

Development of a Diabetes Prevention Intervention Utilizing Gardening for Urban American Indian/Alaska Native Adults Receiving Mental Health Treatment: A Focus Group Study

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Abstract

Gardening for Health Utilizing Traditions (GHUTS) is a new diabetes prevention intervention for urban American Indian and Alaska Native (AI/AN) adults receiving mental health treatment in Los Angeles County. The two main objectives of this study are to: 1) further our understanding of diabetes prevention and the role of gardening for urban AI/AN adults receiving mental health treatment and 2) finalize the development of GHUTS. To inform the feasibility of the intervention and to gain perspective, three focus groups were conducted among urban AI/AN adults receiving mental health treatment (n = 7), providers who serve urban AI/AN people (n = 7), and the GHUTS Community Advisory Board (n = 5). Three overarching conceptual themes emerged: 1) Diabetes is an important issue among urban AI/AN people receiving mental health treatment, 2) AI/AN traditional practices have an important role in diabetes prevention among urban AI/AN adults receiving mental health treatment, and 3) Gardening is beneficial for AI/AN people. Feedback on the GHUTS curriculum featured diabetes education, cultural elements, concerns specific to AI/AN people in Los Angeles County, cooking, physical exercise and diet, prayer and mindfulness, community sharing, and field trips. This study highlights the process of developing a community-grounded diabetes prevention intervention for urban AI/AN adults receiving mental health treatment.

INTRODUCTION

American Indian and Alaska Native (AI/AN) people are more likely to be diagnosed with type 2 diabetes mellitus (T2DM) compared to other ethnic and racial groups in the United States (CDC, 2018; USDHHS, n.d.). In addition, AI/AN people were 2.3 times more likely to die from diabetes compared to non-Hispanic whites in 2018 (UIHI/SIHB, 2013). Compared to general population samples, urban AI/AN people demonstrate higher rates of diabetes (Jacobs-Wingo et al., 2016; Katon et al., 2005). Studies demonstrate a relationship between T2DM and co-occurring mental health issues (Carson et al., 2015; Boyko et al., 2010; Goodwin & Davidson, 2005; Grigsby et al., 2002). Although the majority of AI/AN people reside in urban areas (USCB, 2010), there are few evidence-based diabetes prevention interventions available for urban AI/AN adults receiving mental health treatment.

Psychiatric disorders are a risk factor in the development of T2DM and may accelerate the onset of T2DM complications (Anderson et al., 2001; de Groot et al., 2001; Molife, 2010). For example, among patients with T2DM, minor and major depression is strongly associated with increased mortality (Katon et al., 2005). Other research findings indicate a relationship between psychological trauma and T2DM, including the sharing of biological origins (Boyko et al., 2010; Goodwin & Davidson, 2005; Grigsby et al., 2002; Moulton et al., 2015). Concerning trends regarding this association have been identified among AI/AN people (Walls et al., 2014; Carson et al., 2015). In a study conducted among a sample of Indigenous adults diagnosed with T2DM in two Indigenous reservation communities, reports of greater numbers of mental/emotional health problems were associated with increases in self-reported hyperglycemia (Walls et al., 2014).

Historical trauma provides context as it relates to health disparities and urban AI/AN people. Historical trauma, including forced relocations from Native lands, numerous broken treaties, forced placement into boarding schools, and laws made to prohibit the use of spiritual practices contribute to disrupted AI/AN communities and numerous health disparities among AI/AN people (Duran & Duran, 1995; Johnson, 2006). The Relocation Act of 1954 has been

postulated as a root cause of various health disparities experienced by urban AI/AN people (Campbell & Walters, 2006). The relocation of AI/AN people to large urban areas has been suggested to affect their cultural, social, familial, and community support networks within urban areas (Weaver, 2012). Relocation placed AI/ANs in potentially stressful, urban environments where traditional ways of life and diet were non-existent. Due to decreased opportunities to participate in gardening and traditional activities, struggles to adjust to urban life led to higher poverty rates and decreased opportunities for engaging in physical exercise (Pollak, 2021). As a result, disruptions in living a healthy and balanced life in urban areas have contributed to an increase in diabetes (Pollak, 2021; McLaughlin, 2010). Within urban areas, access to cultural and social support systems may be more challenging for AI/AN people than in rural or tribal areas (Clements & Rhynard, 2018), resulting in fewer opportunities to engage in culturally centered, health-promoting activities. This is important to recognize since a growing body of research demonstrates the robust positive effect social support has on health (Holt-Lunstad et al., 2010; Nyqvist et al., 2013) and T2DM management (Bardach et al., 2011; Nicklett et al., 2013).

