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“We were always doing something outside. ... I had a wonderful, wonderful life”: U.S. Indigenous peoples’ subsistence, physical activity, and the natural world

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Abstract

Obesity tends to be higher, whereas physical activity (PA) tends to be lower for U.S. Indigenous peoples, which drives chronic health problems and mortality. Historical oppression and nutritional colonialism have disrupted Indigenous peoples’ subsistence and concomitant PA. The purpose of this research is to use the framework of historical oppression, resilience, and transcendence (FHORT) with 31 participants in a critical ethnography identifying past and present forms of PA. By examining universal themes across two tribal contexts—a Southeast reservation tribal context and an urban Northwestern context—important knowledge about promising forms of PA can inform culturally relevant and effective interventions to promote health and prevent obesity and chronic health problems. Reconstructive thematic qualitative analysis resulted in the following themes: (a) *Family-Centered Physical Activity: “The Kids Would ... Follow Along, Dropping Seeds and Covering it ... the Seeds Grew”*; (b) *Staying Active in the Natural World: “When I Would Go Home [from boarding school] in the Summertime, That’s When ... We’ll Be Back Being an Indian”*; (c) *Staying Active through Culture: “The Traditional Dancing ... [is] a Form of Exercise”*; (d) *Mental Wellness in Nature: “It Seemed Like Just Sitting Out There Makes You Feel Better”*; and (e) *Sports and Competitions Fostering PA: “A lot ... Prefer Playing Softball, Basketball, Volleyball, Nowadays”*. Results highlighted how participants preferred and participated in subsistence and PA growing up, how this had evolved over time, and how being outside in nature contributed to a sense of wellness and overall health.

According to the Indigenous framework of historical oppression, resilience, and transcendence (FHORT; Burnette & Figley, 2017), the disruption of Indigenous foodways is a devastating form of historical oppression (i.e., historical traumas and continued

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Ethics approval

All procedures performed in this study involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. This research gained approval from social-behavioral sciences component of the Tulane University’s IRB board [Study: 2018-1372-OTH].

Consent to participate

Informed consent was obtained from all individual participants included in the study.

Declaration of competing interest

The author has no relevant financial or non-financial interests to disclose.

contemporary and chronic exploitation (Burnette & Figley, 2017)) that drives inequities in health and wellness; yet Indigenous peoples have persisted, resisted, and transcended such colonial oppression. *Historical oppression* has disrupted subsistence and concomitant physical activity (PA) with historical traumas and contemporary policies and structural oppression (Burnette & Figley, 2017). Historical oppression has interrupted Indigenous peoples' connection to land, the environment, and access to safe and healthy foods and environments (Mihesuah & Hoover, 2019; Walters et al., 2011).

Federal policies have undermined Indigenous peoples' control and land management, interrupted harvesting, growing and subsisting practices, and contributed to extensive health-related problems (Gurney et al., 2015). Social determinants of health, such as racism, classism, high risk and under-resourced communities, and trauma are known risks for obesity (Bullock et al., 2017). These structural determinants of health have given rise to higher rates of obesity and lower rates of PA for Indigenous peoples in comparison with non-Indigenous peoples (Jernigan et al., 2012). Obesity and low rates of PA lead to a host of chronic health problems driving mortality (Jernigan et al., 2012).

Across age groups, U.S. Indigenous peoples (scope here is limited to American Indian and Alaska Natives) are disproportionately likely to experience obesity (Bullock et al., 2017; Redmond et al., 2019; U.S. Department of Health and Human Services, 2020), which drives health inequities, including the prevalence of diabetes being three times that of non-Indigenous peoples (Indian Health Service, 2019). Indigenous adolescents are 30% more likely than non-Hispanic Whites to be obese; their adult counterparts are 50% more likely to have high blood pressure, high levels of blood fats, diabetes, and LDL cholesterol, which are risks for heart disease and stroke (U.S. Department of Health and Human Services, 2020). Associated health problems extend to younger children as well, according to Bullock et al. (2017). Indigenous children, ages 2–19, were more likely to be obese than non-Indigenous children; obesity among youth is a documented risk for obesity as an adult, along with and chronic health problems (Bullock et al., 2017); this disparity is thought to be linked to a replacement subsistent and physically active with a rapid transition to more sedentary lifestyles (Bullock et al., 2017). According to Mihesuah (2019), children have been spending less time playing and exploring outdoors, and adults are more separated from the natural world, which diminishes interest and appreciation of nature.

Over 40% of the adult Indigenous population experiencing obesity, which is driven, in part, by over half (in comparison with 44% of non-Hispanic Whites) of Indigenous peoples aged 18 and older not meeting the federal guidelines for PA (Redmond et al., 2019). Social determinants of health, such as socioeconomic inequalities, education disparities, and associated stressors and time constraints, undoubtedly drive many barriers to PA and healthy eating (Redmond et al., 2019). For example, the Diné (Navajo Native American peoples) moved away from gardens and, through trade and government rations and commodities, consumed more white flour, sugars, and canned fruits (Livingston, 2019). Livingston (2019) describes this change in foodways giving rise to health problems, such as diabetes and obesity –the combination of which called was called *diabesity*. Subsistence includes the activities through which food is accessed, prepared, processed, and consumed, generally through gathering, growing, hunting, and fishing (Burnette et al., 2018). Although some may

enjoy the time of earning a wage and subsistence, the opportunity is not afforded to many (Lindholm, 2019). As Redmond et al. (2019) explained

Recent decades have seen a rapid nutrition transition in these populations, from nutrient-dense subsistence foods to energy-dense prepared and packaged foods often high in fat and refined carbohydrates that are associated with increased prevalence of obesity and other chronic diseases. A PA (PA) transition has also been noted, as traditional forms of PA associated with subsistence lifestyles are becoming less frequent and hunting and gathering are no longer necessary for survival, towards greater physical inactivity and lower energy expenditure.

