A Risk Behavior Prevention Program for Lakota Children in Elementary School: Lakota Circles of Hope

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Abstract

This study evaluated the effectiveness of Lakota Circles of Hope (LCH), an elementary school culturally based prevention program. Three cohorts of fourth and fifth grades participated in a mixed methods evaluative research design that included a pre- and post-survey and focus groups. Five research questions were answered regarding the program and its impact upon participants in 10 school sites. Participants were compared to non-participants in three equivalent comparison school sites. Educators completed a post-survey with their observations and feedback regarding the implementation of the program within their respective school sites. The study provides preliminary evidence that, when delivered with fidelity, LCH contributes to statistically significant changes at the $p < 0.01$ level in the areas of risk behaviors, adult and parent communication, Lakota identity, conflict resolution, self-esteem, and respect.

Keywords: prevention program, elementary school, Lakota, culturally-based program

Brief Overview

There are many risk behaviors (smoking, substance use, sexual initiation, bullying, and fighting) for which evidence-based prevention programs are available for middle and high school students (Ringwalt et al., 2008; Rohrbach et al., 2005). The number of elementary school prevention programs (grades K-5) is sparse, and those that do exist focus on a single risk behavior. Although risk behavior prevalence is low among 2nd-5th graders, epidemiological data indicate that the rates of various risk behaviors are rising sharply within certain ethnic groups and social environments (Fergusson & Horwood, 1995; Pederson, Koval, & O'Connor, 1997; Austin & Gortmaker, 2001; Hanley et al., 2010). Prevention programs that are introduced early in schools serving preadolescent youth appear to have an impact on the reduction and delayed initiation of risk behaviors for early adolescent youth (Wilson & Lipsey, 2005; Losel & Beelmann, 2003). A review by Hopfer et al. (2010) of 24 elementary school prevention programs substantiated the value of these programs in increasing knowledge about substance use, improving resistance skills, and decreasing perceptions of prevalence rates. Other studies of prevention programs for elementary school children showed improved academic and social-emotional learning by addressing risk factors for substance use (alcohol, drug, and tobacco) and early aggressive behaviors (Ialongo et al., 2001; Riggs et al., 2006; Kellam et al., 2008; Beets et al., 2009).

Effective prevention programs have components that help youth establish clear and positive self-identity. For American Indian youth and other youth of color, the development of positive self-identity and its role in healthy psychological functions are closely linked with the development of ethnic identity (Mendelberg, 1986; Parham & Helms, 1985; Phinney et al., 1990; Zou & Trueba, 1998). The theory of identity development emerging from studies of how children establish identities across different social contexts, cultural groups, and genders creates a construct that research has established as a critical component of youth development and social decision making (Erikson, 1968; Gilligan, 1982; Phinney & Navarro, 1997; LaFromboise et al., 1993). Some studies have suggested that it is important for ethnic minority youth to be consciously socialized to understand the multiple demands and expectations of both the majority and the minority cultures (Spencer et al., 1990). This process may offer psychological protection by providing a sense of identity that captures the strengths of the ethnic culture and helps buffer against racism and other risk factors.

Prevention programs that foster prosocial norms seek to encourage youth to adopt healthy beliefs and clear standards for behavior through a variety of strategies. This construct addresses what is and what is not necessary in order to be a member of the "normal" group. Younger children are influenced by the older youth in their environment and by the adults who

are their models. Children have to be taught to recognize what are healthy and unhealthy behaviors. This includes learning how to avoid unhealthy situations (sexual abuse, substance use, violence, etc.) and where to get the necessary help and support. Therefore, providing a set of coping skills and knowledge for children to make appropriate choices and decisions is one of the primary program objectives. … Additionally, helping children set high standards for themselves has been shown to be a positive step in their personal development (Hawkins et al., 1992).

Intervention

The Lakota Circles of Hope (LCH) is a chemical substance, alcohol, and tobacco prevention program taught annually to 2nd to 5th graders. It consists of a 10-lesson curriculum on making healthy decisions in the context of Lakota traditions and values, principally in a school-based environment. Parents, educators, and community members have identified this program as a first step in helping introduce young people, families, and educators to substance use, depression, and antisocial behavior prevention efforts. The LCH curriculum is based on existing prevention initiatives (e.g., D.A.R.E., Protecting You/Protecting Me, Alcohol Misuse Prevention, CLIMATE Schools, We Are All Related, The Sacred Tree Curriculum, Learning Prevention Using Lakota Values, and Anishinabeg Family Values) for children that include age appropriate topics, medically accurate information, and cultural influences (Vogl et al., 2012; Fisher et al., 2007; Ringwalt & Bliss, 2006; Gottfredson & Wilson, 2003; Webster-Stratton et al., 2001; Campanelli, et al., 1989). The classroom-centered program is designed to reduce early risk behaviors by enhancing appreciation for Lakota values and traditions as a framework for making decisions and choices that contribute to a healthy and safe environment.