Traditional practices historically utilized by AI/AN people, such as gardening, drumming, dancing, beading, sage preparation, and basket making have been proposed by AI/AN community leaders in California as showing promise in decreasing the burden of health disparities among AI/AN individuals in California (Dickerson et al., 2012; NAHC, 2012). However, the effects of historical trauma, including removal from traditional lands and relocation to urban areas, have disrupted this traditional practice. Many AI/AN communities are reclaiming traditional foods as part of a wider effort to “decolonize” their diets and ways of caring for self and community to repair the economic and cultural damage inflicted by European Americans (Mertens, 2021). The use of gardening has been gaining popularity among AI/AN people (Lombard et al., 2006), within urban settings (Palar et al., 2019), and within diabetes prevention programs focusing on physical activity (Hamasaki, 2016). Due to tribal variation within urban areas, inclusive interventions tend to focus on common values amongst Native people, placing emphasis on community, cultural engagement, and nature (SAMHSA, 2016).

Gardening as an AI/AN traditional activity may have benefits in the four domains of wellness, recognized by many AI/AN tribes through the Medicine Wheel, including the spiritual, physical, emotional, and mental domains of wellness (Tanner et al., 2022). Thus, gardening presents the potential to benefit *whole person health*. Gardening addresses physical health by emphasizing eating a well-balanced diet and increasing physical activity level. It recognizes the emotional wellness domain by providing the opportunity to engage in a mindful activity which fosters increased awareness of one's mood or experience while engaging in gardening. Mental health is addressed by promoting self-efficacy, competence, and hope in managing diet and chronic health issues. Gardening helps to enhance spirituality by offering the opportunity to connect with the land, honor ancestors, and potentially contribute to the betterment of the community.

Gardening for Health Utilizing Traditions (GHUTS)

Gardening for Health Utilizing Traditions (GHUTS) is a new diabetes prevention intervention for urban AI/AN people receiving mental health treatment within the Los Angeles County Department of Mental Health (LACDMH). GHUTS was inspired by community members and clients of an LACDMH agency who formed a client-run garden in March 2017. This garden was led by a client advisory board and incorporated gardening activities and guest speakers to increase client socialization, knowledge about gardening, and integration of culturally traditional foods. This garden was a quality improvement project within the Transforming Clinical Practice Initiative (TCPI), an initiative implemented by LACDMH. Tenets of TCPI guided the methodology for the implementation of GHUTS, such as utilizing the Patient Health Questionnaire (PHQ-9) and Body Mass Index (BMI) to assess both mental and physical health. As the TCPI was implemented across the larger Department, there was increased administrative support among the larger mental health system for a smaller clinic to implement a garden on site, along with a non-Westernized approach for diabetes prevention among urban AI/AN people receiving mental health services in Los Angeles County.

GHUTS utilizes elements of three theoretical constructs to inform the development of this program. First, we use elements of the CREATION Model (Anderson et al., 2020). This model

helps people to implement and recognize needed health behavior changes. It recognizes the relationship between chronic diseases and lifestyle factors, including nutrition and physical activity. It recognizes *whole person health* and describes a wellness model that complements AI/AN definitions of wellness, helping to enhance coping skills and mental well-being.

We also use elements from the Indigenous Standpoint Theory (Cox et al., 2021). This approach integrates Indigenous knowledge by incorporating holistic, contextualist approaches that help to combat the effects of colonization linked to structural inequalities for AI/AN communities. This theory recognizes the wide diversity of Indigenous knowledge and cultural practices as well as general characteristics relating to Indigenous traditions. We also utilize elements of the National Health Service Diabetes Prevention Program (NHS-DPP). This theoretical construct influences behavioral change intentions including changing diet and activity behaviors (Hawkes et al., 2020).

Utilizing community-based interests and procedures and the three theoretical constructs, we formulated an initial outline of GHUTS that builds upon the effectiveness of culturally responsive education to help create healthy lifestyles and behavioral change (see Table 1). This program aims to improve physical, emotional, spiritual, and mental health outcomes, and to achieve adequate glucose control.

