

NORTH DAKOTA'S NURTURING PARENTING PROGRAMS: AN EXPLORATORY
EVALUATION USING MULTILEVEL MODELING

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North Dakota's Nurturing Parenting Programs: An Exploratory Evaluation
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ABSTRACT

Parent education is a common form of tertiary prevention of child maltreatment. The Nurturing Parenting Programs (NPP) include tertiary prevention programs, and general support exists for their effectiveness. However, the role of contextual factors has not been adequately examined and Native Americans have largely been excluded in the literature. The present study examines the role of individual and contextual factors in explaining attitudinal outcomes and explores outcomes for Native American participants.

Data in the present study come from three consecutive years of NPP in the state of North Dakota. A total of 508 participants attended programs across nine sites; 303 completed baseline and follow-up assessments. Programs comprised either 15 or 16 weekly sessions.

In several attitudinal constructs from the AAPI-2, Native American participants experienced a slight decrease, meaning their risk of engaging in maltreatment increased slightly. Educational attainment and experiences of childhood abuse were identified as predictors of attitudinal outcomes.

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DEDICATION

For my mother. Thank you for breaking the cycle.

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INTRODUCTION

Decades of research on child abuse and neglect reveal myriad acute and long-term problems associated with child maltreatment. Though prevention of maltreatment before it occurs is ideal, in reality many at-risk families do not receive preventative services, or additional services are required because primary and secondary prevention efforts have been unsuccessful. To address the needs of families involved in child protective services in North Dakota, the North Dakota Department of Human Services has been using the Nurturing Parenting Programs (NPP, Family Development Resources, 2011), a collection of programs developed to prevent and correct child maltreatment.

The purpose of the present study is twofold: first, to investigate outcomes for Native American participants; second, to determine which combination of individual and contextual variables best predicts outcomes for all North Dakota participants. The following sections detail literature on the use of parent training programs to address child maltreatment, including a thorough examination of research on NPP. Special concerns regarding the use of NPP in North Dakota's Native American communities are also considered.

Addressing Child Maltreatment through Parent Training Programs

Child maltreatment encompasses physical abuse, sexual abuse, neglect, and psychological abuse (Gilbert et al., 2009). Nearly one million children are victims of maltreatment in the United States each year, and the annual economic burden of maltreatment is estimated to be over 100 billion dollars (Wang & Holton, 2007). Children who are maltreated can experience a range of negative outcomes including social and emotional difficulties, physical injury, and death (Gilbert et al., 2009). Results from the national Adverse Childhood Experiences Study (e.g. Dube et al., 2003; Felitti et al., 1998) suggest that maltreatment is likely to co-occur

with other risks which interact in a factorial manner to increase risk for major causes and correlates of mortality during adulthood, including substance abuse, depression, obesity, heart disease, cancer, and liver disease. Advances in epigenetics in recent years have illuminated some of the mechanisms by which early adverse experiences contribute to chronic health problems, establishing causal pathways and underscoring the importance of programs addressing child maltreatment (e.g. Miller, Chen, & Parker, 2011).

When parents become involved with child welfare agencies for suspected or confirmed maltreatment, parent education programs—also referred to as parent training programs—are frequently used as an intervention to reduce risk for subsequent maltreatment (Barth et al., 2005). Many parents who engage in child maltreatment lack effective discipline practices in their behavioral repertoire and have not had sufficient learning opportunities to prepare them for the parenting role (Wolfe, 1985). The use of parent education programs to address child maltreatment is based on the assumption that parents will be less likely to engage in maltreatment if they are given opportunities to develop effective parenting skills and modify harmful practices and attitudes (Lundahl, Nimer, & Parsons, 2006).

Indeed, in both general and at-risk populations, parent training programs have been successful in reducing risk for abuse through skills training and modification of parent attitudes (Lundahl et al. 2006; MacLeod & Nelson, 2000). In particular, the Incredible Years program (Webster-Stratton, 1992) has been successful in reducing risk for maltreatment in child welfare populations (Letarte, Normandeau, & Allard, 2010; Marcynyszyn, Maher, & Corwin, 2011). Incredible Years integrates behavioral strategies (e.g. contingencies) with non-behavioral elements (e.g. communication style), the combination of which has demonstrated effectiveness (Kaminski, Valle, Filene & Boyle, 2008; Lundahl et al., 2006). Despite the existence of

programs representing the gold standard for evidence-based practice, many agencies utilize programs without such a research base. NPP is an example of the latter.

