Developing and Piloting the Journey to Native Youth Health Program in Northern Plains Indian Communities
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What is This?
Developing and Piloting the Journey to Native Youth Health Program in Northern Plains Indian Communities

Purpose

The purpose of this study was to develop a lifestyle change program for Native American youth by modifying the Diabetes Prevention Program (DPP) and assess implementation indicators and short term behavioral and physiological outcomes of the intervention among a small pilot sample.

Methods

Community members and project staff modified the original DPP to be developmentally and culturally appropriate for youth targeting healthy weight maintenance, lowering fat intake, and increasing physical activity. Modifications included incorporating cultural aspects and delivering the program in small groups led by community members. Sixty-four Native American youth, aged 10-14 years old were recruited from 2 Montana Indian reservations to participate in the project, titled “Journey to Native Youth Health.” Participants were randomized to the Journey DPP or a health-oriented comparison condition. Pretest and posttest measures included body mass index (BMI), dietary intake, physical activity (PA), and nutrition knowledge, attitudes and beliefs (KAB).

Results

The target number of participants was recruited and 84% completed the program and final measures. Changes favoring the Journey DPP group were observed on measures of PA, KAB, and kilocalories from fat consumed. As expected given the short (3-month) duration of treatment,
there was no overall effect on BMI at end of treatment. Among youth who were overweight or obese at baseline, however, the Journey DPP had lower BMI growth.

Conclusions
Results suggest the Journey DPP is feasible to implement and has the potential to impact behaviors and weight gain associated with risk for type-2 diabetes in Native American youth.

Introduction
Changes in traditional Native American lifestyles, with decreased physical activity and the “Westernization” of the Native American diet (eg, high in fat and calories) have contributed to the epidemic of type 2 diabetes in Native Americans. Evidence from interventional studies suggests that behavioral approaches that increase daily physical activity and decrease dietary intake of fat can reduce key risk factors associated with diabetes, such as overweight and obesity. For many, risk for diabetes among Native Americans begins in childhood, and thus childhood is an important opportunity for early intervention. Most Native American youth less than 20 years old living on or near Montana’s Northern Plains Indian reservations exhibit several risk factors for type 2 diabetes. A recent study in this region found that approximately 57% of Native American youth 5-19 years old were overweight or obese, 30% were prehypertensive or hypertensive, and 62% reported having a first- or second-degree relative with diabetes. Not surprisingly, elevated risk factors in Native American youth are associated with increased rates of diabetes in Montana Indian adults. Survey data in 2005 showed 16% of Montana Native American adults had diabetes, which is nearly threefold higher than non-native populations in Montana. These data underscore the critical importance for developing and testing interventions that promote healthy behaviors and decrease risk of obesity and the development of type 2 diabetes in Native American youth.

The Diabetes Prevention Program (DPP) showed that intensive lifestyle change prevents diabetes in at-risk adults. The DPP was a multicenter clinical trial randomizing 3324 nondiabetic adults with elevated fasting and postload plasma glucose concentrations to placebo, metformin, or a lifestyle-modification program. Adults in the lifestyle intervention group received 16 individually delivered training sessions in diet, physical activity, and behavior modification. Goals included exercising for a total of 150 minutes per week and losing 7% of body weight. At 2.8 years of follow-up, the incidence of diabetes was 58% lower in the lifestyle-intervention group and 31% lower in the metformin group compared to placebo. Native American adults living in the southwestern United States accounted for 5% of the DPP participants. During the 10-year follow-up of the original participants, the cumulative incidence of diabetes remained lowest in the lifestyle group, compared to placebo or metformin. The lifestyle change sessions have been widely adapted to adults in a variety of settings including YMCAs, primary care practice, community health care, and faith-based locales.

Previous studies of diabetes prevention programs in Native youth have had mixed results. The Kahnawake Schools Diabetes Prevention Program was a 3-year, non-randomized, controlled trial of community-based diabetes prevention strategies conducted in First Nations reservation communities. Although the intervention had positive impacts on dietary intake and physical activity, the primary end points of body mass index (BMI) or body fat did not change. Pathways, a 3-year, randomized, controlled trial that tested the effect of a school-based program on preventing obesity in third- to fifth-grade Native American children, found no significant reduction of the percentage of body fat or BMI at the intervention schools. These studies suggest the need to improve and test diabetes prevention interventions for Native American youth.