The preliminary GHUTS intervention consists of eight sessions (See Figure 1). These workshops provide a fundamental template and may be adapted for each tribal community per their local gardening and cultural traditions. Each session is 1 hour in length. The first half-hour of each workshop is focused on education addressing fundamental knowledge/facts of diabetes, gardening basics and instructions, AI/AN traditions, and Medicine Wheel education. The second half-hour is comprised of gardening activities and focuses on maintaining and developing a garden in a culturally relevant manner. The program is provided by a gardener/facilitator who has been trained in the GHUTS curriculum, fundamentals of diabetes and mental health disorders, and who is knowledgeable about AI/AN traditional practices.

Table 1
Gardening for Health Utilizing Traditions (GHUTS) intervention outline

Session #	Session Focus	Classroom and Gardening Activities
1	Spiritual focus	Classroom: Introduction to spirituality Gardening activity: Using drumming and prayer to bless the garden in a good way
2		Classroom: Diabetes education, "A river runs through us" introduction Gardening activity: Introduction to gardening
3	Physical focus	Classroom: Good meat video (focusing on traditional diet and the buffalo) Gardening activity: Learn how to plant traditional plants at home
4		Classroom: AI/AN traditional diets, blood sugar education Gardening activity: Elder guest teachings and gardening
5	Mental focus	Classroom: Introduction to yoga for stress reduction and coping Gardening activity: Reconnecting with Creator and gardening activities
6		Classroom: Reconnecting with community for support Gardening activity: Connecting gardening to your mental well-being
7	Emotional focus	Classroom: Connecting with plants for emotional well-being Gardening activities: Sacred Medicines & planting for wellness for enhancing mood
8		Classroom: Socially connecting with others for emotional well-being Gardening activity: Elder guest teachings and gardening

Note. Each session is 1-hour and consists of a ½ hour classroom component held outdoors and a ½ gardening activity. Each gardening segment begins with a 5-minute walk.

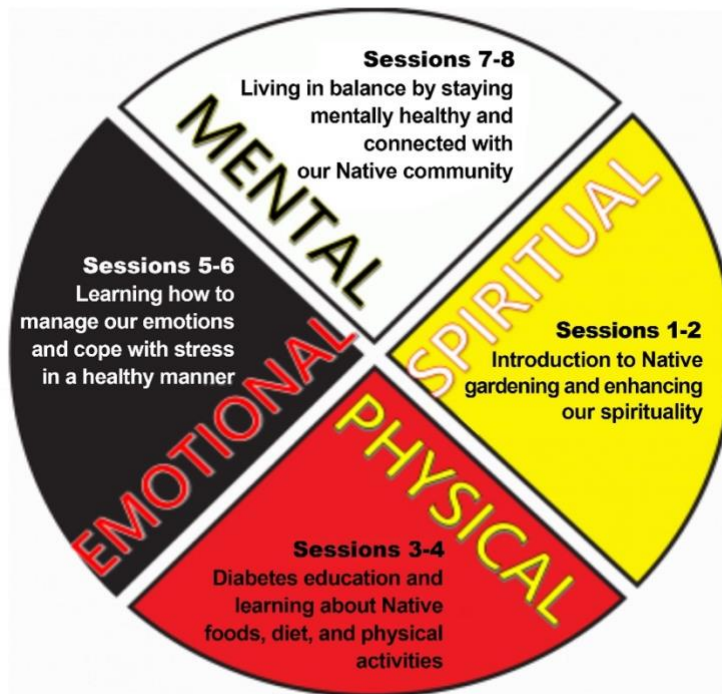


Figure 1. Gardening for Health Utilizing Traditions (GHUTS) Medicine Wheel

Purpose of Study

The purpose of this qualitative study is to further our understanding of diabetes prevention and the role of gardening for urban AI/AN adults receiving mental health treatment and to finalize the development of GHUTS by addressing the four domains of health (physical, emotional, mental, and spiritual) and social connectedness to help address potential thematic outcomes of this intervention. This information was retrieved from focus groups conducted among urban AI/AN adults receiving mental health services, physical and mental health providers who serve urban AI/AN adults, and the GHUTS Community Advisory Board (CAB).

METHODS**Study Site**

Los Angeles County is the site for this study. The U.S. Census in 2019 estimated that the Los Angeles County population has the largest concentration of individuals claiming to fully or partly be of AI/AN descent (L.A. Almanac, n.d.). Thus, this setting serves as an appropriate venue to address diabetes prevention for urban AI/AN adults receiving mental health services. Focus groups were conducted at a LACDMH-funded agency that provides services primarily for AI/AN people. Since 1987, this clinic has provided comprehensive mental health services to AI/AN community members, families, and children throughout Los Angeles County.