The LCH curriculum is based on the four Lakota values of generosity, fortitude (courage), wisdom, and respect.

- ***Wacantognaka***, the Lakota word for generosity, means to contribute to the well-being of one's people and all life by sharing and giving freely. This sharing is not just of objects and possessions, but of emotions like sympathy, compassion, kindness. It also means to be generous with one's personal time. The act of giving and not looking for anything in return can make you a better person and make you happy.
- ***Wacintaka or fortitude*** (Woohitka or courage) means facing danger or challenges with courage, strength and confidence. Believing in oneself allows a person to face challenges. Fortitude includes the ability to come to terms with problems, to accept them and to find a solution that is good for everyone.
- ***Woksape or wisdom:*** The knowledge and wisdom of old people is very

important for the well-being of the Lakota people. This is understood to be something sought and gained over the course of one's entire life, but not just by adding years to one's life. Wisdom has to do with understanding the meaning within natural processes and patterns. It means knowing the design and purpose of life.

- ***Wowacintanka or respect*** helps people to live together in peace and harmony. This attitude means a reverence for all other living things in the world. This value is sometimes expressed as ***wotitakuye***, or kinship. This is one of the important values coming from the tiyospaye, a band or extended family group. It includes the ideas of living in harmony, belonging, relations as the true wealth and the importance of trusting in others. It is one of the values that make the tiyospaye work.

The LCH objectives include:

1. Students will learn about the Lakota value of respect and how it relates to their personal self-worth. *[Respect is the base upon which all the Lakota values are built.]*
2. Students will be able to identify and express personal feelings to others, to understand the importance of active listening, and to assess facts and untruths. *[The Lakota value of generosity is the emphasis for this objective.]*
3. Students will discuss the criteria for safe and healthy relationships and how to set clear boundaries. *[The Lakota value of fortitude is the emphasis for this objective.]*
4. Students will explore how to refuse or say no to unhealthy relationships, substance use, sexual advances, peer pressure, and provocation. *[The Lakota value of fortitude is the emphasis for this objective.]*
5. Students will learn about the various risk behaviors (substance use, early onset of sexual behaviors, and self-destructive behaviors) and their long-term physical and emotional consequences. *[The Lakota value of wisdom is the emphasis for this objective.]*
6. Students will practice the Lakota value of wisdom by applying a step-by-step process for making good decisions, problem solving, and setting personal goals. *[The Lakota value of wisdom is the emphasis for this objective.]*
7. Students will practice the Lakota values of bravery and respect by learning assertiveness skills, conflict resolution skills, and anger management. *[The Lakota value of bravery is the emphasis for this objective.]*
8. Students will develop a safety plan that includes contacts and places, and will

have an understanding of internal and external threats to their personal safety, and a mechanism for dealing with them within the school, community, and home. *[The Lakota value of wisdom is the emphasis for this objective.]*

9. Students will reflect and summarize knowledge, skills, attitudes, and beliefs gained from LCH in the context of the Lakota traditional values and culture.

An important attribute of LCH is that the program is introduced at an early age. Many studies document how substance use, antisocial behaviors, depression prevalence, and intentions and practices to engage in risky behaviors increase at a moderate rate between the 3rd and 4th grades, with a larger increase between the 5th and 6th grades (Andrews et al., 2003; Wilson & Lipsey, 2005; Hopfer et al., 2010). LCH is an age-appropriate curriculum, with scaling of depth and understanding of particular topics spread throughout the 4-year time period (2nd to 5th grades) to mitigate an increase in risk behavior rates.

Originally, LCH lessons were delivered in the classroom only by trained instructors who are members of one of the Lakota tribes and are knowledgeable in the Lakota language, practices, and traditions. With training and a Lakota mentor, non-American Indian instructors have been able to deliver the lessons. The students receive a 30- to 45-minute lesson with opportunities to finish their activities in school and at home. Each previous year's lesson is scaled, expanded, and enriched using age-appropriate and culturally based pedagogical methodologies.