(p. 81)

As Lindholm (2019) explained, nutritional colonialism has impaired the wellness of Indigenous peoples through: (a) a negation in Indigenous subsistence, (b) cultural repression and oppression, (c) fostering sedentary lifestyles, (d) environmental injustice and damage, and (e) associated chronic health and obesity. Indigenous food sovereignty includes rights to self-determine methods of sustainable production, distribution, and consumption of culturally congruent preferred foods whilst honoring the primacy of the connection to land and place of politically sovereign tribes with sacred connections to ancestral lands, cultures, and peoples (Mihesuah & Hoover, 2019). Indigenous peoples have “nested layers of sovereignty” (Mihesuah & Hoover, 2019, p. 10), as members across 574 federally recognized tribes with sovereignty (Bureau of Indian Affairs, 2021). The around 400 treaties promise, in perpetuity, that Indigenous sovereign communities’ rights to health, education, housing, and land are upheld (Le & Aptekar, 2019).

The purpose of this research is to use the FHORT (Burnette & Figley, 2017) to examine past and present forms of physical activities from the perspectives of Indigenous peoples and a non-Indigenous expert in historical archeological data of focal tribal members. The FHORT examines how the historical oppression of colonization undermines Indigenous health and wellness and how Indigenous peoples have resisted and been resilient through decolonizing acts of transcendence (Burnette & Figley, 2017; Guba & Lincoln, 2004; Kincheloe & McLaren, 2005). FHORT explores culturally grounded risk, promotive, and protective factors across ecological historical, community, cultural, relational, and individual levels that give rise to resilience and strength to illuminate pathways toward greater equity (Burnette & Figley, 2017). Risks worsen problems, while promotive factors offer strength, and protective factors buffer challenges (Burnette & Figley, 2017; Masten & Monn, 2015).

The FHORT, integrates Indigenous perspectives on resilience, which frames cultural identity and enculturation (i.e., engagement and participation with traditional activities, including subsistence) as promotive and protective factors (Burnette et al., 2018; Wexler, 2014). Promoting wellness. Health, and resilience according to the FHORT encompasses the promotion of unity of family and community, especially through protective cultural practices (Hodge et al., 2009). The FHORT poses that transcendence expands beyond resilience, moving beyond adversity while rising above it; for some, working through adversity enables attaining clarified meaning, priorities, growth, life satisfaction, and wholeness (Burnette & Figley, 2017).

The scope of this research is on identifying promotive and protective factors associated with PA among Indigenous peoples. Promotive and protective factors associated with PA foster resilience or positive recovery. Factors associated with skill building in response to adversity contribute to harmony in the environment and *wellness*, holistic well-being across physical, spiritual, mental, social, and environmental dimensions (Burnette & Figley, 2017). By examining universal themes across two tribal contexts—a Southeast reservation tribal context and an urban Northwestern context—important knowledge about culturally relevant forms of PA can inform holistic interventions to promote wellness and Indigenous resilience while preventing obesity and chronic health conditions.

1. Methods

1.1. Research design

This research focuses on interviews that are part of a broader critical ethnography to develop and test a family-based resilience intervention to promote wellness while preventing violence and substance abuse (McKinley & Theall, 2021). Critical ethnographies are recommended for work with Indigenous peoples by the toolkit for ethical and culturally sensitive work with Indigenous peoples (Burnette et al., 2014; McKinley et al., 2019) as they place primacy on how historical oppression drives oppression and inequity in everyday life (Carspecken, 1996). With explicit focus on colonial historical oppression and Indigenous, both the FHORT (Burnette & Figley, 2017), inspired by Paolo Freire (2000), and this critical ethnography guided by the Frankfurt School of critical theory, who expanded beyond the Marxist notion that reduced power differentials to economic differentials to include lived experiences being influenced by gender, race, economic, political, social, cultural, and colonial forces (Guba & Lincoln, 2004; Kincheloe & McLaren, 2005). The analysis of this critical ethnography (reconstructive analysis) integrates a frame that people reach agreements about what is reality, by navigating among objective, subjective, and intersubjective perspectives that are influenced by the limits and opportunities within a given power structure (Carspecken, 1996).

Carspecken's (1996) rigorous critical ethnography has been adapted for work specifically with Indigenous communities and used throughout the more than decade of preliminary and community-based research that led to the development of the critical FHORT (Burnette and Figley, 2017; McKinley et al., 2019). It has been identified as a “culturally appropriate methodology” (McKinley et al., 2019; p. 87), as both the FHORT, critical theory, and this methodology center power dynamics inherent throughout colonial historical oppression, as well as social change and liberation among their goals (Burnette & Figley, 2017; Carspecken, 1996). Data were drawn from 31 participants using critical ethnographic interviews in a Southeast (SE) reservation-based community and a Northwest (NW) urban context.

