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Native American Children and Their Reports of Hope: Construct Validation of the Children's Hope Scale

Joanna O. Shadlow · Richard E. Boles ·
Michael C. Roberts · Lauren Winston

Abstract Child reports of hope continue to be utilized as predictors of positive adjustment; however, the utilization of the hope construct has not been assessed within the culturally diverse Native American child group. The present study investigated the applicability of the Hope theory among 96 Native American children in the Midwest. Measures included the Children's Hope Scale and a Hope Interview. Native American children in the current sample appear to conceptualize hope as a way to reach goals as did the children in the normative sample. Results from the factor analysis demonstrate that the factor structure found in the current study was similar to the factor structure found in the standardization sample. Because of the similar Hope theory conceptualization and factor structure, interventions focused on the positive psychology construct of hope may be applicable within a Native American child population.

Keywords Hope theory · Native American children · Factor analysis · Children's Hope Scale

J. O. Shadlow (✉) · L. Winston
Department of Psychology, The University of Tulsa, Tulsa,
OK 74104, USA
e-mail: joanna-shadlow@utulsa.edu

R. E. Boles
Department of Pediatrics, University of Colorado Anschutz
Medical Campus, Aurora, CO, USA

M. C. Roberts
Clinical Child Psychology Program, The University of Kansas,
Lawrence, KS, USA

Introduction

The literature on mental health and Native American youth is mixed, but suggests that in comparison to other ethnic minority youth, Native Americans are at greater risk for experiencing trauma and developing emotional and behavioral disorders. Specifically, compared to individuals of other minority groups Native American children are exposed to higher rates of domestic violence, are more likely to live in poverty, are more likely to abuse illegal substances, and have higher suicide rates (Brave Heart and DeBruyn 1998; Nebelkopf and Phillips 2003; Yoder et al. 2006; Sarche and Spicer 2008). Oetting et al. (1989) discovered that Native American youth between the ages of 12 and 16 were more likely to abuse alcohol if they felt that their families did not care about them, were unsatisfied with school, and had less hope for the future. In addition to an increased set of risk factors, several protective factors have been identified that may safeguard Native American individuals from the development of negative mental health outcomes. And fortunately, child development researchers continue to realize the importance of developing a science that focuses less on negative qualities and instead centers on building existing human strengths (Snyder and McCullough 2000). These researchers are utilizing positive psychology constructs in an attempt to identify predictors to positive adjustment. Overall, research suggests that hopeful individuals, view obstacles as challenges, consider alternative goals when the original goal no longer exists, and are less negative in their emotional reactions when goals are blocked (Snyder 1994, 1996). In general, adolescents with high hope appear to be at a decreased risk for experiencing internalizing problems when confronted with stressful life events (Valle et al. 2006). Marques et al. (2013) examined the relationship

between hope and life satisfaction overtime and found evidence to support that hope predicted life satisfaction at 6 months and 1 year. Recent research conducted by O'Keefe and Wingate (2013) suggests that in Native American adults, increased levels of hope and optimism was related to less suicidal ideation. Throughout the minority youth literature, hope continues to be seen as a positive human strength that should be fostered and enhanced.

The theory of hope used in the present study is considered one of the most recognized formulations of hope and was primarily developed by Snyder et al. (1991). Snyder et al. (1991) hypothesized that hope is fueled by *agencies* and influenced by *pathways*. The agency component is "the cognitive willpower or energy to get moving toward one's goal" and the pathway component is "the perceived ability to generate routes to get somewhere" (Snyder 1995, p. 355). The final component, goals, are considered the anchors of the theory and conceptualized as being attainable through pathways and agency thoughts. Children who report high levels of hope can visualize ways to achieve their desired goals (i.e., pathways thinking) and can initiate and sustain efforts that they apply to reaching these goals (i.e., agentic thinking). Recent research has shown that improving hope levels in students is linked to increased feelings of self worth and life satisfaction (Marques et al. 2011).

