific teachings of the tribe.

GENERATIONAL NARRATIVE STORIES

Stories of incidents that occurred in this tribal community were often heard in gatherings by tribal community members. These stories may have influenced the students' views of health. Some stories have survived over generations. For example, the story of a child riding in the 1960s along the logging trails on a bicycle and being beaten by a group of people was retold with each young generation. This story influenced the current students in this study to reject the logging trails for their healthy category of images. Furthermore, current stories of gangs or undesirables occupying certain parks or basketball courts influenced the students' collective view of these locations as unhealthy. There were also stories specific to dogs that bit and hence were unhealthy. From student discussions, it became apparent that these narratives were familiar to most of them. Though specific story facts were sometimes debated, the narratives were seen as factually compelling evidence for identifying healthy and unhealthy behaviours.

PARENTAL/FAMILY INFLUENCES

Finally, parental and family influences may have predisposed individual students to select certain images. For instance, there were students whose parents worked in the health field, worked at the mill, and/or participated more or less in tribal cultural activities. The differentiation between the families was apparent during the debates about the images that fell in the both category. Some students were more likely to be knowledgeable and confident about healthier diets because their parents worked in the health field. In addition, some parents worked at the lumber mill. While the tribe is world renowned for its healthy foresting management, many students associated the mill with pollution and hence viewed it as unhealthy, while on the other hand, students with mill-employed families saw this as a strong and healthy component of livelihood in their com-

munity. Similarly, some debate occurred around the image indicating the tribe's traditional culture depending on the student and their family's involvement with the tribal cultural activities.

LIMITATIONS

The students not being surveyed concerning their previous knowledge of health or unhealthiness could be viewed as a limitation in this study. They were also not able to fully discuss what the term meant to them prior to taking the photographs. These preconceived notions and knowledge levels were not assessed as a way to comply with photovoice protocol which suggests that researchers limit their influence during the study and interaction with participants. Hence, it is not known how much previous knowledge may have influenced the students categorization of the photographic images. Furthermore, only one age group served as participants in this study. Therefore, the study findings do not necessarily represent the entire tribal community views of health.

IMPLICATIONS

The students' selections of healthy and unhealthy photographs demonstrate that health programs based on Western medicine may need to be reconsidered. Health programs in the US typically approach behaviour change through modifications meant for individuals to align with dominant Euro-American culture standards for healthy behaviour. Programs based on these standards are very different from those that would be based on Indigenous cultural standards which encourages tribal health sovereignty.

The students in this study identified relationships that influence healthy behaviours very differently from mainstream culture. While mainstream attempts to prevent childhood diseases for Indigenous people through diet and exercise alone, there may be other factors as identified in the findings of this study that influence the health of Indigenous children. Programs based on the principles of mainstream Euro-American practices may have difficulty creating culturally specific health programs that incorporate Indigenous holistic views of health.

The food sovereignty program, presently used in other countries, is one approach that could be modified for use with Indigenous communities in the US programs (Via Campisina, 2003). The food sovereignty program focuses on the needs of the community and empowers them to take control of their food growth and production. It includes a right to the food, as well as access to and control over their land for production. Indigenous people in the US could begin by asserting control over their land and incorporating community decision-making processes about which healthy foods they want to grow and eat.

An example of an Indigenous food sovereignty program is the Mvskoke Food Sovereignty Initiative (MFSI) which began as a Native American grassroots movement in Oklahoma. This program asserts food sovereignty through initiatives for sustainable agriculture, economic development, community involvement, cultural and education programs (Via Campisina, 2003). Additionally, the program has a youth and Elder sharing emphasis that encourages tribal youth and Elders to share food knowledge and work together to invigorate the local food system. Thus, the tribe is empowered to select the food, geography, and cultural elements that they desire.

Other Indigenous controlled activities may further include exercise programs that are culturally relevant and decided on by the community. It is ultimately the Indigenous community members who should decide on the activities beneficial for them. Likewise, they can work with researchers to study the benefits of these programs. The researchers' role should include methodologies and approaches that empower Indigenous communities.