Critical ethnography promotes social justice by integrating critical analysis throughout results and discussion (Allen, 2017). Like the FHORT, critical ethnographies integrate critical theory with attention to how power dynamics associated with colonization have undermined Indigenous communities, along with how Indigenous communities have resisted and persisted, despite historical oppression (Carspecken, 1996; Burnette, 2015). This inquiry

focuses on the resilience and resistance component of critical theory, rather than how historical oppression has undermined foodways, which is beyond the scope. Moreover, critical ethnography has been posed as a useful frame to examine healthy food as a social justice issue (Louis, 2016).

1.2. Positionality

The principal investigator (PI) continues to work with focal Indigenous tribal communities with whom she was invited to work by an Indigenous colleague for approximately 13 years. She works from the liberatory and critical frame of the FHORT that centers decolonization through relational dialogues and collection action aimed at emancipation from settler colonial oppression. Her work has been guided and framed by the recommendation from Indigenous and non-Indigenous researchers providing a toolkit of working with Indigenous peoples in ethical and culturally sensitive ways (Burnette et al., 2014). Before beginning this work, she engaged in relationships building for a year prior to research and has made career and family decisions to honor and continue the relationships she began over a decade ago (such as moving to the vicinity of the focal communities with her family to be close to and continue this work) and developing life-long friendships and relationships. As a non-Indigenous person, she continually engages in critical reflection on working as an ally whose position is associated with the settler colonist dominant group, while drawing connections and understanding social disadvantage associated with being raised in rural area. She focuses on leveraging privilege to advocate to redress health inequities and to invest in community infrastructure and the professional development of Indigenous health leaders through community-based participatory research with community advisory boards, and currently having trained more than 50 community health leaders who facilitate culturally grounded programs to promote Indigenous family resilience and health equity (McKinley & Theall, 2021).

1.3. Setting

Tribal communities are kept confidential in congruence with culturally relevant recommended strategies (Burnette et al., 2014; McKinley et al., 2019) and in agreement with participating tribal councils and community agencies to avoid harm through inadvertent mis-interpretations or misuse of sensitive data results which may adversely affected tribal communities and contributed to stigma of already disenfranchised groups (Burnette et al., 2014; McKinley et al., 2019). The SE tribe is federally recognized and has sovereignty over its own social, community, familial, environmental, healthcare, and educational systems, whereas the urban NW locale centered in a healthcare facility providing services to regional tribal members from several different tribes. The SE context is situated within the Jim Crow Deep South, and associated discrimination. Older tribal members tended to work in share-cropping until the 1960s and 70s.

2. Data collection

University Institutional Review Board approval, along with tribal council approval, was secured prior to collecting data. Tribal identities were blinded to follow tribal agreements with focal communities and following suggestions gleaned from Indigenous and non-

Indigenous researchers who informed the Toolkit for ethical and culturally sensitive research with Indigenous communities (Burnette et al., 2014). Working with cultural insiders along with tribal and nontribal research assistants enabled recruitment of a purposive sample of Indigenous or non-Indigenous peoples with local foodway knowledge through word-of-mouth, posting fliers, and sharing information through online social media (Burnette et al., 2014; McKinley et al., 2019). No participants refused to participate or dropped out. Participants had options to be interviewed by a non-Indigenous or Indigenous interviewer or both. All opted for the author to conduct interviews, with an Indigenous member present for those who consented. Interviews took place in local and private meeting rooms at participants' preferred locations between December and January (2018–2019). Following recommended sample sizes for critical ethnographies and saturation of data (Burnette et al., 2014; Carspecken, 1996; McKinley et al., 2019), the total sample of 31 participants had 23 women and eight men, with 16 participants from the SE and 15 from the NW. Table 1 displays participant demographics. Saturation was reached around 25 interviews, with several more being collected to ensure redundancy in themes had been reached. Inclusion requirements were that (a) participants were either Indigenous or non-Indigenous peoples with local foodway knowledge (only one archeological expert was non-Indigenous), and (b) that participants were adult or aged 18 greater. Participant compensation for interviews was \$50 on a card that could be used for cash or as credit.

Following preliminary research and recommendations for a culturally congruent research strategy to “reinforce cultural strengths ... such as storytelling (p. 82), a life history, or storytelling, approach to interviews enabled participants to describe their life experiences with their own words (McKinley et al., 2019). The life history ethnographic semi-structured interview guide developed and piloted with cultural insiders (Burnette et al., 2014; Carspecken, 1996; McKinley et al., 2019). Interview questions followed research questions to understand how PA had changed from past to present cohorts. Interview questions related to this inquiry were: “How did tribal community members get physical exercise in the old days/ways? What are memories, if any, that you have of activities related to PA (Where, with who, how)? How do you think this relates to well-being? How does it compare with how this is happening today?”