The development and creation of the LCH curriculum involved a team of Lakota educators who reviewed existing prevention curricula for age appropriateness of contextual knowledge (Hanbury, Thompson, & Mannion, 2011), cultural relevancy and competency (McKennitt & Currie, 2012; Kegler et al., 2002), and pedagogical approaches (Nelson, Martella & Martella, 2002). The 2-year curriculum development process included identification of instructional patterns, strategies, and performance outcomes for the teaching and delivery of lessons and activities (Wiles & Bondi, 2002). Using a deliberative approach to curriculum planning, the team reviewed the design of materials and curricula that centered on AI culture, used age appropriate risk prevention strategies and youth development components (Walker, 1971; Marsh & Willis, 1995). These strategies were designed to provide students with knowledge about various risks and to learn coping skills to address any negative social pressures contrary to normative behavioral expectations. The majority of the reviewed curricula were designed for middle school and high school students; thus, the team adapted the content and cultural activities for the lower grades. Each of the 40 LCH lessons (10 lessons per grade level) has a pedagogical framework that includes Lakota stories, cultural crafts and activities, knowledge content, discussion, and application to daily life (Catches, 2002;

LaFromboise, 1995; Four Winds Development Project, 1984; The First American Prevention Center, 2002; D.A.R.E., 2010).

Additionally, families and communities are embedded as a major component of the curriculum. Kegler et al. (2002) realize that families and communities have a great effect on child-rearing practices, attitudes, values, and behaviors, which may, in turn, influence whether children will abuse drugs, become sexually active, be involved in violence, or consider suicide as they move into adolescence. The children are encouraged to share what they have learned about their Lakota heritage, risk behaviors, and healthy decisions with their parents, families, and other adults. The verbal and nonverbal modeling of the anti-substance use messages youth receive from family members at home is a major component of any prevention socialization process. Kegler et al. (2002) showed that across all ethnic groups and both genders there was evidence when parents talk to their child about the negative health effects of substance use it was effective in abstinence and delayed risk behaviors. Children require healthy and safe social environments if they are to avoid unhealthy choices and engage in good decisions for themselves. Children's social environments include families, community, peers, and elders, and children rely on these members for the knowledge, experience, and skills required for development into adolescence.

The social-cognitive model (i.e., using knowledge to respond to a social environment and social pressures) assumes that children who engage in disruptive or antisocial behaviors may have distorted views of what constitutes a good decision or choice and have deficiencies in their social problem-solving skills (Bandura, 1993). Bandura's (1986) social cognitive theory challenges the theories of human functioning that focus on the role of environmental factors in the development of human behavior and learning. Since the Lakota children involved in LCH reside on reservations with high proverty, high substance use, and minimal safe places, the environment factors were considered to be important consideration in the development of the curriculum What protective factors are available to the reservation children and how can they access them in a dysfunctional environment? .

Intent of the Study

The purpose of this study is to determine if LCH had any positive impact on 4^{th} and 5^{th} grade participants regarding healthy decisions on substance use, conflict resolution, communication, identity, and cultural competence. A mixed methods approach was used to answer the research questions, which are aligned with the program objectives:

- Q_1 Do the children completing LCH show an improved understanding of the Lakota values, traditions, and practices?
- Q_2 Do the children completing LCH show an understanding of the health impediments

caused by the use of alcohol, tobacco, and chemical substances?

Q_3 After completing LCH, will the participating children be able to resolve conflicts using learned skills and techniques?

Q_4 After completing LCH, will the participating children have improved self-esteem and self-efficacy qualities?

Q_5 After completing LCH, will the participating children have improved communication skills with their parents, elders, and other trusted adults?

In addition, we sought to determine if the cultural framework of the program provides a pedagogical approach and a psychosocial component for delivering a prevention program that has relevancy and meaning in a Lakota child's life. The culturally responsive pedagogy is intended to cultivate academic achievement, social consciousness, cultural affirmation, value centric behavior, individual self-worth, and social competence (Gay, 2000), and in this study, we sought to substantiate if the culturally responsive pedagogy has been realized for the lower elementary grades.

Methodology

The framework for both the qualitative and quantitative data protocol included measures that tested substantiate the success of the LCH approach to improve Lakota youth social, emotional, and cognitive development in the reduction of risky behaviors such as substance use and antisocial behaviors by a using culturally relevant curriculum. The research process for LCH included both formative (process) and summative (outcomes) data collection and analyses.

The study used the empowerment and collaborative evaluation models in the development and the implementation of the research plan. The empowerment evaluation model places an explicit emphasis on building the evaluation capacity of the staff and organization so that the evaluation and research processes are integrated into the management of the LCH curriculum (Cox et al., 2009). The collaborative evaluation model provided a framework for the staff, researchers, and stakeholders to work as a team in the formation and execution of the evaluation and research plans. The emphasis of this approach was to engage the stakeholders in the research process, so they could participate in identifying the performance measures, questionnaire items, and outcomes for the study and ultimately use the findings for decision-making and program improvement purposes (Preskill & Boyle, 2008). The performance measures were used to assess the implementation of the proposed activities and associated procedures for the successful implementation of the project. The impact

outcome determined any significant changes in participants' knowledge, skills, and practice that contributed to building healthy youth.