CONCLUSION

In conclusion, health education programs often assume that if Indigenous people are simply educated about which physiological behaviours increase obesity and other health risks, then they will simply respond by changing their perceived bad habits and behaviours. As evidenced from this study, focusing solely on the individual's choices, as though in a vacuum, does not explain why health education programs are not working in Indigenous communi-

ties. Other areas, such as the environment, previously been ignored by researchers, may need to be considered. According to a socioecological perspective, the place of community allows researchers to explore those aspects that conventional and individual based research may have missed.

A socioecological framework can guide studies that give voice to Indigenous people concerning their conceptualization of health. According to a socioecological perspective, health professionals and researchers should consider how an individual defines health, while considering the interaction of sociopolitical and historical contextual influences. Thus, health programs can address health and illness issues among Indigenous people from a complex interactive perspective of intrapersonal, interpersonal, communal, and greater societal actions that may contribute and influence their current health status.

REFERENCES

- Adams, A., Harvey, H., and Brown, D. (2008). Environmental and health constructs inform obesity prevention among American Indians. *Obesity, 16*(2), 311-317.
- Backett, K. and Alexander, H. (1991). Talking to young children about health: Methods and findings. *Health Education Journal: Theory and Practice, 14*: 387-398.
- Brofenbrenner, U. (1979). *The Ecology of Human Development*. Cambridge, MA: Harvard University Press.
- Christensen, P. (2004). Children's participation in ethnographic research: Issues of power and representation. *Children & Society, 18*: 165-176.
- Clark, A. and Moss, P. (2001). *Listening to Young Children: The Mosaic Approach*. London: National Children's bureau and Joseph Rowntree Foundation.
- Congress E.P. and Lyons B.P. (1992). Cultural differences in health beliefs: Implications for social work practice in health care settings. *Social Work in Health Care, 17*(3), 81-96.
- Cross, T., Earle, K., Echo-Hawk Solie, H., and Manness, K. (2000). *Cultural Strengths and Challenges in Implementing a System of Care Model in American Indian Communities*. Volume 1. Washington, DC:

- Center for Effective Collaboration and Practice, American Institutes for Research.
- Duran, E. and Duran, B. (1995). *Native American Postcolonial Psychology*. Albany, NY: State University of New York Press.
- Fee, M. (2006). Racializing narratives: Obesity, diabetes and the 'aboriginal' thrifty genotype. *Social Science and Medicine*, 62(12), 2988–2997.
- Ferreira, M. (2006) Slipping through sky holes: Yurok body imagery in Northern California. In M. Ferreira and G. Lang, eds., *Indigenous Peoples and Diabetes: Community Empowerment and Wellness*. Durham, NC: Carolina Academic Press, pp. 73–104.
- Garrett, M. and Pichette, E. (2000). Red as an apple: Native American acculturation and counseling with or without reservation. *Journal of Counseling and Development*, 78(1), 3–13.
- Graue, M. and Walsh, D. (1998). *Studying Children in Context: Theories, Methods & Ethics*. Thousand Oaks, CA: Sage.
- Glanz, K., Sallis, J.F., Saelens, B.E., and Frank, L.D. (2005). Healthy nutrition environments: Concepts and measures. *American Journal of Health Promotion*, 19(5), 330–333.
- Hall, S. (1997) *Representation: Cultural Representations and Signifying Practices*. Thousand Oaks, CA: Sage.
- Hanifan, L. (1916) The rural school community center. *Annals of the American Academy of Political and Social Science*, 67, 130–138.
- Hanifan, L.J. (1920). *The Community Center*. Boston: Silver Burdett.
- Hedley, A., Ogden, C., Johnson, C., Carroll, M., Curtin, L., and Flegal, K. (2004). Prevalence of overweight and obesity among US children, adolescents and adults. *Journal of the American Medical Association*, 291(23), 2847–2850.
- Huff R. and Kline M. (1998). *Promoting Health in Multicultural Populations: A Handbook for Multicultural Practitioners*. Thousand Oaks, CA: Sage Publications.
- Indian Health Services (IHS). (2001). Trends in Indian Health. Retrieved 9 November 2012 online from <http://www.ihs.gov/publicinfo/publications/trends98/trends98.asp>.
- Johansen, B. (2010). *Native Americans Today*. Santa Barbara, CA: Greenwood.
- Kleinman, A. (1978). Concepts and a model for the comparison of medical systems as cultural systems. *Social Science and Medicine*, 12, 85–92.
- Kose, G. (1985). Children's knowledge of photography: A study of the developing awareness of a representational medium. *British Journal of Developmental Psychology*, 3(4), 373–384.
- Ladson-Billings, G. (1995). Toward a theory of culturally relevant pedagogy. *American Education Research Journal*, 35, 465–491.
- Lowe, J. and Struthers, R. (2001). A conceptual framework of nursing in the Native American culture. *Journal of Nursing Scholarship*, 33(3), 279–283.
- McWhirter, J., Collins, M., Bryant, N., Wetton, N., Newton-Bishop, J. (2000). Evaluating 'Safe in the Sun,' a curriculum program for primary school. *Health Education Research: Theory & Practice* 15, 203–217.
- Moran, J. and Tegano, D. (2005). Moving toward visual literacy: Photography as a language of teacher inquiry. *Early Childhood Research and Practice*, 7(1).
- Nic Gabhainn, S. and Kelleher, C. (2002). The sensitivity of the draw and write technique. *Health Education*, 102, 68–75.
- Nic Gabhainn, S. and Sixsmith, J. (2006). Children photographing well-being: Facilitating participation in research. *Children & Society*, 20(4), 249–259.
- Oberly J. and Macedo J. (2004). Circle of research and practice. The R word in Indian country: Culturally appropriate commercial tobacco-use research strategies. *Health Promotion Practice*, 5, 355–61.
- Punch, S. (2002). Research with children — children's places. *Childhood*, 11: 155–173.
- Roy, B. (2006). Diabetes and identity: Changes in the food habits of the Innu: A critical look at health professionals' interventions regarding diet. In M.L. Ferriera and G.C. Lang, eds., *Indigenous Peoples and Diabetes: Community Empowerment and Wellness*. Durham, NC: Carolina Academic Press, pp. 167–186.
- Simpson, L. (2000). Stories, dreams, and ceremonies: Native ways of learning. *Tribal College Journal of American Indian Higher Education*, 17(4), 26–29.
- Smedley, B.D. and Syme, S.L. (2000). *Intervention Strategies from Social and Behavioral Research*. Washington, DC: National Academy Press.
- Sturken, M. and Cartwright, L. (2003). *Practices of Looking: An Introduction to Visual Culture*. New York: Oxford University Press.
- Via Campesina. (2003). What is food sovereignty? 1 January. www.viacampesina.org/IMG/article_PDF/article_216.pdf.
- Wang, C. and Pies, C. (2004). Family, maternal, and child health through photovoice. *Maternal and Child Health Journal*, 8(2), 95–102.
- Dr. Derek Jennings is Sac and Fox and Quapaw of Oklahoma and currently a faculty member at the University of Minnesota College of Pharmacy. His scholarship has been focused on collaborating with Native American communities to help solve chronic health issues by developing methodologies that can best benefit communities that provide control over their research and health. His research interests include defining health from an Indigenous perspective and the development of obesity prevention programs in Native American communities through using research methods and approaches such as community-based participatory research (CBPR), photovoice, photomapping and video-storytelling. By engaging communities and individuals in the research process for the purpose of community driven health interventions, the research merely becomes the tool for discovery and problem solving. Dr. Jennings served as the primary investigator for this study. drj@umn.edu
- Dr. John Lowe (Cherokee) is currently one of the few doctoral prepared Native American nurses in the United States. He is a Fellow into the American Academy of Nursing and currently the Wymer Distinguished Professor at the Florida Atlantic University Christine E. Lynn College of Nursing. Dr. Lowe has represented Native American nurses in many national and international forums. Models that have emerged from his funded research are being used to promote the health and well-being of Native Americans. Dr. Lowe developed the Cherokee Self-Reliance Model and the Native Self-Reliance Model which are being used in several intervention research projects that utilizes the traditional Native American Talking Circle to reduce substance abuse and other health risk behaviors among Native American youth. Dr. Lowe also co-authored the Native American Nursing Conceptual Framework which is being used to guide nursing curriculums. Dr. Lowe provided expertise for data analysis and interpretation for the study being reported in this article. jlowe@fau.edu