2.1. Data analysis

The PI led reconstructive thematic qualitative analysis was completed with input from a team of six Indigenous cultural insiders also from the focal tribal communities and three research assistants familiar with the methodology and immersed in related data for years (McKinley et al., 2019; Guest & MacQueen, 2008). Audio-recorded and professionally transcribed interviews were analyzed through the qualitative analysis software called NVivo.¹ Reconstructive analysis is a thematic analysis specific to this critical ethnography and analysis of explicit and implicit meanings of data that center the examination of power, liberation (Carspecken, 1996), and the critical FHORT. This article focuses on promotive factors related to PA, which promote Indigenous resilience. Interview transcripts were reviewed for accuracy, then read and listened to two or three times each, with the PI

¹A qualitative data analysis software program.

first coding several transcripts according to research questions and emergent themes and creating coding examples and a hierarchy of themes codebook with overarching themes and subthemes. Analysts completed line-by-line coding, each checking transcripts of each other. The PI reviewed all themes, and all available participants and cultural insiders checked interpretations through the final summary of themes, associated quotes, and interpretations of data. Final themes and subthemes were arrived at and finalized through dialogue until consensus was reached in research team meetings held bi-weekly.

Summative themes and interview transcripts were shared with all participants who could be reached (i.e., over 80% of participants). Participants could change, amend, or refine themes; all agreed, extended, and affirmed summative findings and interpretations of data during member checks. This particular method allows researchers to examine overarching themes across contexts (Burnette et al., 2014; McKinley et al., 2019). Respondents' region and gender are reported in the results to add context for the reader. Themes about PA were present across all participants and have been shared and approved multiple times with the partner agencies and tribal council. Results inform current and future interventions with the focal tribes to promote health, wellness, and resilience, while preventing violence and substance abuse (McKinley & Theall, 2021).

3. Results: moving naturally through being in nature and subsistence

Results spanned across several themes at how participants preferred and participated in subsistence and PA growing up, how this had evolved over time, and how being outside in nature contributed to a sense of wellness and overall health. Themes included (a) *Family-Centered PA: "The Kids Would ... Follow Along, Dropping Seeds and Covering it ... the Seeds Grew"*; (b) *Staying Active in the Natural World: "When I Would Go Home [from boarding school] in the Summertime, That's When ... We'll Be Back Being an Indian"*; (c) *Staying Active through Culture: "The Traditional Dancing. ... [is] a Form of Exercise"*; (d) *Mental Wellness in Nature: "It Seemed Like Just Sitting Out There Makes You Feel Better"*; and (e) *Sports and Competitions Fostering PA: "A lot ... Prefer Playing Softball, Basketball, Volleyball, Nowadays"*. The focus now turns to those themes.

3.1. Family-Centered PA: "the kids would ... Follow along, dropping seeds and covering it ... The seeds grew"

Like in historical times, the whole family joined in harvesting and raising plant life. As subsistence and outside work and play happened in the context of the family and contributed to resilience as much learning and positive socialization occurred with family members while working together outside, including how to live off the land and other life lessons. A SE male archeological expert added the relationship of subsistence to natural physical movement:

Oh, physical and movement. ... tending fields may have involved considerable movement over distances. ...—the physical movements of people in the context of hunting probably involved movements over considerable distances ... for prolonged periods of time.

As described, much learning and positive socialization occurred with family members working together outside. Children would learn important life lessons, as a female SE participant stated:

I had to tend those garden[s], as a child. ... I think I remember as far back as maybe when I was 4 years old, I was, you know, when my dad and my mom were out in the garden, the kids had to be out in the garden too. ... They were teaching us ... You put two seeds here and cover it up. ... They'd go far, far enough ahead of us that the kids would just follow along, dropping seeds and covering it up. And then, as the seeds grew, you know, it was time to tend the garden, like making sure all the weeds were not there.

She added information about her active lifestyle and how she got exercise growing up,

Being outside was the primary thing. ... You were told to go outside and just be outside and play. ... Well, one of the biggest things that we did was climbing trees, climb trees, you know, sit up in this big old cedar tree and look out all over the place

Climbing trees not only was a fun activity, but it also gave her a vantage point that was expansive that likely promoted mental wellness. Yet, another female NW participant described outside activity and the mental wellness it fostered: "If we weren't hunting, we were riding horses, we were always doing something outside. ... We would like move people's cattle and stuff. I had a wonderful, wonderful life." Whether for the service of other people or one's own family working outside was commonly spoken about.

A female SE participant emphasized that chores and being outside made for an active childhood: "We were cutting grass, mowing lawn, big old yard. Sweat it out." This concept of "Sweating it out" had come out as a theme spoken about by elders, indicating not only physical health, but spiritual and mental clarity and cleansing. Another female SE participant stressed the importance of being active growing up. She described: "It was mostly like you couldn't be lazy. You have to, you had to participate in stuff. We had to clean, cook, work in the gardens, uh, go to school, come back, do chores." A male NW participant added:

We played outside. ... Working the chores is probably our exercise. My grandma was strict, and my daddy was strict, you have to, you have to be always working on something. You can't sit and watch TV. ... You were chopping wood, or you were putting stuff in the freezer.

Despite being very active growing up, this participant felt that a balance, with more active play allowed would have been preferable.

3.2. Staying active in the natural world: "when I would go home [from boarding school] in the summertime, That's when ... We'll Be back being an indian"

A recurrent theme was that participants preferred to move naturally and gain physical exercise through activity in the natural environment. A female SE participant described the importance of walking as a form of PA: "Start walking ... no matter where ... you can just walk, get as many miles as you can ... now you have to ... pay at the gym ... it could save you money; ... take a stroll down the road."