Working from this theory of hope, Snyder and his colleagues' developed a framework for measuring hope with adults, adolescents, and children. Snyder et al. (1997) specifically developed the Children's Hope Scale to measure hope in children younger than 16. Prior studies have reported acceptable reliability across several samples of children on the overall construct of hope with Cronbach alphas ranging from .72 to .86 (Snyder et al. 1997) and test–retest correlation of .71 and .73 was found over a 1-month period. Convergent validity estimates for the Children's Hope Scale have been demonstrated with positive correlations among various measures including self-perceived competence, physical appearance, and self worth (Snyder et al. 1997). Further, research assessed the validity of the pathways and agency items. Snyder et al. (1997) reported pathway items and agency items loading heavily on separate factors and accounting for 32.5 and 25.9 % of the variance. In the standardization sample, no significant mean differences where found across gender or racial groups (Snyder et al. 1997), however, the standardization sample only included Caucasian, Hispanic, and African American groups. Thus, the Children's Hope Scale was designed for research on all children regardless of gender, race, or their current life situations. Recent research conducted by Edwards et al. (2007) examined the factor structure of the Children's Hope Scale within a study of Latino youth. The authors specifically investigated the

hope construct within the Mexican American (English-speaking) youth in the sample and found similar factor structures as in the normative sample (Snyder et al. 1997) and evidence for construct validity as positive correlations were found with measures of positive affect (e.g., life satisfaction, optimism) and uncorrelated with negative affect (e.g., sad, upset). Currently, only one study has applied the hope theory and scale to Native American children (Callahan 2000) and to date, no studies have investigated the factor structure of the Children's Hope Scale within a Native American child population.

As Lopez et al. (2000) stated, "the cross-cultural applicability of hope measures need to be considered very carefully because the development and validation research for the measures has been based on samples generally lacking diversity" (p. 73). Callahan (2000) reported that hope levels were significantly different among children from different cultural groups. On the contrary, Snyder et al. (1997) indicated that no racial differences were found in hope levels with children from different minority groups (e.g., African American, Caucasian American and Hispanic American). Unfortunately, researchers often have based these lack of differences solely based on reports of ethnicity without investigating the degree to which those in each group actually share a common theme or view point on certain constructs.

Research measuring hope within Native American samples remains limited by construct validation. Different cultures may comprehend and evaluate constructs such as hope differently depending upon cultural values. For example, Holt and Reeves (2001) examined the "meaning of hope" in a small village in the Dominican Republic. Holt and Reeves (2001) posited that although studies have found evidence of a relationship between hope and health (Miller 1992; Herth 1989) these studies have been conducted without any reference to ethnic or cultural diversity; therefore only presuming that there actually is a universal belief regarding the definition of hope. Holt and Reeves (2001) interviewed many of the villagers and coded their responses to the interview, for the presence of categorical content. In conclusion, Holt and Reeves (2001) found that themes regarding getting energy in order to work and achieve surrounded the discussion of hope within this small Dominican village. Holt and Reeves (2001), similar to Snyder et al. (1991), found that the definition of hope contains contents such as a desire or positive outlook for the future, a goal or desired outcome, and typically is a description of an energized personal state. However, unlike Snyder et al. (1991), Holt and Reeves (2001) report that in this remote Dominican village, hope was inseparable from their faith in God and tie to cultural values.

Unfortunately, there is sparse research in the area of universal concepts among various cultures, and researchers who generalize findings usually exclude cultural variables

and presume that the psychological constructs developed, applied, and tested using primarily European American samples, are universal (Jackson 2003). Investigators have argued that, "the universal approach is not generally useful for explaining outcomes among people possessing diverse cultural attachments" (Jackson 2003, p. 381). Outcome research may have limited generalizability when concepts are assumed to be universal across cultures. Research conducted by Zvolensky et al. (2001) demonstrated that the Anxiety Sensitivity Index Scale was applicable across a homogenous group of Native American university students and a Caucasian sample based on similar factor analytic structures. Researchers continue to encourage examinations of the applicability and appropriateness of psychological constructs, including the hope theory, and the Children's Hope Scale across cultures (Lopez et al. 2000).