Design

Three focus groups were conducted among (1) urban AI/ANs receiving mental health services in an urban area in southern California, (2) physical and mental health providers serving urban AI/AN adults, and (3) the GHUTS CAB. The purpose of the focus groups was to further our understanding of diabetes prevention and the role of gardening for urban AI/AN adults receiving mental health treatment and to finalize the development of GHUTS. Inclusion criteria for urban AI/AN adults with mental health disorders consisted of those currently receiving services through the LACDMH, self-identifying as AI/AN, being at least 18 years old, and reporting no psychiatric

conditions that would preclude focus group participation. We recruited urban AI/AN adults receiving mental health treatment and physical health and mental health providers via flyers in mental health service provider agencies in a large urban area in California. Eight AI/ANs responded, all of whom met the eligibility criteria. The group of multidisciplinary providers included certified alcohol and drug counselors, social workers, counselors, psychologists, and physicians with experience providing medical or mental health services to urban AI/AN adults. Five AI/AN cultural leaders who have expertise in the health needs of urban AI/ANs were invited to serve on the CAB. These individuals are well-respected community leaders who have substantial knowledge and/or expertise regarding AI/AN gardening and are recognized by the AI/AN community for their understanding of health issues among AI/AN people.

Each urban AI/AN adult receiving mental health treatment was provided with a \$10 gift card for participation and an additional \$25 gift card was provided via a raffle. For the provider focus group and the CAB focus group, facilitators raffled one \$25 gift card for each focus group. All participants provided oral consent. The focus groups were audio recorded, and recording began following participants' determination of pseudonyms. The LACDMH Human Subjects Research Committee (342) approved this study, and this study was determined as IRB-exempt by the University of California, Los Angeles (UCLA), Institutional Review Board (#18-000540). Focus groups were conducted in February, June, and July 2020.

Participants

Table 2 shows the demographic characteristics of the focus group participants. Females constitute most urban AI/AN adults receiving mental health services (71%), physical health/mental health providers (100%), and the GHUTS CAB (60%). Among the three focus groups, the average age ranged from 38.3 to 51.8 years. All clients receiving mental health treatment self-identified as AI/AN. Also, 57% of providers and 80% of GHUTS CAB identified as AI/AN. Other ethnicities/races reported across focus groups included White or Caucasian, Asian or Asian American, Latinx, and Other.

Table 2.
Urban American Indian/Alaska Native (AI/AN) adults, providers, and Gardening for Health Utilizing Traditions (GHUTS) Community Advisory Board (CAB) characteristics

	Urban AI/AN adults (n=7)	Providers (n=7)	GHUTS CAB (n=5)
	<i>M</i>	<i>M</i>	<i>M</i>
Age, years	48.1	51.8	38.3
	<i>n</i>	<i>n</i>	<i>n</i>
Sex assigned at birth			
Male	2	0	2
Female	5	7	3
Intersex/other	0	0	0
Transgender			
Yes	0	0	0
No	7	7	5
Race/ethnicity			
AI/AN	7	4	4
Asian or Asian American	0	1	1
Black or African American	0	0	0
Latinx	1	2	1
White or Caucasian	1	0	1
Other	0	1	0

Data Collection

We conducted the first focus group among urban AI/AN adults with mental health disorders, in person, at a mental health clinic. The next focus group, conducted among providers and the GHUTS CAB focus groups, were conducted virtually due to COVID-19 restrictions. The lead author, an Alaska Native licensed psychiatrist, employed by LACDMH who has worked with the AI/AN population for the last 16 years, led the three focus groups. The second author, program head at the LACDMH-funded agency, and the third author, a licensed psychologist at the LACDMH-funded agency, co-facilitated the focus groups. At the introduction, facilitators reviewed limitations of confidentiality when discussing information as a group and discussed steps investigators would take to maintain anonymity (i.e., use of pseudonyms). The facilitators informed all participants that the purpose of the focus groups was to assist in the development of GHUTS protocol to explore multiple perspectives.

To inform the development of this program, we asked questions focusing on creating a culturally responsive intervention by obtaining feedback about traditional practices, physical health, emotional and mental health, and spirituality and the role of social support to help prevent diabetes and achieve overall health and wellness. We sought to obtain additional information regarding specific gardening interests and choices of participants as well as logistical considerations to help with enhancing the ease of workshop attendance. Following an overview of the GHUTS protocol, focus group questions focused on participant perceptions of diabetes among urban AI/AN people receiving mental health treatment, service needs, the role of AI/AN traditional practices in diabetes prevention programs, the role of gardening in diabetes prevention for urban AI/AN adults receiving mental health treatment, and logistical considerations.