Participants overwhelmingly preferred to move naturally and gain physical exercise through activity in the natural environment. When asked being physically active, a SE participant answered: “Yes, we were. ... My mom ... she bought us bicycles. ... Cutting wood is another exercise and bringing it into the porch, that’s exercise. So, we were not fat kids.” When asked how she stayed active, a female SE participant replied about the hard living but also helpful skills-building:

We were living at ... a shack house. ... I would get those 5-gallon buckets, two each. And I would go down the hill and get the water. ... And in the wintertime, me and my sister, [name], mom used to give us chores. She used to say, when I come back from work, I better see wood ... if not, we’re going to be cold. If we weren’t in school ... like during the summer, there was always something to do. ... Me and my sister, we would help ... like they needed somebody to pick the, the cucumbers, ...the small ones for pickles. We will pick that, or we would pick butter beans, or peas, or corn. ... The people that we were renting our house from, um, sometimes they would want us to rake for them. ... Or sometimes they would want us to clean out their garden.

This participant described living in meager conditions, but that she worked with her family to support family income and stay active. Yet another female SE participant remembered:

Well, our job was to—my mom cooks. In those days. We had like, um, iron stove. So, we, our job was to get the woods inside the house ... Plus, we had a pump. One of those water pumps outside. ... When we got used to it, it was nothing to us.

She went on to add the positive social influence this had, the sense of responsibility, and the absence of family conflict: “It seemed like we didn’t have time to argue or call each other names because my mom kept us busy ... with washing clothes or ... pumping that water pump, and [we] made sure we kept an eye on the two younger ones.” When asked if this differed from the PA of today’s younger generation, she contrasted being outside with sedentary activity associated with technology:

There’s not enough exercise. ... I see all these little kids, they’re plumped and ... on the TV ... and they have lack of exercise ... Go out there, help with the garden ... and cut the grass. ... It’s mostly adults doing that for the little kids ... they need to teach these kids how to ... go out there and do your chores outside and stay outside. ... That’s why we were never fat. ... Now, I see all these diabetes ... because there’s so many greasy ... and takeout food, and less exercise. ... If we can ... do more exercise and eat right ... it will be less diabetes ... on the reservation.

This participant instilled the importance of PA in her children and grandchildren. Subsistence and chores contributed to much PA. Despite the difficulty of working on the land with family, it had a different quality than a male NW participant remembered as a boarding school student:

When I would go home [from boarding school] in the summertime, that’s when the, we’ll be back being an Indian. While we were there [at boarding school], we were ordered, we were told what to do and stuff. Well, same at home, but it wasn’t *brutal*. ... It was *good* at home. Do this, you do that because you have to fish. We

gotta eat, you know, you got to carry water, go get wood. ... We knew we had to do that to survive, and for our sisters and brothers ... but down there ... you had to do it or otherwise you get in trouble.

This participant felt the negative effects of the historical oppression and poor treatment in boarding schools, which was contrasted with the hard work related to subsistence. Despite working on the land being difficult, working hard for subsistence and well-being of the family felt better and had a different quality than the child work he was forced to do as a missionary boarding school student. Unlike boarding school experiences, the hard work involved in subsisting was not imposed on family members to control or oppress them, but rather, to live and contribute to the broader family. Similarly, another male NW participant remembered: “Go down to the lakes ... and some of the cricks, go swimming there, and then ... wintertime, a lot of sledding. ... We had chores ... dishes, cleaning up.” He remembered being outside a lot:

It was mostly walking, and exploring, and that type of stuff. ... My grandma would always have something for us to do. Like we’d have to go cut willows that she could use to build a sweathouse, and ... we’d also go up and pick up, kind of haul firewood, because she had wood stone. ... And it was hard ... We had to go out and bale ... hay.

A female SE participant contrasted physical activities growing up versus present-day:

Back then, it was like you were on go ... [with] the gardening and stuff. ... But now because the ... fast food, they don’t exercise ... So, it’s just mainly majority of us are kind of put your kind of pudgy.

3.3. Staying active through culture: “The Traditional Dancing ... [is] a form of exercise”

PA could also be embedded in traditional cultural activities, such as dancing, playing stickball, and other practices. Some of this knowledge had become less accessible for community members who did not grow up with strong knowledge of cultural traditions. A male SE participant explained how knowledge had been lost:

They don’t know our history. They don’t know Native American history. ... What they don’t know is that [tribal name], pow wow was just recent naming. We had dances all the time, all-night dances and I still remember that. ... One singer would sing the traditional dance songs ... and they would dance until the morning.

Moving naturally in traditional cultural ways could be a form of exercise, as a female SE stated:

With exercise ... I came up with this ‘moccasins boogie woogie.’ ... It was like, kinda like exercising but dancing also together and getting ready for the fair. ... I lost a few pounds. ... We did it twice a week for 12 weeks. Two hours. ... We also provided water, and the diabetes program they ... they donated fruits. The traditional dancing ... [is] a form of exercise. ... We did have two dance groups ... and we had like 47 [participants]. I’m thinking of doing another one because I enjoyed it, and I also lost weight.