In order to participate in the program and research, parents had to complete active consent and intake forms. The forms were sent from the school to each household and returned to the school after one-week. If the forms were not returned then students were not permitted to participate in LCH. An institutional review board (Institute for Educational Leadership & Evaluation) approved the research design and associated forms (consent form and questionnaires) required for the data collection. The school boards of the participating elementary schools approved the implementation of LCH within their district. All the participants completed pre-and post-questionnaires (described below) to ascertain their knowledge, attitude, and understanding of cultural expectations for the avoidance of risky behaviors.

Student sampling was purposive and represented the target populations of the Pine Ridge and Rosebud Indian Reservations in South Dakota. This type of sampling can be a challenge (e.g., it can limit generalization and inferences to the general population). However, in this case, where the program was new and experimental, the participating schools represented the typical reservation schools in the important demographic characteristics of ethnicity, age, socioeconomic status, and location (rural versus town) (Creswell & Clark, 2007). The 10 selected schools were based on each school's interest in implementing the program. Over the 3-year study period, the average number of students in the treatment cohort was 408 4^{th} and 5^{th} graders.

In 2012-13, three school sites were selected as a comparison group. The comparison schools had similar ethnic, grade, gender, and age distributions as the treatment group. The comparison schools were administered the same pre-and post-questionnaires as the treatment group. The pre-questionnaire was administered in early in the school year, and the post-questionnaire was completed at the end of the school year. The comparison group included 71 2nd graders, 87 3rd graders, 86 4th graders, and 48 5th graders, for a total of 292 students.

The qualitative component included at least four focus group meetings per year with 3^{rd}, 4^{th} and 5^{th} graders participating in LCH (8-10 participants per group). We asked participants a series of questions on their understanding and application of Lakota values in making good decisions at, during, and after school. Additionally, we asked about their satisfaction with LCH and any suggestions for improving the program. The questions were developed by the evaluation team and staff.

Pre- and post-questionnaires were designed and implemented for measuring the achievement of the specific objectives of LCH consistent with current research and evaluation practices involving culturally based prevention programming (Chouinard & Cousins, 2009). Developed as part of the collaborative process among the staff, program developers, and

researchers, the questionnaire items and scales are based on studies that measured behavioral risks, substance use, self-esteem, and cultural and moral competence (Mokdad, 2009; Reininger et al., 2003; Usera & Anagnopoulos, 2007).

The questionnaires were coded so as to perform matched and independent analyses of the pre-and post-results. In 2010-11, the codes were not used to perform matched analysis. Codes were designed to maintain anonymity of the individual respondent. All questionnaires requested demographic information regarding gender, grade level, age, and ethnicity. The 2nd and 3rd grade questionnaires had 12 items, while the 4th and 5th grade questionnaires had 31 items. The questions obtained information about the respondent's attitude, skills, and knowledge regarding social behaviors and Lakota traditions and values. The validity of the items was reviewed by educators and professionals involved in prevention work with children. The construct validation procedures were important to assure the validity of the assessment tools used in the program evaluation. Comparing responses before and after the implementation of the Lakota Circles of Hope in the various school settings assured that assessment items were measuring a specific variable or construct (Linn & Miller, 2005).

A principal components factor analysis was performed in order to group the 31 items asked in the pre-and post-questionnaires into variables (factors) that could be used to measure the impact of the LCH on the participants. Seven items were demographic questions while the remaining 24 questions focused on specific behaviors and psychometrics. Table 3 shows the rotated factor loadings using an equimax rotation. The results serve to confirm the selection of questionnaire items that contributed to the formation of a score for each of the identified six factors. The identified factors include:

1. ***Risk Behaviors:*** The six items asked the respondent the number of times they have engaged in a specific risk behavior in the past 30 days. Summation of the number of incidents generates a score for this factor from 0 to 24. The risk behaviors include chemical substance use and sexual activity.
2. ***Communication:*** This factor includes three questions that ask the respondents how often they have communicated with their parents or other adults. Included in this factor was an item asking if they listen to their parents and elders. The response has four levels which are rated from 4 for always or yes to 1 for a no or never response. The summation of the level of responses provides a score ranging from 3 to 12.
3. ***Respect:*** This factor is composed of five items that focus on what constitutes respective behavior to other people. This included respect for other people's property to lying to another people. There are four levels of responses from 1 to 4. The summation of the level of responses provides a score from 4 to 20.
4. ***Lakota Identity:*** There are 14 Lakota practices in which the respondent has the

opportunity to participate in. The responses to these practices require a dichotomous response - yes or no in the past 30 days. Additionally, there are two questions rated from 1 to 4 addressing a personal pride in being Lakota and practicing Lakota traditions. The total score for this factor ranges from 2 to 22.