During the focus group conducted among urban AI/ANs receiving mental health services, a wellness journal published by the Indian Health Service (IHS) was presented to gain insights into the usefulness of the journal as part of the GHUTS curriculum. The journal, “A River Runs Through Us,” was published by IHS Division of Diabetes Treatment and Prevention (IHS, n.d.) and includes daily messages, a section to identify feelings and thoughts, and a place to track one’s self-care activities on their wellness journey.

We conducted the first focus group among urban AI/AN adults receiving mental health services, followed by providers and then the GHUTS CAB. This order was intentional to build upon feedback starting with client perspectives and leading to a final discussion among the GHUTS CAB. Based on feedback from the urban AI/AN adults receiving mental health services, we developed open-ended questions for AI/AN providers such as, “What are your thoughts about current approaches to consumers diagnosed with both diabetes and mental health concerns?” and “As a treatment provider, how important is it that you provide traditional practices along with interventions taught in your training?” As new issues and suggestions were raised by participants, we incorporated their feedback into subsequent focus group discussions. Each focus group lasted approximately 2 hours.

Data Analysis

Facilitators took notes during the focus groups and audio recorded all focus groups. Transcripts and audio files were reviewed for categories, identifying patterns and themes across the focus groups. All authors reviewed the notes and audio tapes for completeness and accuracy. A code list was developed, guided by the focus group topics (e.g., gardening, traditional practices, and depression). All authors then discussed the overarching themes until reaching consensus. Due to technical issues, the full recording of the focus group conducted among urban AI/AN adults receiving mental health treatment was not retrievable. Feedback and quotes retrieved from this focus group were retrieved from notes taken during the focus group. We do provide quotes from clients regarding diabetes education, physical exercise/diet, and prayer/mindfulness. For additional topics raised by urban AI/AN adults receiving mental health treatment, authors provide summaries derived from notes taken during their focus group.

RESULTS

Three overarching conceptual themes emerged across the focus groups including 1) Diabetes is an important issue among urban AI/AN people receiving mental health treatment, 2) AI/AN traditional practices have an important role in diabetes prevention among urban AI/AN adults receiving mental health treatment, and 3) Gardening is beneficial for AI/AN people. Feedback on the GHUTS protocol focused on diabetes education, cultural elements, concerns specific to AI/AN people in Los Angeles County, cooking, physical exercise and diet, prayer and mindfulness, community sharing, and field trips. Results obtained help the researchers understand how to enhance physical, spiritual, mental, and emotional health within the GHUTS protocol.

Overarching Conceptual Themes

Diabetes is an important issue among urban AI/AN people receiving mental health treatment. Across focus groups, diabetes was an important issue among urban AI/AN adults receiving mental health services in urban areas. For example, one provider stated, “I think that this

study (developing a diabetes prevention intervention) is extremely important.” Providers further emphasized the inter-relationship of mental health symptoms and diabetes. For example, one provider stated,

I’m thinking of a patient who has very uncontrolled diabetes and is on insulin and is wondering why he’s feeling more depressed and so I try to explain to him, well these things are very interconnected...but I think when people are feeling a little doubt about their mental and physical health, programs like this (GHUTS) are crucial to help reframe it in a way that is culturally important to them.

The potential benefits of building an AI/AN community were emphasized through the development of a diabetes prevention intervention. For example, one provider stated, “I grew up where they have those (diabetes) programs, but it seems like a really positive thing and I think too that way to be connected and build a community.”

AI/AN traditional practices have an important role in diabetes prevention among urban AI/AN adults receiving mental health treatment. Numerous respondents stated that it is critical to incorporate AI/AN traditions in diabetes prevention interventions for urban AI/AN adults receiving mental health treatment. One CAB member stated, “I just think it’s very important for the traditional practices to be included because we do have a lot of our own traditional Medicine but also just being very present with what we are dealing with as far as when it’s our physical and our mental health.” A provider mentioned an interest of AI/AN people learning more about AI/AN traditional ways, but of not being aware of opportunities to learn more about their culture.

There’s a lot of curiosity that our urban Natives have...(and) no way of finding that out, sometimes they don’t know what Native American Alaska Native resources that they have here in the city, here in the county...cause some of them don’t like meds, they don’t like the pills, they don’t like the side effects so just emphasizing

the traditional ways you know, looping together mind, spirit...we might be able to help them.