Related to living in balance and harmony with the world, participants spoke about living in alignment with their current physical health to continue to live a healthy life in an achievable way. An older female SE spoke about living in alignment with her aging body to stay active:

Well, as, as an older person now, my exercise routine is totally unique. ... I have to individualize my, my needs... I know what works in my body and what hurts, and when it hurts, and that's when I start investigating whether is it something that I am doing wrong, or is it something that I need to take to the doctor and get attention on it, or do I just let it sit there... and see what happens.

Although the forms of PA changed with time and age, through awareness gained from watching nature and paying attention to body cues, participants worked in harmony with their age and stage of their physical body. One male SE participant spoke about how staying active was important for health:

My mom used to say is, that when you're active, your blood needs to run. It makes your blood flow. ... Circulation. And I think that's part of the reason why, although ... I have knee problems ... I still walk, I can't run like I used to, but. ... I talked to one of my classmates yesterday, she said, you know, at least half of our class has died. Passed on. This was in, we graduated in 1974. ... I thank my parents for teaching me to be active.

3.4. Mental Wellness in Nature: "It Seemed Like Just Sitting Out There Makes You Feel Better"

Further, many participants described being in nature as a positive outlet for mental health and wellness. Being active not only helped one's body; a female SE participant spoke about how being active and outside in nature helped her clear her mind. She explained,

When I get so worried about something, I sit there [outside] and I think about my problems ... but I'm not gonna let this bring me down; I have plenty of things to do. So, I start doing things around the house and go outside and try to trim my bushes.

She went on to elaborate:

I have a, I have a swing behind my house. Under the tree, I go sit there and I just sit there and I, I think ... and it seems like the outside world is here for us. We just take advantage of it because the air is fresh and -You look up at the trees and say golly, so many people got so many problems. And here I think I got this problem, and you know, I talk to God, and I feel better. It seemed like just sitting out there makes you feel better. ... If we could just go back to the old ways a little bit, not all of it. ... It'd be good. ... Nowadays, it's just like we're living in a fast lane, and the fast pace where—and then the kids are all, got the remote and on TV, and diabetes is just keep coming ... in because of the laziness that we got. Then the kids ... eating too many junk food and take out.

Often, they learned this coping skill from seeing it modeled by family members. Being outside seemed to be a particular socially acceptable and effective form of stress managements for males, some of whom expressed that they had been taught that men

don't express vulnerability. This participant may have learned this coping from her mom, as described:

If she had an argument, or she was depressed ... she would chop that wood. [laughter] I think that's the only way I could see that she probably got her frustration out was chopping them wood. ... One day she was really chopping them, and I said, we got to go pick it up after her, slow down! ... I think that's, how she dealt with it [frustration].

Yet another female SE participant spoke about how she and her husband found relief outdoors:

My husband ... gets stressed from work, or ... he's becoming depressed. ... He'll be like, "I'm going hunting, I'm going fishing, or I'll be back." ... I'm like, he needs his air ... from the stress. ... Me, if I'm mad, I'm, I'll get into the cleaning and I don't want to be bothered, or ... I'll do yard work, and I'll be outside, and that's a big relief from the pressure, or the stressing. ... My cousins said the best thing to do is go fishing.

One female NW participant expressed the importance of understanding your emotions, stating:

My head was full. ... I had emotional and personal pain. I've been hurt. But I had the strength to survive. I didn't quit. I didn't shoot myself. I didn't hate myself. I didn't go off jumping from one relationship to another. No, I coped with it. ... Emotions. ... They were ... very hard. But I took those emotions, and I took, because each emotion has ... a lesson, and you take that lesson, and you can get rid of the garbage. You keep the feeling you learned. ... You understand each emotion. That's why I said you have to know your emotions. You have to know what they feel like, they smell like. ... You have to be able to touch them, and see them, taste them, to really understand them.

Participants emphasized the importance of understanding one's feelings and sharing them with safe people. Some understood themselves by observing and learning from the natural environment to gain personal and insights about the world. When asked where she gained this awareness, female NW participant connected it to observing nature:

By watching the flowers and the birds. ... I'd watch the leaves too. When the rain comes, you learn to read the ... signs. And there's a feeling, there's a happiness in the trees. And the leaves show it, there's sun ... they're happy. And you feel it. You can touch it. ... You see it. ... You just make yourself fully aware.

This participant also spoke how being active can help with negative emotions; he described how an elder had told him, "She was talking about the gardening, and she said ... that's where ... you think about things, and what you need to do, or what you don't need to do." Still, another male NW participant spoke about how he coped in an active way, as stated, "When I start feeling like funky ... that's your body saying you need a break ... you know, sleep in. He stated, "I do something personally that makes me feel good. ... I usually head up to the mountains for a day ... If you do that, your body says, okay, well let's get back on."

3.5. Sports and Competitions Fostering PA: “A lot ... prefer playing softball, basketball, volleyball, nowadays”

Although living off the land was less common, sports were very common in tribal communities, offering a way to be physically active and promote community. One male NW participant thought this was important for developing peer groups, particularly in a community context where the tendency to be exposed to substance abuse and high-risk social behaviors brought many of his loved ones down. He recalled playing “basketball, football, and track.” He described the positive impact of sports:

Boarding school, we, it was ... a good thing. ... We got ice skates, bow and arrows, basketballs, Boy Scout stuff. Everything was brand new. ... And we had a lot of fun ... because we shared each other’s company and sorrows.