5. ***Conflict Resolution:*** There are five items on the questionnaire that are linked to conflict and conflict resolution. This includes the number of fights in the past 30 days to being able to say no to any antisocial behavior. The summations of the responses form a score that has a range from 5 to 20.
6. ***Self-Esteem:*** There are 3 questions that have been identified as items linked to the level of self-esteem or efficacy. The items ask students about their personal assessment of themselves to their participation in gangs. The summations of the level of responses form a score that ranges from 3 to 14.

The reliability of the questionnaires was estimated from a single administration using the Kuder and Richardson methods. The Kuder-Richardson Formula (KR-20) was applicable for the 2nd and 3rd grade questionnaires since the students scored their responses dichotomously - Yes or No. The "I do not know" response was treated as a "no" response in most of the analyses. The 4th and 5th grade reliability was determined using the split-half method where a group of students were divided randomly and their responses to a selection of questionnaires were compared. The assessment results were divided in half and correlated to measure internal consistency. This reliability coefficient refers to the results obtained with an assessment instrument and not to the instrument itself. It is a measure of consistency between two sets of scores or responses from an instrument (Traub, 1994). The reliability coefficient for the 2nd and 3rd Grades Questionnaire was 0.82. The reliability coefficient for the 4th and 5th Grades Questionnaire was 0.87.

Satisfaction surveys were administered to educators and community members at the end of the program to determine their level of satisfaction and effectiveness of the prevention programming. The ***Educators and Community Assessment*** was composed of 10 statements regarding the Lakota Circles of Hope program goals and program implementation. The respondents were asked to respond to the statements using a five scale Likert format from strongly agree to strongly disagree.

The data collected was analyzed using Minitab 16.0 and R. Care was taken to measure effect size and statistical power according to the statistical tools used. When measuring significant changes, t-test was used for interval/ratio data. The z-test was used to measure significance for proportional data in either a 2 x 3 or a 2 x 2 table (McNemar, 1947). Measure of association between categorical variables was performed using the chi-square goodness of fit test. All statistical tools were used to measure significant or non-significant differences,

changes or associations at the 0.05 alpha levels.

Fidelity to program implementation was monitored using ***Self-Assessment Fidelity Monitoring Logs*** and ***Observation Logs of Lesson Implementation*** by the researcher and director (Zvoch, 2009). Changes to the curriculum and delivery modalities were reported to the director and the researcher. Any significant modifications or adaptations were measured for association between initial lesson designs versus any significant change in the activity. The association between lesson implementation and an outcome measure can be analyzed using the Chi Square Goodness of Fit analysis procedures. Other information documenting program fidelity or lesson adaptations were obtained through interviews with the staff, self-assessment monitoring, and lesson implementation observations.

In this study only 4^{th} and 5^{th} grade data are analyzed, because data collected from 2^{nd} & 3^{rd} graders were limited in scope and detail. As part of the data analyses, the data were examined for missing values, data entry errors, outliers, and distribution. The pre- and post-questionnaires were designed so that there would not be any gaps in responses. Logical imputation was used to handle inconsistent data input, because it was not possible to determine which response was accurate or valid. These inconsistencies were posted as missing data. Amelia II (R) performed the multiple imputation which helped reduce estimation bias and provided an imputed set of values.

Results

In 2012-13, 90.4% (n = 341) of the respondents had participated in one or more years of LCH programs before the current year. The percentage of students reporting that they participated in LCH when in the second grade was 43.4%. When in the third grade 58.9% respondents reported participating in LCH while in the fourth grade the percentage was 88.9%.

The distribution of participants from the comparison group is shown in Table 1. These students did not participate in the LCH program during the year. There were 52 fourth and 46 fifth graders who responded to the pre-questionnaire and 87 fourth and 48 fifth graders who completed the post-questionnaire. A total of 139 students completed the pre-questionnaire and a total of 94 students completed the post-questionnaire. The baseline mean age of the participants was 10.17 years with 44.9% female and 85.7% American Indian.

Table 1
Sample Sizes By Year & Data Collection Point

Year	Cohort*	4th Grade		5th Grade		Total	
		Pre	Post	Pre	Post	Pre	Post
1	T	172	140	142	140	314	280
2	T	296	190	208	129	504	319
3	T	177	155	200	164	377	319
Average		215	162	183	144	398	306
3	C	52	46	87	48	139	94

* *T = Treatment C = Control*

Table 2
Baseline Characteristics of Students For Each Year

Year	Cohort*	Sample Size	Age	% Female	% American Indian
1	T	314	10.25	58.5	88.5
2	T	504	10.06	51.8	81.7
3	T	377	10.24	45.6	91.1
Average		398	10.18	52.6	87.1
3	C	139	10.17	44.9	85.7

Table 4 (2010-11) shows that only one factor was statistically significant from the pre- to post-intervention at the alpha level of 0.05. There was positive change in the level of communication between parents and respondents and between adults and respondents. Although, there were positive increases or minimal decreases in the scores for each factor, they were not found to be significant changes for this annual set of measures

Table 5 (2011-12) shows that every factor was statistically significant from the pre- to post-intervention at the alpha level of 0.001. There was positive change in the level of communication between parents and respondents and between adults and respondents, a reduction in risk behaviors, an improvement in self-esteem, and an improvement in the ability to deal with conflicts.