Also, recognizing various levels in cultural identity such as the importance of addressing spiritual practices, and tribal history were mentioned by focus group participants. Urban AI/AN adults receiving mental health treatment expressed interests with sage/smudging ceremony, prayer, medication, healing crystals, and traditional herbs and Medicines. Urban AI/AN adults receiving mental health treatment also expressed interest in AI/AN traditional ways of handling stress (no specific quotes available).

Gardening is beneficial for AI/ANs. The benefits of gardening for AI/ANs living in urban areas were expressed across focus groups. For example, one provider stated,

I think it's very important to have a way to be able to connect and think because we are all here in an urban setting, it is difficult to do that, and so a garden is a place where we will be able to do a connection...so, I know for example, we had some of the beans, the tepary beans that are good for reducing diabetes and reducing your sugar intake it's a helpful medicine that comes from my reservation and my background...so I think it's a way to connect.

Regarding gardening, one CAB member stated, "Once you get your hands in soil, you really feel, you really feel Mother Earth, and the connection between and what the ground can provide."

Feedback on GHUTS

Feedback on the GHUTS intervention focused on diabetes education, cultural elements, concerns specific to AI/AN people in Los Angeles County, cooking, physical exercise and diet, prayer and mindfulness, community sharing, and field trips.

Diabetes Education. Urban AI/ANs adults receiving mental health services expressed the desire to learn more about diabetes. Clients expressed wanting to receive educational materials

that were understandable and easy-to-read. They also stated that due to poor eyesight among some individuals with diabetes, materials provided to participants must be easy to read (e.g., large font, pdf online). A desire to learn more about nutrition was expressed by urban AI/AN adults receiving mental health treatment. For example, one participant stated, “Well education...basic nutritional understanding of simple ways, you know little simple foods that we can cut back on and also natural herbal teas and plants that we can use that are simple little things that we can begin (with).”

Several urban AI/AN adults receiving mental health treatment suggested that the GHUTS curriculum includes education to understand nutrition labels. For example, one participant stated, “Education with how to read labels, a lot of things say sugar-free or that they’re healthy for you but if you read the label, umm, I think a lot of times they’re not actually healthy for you.”

Regarding “A River Runs Through Us,” providers stated that using this journal can help participants keep track of their diet, exercise, and blood sugars throughout the program. For example, one provider stated, “That’s an amazing idea that we can even include what they’re designing for their physical activities, for their exercise. When there is a pad there, then everything’s gonna be in one place.”

Cultural elements. Acknowledgement of the sacredness and spiritual meaning of the garden was emphasized. A CAB Member stated:

Back home (tribal community), they do have a big ceremony to bless the ground and ask Creator to help us to grow healthy food, and nourishment and for our education...I think if we did that, if we had ceremony, when it comes to garden...maybe we can incorporate that.

Participants also provided feedback regarding the garden design and involvement of elders in the gardening activities. For example, one CAB member stated:

Were participants going to have a say in the design of the garden space? ... I know that Native gardeners have done Medicine Wheel designs to kind of keep like a lot

of the Indigenous plants on one side...cared for differently than the other, than what might be added to it...

Urban AI/AN adults receiving mental health treatment emphasized the importance of outreaching to other reservations to learn more about traditional foods and what their Native families eat. They emphasized the importance of learning more about traditional diets and how to utilize the garden, cooking, and physical exercise to live healthier lives.

Concerns specific to AI/AN people in Los Angeles County. Creating a culturally appropriate community garden specifically for AI/AN people in Los Angeles was identified by participants as important. One provider stated, “specific plans for specific times of the year” should be considered when selecting plants to account for distinct levels of sun exposure needed for identified plants to germinate.

At the current clinical site, it was expressed that being outdoors in Los Angeles would be the most appropriate space for the educational component of GHUTS. One provider stated:

I think being stuffed up in a room with other people is uncomfortable, for whatever reasons I have reservations about being inside. So, I think it’s just being closer to nature and being part of the garden where you want them to feel connected.

Instructions for developing one’s own personal garden at home were suggested for participants residing in the Los Angeles area. One provider shared a story of gardening at home in another urban area:

I have a cousin who is in (another large urban area) and she lives in a little tiny apartment, but she grew...a little kind of balcony garden that she grew with just, she got soil and she cut, um, plastic jugs in half and she had tomatoes and cucumbers and peppers and all kinds of things growing in them. So, I think it could be pretty non-expensive for a lot of people.