His peers helped him. They played sports, fished, and trapped together:

I’d say just being with each other, you know, meant a lot. You know, and we had to split up, you know, in the summertime, we all went our ways, you know, and some of them went to foster homes, aunts and uncles and wherever, but we all knew we would be back together, and that was a good part is coming back together. We played basketball, football ... and we were named the fastest guards in the state of [specific region]. ... We fished all the time down there. We trapped ... beaver and mink.

Another male SE participant spoke about how sport united families and communities:

I’ve thought about ... those ... weekend baseball games ... the community. Playing teams from the other [tribal] communities would come over and all of that during that season, baseball season, and they would bring their food and ... they had those big gatherings.

Another female SE participant recalled: “We always play softball ... and kickball ... because our kids are softball players. ... We play basketball. We had a big goal and everything.” A female SE participant stated:

They’re very physically active here. That is good. So that’s one thing. It seems like even as adults, people play ball. ... Like athletics helps them because they are going to sweat out ... whatever or whatever is in their body, but that’s not what they’re doing.

One female SE participant felt the current level of participation in sports was a good thing:

Nowadays, the kids go to the gym and play. ... I like it ... because they exercise by playing basketball, and they stay there all day sometimes. They play softball and they get into tournament. That’s another thing I like to see ... even the little kids, they start them off with tee ball ... that and that’s a very good exercise for the little kids coming up.

There could be a lot of tribal pride in sports successes, as stated by this SE female: “A lot of them, prefer playing softball, basketball, volleyball, nowadays, and I think that’s good.

That's very good for exercise instead ... just sit there." Thus, sports were a compelling way that many people stayed active and enjoyed community.

4. Discussion

Results indicated the following promotive factors for PA and overall Indigenous resilience and wellness, including subsistence and outdoor activities that were inclusive of the whole family, that involved nature and chores outside, that being outside not only improved physical health and provided foods through fishing, gardening, and hunting, but also contributed to mental wellness. Other research has found that subsistence promotes resilience, by fostering a healthy diet, PA, family along with cultural bonding, and mental wellness (Burnette et al., 2018; McKinley et al., 2020). In recent times, sports and recreation had replaced much of the subsistence that had once promoted PA. Consistent with research (Bullock et al., 2017; Mihesuah, 2019), subsistence and gardening involved significant physical exercise, and these practices occurred historically with the whole family contributing. Participants seemed to prefer and continually remarked on keeping physically active growing up by being outside and in nature, rather than signing up for a gym membership, per se. Parallel to extant research, physical exercise through subsistence and chores had become less common due to the fast pace of society (Lindholm, 2019; Mihesuah, 2019). Now, participants stayed active through sports, lawn care, walking, visiting lakes and swimming, and being outside in general. PA could also be embedded in traditional cultural activities, but some of this knowledge had been lost. Several participants mentioned that PA in the outdoors promoted "sweating it out," a traditional valued expressed in this localized context. Whereas in the past, this occurred through outside, work, it had evolved to include sports and recreation.

Being active and outside in nature helped participants mental wellness, as it helped them clear their minds, transform negative emotions, and find relief from stress in a healthy way. Many members expressed cultural pride, physical agility, and talents of tribal members regarding sports, which were important for developing peer groups, particularly in a community context where the tendency to be exposed to substance abuse and high-risk social behaviors was evident. Participants spoke about how sports drew families and communities together with a lot of tribal pride in sports successes, which enhanced community connections and cohesion.

5. Implications

For millennia, Indigenous peoples have been resilient to historical oppression and have nourished their peoples through subsistence (Lunsford et al., 2021). Traditional diets fostered resilience by affording people with healthy and culturally appropriate regional foods, including wild meats, thousands of varieties of corn, and a wide array of vegetables and fruits (Gurney et al., 2015). European invaded not only impaired Indigenous peoples' connections to ancestral homelands, but they also disrupted the cultural continuity and connection to land and healthy eating of traditional foods, such as squash, corns, and beans, and foods from hunting, fishing, and foraging (Lunsford et al., 2021). Relevant policies that impaired subsistence include the Indian Removal Act (1831), which removed

Southeastern tribes from ancestral homelands West on the Trail of Tears (Howard University School of Law, 2018) and the Indian Appropriations Act (1851), restricting Indigenous peoples to reservations (National Library of National Libraries of Medicine, 2022, p. 1851), and impairing access and land and subsistence (Mihesuah, 2019). Indigenous peoples experienced malnutrition and starvation, living off rations (frequently were expired and spoiled) with processed foods that tended to be high in carbohydrates, sugars, and fats, with impaired access to vegetables, fruit, and subsistence (Mihesuah, 2019). Mihesuah (2019) stated, “Many Indians have eaten their traditional foods, hunted, and gardened their entire lives. Most, however, have not” (p. 98). Restrictions on time and resources as consequences of historical oppression have made it difficult to maintain cultural continuity, which promotes Indigenous resilience, including subsistence, whereas rapid lifestyle and cultural changes interfere with resilience (Allen et al., 2014; Burnette et al., 2018).