Table 6 (2012-13) shows that every factor was statistically significant from the pre- to post-intervention at the alpha level of 0.001. There was an overall 7.7% decrease in risk behaviors while there were increases in the communication factor of 7.4%, the respect factor of 3.8%, the Lakota identity factor of 4.8%, the conflict resolution factor of 6.9% and the self-esteem factor of 6.2%. Overall, this substantiates an improvement in all areas for the LCH participants.

For the comparison group in Table 7 (2012-13) there were no statistically significant changes from pre- to post-assessment for all the six factors at the alpha level of 0.05. There was an overall 1.6% increase in risk behaviors, a 0.71% increase in the respect factor, and a 1.6% increase in the self-esteem factor for the non LCH participants. Decreases were noted for the communication factor at 2.7%, the Lakota identify factor at 0.97%, and the conflict resolution factor at 3.0% for the comparison group.

In the focus groups, students emphasized the importance of respect for others and fortitude for themselves in making life choices. In the quantitative data collected, 89.0% of the students agreed that they had learned a lot about Lakota values. While in the focus groups the students reported that making good choices included not hanging around peers who placed them in unsafe and unhealthy situations. Peer pressure and influence appears to be a strong factor for youth in determining if they can avoid bad situations or choices.

The students shared similar active learning and application experiences gained from LCH. In every group the Lakota values of respect, generosity, and fortitude were noted as the values they learned and tried to practice. They saw the importance of respect for each other, other people, and their property. Many students noted the importance of caring for other people and helping those in need. Courage was important to many of the participants because it took a special fortitude to say no to do something that was not right or could hurt them. The boys and girls in the group shared similar responses regarding the values.

Table 3
Principal Component Factor Analysis
(Equimax Rotation Factor Loadings)
4th & 5th Grade LCH Post Questionnaire

Factor 1 Risk Behaviors		Factor 2 Communication		Factor 3 Respect		Factor 4 Lakota Identity		Factor 5 Conflict Resolution		Factor 6 Self-Esteem	
Q24	0.180	Q7	0.042	Q8	0.104	Q21	0.118	Q9	0.023	Q10	0.027
Q25	0.227	Q14	0.026	Q11	0.070	Q22	0.178	Q12	0.387	Q20	0.053
Q26	0.195	Q15	0.036	Q16	0.103			Q13	0.103	Q23	0.015
Q27	0.270			Q19	0.061			Q18	0.267		
Q29	0.224			Q31	0.118			Q28	0.106		
Q30	0.201										

Table 4
Independent Test of Factor Means
2010-11

Factor		n	M	SD	t	p	Cohen's d
Risk Behaviors	Pre	338	0.47	1.67	-1.33	0.184	0.109
	Post	272	0.67	2.00			
Communication	Pre	334	5.77	1.79	-2.41	0.016*	0.196
	Post	278	6.12	1.79			
Respect	Pre	329	8.10	2.11	0.18	0.856	0.0137
	Post	270	8.07	2.28			
Lakota Identity	Pre	337	10.71	3.43	0.25	0.801	0.0205
	Post	272	10.64	3.40			
Conflict Resolution	Pre	329	9.08	1.60	-1.36	0.175	0.111
	Post	270	9.27	1.81			
Self-Esteem	Pre	328	7.05	1.05	-0.21	0.832	0.0199
	Post	272	7.07	0.954			

*p<0.05, two-tailed

Table 5
Independent Test of Factor Means
2011-12

Factor		n	M	SD	t	p	Cohen's d
Risk Behaviors	Pre	271	8.86	3.45	-3.58	0.0001**	0.314
	Post	235	7.91	2.52			
Communication	Pre	271	7.30	1.74	7.99	0.0001**	0.723
	Post	235	8.80	2.36			
Respect	Pre	271	11.90	2.37	11.57	0.0001**	1.026
	Post	235	14.27	2.25			
Lakota Identity	Pre	271	4.68	1.22	6.49	0.0001**	0.576
	Post	235	5.32	0.99			
Conflict Resolution	Pre	271	14.45	2.63	5.88	0.0001**	0.525
	Post	235	15.89	2.85			
Self-Esteem	Pre	271	5.59	1.19	7.89	0.0001**	0.695
	Post	235	6.50	1.42			