Understanding hope within the Native American population may be particularly important because of the continued economic (e.g., poverty) and social (e.g., prejudice) barriers that many Native American people still face. Weaver and Brave Heart (1999), in an investigation of individuals from the Lakota tribe, discovered high rates of physical and sexual abuse as well as negative views of past historical experiences (e.g., boarding school, relocation), which appeared to have impacted self-reports of Native American identity and self-image. Thus, past historical experiences and modern day stressors that Native Americans endure may influence the development and maintenance of hope over time (Callahan 2000). Lopez et al. (2000a, b, c) further suggests that cultural factors such as the presence of prejudice, stereotyping, socioeconomic and environmental factors may influence levels of hope. They further emphasized how relevant cultural variables may be in the preservation and development of hope. With regard to Native Americans, Lopez et al. (2000) have also suggested that hopeful thinking within the Native American population may likely be fueled by a desire to remain connected to many cultural traditions despite the numerous obstacles that Native Americans have faced and continued to encounter. In general, regarding the Native American population, hope appears to be related to central values such as harmony and connectedness. Specific to a child population, youth who are members of an ethnic minority group, have the additional task of overcoming obstacles on the path to developing a strong, healthy bicultural identity (Phinney 1990). Hope theory at its core, posits that higher levels of hope reflect a raised sense of cognitive energy, which increases the ability to overcome barriers and obstacles in order to reach a goal.

However, to date, no published studies have analyzed how Native American children interpret or perceive the definition of hope. Therefore, it is impossible to determine if the hope theory is compatible with Native American perceptions of hope, or whether the Children's Hope scale as devised, is applicable to Native American children. To ensure that future researchers can accurately and ethically use the Children's Hope Scale within Native American child samples, the construct of hope must be further validated.

Certain aspects of the concept of hope have been considered universal (Holt and Reeves 2001; Snyder et al. 1997). Using interviews with Native American children, this study aimed to explore reported responses in relation to the constructs within Hope Theory. Specifically, we examined Native American children's responses to the Hope Interview to identify themes similar to the Hope Theory (e.g., career aspirations, educational objectives). Further, because previous research (Snyder et al. 1997) has suggested that there are no ethnic differences in the factor structure of the Children's Hope Scale, it is hypothesized that the Native American children's responses to the Children's Hope scale in the present study will load on the same two-factor hope model similar to the previous validation study (Snyder et al. 1997).

Method

Participants

Participants in the analysis included 96 Native American children (57 females and 39 males) and parents from the Midwest. The participants represented 37 different tribes often in combinations. The majority of tribal affiliations were from Midwest tribal areas (e.g., Osage, Cherokee, and Lakota). Ages of the participants ranged between 8 and 14 years, with a mean of 10.52 years ($SD = 1.8$). All participants had one Native American parent or guardian participate.

Measures

Child Measure

Hope Interview The Hope Interview used in the present study was adapted from a 12 question interview Holt and Reeves (2001) developed to explore the concept of hope in children and adults living in the Dominican Republic. The first two questions ("Tell me about your hopes?" and "Is hope important to you? Why?") were selected from the original interview to provide qualitative responses in exploration of the construct of hope. The remaining ten questions assessed information ranging from "how do you help others hope" to "does hope or lack of hope change your health" and were not considered relevant to the present study objectives (Holt and Reeves 2001 p. 130).

The children's responses were written down verbatim by the primary investigator.

Children's Hope Scale The Children's Hope Scale (Snyder et al. 1997) is a six-item self-report questionnaire used to measure the child's level of hope according to Hope Theory. The total level of hope is a sum of two subscales: pathways and agency, each comprised of three questions. A sample pathways items is "I can think of many ways to get the things in life that are most important to me," and an agency item "I am doing just as well as other kids my age." Children respond to items on a six-point scale ranging from *none of the time* to *all of the time*. Total scores can range from six to 36. A score of 29 or higher indicates high hope and a score of 21 or lower indicates low hope (Snyder et al. 1997). The Children's Hope Scale has demonstrated satisfactory reliability and validity among 8–16-year old child populations. The Children's Hope Scale validation study reported a median Cronbach α of .77 (Snyder et al. 1997). The test–retest correlation was positive and significant at .71 over a 1-month period. The validation study found strong support for concurrent validity as the Children's Hope Scale positively and significantly correlated with Harter's Self Perception Profile for Children (SPP-C; 1985). The current sample indicated an alpha reliability of .64 for Agency and .46 for Pathway.

Parent Measure

Demographic Form Parents completed a demographic form on their child's age, gender, tribal affiliation, and grade level.