Participants described promotive factors and persistent decolonial cultural practices that are inclusive of Indigenous resilience (Burnette et al., 2018; Wexler, 2014), such as subsistence, gardening, hunting, fishing, and nature based healing and wellness through being outside. These promotive factors were situated under the blanket of historical oppression of boarding schools and economic marginalization as indicated by living in “shack houses”, having limited electricity and economic resources, and working in service positions for other people rather than having economic autonomy. Alongside the practical insights for programming can be gleaned by this work, economic policies that redress historical oppression in the forms of economic marginalization and the devastation from past policies are implicated to promote Indigenous health.

6. Limitations and future directions

This research represents a decolonizing investigation of what practices may promote health in culturally relevant ways. It centers the voices of Indigenous peoples and provides pathways for program development that follow the needs and preferences of Indigenous peoples. Future research can build upon preliminary findings to develop culturally grounded programs that enhance the natural protective and promotive factors related to PA and the outdoors gleaned through this research. Quantitative and nationally representative research may extend this work to see if the emergent themes translate to other rural, reservation-based contexts and urban contexts, as in this qualitative inquiry. Although participants came from cross-national urban and rural contexts, Indigenous practices are localized and not generalizable. However, themes may translate across locales. Future research can invest in culturally specific and community driven and engaged research that highlights community members’ capacity to ignite collective change. Nature-based healing and experiential outdoor programming are particularly promising avenues for such programming and may build off extant research centering these components (See for example: Carter et al., 2007; Linke, 2015; Overbey & Diekmann, 2021).

7. Conclusions

Although distinct needs and preferences of communities vary by tribe and context, culturally congruent programming and solutions that inspire a reconnection to land and access

to culturally appropriate and healthy food strengthen progress toward Indigenous food sovereignty are warranted (Kamal et al., 2015). Ideas for programs to promote PA gleaned from results include outdoor activities seem the most appealing when the weather permits, with indoor sports and cultural activities for other times. Having a menu of physically active and accessible activities may be best to be agile with the weather and time to meet the variable preferences and accessibility of different activities across distinct times and seasons in the year. Cultural celebrations may be extended for greater preparation time, like incorporating dancing as a PA while also learning about and optimizing health and cultural cohesion. People spoke about tribal traditional dancing and basketball as such activities in the samples. Outdoor activities related to subsisting that vary for contexts generally include gardening, hunting, fishing, chopping wood, and doing yard work.

Many subsistence activities connect Indigenous peoples with each other and cultural traditions through storytelling and promote wellness across physical, mental, spiritual, and social realms. Moreover, walking is a natural way to be in nature that is easily accessible, can be done in groups, and is low impact across age and stage. Having accessible, safe, and secure walking trails to tribal members may be an integral investment in community infrastructure that could promote the health and wellness of Indigenous peoples dramatically. Other appealing activities for different ages, such as traditional Indigenous sporting games, boating, fishing, hiking, berry picking, gardening, harvesting, and hunting, could create energy and adventure around outdoor activities and challenges that may be appealing to youth. Gardening is also important because it encourages PA and time spent in nature, both of which are important for physical and spiritual health and well-being (Burnette et al., 2018; Maller et al., 2006).

Other research has explored experiential activities as an intervention for obesity, diabetes, and physical activities. Schultz et al. (2016) described one such wilderness experience program that centered Indigenous worldviews to enable Indigenous women to reconnect to place, their bodies, and health. This holistic program placed primacy on traditional and ecological knowledge and the interconnections of all things and seeing health problems as imbalances across social, physical, spiritual, psychological, and environmental domains (Schultz et al., 2016). As Indigenous women walked the path of their ancestors' removal, they experienced changes and improvements in attitudes, beliefs, and health behaviors (Schultz et al., 2016).

Lindholm (2019) explained, "Because cultural health is considered a byproduct of physical, mental, and social health, a return to more subsistence based lifestyles and diets is perceived as essential for all areas of individual and community health" (p. 170). In contrast to nutritional colonialism, Lindholm (2019) adds, "Decolonial acts include sharing with friends and family and engaging in subsistence practices, that brings communities and families together" (Lindholm, 2019, p. 166). Subsistence activities also provide a combination of PA and relationship building that contributes to well-being. Identity and sense of place are essential to mental health, meaning that intervention programs must recognize the cultural significance of subsistence activities. Decision-making to promote PA must be community-driven, culturally relevant, and reflect the priorities of the communities most affected.

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Table 1

Participant demographics.

Participant demographics	Qualitative (<i>N</i> = 31), %
Southeast Rural Area	16 (51.6%)
Northwest Urban Area	15 (48.4%)
Age (30–78 years)	<i>M</i> = 58.6
Number tribal	30 (96.8%)
Female	23 (74.2%)
Male	8 (25.8%)
Marital Status	
Single	4 (12.9%)
Divorced	8 (25.8%)
Married/Domestic Partner	13 (41.9%)
Widowed	6 (19.4%)
Number of children (range = 0–10)	<i>M</i> = 3.39
Number of siblings (range = 0–13)	<i>M</i> = 5.27
Education	
Less than high school	2 (6.5%)
High school or equivalent	6 (19.4%)
Some college/vocational degree	10 (32.2%)
Associate's	1 (3.2%)
Bachelor's degree	8 (25.8%)
Master's degree or higher	4 (12.9%)
Number who engaged in Member-Checks	25 (80.6%)

Note. *M* indicates mean.