**p<0.001, two-tailed

Table 6
Independent Test of Factor Means (Treatment Group)
2012-13

Factor		n	M	SD	t	P	Cohen's d
Risk Behaviors	Pre	422	6.46	2.33	-3.74	0.0001**	0.258
	Post	375	5.96	1.45			
Communication	Pre	422	8.81	2.26	4.09	0.0001**	0.288
	Post	375	9.46	2.26			
Respect	Pre	422	14.31	2.09	3.57	0.0001**	0.253
	Post	375	14.85	2.17			
Lakota Identity	Pre	422	5.19	0.95	3.60	0.0001**	0.254
	Post	375	5.44	1.02			
Conflict Resolution	Pre	422	11.26	2.53	4.35	0.0001**	0.309
	Post	375	12.04	2.51			
Self-Esteem	Pre	422	6.42	1.11	4.92	0.0001**	0.349
	Post	375	6.82	1.18			
	Post	375	6.82	1.18			

Table 7
Independent Test of Factor Means (Comparison Group)
2012-13

Factor		n	M	SD	t	p	Cohen's d
Risk Behaviors	Pre	97	6.33	1.08	0.46	0.644	0.0619
	Post	129	6.43	2.01			
Communication	Pre	97	8.58	2.38	-0.73	0.464	0.0985
	Post	130	8.35	2.29			
Respect	Pre	96	14.06	2.20	0.43	0.668	0.0454
	Post	132	14.16	2.21			
Lakota Identity	Pre	96	5.18	1.01	-0.34	0.734	0.0539
	Post	127	5.13	0.839			
Conflict Resolution	Pre	94	11.59	2.60	-1.04	0.301	0.144
	Post	129	11.24	2.24			
Self-Esteem	Pre	95	6.15	1.09	0.73	0.464	0.0952
	Post	131	6.25	1.01			

As noted each of the factors are composed of a set of individual items that contribute to the calculation of a mean score. From year to year some of the items showed improvement which was significant while the opposite might be true another year. For example, in the Risk Behaviors there was a small increase in the number of students reporting smoking in the past 30 days, from 8.2% to 10.0% in the first year. This was not a statistically significant change [$p < 0.413$]. In the second year, there was a small increase in the number of students reporting smoking in the past 30 days from 4.2% to 5.7% [$t(766) = 1.60$, $p < 0.109$]. Again, this was opposite of expectations and not statistically significant at the alpha 0.05 level. In the third year, there was a decrease in the use of tobacco from pre- to post-assessment of 5.2% to 4.5%. Although this item is not statistically significant [$t(779) = -1.04$, $p < 0.299$], it did contribute to the overall positive change for this factor. Similar patterns of item responses can be found throughout the study. Other items showed consistent improvement over the three year period. There was a statistically significant decline in gang participation of 11.7% reported by LCH participants over the 3-year period. The percentage of students reporting not getting into a fight in the past 30 days declined by 11.2% from year 1 to year 3.

When asked about practicing Lakota traditions, about half of the students had participated in a pow wow in the spring and many others plan to go to at least one pow wow this summer.

There were at least two boys and girls from each focus group who said that they danced in the pow wow and had full regalia. Some of the children spoke of the crafts and art that they were doing as part of the Lakota practices and how they enjoyed these activities. At the end of each year, educators and community members who had been involved directly or indirectly with LCH were asked to complete the **Lakota Circles of Hope Educator and Community Assessment.** The number respondents averaged about 40 individuals answering a series of 15 questions. Eighty percent of respondents were female and 74.4% were classroom teachers.

In 2012-13, 87.0% of the respondents believed that the lessons contained a high level of knowledge about the Lakota values and traditions. Eighty-eight percent believed that the lessons were presented with good information about substance use and its effect on a person's health. Over 90% of the respondents believed the program is very good and more time could be dedicated to teaching the program.

In all the schools, the students were active participants in LCH. This is consistent with over 95% of the respondents who reported that the children were highly engaged in the activities. Although there was some fluctuation each year in the level of engagement, all the teachers believed that the students gained from the experience and knowledge about making healthy decisions from one or more of the lessons.

Discussion

The goal of this study is to determine if the Lakota Circles of Hope program has any impact on the participants in regard to their identity, communication with adults and parents, and avoidance of risk behaviors. In the first year of this study there were no significant changes noted between the pre- and post-data collections points except for communication for the 4^{th} and 5^{th} grade participants. After analysis of the data and interviewing of the staff, it was determined that there was a lack of fidelity in the delivery of the lessons. Three different instructors were responsible for teaching the lessons, but there was no control for the adaptations made to the lessons and delivery dosage.