To address this need, this study developed a lifestyle change program for Native American youth by modifying the DPP and assessed implementation indicators and short-term behavioral and physiological outcomes of the intervention among a small pilot sample. The hypothesis was that relative to those in the comparison group, participants in the lifestyle change program group (ie, Journey DPP) would show greater improvements in...
nutrition knowledge and dietary intake as well as physical fitness. Because the duration of treatment was short (3 mo), significant improvements in weight were not expected, but group differences were explored to assess possible indicators of short-term outcomes.

Methods

Research Design

The study used a community-based participatory research (CBPR) approach that actively engaged the Northern Plains Indian communities in all aspects of the research process. This approach is especially appropriate for use with Native American populations who have historically been vulnerable to researchers’ insensitivity and exploitation and holds significant promise for implementing effective and sustainable public health approaches. The CBPR approach used in this project included the following. Beginning in 2004, the University of Montana and both reservation communities formed a collaborative partnership to reduce diabetes risk factors in Native American youth. Subsequently, the partnership wrote the federal National Institutes of Health grant application and established a code of research ethics for the study. Community members and academic researchers met regularly to discuss study design issues, subject recruitment, evaluation strategies, and planning for long-term sustainability of the DPP-for-youth project. An initial study explored tribal members’ perspectives on factors that influence their youth’s risk for diabetes, healthy diet, and exercise behaviors and has been previously described. Partners developed the program name, “Journey to Native Youth Health,” and Native artists helped created a logo (Figure 1) depicting the medicine wheel and the concept that making healthy choices is a lifelong process. The program name was created to give equal value to the health curricula being taught to the treatment group (ie, youth diabetes prevention program [Journey DPP]) and the comparison group (ie, youth drug and alcohol prevention program), recruit youth to the study, and decrease community concern that being enrolled in the DPP curriculum was more “important” than being in the alcohol and drug curriculum.

Sample and Setting

Northern Plains Indian youth 10-14 years old living on 2 American Indian reservations in north-central and southwestern Montana were recruited for the study. Potentially eligible youth from school rosters were blocked by site and grade and randomly ordered within blocks for recruitment. Eight groups (4 Journey DPP and 4 comparison), with an average of 8 youth per group, were initiated over a period of 18 months (Figure 2).

During the project planning period, tribal partners expressed a strong desire to implement an alcohol and drug prevention curriculum for the comparison condition and thus, this was the only health curriculum that this group received. Research staff adapted the Oklahoma University American Indian Institute’s “Beyond the 7th Generation Fetal Alcohol Spectrum Disorder” curriculum for use in this study by reducing the number of group sessions from 16 to 9 to match the number of sessions in the Journey DPP. Tribal research staff also adapted the session materials to be culturally relevant for Northern Plains Indian youth. The lifestyle educators were also trained to deliver these 9 sessions during the training workshops.

Participants in both conditions received $150 worth of incentives (eg, pedometers, balls, jump ropes, athletic shoes) and a certificate of completion. Participants’ parents or guardians also received a $25 voucher redeemable from local grocery stores.

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Figure 2. Study procedure. *Participation in outcome measures varies (see Table 2).
The general content and behavioral goals in the Journey DPP curriculum were based on the original DPP lifestyle change model, which was based on the Transtheoretical Model-Stages of Change and Social Cognitive Theory. Using an iterative process, community members and project staff modified the program to be developmentally and culturally appropriate for Native youth. The strategies targeted healthy weight maintenance, lowering fat intake, and increasing physical activity. Modifications are summarized in Table 1 and discussed below.

Modifying the original DPP for Native youth included adding cultural components, addressing youth’s knowledge of and access to healthy food, including hands-on interactive learning activities and using a group format to deliver the intervention. To maximize participation, the number of sessions was reduced from 16 to 9. The 9 sessions were taught over a 3-month period, with each session implemented every 1½ weeks during the 3 months. Because the program was implemented in actively growing adolescents, the weight goal was to slow or reduce BMI growth. Cultural aspects were incorporated throughout the program and included emphasis on traditional activities (such as berry picking, horseback riding, dancing, hunting, hiking, and camping), use of storytelling and native language to convey information, and participation of elders. Hands-on interactive activities included preparing and tasting healthy snacks; learning about and participating in native games such as double ball, ring the stick, run and scream, and shinny; keeping and discussing weekly activity and nutrition diaries; and group games for finding hidden calories in fast-food menu items and convenience store food items.