Procedure

Participants were recruited from the Midwest region at group meetings/events, by letter, or flyer. Participants were recruited via (1) Native American dance groups, (2) public schools Indian Education Offices, and (3) tribal basketball summer camps. Recruitment sites were identified as locations where participant's likely meeting study eligibility requirements could be found. All participants self-identified themselves as Native American and had to present a Certificate of Indian Blood (a minimum percentage of blood quantum was not utilized in the present study) in order to participate in the programs where participants were recruited, excluding the Native American dance participants who were not required to present a Certificate of Indian Blood to be part of the group. A Certificate of Indian Blood is an official US document given to individuals from federally recognized tribes. All obtained information was kept confidential and was only used for research purposes, and no individual or identifying information was presented publicly.

After being informed of the study, parents were able to provide their contact information. They then were contacted by telephone and provided with more information. Parental consent and child assent were received before completion of study measures. Parents completed the demographic measure while children were read the items from the Hope Interview and Children's Hope Scale to aid in completion. Data collection took approximately 10-min per child. The parent or guardian was given $5.00 for participation. Additionally, the children were allowed to pick a small prize for participating in the study. An Institutional Review Board approved all procedures.

Results

The statistical analysis for the present study consisted of three phases. First, descriptive statistics include means and standard deviations for child age and Child Hope score. Second, to determine if the Hope Theory concept is theoretically relevant to the present sample, the Hope Interview participant responses were placed into categories by a primary and secondary coder and kappa coefficients were used to assess reliability of category representation. The categorization of responses to the Hope Interview was conceptually explored in relation to the Hope Theory (e.g., goal directed). Participant responses for each question were grouped into categories and a percentage was calculated and tested using Chi square analysis. Dominant responses were then conceptually compared to Hope theory constructs for theoretical consistency. Third, to examine similarities between the Children's Hope Scale validation study and the present study in terms of factor structure, an exploratory factor analysis was conducted with a requested two-factor model using principle components extraction and varimax rotation (Cattell 1978). Finally, a congruence coefficient was calculated in order to assess the level of shared variance between similar factors across the current and normative sample.

Descriptive Statistics

The initial total sample size of 122 participants included 26 siblings. The current analysis excluded all siblings resulting in a final sample size of $N = 96$. Specifically, each participant from a family with multiple participating siblings was randomly selected using a coin toss. Hope Interview data was available for 91 participants; mean (SD) child years of age = 10.52 (1.5).

The mean Child Hope score for the present sample was 24.47 (SD = 4.83). The normative sample's mean Child Hope score was found to be 25.41 (SD = 4.99) (Snyder et al. 1997). Cronbach's α revealed an acceptable internal

Table 1 Results and frequencies for the Hope interview

	Frequency (N = 91)	%
Question 1: Tell me about your hopes?*		
Category one: Hopes for social welfare and relationships	16	17.6
Category two: Hopes for educations and future goals	50	54.9
Category three: Hopes for material possessions	16	17.6
Category four: Do not know, Nothing	9	9.9
Question 2, part 1: Is hope important to you?*		
Category one: Yes	80	87.9
Category two: No	1	1.1
Category three: Other	10	11.0
Question 2, part 2: Why is hope important to you?*		
Category one: Answers relating to helping reach dreams and goals	53	58.2
Category two: Answers relating to family well-being	6	6.6
Category three: Hope, does not help	1	1.1
Category four: Do not know	31	34.1

* Significant Chi square for category differences within each question, $p = .001$

consistency score of .67, which indicates similar acceptability when compared to the normative sample (.77).

Kappa Coefficients and Chi Square Analyses

To understand Native American children's perception of hope in relation to Snyder's Hope Theory, themes on the children's Hope Interview responses were established through a review of qualitative responses from the qualitative interviews. Based on response content, each child's answers were then placed into subsequent categories. These categories were based on categorical definitions that were created by the principal researcher (Gibbs 2007; see Table 1). Almost Perfect agreement between the primary and secondary coders was obtained with kappa coefficients ranging from .89 to .96, with a mean kappa of .94 (Landis and Koch 1977).