Therefore, fidelity monitoring logs for each lesson were designed in collaboration with the researcher and staff. After completing each lesson, the instructor was required to complete the log and to record any adaptations of a lesson. Additionally, a 10-item observation form was designed to document an independent observation of at least 10% of the lessons delivered during the year by each instructor. The observation results were shared with the instructor to assist in the improvement of lesson implementation and fidelity to the program and lesson design. Program theory supports this action if desired outcomes are to be achieved by fulfilling the key program components specified for a specific program model (Zvoch, 2009).

As a result of implementation of a fidelity and observation protocol, the second and third years' data show statistically significant changes from pre- to post-questionnaire administration in all six factors. Program adherence strategies have been examined and shown to make a difference in program delivery, effectiveness, and achievement of expected outcomes (Dane & Schneider, 1998; Kalafat, Illback & Sanders, 2007; McGrew et al., 1994; McHugo et al., 1998). When the data was disaggregated by grade level, the same significant changes were noted. Although, the percentage of change from pre and post were not high percentages, the change was positive and significant. When the analyses were performed on the comparison group, none of the factors showed a significant change. The direction of change for each factor was opposite of the expectations.

In answer the research question "Do the children completing LCH show an improved understanding of the Lakota values, traditions, and practices?" The findings related to the **Lakota Identity** construct supported a positive change for the participants. The participants were able to demonstrate their understanding of these values and integrate them into the activities and stories shared during the lessons. In year 2 and year 3 students reported a positive increase in the percentage practicing their Lakota traditions at a rate of 54.1% and 48.5% respectively.

The **Risk Behaviors** construct provided feedback on how participants answered the research question "Do the children completing LCH show an understanding of the health impediments caused by the use of alcohol, tobacco, and chemical substances?" For example, in the area of tobacco use the results show no significant change in the first year, but significant changes are noted in the second and third years of program implementation. Although this item is not statistically significant [$t(779) = -1.04$, $p < 0.299$], it did contribute to the overall positive change for this factor.

The **Conflict Resolution** construct answered the research question, "After completing LCH, will the participating children be able to resolve conflicts using learned skills and techniques?" There were a number of positive social behaviors that were measured during the implementation of LCH related to conflict resolution. Being able to say no relates to being able to say no to gang membership (a decline of 11.7%)and getting into fights (a decline of 11.2%) as previously noted in the Results. The LCH lessons provided the background knowledge necessary for children who were having conflicts to meet and resolve them. The results show that many students were able to obtain the skills necessary to prevent escalation into physical fights and bullying (Nelson, Martella, & Marchand-Martella, 2002).

In answering the research question, "After completing LCH, will the participating children have improved self-esteem and self-efficacy qualities?" the Self-Esteem factor was found to change significantly in Year 2 and Year 3. The identity (self-esteem) construct is "associated with the theory of identity development emerging from studies of how children establish their identities across different social contexts, cultural groups, and genders" (Catalano et al., 2004). Having a clear

and positive identity is a critical component for any prevention program and thus was embedded as part the LCH program objectives. The results show that participants felt more positive about themselves, were proud to be Lakota, and believed their bodies to be sacred. The cultural components to LCH enhanced the personal value of their lives and the importance of making healthy decisions that preserved the integrity of a person. For youth of color, the development of positive identity and its role in healthy psychological functioning is closely linked with the development of ethnic identity (Plummer, 1995; Phinney, 1991).

The **Communication** construct was used to answer the research question "After completing LCH, will the participating children have improved communication skills with their parents, elders, and other trusted adults?" The students were asked if they communicated with their parents and other adults by sharing their problems, asking questions, or just listening to their advice and stories. In all three years, there was an improvement in the communication level between child and adult. The implications for these findings are consistent with studies that found a link between active communication and behavioral outcomes (Kegler et al., 2002) which included abstinence from smoking, alcohol, and other chemical substances. Additionally, students were able to establish a trust bond so that they could share their personal experiences, problems, and resolutions especially from peers.

Conclusion

The Lakota Circles of Hope is in its fifth year of implementation. This 3-year study documents the effectiveness of program in helping preadolescent youth gain skills, knowledge, and competencies to address the challenges facing them in their development. The program involved the creation and design of the curriculum using a team of Lakota educators and curriculum expert who had taught on both the Pine Ridge and Rosebud Indian Reservations. The team was able to design a curriculum that was based on previous Lakota values based curricula for middle and high school students, current research, and best prevention pedagogy. Each of the lessons were piloted on two reservations to determine what modifications and adjustments needed to be made to make it age and grade appropriate and deliverable in a specific time frame. The addition of the fidelity monitoring steps in the third year provided an element critical for implementation of a program that does make a difference. The combination of evidence-base curriculum design and assessment of the lessons resulted in a curriculum that was to be fully implemented in the past four years of the project. The results of the study show that a program like LCH can provide tools for reversing the distorted view and negative behaviors which will have a meaningful impact on later negative outcomes regardless of the child's environment, e.g., poverty and reservation life.

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