Each session followed a similar format and addressed topics similar to those in the original DPP program. The participants discussed what they knew about the session’s topics (such as healthy snacking and being active), new information was introduced, participants were provided with new resources, assignments were made for tasks to complete at home with participants’ families, and participants set goals. Each session allowed time for sharing successes and challenges, reporting on physical activity and nutrition goals reached since the last session and assignments such as food label reading and problem solving inactive behaviors (eg, finding ways to decrease screen time or playing video games). Group sessions were held after school in classrooms and community and fitness centers. Delivering behavioral change programs to small groups of Native American youth is consistent with cultural values of collectivism and Native American social support systems, and a group delivery format potentially increases the cost-effectiveness of administering health programs to youth.

Sessions were led by tribally enrolled community members (called lifestyle educators) from each of the 2 participating reservations. One of the lifestyle educators had a 4-year degree in elementary education and was also a cultural expert and youth mentor who was enrolled in the tribe’s adult diabetes prevention program. The other educator had a 2-year degree in health sciences and experience working with youth enrolled in tribal fitness and

Table 1
Comparison of the Adult-DPP Lifestyle Intervention and the Journey DPP for Youth

<table>
<thead>
<tr>
<th>Journey DPP for Youth</th>
<th>DPP-Lifestyle Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program weight goal</td>
<td>Slow or reduce BMI growth</td>
</tr>
<tr>
<td>Delivery method</td>
<td>Small groups</td>
</tr>
<tr>
<td>Number of sessions</td>
<td>9 sessions</td>
</tr>
<tr>
<td>Target age</td>
<td>10-14 y</td>
</tr>
<tr>
<td>Target race/ethnicity</td>
<td>Native American</td>
</tr>
<tr>
<td>Interventionist</td>
<td>Native American community member</td>
</tr>
<tr>
<td>Timing and location</td>
<td>After school</td>
</tr>
<tr>
<td>Location</td>
<td>School grounds or community centers</td>
</tr>
<tr>
<td>Activities</td>
<td>Hands on and culturally based</td>
</tr>
<tr>
<td>Family involvement</td>
<td>Materials and activities available</td>
</tr>
</tbody>
</table>
wellness programs. Their role was similar to that of Native American community health representatives. The lifestyle educators participated in intensive training, which included 2 one-week-long training workshops that provided an overview of the background and results of the original DPP lifestyle intervention; the rationale for the nutrition, physical activity, and healthy weight goals of the Journey DPP; and a session-by-session overview. Additional aspects of the training workshops included skills for leading effective group sessions, retaining participants in the program, and disseminating information about the program to parents and guardians of participating youth and other community members.

Pilot Study Design

Eligible youth were individually randomized to the Journey DPP or the comparison condition, which addressed risks for alcohol and drug use. Data were collected at the level of the individual (participant and his or her parent/guardian) and organization (lifestyle educators and reservation site) to assess the program’s implementation and outcomes. Data were collected at 2 time points: baseline (prior to delivery of the program) and at the end of the program (approximately 3 mo after baseline). Data were collected by trained tribal and university research staff. Neither staff nor participants were blinded to condition assignment.

The study and procedures were approved and monitored by The University of Montana Institutional Review Board, tribal councils and health committees and local community advisory boards.

Measures

Process Measures. Recruitment, retention, and completion rates were documented for each reservation site. In addition, at the end of the intervention, participants and parents or guardians answered 5 questions assessing their satisfaction with the program. The lifestyle educators were interviewed at the end of the study by the first author to explore implementation issues.

Nutrition. Dietary intake was assessed using the 24-hour dietary recall assisted by the food record and in-person interview method using standard procedures for children. Three-dimensional food models, measuring utensils, and tableware were used during the interview to assist with estimating portion sizes. Data were then entered into ESHA Food Processor SQL Edition (version 10.2.2, ESHA Research, Salem, OR) and analyzed for nutrient content.

Nutrition knowledge was assessed using an adaption of the KAB nutrition questionnaire used in the Pathways Program. This 15-item, paper-and-pencil assessment was designed to measure self-efficacy to choose food items lower in fat and sugar, food choice intention, and knowledge of fat content. Using the procedure outlined by Stevens et al., individual items were summed to provide an overall score.