Cooking. Learning how to cook traditional, healthy foods was emphasized for urban AI/AN adults receiving mental health treatment. Suggestions were made to utilize a kitchen within the clinic to demonstrate basic cooking techniques. One CAB member stated:

You find joy (in cooking) ...and you know it's very healthful, in the traditional way, we really don't fry anything, we roast or put in an oven... the traditional way of cooking you put things together in the adobe oven. Those things that need more heat go on the top...and teaching these things as we are cooking.

Physical exercise and diet. Participating in physical activities and learning more about eating a healthier diet was emphasized across focus groups. Assessing and recognizing everyone's physical abilities and limitations was asked about by one CAB member: "If someone is not able to do that [specific physical exercise activity], is that like taken into consideration? Like if they have accessibility issues or any sort of disability, limiting their mobility?" One provider recommended a stepwise approach to exercise: "I feel that it would work if we keep it simple and basic at first (intensity of exercise/physical activities)...maybe you have a bum knee, you can't do walking-only 10 minutes...give them options what they are going to do, and then they can design their own."

Urban AI/AN adults receiving mental health treatment expressed the importance of learning more about ways of eating healthier and being more physically healthy. One urban AI/AN adult receiving mental health treatment stated:

Well education, education through, I don't know games or something of that nature where the community can be involved and you can teach, teach... basic nutritional understanding of simple ways, you know little simple foods that we can cut back on and also natural herbal teas and plants that we can use that are, simple little things that we can begin.

Prayer and mindfulness. The importance of addressing spirituality was highlighted across focus groups. The incorporation of prayer and mindfulness were suggested for the GHUTS intervention. One provider expressed the benefits of tai chi and yoga: “In a very focused activity like tai chi or yoga where you are following certain protocol to be able to gain the benefits of relaxation, mindfulness...healing, so I think it’s a great, wonderful idea.” Another provider stated:

I think it’s really good cause it’s like grounding and soothing because prayers...will lower depression, it creates hope and faith, and grounding, it keeps us safe in our mind, it can change our perception which will lower anxiety and depression...and schizophrenia psychosis.

Urban AI/AN adults receiving mental health treatment also expressed interest in connecting spiritually. Urban AI/AN adults receiving mental health treatment expressed the importance of providing blessings and giving back to their AI/AN community. They expressed the importance of connecting with the pow-wow circuit and other agencies.

Community sharing. Sharing the program and outcomes of GHUTS were also suggested. For example, one CAB member stated:

I would like some of the outcomes for new clients, new families coming into our agency and say here is something the community put together. Here are their gardening highlights, some foods that they learned to make using healthy options, healthy living skills, I would like to resource back to it.

Urban AI/AN adults receiving mental health treatment stated that having the garden on the clinical site would facilitate “bringing people together.” They stated that starting a garden club and creating organizational duties and activities for the garden would help to strengthen the sense of community.

Field trips. Field trips to local farms and other places where participants could harvest plants were suggested by focus groups participants to learn more about the benefits of gardening. One provider recommended field trips to nature settings: “An environmental walk, somewhere in a nearby forest, I don’t think people go to the mountains that much. I think that’s a nice place, they can see eagles and native plants, and yah, like a nature walk.” Another provider suggested field trips to nearby reservations.

DISCUSSION

Results from this study fill a critical gap in the literature regarding the development of an integrated, culturally centered diabetes prevention intervention for urban AI/AN adults receiving mental health services. Overall, GHUTS was viewed as a potentially beneficial, enjoyable, and educational program that could help prevent the development of diabetes among this population. Participants in this study felt this program could strengthen social connectedness within their urban AI/AN community. The main conceptual themes expressed across the focus groups were diabetes is an important issue among urban AI/AN adults receiving mental health treatment, AI/AN traditional practices have an important role in diabetes prevention among urban AI/AN adults receiving mental health treatment, and gardening is beneficial for AI/AN people. Suggestions for enhancing the GHUTS curriculum focused on diabetes education, cultural elements, concerns specific to AI/AN people in Los Angeles County, cooking, physical exercise and diet, prayer and mindfulness, community sharing, and field trips. These suggestions highlight the need for integrated approaches that address the physical, mental, emotional, and spiritual well-being of this population while tailoring gardening approaches that resonate with AI/AN urban adults in Los Angeles County.

Regarding diabetes education, diabetes was reported as an important issue facing urban AI/AN adults receiving mental health treatment. Providers acknowledged the need for more diabetes education for their urban AI/AN clients receiving mental health treatment. Urban AI/AN adults receiving mental health treatment expressed an interest in learning more about diabetes and

how to manage a healthier diet and lifestyle. However, they report that resources to learn more about diabetes were difficult to obtain within their community. Based on this feedback, we plan to incorporate a “Diabetes 101” educational segment into our manual (in development) that will help participants learn more about diabetes, better manage their blood sugars, and decrease their risk of developing diabetes.