The categorization of responses to the Hope Interview were made to test whether this method results in similar formulation related to the Hope Theory in which goal-oriented thinking is emphasized. One sample Chi square tests were conducted to assess whether the frequency of responses between categories were statistically different for the main questions of interest in this study, Question 1 and 2. These were emphasized in order to determine if hope or goal-oriented answers were consistent with Hope Theory (Snyder 1994). Specifically, in the Hope Interview

Table 2 Two factor solution for normative sample (N = 372)[a] and Native American sample (N = 96) for the Children's Hope Scale

Item no.	Item	Child Hope	
		Agency	Pathway
1	I think I am doing pretty well	.71[b] (.85)[b]	.17 (.09)
2	I can think of many ways to get the things in life that are most important to me	−.03 (.02)	.91[b] (.85)[b]
3	I am doing just as well as other kids my age	.71[b] (.74)[b]	.10 (.28)
4	When I have a problem, I can come up with lots of ways to solve it	.67[b] (.32)	−.02 (.52)[b]
5	I think the things I have done in the past will help me in the future	.55[b] (.64)[b]	.32 (.21)
6	Even when others want to quit, I know that I can find ways to solve the problem	.44 (.41)	.59[b] (.65)[b]

[a] Numbers in parenthesis are for the normative sample. Agency variance accounted for by the present factor was found to be: 38.2 % (normative sample: 32.5 %). Pathway variance accounted for by the present sample was: 16.2 % (normative sample: 25.9 %)

[b] Highest loading

when the children were asked what they hope for, 55 % of children responded with an answer implying some type of educational or future goal. This Chi square was statistically significant, χ^2 (3, $N = 91$) = 44.96, $p = .001$. Eighty-eight percent of the participants reported that hope was important to them. When queried as to why hope is important, 58 % stated that it helped them achieve things, such as a dream or goal. The results of the Chi square for this question was significant, χ^2 (3, $N = 91$) = 76.34, $p = .001$.

Factor Analysis

In order to test the acceptability of a factor model, a Bartlett's test of sphericity was first conducted and found to be acceptable ($p < .001$). Given the present theoretical position that Hope is comprised of two factors (Agency and Pathway), an exploratory factor analysis was conducted with a requested 2 factor model using principle components extraction and varimax rotation. The item loadings (as well as normative sample item loadings) are presented in Table 2. Principle components extraction was chosen as the first structural test to identify items that may indicate poor performance in loading on existing constructs (e.g., Agency or Pathway). Varimax method for rotation was chosen based on an orthogonal relationship between components. Inspection of loadings revealed all but one item loaded according to prior hypothesized factor structures (Snyder et al. 1997).

Additionally, a congruence coefficient (a standardized assessment of the proportion of items between factors) was calculated in order to assess the factor similarity across the current and normative sample (Lorenzo-Seva and ten Berge 2006; see Cattell 1978 for review). The congruence coefficient provides a comparison statistic between factor analytic studies, in which interpretation is similar to a correlation coefficient (i.e., perfect agreement = 1.0 and scores approaching 0.0 indicate less agreement). Using a criterion cutoff of acceptable coefficients >.90, the data revealed an Agency factor congruence coefficient score of .96 (Cattell 1978). The Pathway factor, however, revealed an unacceptable congruence coefficient score of .88 across samples. However, additional criteria have been reported in which a cut-off criterion for "fair" similarity was .85 through .94 (Lorenza-Seva et al. 2006).

In order to further evaluate the fit of the current two factor solution with the normative sample, a non-parametric analysis of the item loadings was conducted by calculating the s-index for each factor across the two comparative samples (Gorsuch 1988; Cattell 1978). Similar to the congruence coefficient, the s-index provides a factor similarity measurement statistic. Specifically, a matrix is first formed using a frequency count of item loadings classified into three categories: (a) positive salient variables, (b) hyperplane variables, and (c) negative salient variables. A liberal criterion cutoff value for each category was set at ±.20, given the relatively small sample size.

Positive salient variable loadings were counted when both loadings for the same item across samples were >.20. Hyperplane variables (i.e., those item loadings near a chance loading of 0) were counted when both item loadings were within a ±.20 level across the two samples. Lastly, negative variables were counted when an item loading was positive on one and negative on the other, both >±.20. An s-index score is then calculated from the obtained frequency scores across all three variable categories. This score can range from a positive 1 to negative 1 (indicating perfect agreement or a perfect reflection of the factor, respectively) and a score of 0 suggests only chance agreement (Cattell 1978). A perfect agreement score of 1.0 was found for the Agency factor ($p < .001$) and .75 ($p < .001$) for the Pathway factor.