Physical Activity. Physical activity was assessed using Actical omnidirectional accelerometers (MiniMitter Co, Inc, Bend, OR) fitted on the nondominant arm. Activity was continually measured in 1-minute periods for 7 days. Data were converted into kilocalories expended using the regression method developed by Heil et al. and physical activity levels were categorized using cut points defined by Puyau et al. Moderate and vigorous physical activity counts were averaged over the measurement period and summed to determine average daily moderate-to-vigorous physical activity. Only participants with Acticals recorded on 3 or more full days were included in the physical activity analyses.

Self-reported amount of time engaged in physical and sedentary activities was assessed and scored using the Modifiable Physical-Activity Questionnaire for Adolescents. Test-retest estimates for the questionnaire have not been specifically tested in Native American youth, however the reliability of the instrument for a 1-month recall is 0.73-0.78 for hours, and validity is reported at 0.55-0.73 for metabolic equivalent-hours/week and vigorous activity for both sexes, respectively.

Weight. Study staff measured participants’ height and weight using stadiometers and a calibrated digital scale, without shoes and excess clothing. Height and weight measures were converted to BMI using the standard formula and to age- and sex-specific BMI percentile based on the 2000 Centers for Disease Control and Prevention algorithms. Standard categories were used to classify participants’ weight as normal (fifth to < 85th percentile), overweight (85th to < 95th percentile), or obese (≥ 95th percentile).
**Data Analysis**

Data were analyzed using SAS (version 9.2, SAS, Inc, Cary, NC). Descriptive variables for the treatment and comparison groups were compared by t test or chi-square, as appropriate. The study hypothesis was that, compared to the alcohol and drug control group, the Journey DPP treatment would result in improved diet (ie, lower total kcals and lower percentage of kcals from fat and saturated fat), improved objective measures of physical activity (ie, higher energy expenditure and lower sedentary activity), improved subjective measures (ie, higher KAB score, higher physical activity questionnaire score, and lower reported screen time). Between-group differences in pre- to post-intervention change for each of these dependent outcomes were evaluated using t tests. Exploratory analysis of change in BMI from baseline to post-intervention was also conducted to discern patterns and trends. Data are reported only for participants who completed the program pre- and posttest measures (N = 64). Process data were analyzed to assess the feasibility of implementing the program and acceptability of the program. These data included youth recruitment and retention in the program, parent and youth program satisfaction ratings, and interviews with the lifestyle educators at the end of the study.

**Results**

**Assessment of Adapted DPP**

Implementation of the 9-session program took an average of 12 weeks (approximately 3 mo). Participants and their parents or guardians assigned very high ratings to the program components at the end of the intervention. Ninety-five percent of all participants said they would recommend the program to other Native youth. Seventy-five percent of parents and 47% of youth surveyed thought the program should have more sessions.

Interviews conducted at the end of the study suggested that the lifestyle educators had high confidence in their ability to implement the program’s behavioral and educational strategies of goal setting and problem solving. Educators reported difficulty in keeping some participants interested in the sessions and suggested having more interactive learning activities in the program. Educators expressed interest in having more information and activities that included the participants’ families.

**Pilot Study Recruitment and Retention**

Ninety-three eligible youth were recruited to complete baseline assessments. Of these, 76 completed baseline assessments and were then randomized to the Journey DPP or comparison group (Figure 2). Reasons for dropping out of the study before the baseline measures included moving (n = 3), vacation (n = 6), or no longer interested in the study (n = 8). Of the 76 youth who completed baseline measures and were randomized to the Journey DPP or the comparison group, 64 (84%) completed the program and end-of-treatment measures. All participants were Native American, the average age (SD) was 11.4 (1.1) years, and 50% of participants were female. Reasons for discontinuing the sessions/study included moving (n = 2), vacation (n = 5), transportation problems (n = 3), or lost interest in the program (n = 2).

**Pilot Study Outcomes**

Table 2 shows baseline and post-intervention outcomes, as well as a comparison of changes between groups, for all behavioral and anthropometric outcomes. At baseline, there were no statistically significant differences by condition assignment for any of the measured variables. Eleven participants in each condition were obese at baseline.