Feedback obtained in this study helped to further our understanding of the level of interest in AI/AN traditional practices and provided us with recommendations regarding cultural elements to be implemented within the GHUTS program. First, utilization of AI/AN traditional practices, including AI/AN gardening, were expressed as having the potential to prevent the development of diabetes among urban AI/AN adults receiving mental health treatment. Participants felt including AI/AN traditional components could help them increase their social connections within their community. However, it was noted that although AI/AN people who reside in urban areas may be interested in learning more about traditional ways, there were few opportunities to learn more about their AI/AN culture. Thus, we plan to utilize an approach that will resonate with urban AI/AN adults from a wide variety of cultural identities and tribal backgrounds by adhering to a protocol built upon fundamental AI/AN ideals of wellness and traditions. In the GHUTS manual, there will be examples of AI/AN traditions as they relate to gardening, plants, and sacred Medicines. We will also plan gardening activities that will help participants learn about AI/AN plants used by local tribes and plants that can be successfully grown in Los Angeles County.

An integrated comprehensive approach for GHUTS to help participants achieve and sustain overall wellness was recommended across focus groups. To help address the physical domain of health, participants felt that incorporating physical exercise, diet, and AI/AN traditional practices would enhance this program. Based on feedback retrieved from this study, we plan to introduce and incorporate physical exercise in a careful and stepwise manner, such as a walking program utilizing mindfulness exercises, to address the physical and emotional domains. We plan to include cooking lessons which focus on preparing healthy AI/AN dishes. We will incorporate a cooking workshop where we will cook dishes, such as Three Sisters Stews, that utilize vegetables participants have grown in their home gardens or on-site. To offer a more personalized experience,

participants will have the opportunity to prepare their own healthy foods using plants they have grown and harvested within this program. The IHS “A River Runs Through Us” journal is a way participants will track their own progress in the program.

To address the mental and emotional dimension of well-being, we plan to incorporate teachings on how to best cope with stress within the GHUTS curriculum. We intend to inform the way in which participation in gardening allows one to socially connect with community members and improve their mental and emotional well-being. We will emphasize the importance of receiving culturally appropriate mental health treatment, including counseling and psychiatric treatment.

To address the spiritual component of well-being, we will incorporate prayer and sage/smudging education. We will provide education regarding the spiritual component of gardening-connecting with Mother earth, the land, and the animals, and will encourage clients to learn more about their own tribal beliefs and teachings.

As recommended, the GHUTS intervention will be tailored specifically for AI/AN adults in Los Angeles County. We plan to raise plants that can grow without much seasonal variation in Los Angeles County due to the consistent weather patterns year-round. Based on feedback retrieved from this study, we plan to provide most of our program outdoors within a large canopy adjacent to the garden. This will help to create less of a “classroom feel,” while providing privacy and confidentiality. Furthermore, due to shortages of outdoor space within urban areas, we will teach participants how to create their own balcony garden at home. We will hold community gatherings and coordinate with other local events (e.g., Indigenous Peoples’ Day activities) to highlight this program and promote community cohesion within this urban area.

Various limitations exist in this study. First, this study is focused only in one urban area in the United States and is not representative of all urban AI/AN communities and is not generalizable to one specific tribal community. Also, we had fewer quotes from urban AI/AN adults receiving mental health treatment since our audio tape recording from the focus group conducted among this group was not fully retrievable. Despite these limitations, valuable information as it relates to community-based perspectives in the development of a new culturally centered diabetes

prevention program were gathered, which hopefully will result in a well-received and integrated approach.

CONCLUSION

Qualitative data generated from this study helps to finalize the development of an integrated culturally grounded and community-informed program that can help prevent diabetes among urban AI/AN adults receiving mental health treatment in Los Angeles County. Feedback provided by participants in this study aids in the creation of an intervention manual that will address the four dimensions of well-being recognized by AI/AN people, provide valuable educational background and resources, as well as offer ways to help participants track their own goals for living a healthy and balanced life. Work conducted in this study will inform the design of a future study that helps to understand how GHUTS can benefit urban AI/AN adults receiving mental health treatment in Los Angeles County.

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CONFLICT OF INTEREST

The authors declare that they have no conflicts of interest.

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