Discussion

As hypothesized, the majority of children in this sample responded to the Hope Interview with questions emphasizing goal-oriented answers, similar to the development of the Hope Theory. This finding suggests that the Hope Theory (Snyder et al. 1991), used primarily with European American populations, is also applicable to the Native Americans in this sample, further validating the original construct of Hope (Snyder et al. 1997). In addition, results of the current study are similar to recent validation studies of the Children's Hope Scale with Mexican and Portuguese youth (Marques et al. 2009; Edwards et al. 2007).

In agreement with the second hypothesis that no ethnic differences are expected, the two-factor structure of Children's Hope scale, found in the normative sample, was supported within this sample of Native American children. However, one caveat to this interpretation is that the two-factor structure was not perfectly congruent to normative findings. Specifically, in the Native American sample, Agency appeared to be a more stable construct than pathways due to the perfect agreement with normative findings, and with all items measuring Agency loading accordingly. The lower congruence of the pathways construct in the Native American sample was due to the finding that only two of the three items loaded according to prior hypotheses (Snyder et al. 1997). This may reflect a number of contributing factors, such as cultural differences between Native American children and those in the normative sample. For example, it may be likely that Native American children are similar to children in the normative sample in Agency thoughts such as feelings of energy or motivation, but may be less similar in Pathway thoughts (e.g., a sense of being able to use specific strategies to reach a goal) as a result of a familial history of discrimination or prejudice. A review of the literature by Baumesiter et al. (2003), suggests that there is likely a relationship between discrimination and decreased initiatives.

A confirmatory factor analysis between the normative and Native American sample would be necessary to fully examine whether Native American hope is supported by a two-factor construct, as it is for the normative group. Obtaining a significantly larger Native American sample, equal to or greater than the normative sample, may offer more salient findings regarding Native American children's hope. Cross-cultural validation of the Children's Hope Scale can increase the understanding of Native American children's hope in comparison to children from other cultural or ethnic groups. Validation research, which includes Native American adults, can highlight any similarities or differences between adults and children, and further the understanding of how hope is generally manifested in the Native American population as a whole.

Future researchers will want to increase the sample size and assess for level of acculturation in order to test further hypotheses. The current study also had a relatively small sample size thus limiting our generalization to other samples of Native American children as well as an ability to test a model using confirmatory factor analysis. In addition to increasing the sample, improving recruitment strategies to include tribal groups outside the Midwest (e.g., Southwestern

tribes) would allow for an investigation into specific cultural beliefs and practices that may influence the conceptualization of hope. In the larger scope of hope research, exploratory analyses (similar to the present study) of groups underrepresented in the normative sample are necessary to determine whether this two-factor construct of hope is consistent across cultures. Further, larger diverse samples can allow more sophisticated tests such as factorial invariance to directly validate the Hope construct across cultures.

Additional investigation is needed into acculturation status and ethnic identity of participants in order to determine if this might play a role in ratings of hope. Past research has demonstrated a relationship between ethnic identity, hope, and academic achievement in African American youth (Adelabu 2008). Although all participants in the current study identified themselves as Native American and evidence of cultural identity exists because of the participant's involvement in native dance groups and tribal sports, culture and ethnic identity was not measured formally. Future research would benefit from a more formal assessment of participants identification with Native American culture and tradition. Responses to the Hope Interview as well as the Children's Hope Scale may be influenced by how great an individual identifies with mainstream culture versus their culture of origin.

The potential impact on policy is also important to note. Past policies have focused on weaknesses versus empowering Native Americans to discover their cultural strengths and build upon them. This study suggests that certain strategies for intervention in regards to increasing hope levels similar to the intervention developed by Lopez et al. (2000) may be applicable within Native American child populations. Changes to interventions with Native Americans may need to be discussed, specifically relating to the development of interventions that are based on culturally relevant strengths. For example, interventions that are focused on decreasing depression within Native American youth should incorporate cultural experiences (e.g., sweats, powwows, creative arts) that may increase hopeful thinking. Future research to investigate the effectiveness of this type of culturally based intervention within Native American child populations will be beneficial. Recent research has suggested that these culturally relevant interventions are proving to have merit (Belgrave et al. 2004; Rubie et al. 2004).

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