**Nutrition.** Diet recall data did not show significant pre- to post-intervention changes within treatment groups or between groups. Each group demonstrated a nonsignificant decrease in total kcals consumed from pre- to post-intervention measures. The Journey DPP group had greater reductions in percentage of kcals from fat and from saturated fat than the comparison group, but the variability in measures was large and obscured strong conclusions with the dietary data. After delivery of the intervention, participants in the Journey DPP group increased their overall nutrition KAB score by 8% (P = .008), whereas those in the comparison group had no change in score.

**Physical Activity.** Both groups performed worse on accelerometer measures at the end of the program compared to baseline. For the Journey DPP group, the change in average daily minutes of moderate-to-vigorous activity and minutes of sedentary activity were small (-25 min and +12 min, respectively) and not statistically significant. The comparison group had more substantial
Table 2
Baseline and Post-intervention Outcomes by Treatment Condition and Comparison of Changes between Groups

<table>
<thead>
<tr>
<th>Measure</th>
<th>Journey DPP</th>
<th>Alcohol and drug comparison condition</th>
<th>Difference in change between groups&lt;sup&gt;a&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>Pre (Change)</td>
<td>Post (Change)</td>
</tr>
<tr>
<td>Dietary recall measures</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total kcal</td>
<td>21</td>
<td>1768 (541)</td>
<td>1754 (555)</td>
</tr>
<tr>
<td>Kcal from fat (%)</td>
<td>21</td>
<td>32.9 (5.0)</td>
<td>31.0 (7.3)</td>
</tr>
<tr>
<td>Kcal from saturated fat (%)</td>
<td>21</td>
<td>11.3 (2.3)</td>
<td>11.4 (4.2)</td>
</tr>
<tr>
<td>Actual measures</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moderate/vigorous activity (avg min/d)</td>
<td>20</td>
<td>92 (65)</td>
<td>67 (63)</td>
</tr>
<tr>
<td>Sedentary activity (avg min/d)</td>
<td>20</td>
<td>784 (158)</td>
<td>796 (102)</td>
</tr>
<tr>
<td>Estimated energy expenditure (avg kcal/d)</td>
<td>20</td>
<td>728 (358)</td>
<td>631 (239)</td>
</tr>
<tr>
<td>Self-reported measures</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nutrition knowledge, attitudes, and behavior</td>
<td>32</td>
<td>36.9 (5.9)</td>
<td>40.0 (4.3)</td>
</tr>
<tr>
<td>Physical activity score&lt;sup&gt;c&lt;/sup&gt;</td>
<td>31</td>
<td>24.6 (8.4)</td>
<td>24.2 (6.4)</td>
</tr>
<tr>
<td>Screen time (avg h/d)&lt;sup&gt;d&lt;/sup&gt;</td>
<td>30</td>
<td>3.4 (2.7)</td>
<td>3.0 (2.2)</td>
</tr>
<tr>
<td>BMI measures</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BMI, kg/m&lt;sup&gt;2&lt;/sup&gt;</td>
<td>31</td>
<td>22.7 (5.6)</td>
<td>23.0 (5.7)</td>
</tr>
<tr>
<td>BMI percentile, %</td>
<td>31</td>
<td>76.4 (27.4)</td>
<td>77.8 (26.5)</td>
</tr>
<tr>
<td>BMI z score</td>
<td>31</td>
<td>1.02 (1.14)</td>
<td>1.05 (1.16)</td>
</tr>
</tbody>
</table>

<sup>a</sup> P < .05, within-group baseline vs post-intervention comparison.

<sup>b</sup> Comparing difference in crude change between treatment groups, Journey DPP minus comparison condition.

<sup>c</sup>Nutrition knowledge, attitudes and beliefs Nutrition Questionnaire adapted from the Pathways Program.29

<sup>d</sup>Plus sign (+) indicates that the Journey DPP intervention was designed to result in a positive number when comparing difference in crude change between treatment groups; minus sign (-) indicates that the Journey DPP intervention was designed to result in a negative number when comparing difference in crude change between treatment groups.

<sup>e</sup>Knowledge, Attitudes and Beliefs Nutrition Questionnaire adapted from the Pathways Program.29

<sup>f</sup>Modifiable Physical-Activity Questionnaire for Adolescents.32
changes, with a 59-minute decline in daily moderate-to-vigorous activity ($P < .001$) and an 111-minute increase in sedentary activity ($P = .01$). These changes translated to a 31% reduction in kcals expended for the comparison group ($P = .001$) compared to a nonsignificant reduction of 13% among the Journey DPP group ($P = .18$). Daily self-reported screen time (including television, computer, and video games) among those in the Journey DPP group was reduced by 0.4 hours, whereas screen time increased by 1.1 hours in the comparison group.

**Weight.** Both groups had small BMI increases in the short interim between baseline and post-intervention measures. There was no overall difference between groups in BMI change. Post hoc analysis of participants who were classified as overweight or obese (ie, BMI > 95th percentile) at baseline suggested that this group may be more sensitive to the intervention effects with regard to this outcome. Among the overweight/obese participants in the Journey DPP group (n = 16), there was no change in BMI percentile, whereas the overweight/obese participants in the comparison group (n = 19) increased by 0.65 percentile ($P = .10$; data not shown).

**Discussion**

Successful recruitment, high retention, and satisfaction ratings suggest that the Journey to Native Youth Health sessions were feasible to deliver to small groups of Native American youth. Further, preliminary evidence from this pilot study suggest that the Journey DPP may be effective for reducing risk factors for diabetes in Native American youth, especially in those at elevated risk.

Changes favoring the Journey DPP condition were observed on measures of physical activity; nutrition knowledge, attitudes, and beliefs; and kilocalories from fat consumed. The Journey DPP group had more favorable changes in physical activity–related behaviors than the comparison group (ie, higher moderate/vigorous activity and lower sedentary activity relative to the comparison group). These findings were in agreement with after-school physical activity interventions in school-aged children. $^{34,35}$ At the end of the study, participants in the Journey DPP group were consuming 4 times less fat and had increased their overall KAB score versus youth in the comparison group. Further, the comparison group had increased their intake in percentage of kcals from saturated fat compared to the Journey DPP group. Thus, the Journey DPP intervention had positive effects on critical behaviors associated with diabetes risk in youth.

As expected in this pilot study, in the 3 months between pre- and post-intervention measures, there was no overall difference in BMI change between groups. However, evidence of differential effects was found among those youth who were overweight or obese at baseline. Among these at-risk youth, the Journey DPP condition was favorable for BMI growth compared to the comparison condition, which suggests the potential for greater impact in susceptible populations. These findings are similar to the HEALTHY study, a multifaceted, 2-year, school-based intervention to reduce risk factors for type 2 diabetes in 4603 sixth-grade students. $^{36}$ Although there was no significant difference in the combined prevalence of overweight and obesity between control and intervention schools at the end of the HEALTHY study, students in the intervention schools who were overweight or obese in the sixth grade had 21% lower odds of being obese at the end of eighth grade (odds ratio, 0.79; 95% confidence interval, 0.63-0.010). Similar to those from the current pilot study, these findings suggest that youth at higher risk for diabetes may be initially more responsive to a behavioral intervention than youth at lower risk for disease.

The pilot study was designed to evaluate feasibility and community acceptance of an adapted intervention program, but the study had limited power to detect differences in measured outcomes. Native American youth from 2 reservations participated in the study, but findings from this study may not be directly translatable to other Native American communities without further program adaptations. It is anticipated that such program adaptation may be modest and achievable with the CBPR methods described above.

**Conclusion**

This pilot study developed a potentially effective behavioral change curriculum and established a collaborative partnership between academic researchers and tribal members to successfully implement the Journey to Native Youth Health program. The tribally enrolled lifestyle educators reached the Native youth population and provided culturally relevant care within indigenous community structures; thus, their role in this study was similar.
to that of Native American community health representatives (CHRṣs). Grounded in principles of social support and interpersonal communication, as well as an understanding of their community’s strengths and history in health protection, CHRṣs are bridges distinctively positioned to connect these 2 worlds. With additional training and mentoring in diabetes care and prevention, CHRṣs, in their self-described roles as “in-between people,” can serve both as caring and knowledgeable community members and valuable members of the health care team.

Successful reach and implementation of the Journey DPP sessions are important results of this study. There was high acceptance for the group sessions and low attrition, which are important elements in implementing diabetes prevention strategies in high-risk populations. The pilot study suggested positive changes in targeted health behaviors, including impacts on physical activity; fat intake; screen time; nutrition knowledge, attitudes, and beliefs; and BMI changes in the most at risk youth. With minor adaptations to Native American community settings and longer implementation, the Journey DPP has the potential to influence behaviors and weight gain associated with risk for type 2 diabetes in Native youth.

References


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