Nurturing Parenting Programs. NPP (Family Development Resources, 2011) is a collection of family-based education programs used to prevent and treat child abuse and neglect in families with varying levels of need. Programs are offered at three standard levels of prevention—primary, secondary, and tertiary. Primary prevention programs target general populations before problems arise; secondary prevention programs target populations at increased risk of engaging in maltreatment before maltreatment occurs; and tertiary prevention programs are treatment programs for families in which maltreatment has already occurred. NPP programs that fall under the category of tertiary prevention include programs tailored for parents of children of particular ages as well as programs for special groups (e.g. culturally-adapted programs). Although specifics of design and curriculum differ by program, most programs are relatively long-term (15 or more weeks) and utilize group and/or individual sessions in which parents and their children participate in separate, concurrent sessions.

The basic foundation of all the programs is the premise that “maltreatment of children can be treated and prevented through the systematic application of programs designed to replace... hurtful patterns of parenting with newer, healthier patterns” (Bavolek, 2011, p.1). The programs are based on cognitive-behavioral approaches that foster awareness and understanding of existing thoughts and behaviors and conscious replacement of old patterns of thought and behavior with healthier alternatives (Bavolek, 2011). There is substantial support for parenting programs that incorporate cognitive-behavioral approaches (Barth et al., 2005).

The programs also rely heavily upon social learning theory, recognizing that abusive and neglectful behaviors are often learned in an intergenerational cycle of maltreatment. Support for

this theoretical orientation dates back to Bandura's famous Bobo Doll studies (Bandura, Ross, & Ross, 1961; Bandura, Ross, & Ross, 1963). More recently, support for a social learning model of intergenerational transmission of corporal punishment was found by Muller, Hunter and Stollak (1995).

Although NPP does not have a research base of the caliber required to be considered on par with programs such as Incredible Years, evidence is accumulating supporting the use of NPP for preventing and addressing child maltreatment. In the following section, the associated research is reviewed.

Review of Research on the Nurturing Parenting Programs

Measuring effectiveness. Most of the support for NPP comes from studies that utilize a pretest/posttest design with the Adult Adolescent Parenting Inventory, revised edition (AAPI-2; Bavolek & Keene, 1999) as the primary assessment tool. The AAPI-2 is used to measure parenting attitudes in adults and adolescents. It is based on "the known parenting and child rearing practices of abusive and neglecting parents," (Bavolek & Keene, 2010, p.1). The original AAPI contained four scales: Inappropriate Parent Expectations; Parental Lack of Empathic Awareness of Children's Needs; Belief in the Use and Value of Corporal Punishment; and Parent-Child Role Reversal. The revised AAPI contains an additional scale, Oppressing Children's Power & Independence. All of the scales measure attitudes and beliefs rather than behavior. Though the measurement of actual behavior is ideal, attitudes and beliefs are less cumbersome to measure and provide sufficient information to infer risk of engaging in child maltreatment.

For example, the use of corporal punishment is strongly associated with attitudes toward corporal punishment. Socolar and Stein (1995) found that belief in spanking was most predictive

of parents' reported frequency of spanking infants and toddlers in the previous week, above the variables of age of child, research site, and history of being spanked as a child. Ateah and Durrant (2005) found approval of physical punishment to be the strongest predictor of parents' use of physical punishment in the previous two weeks, explaining 32% of the variance.

Corporal punishment is strongly associated with negative child outcomes including impaired mental health and externalizing behaviors (Gershoff & Bitensky, 2007), and as many as two-thirds of incidents of physical abuse begin with parent attempts to discipline their children using corporal punishment (Gershoff, 2002). Attitudes and beliefs regarding the use of corporal punishment are strong predictors of parents' actual use of this discipline technique, and the use of corporal punishment clearly puts children at risk of being abused.

Likewise, the other scales of the AAPI-2 are based on attitudes that have been demonstrated to differ systematically between parents who engage in maltreatment and parents who do not (Bavolek & Keene, 2010). In particular, empathic attitudes are important to include when determining risk for engaging in child maltreatment (Rosenstein, 1995). In the development of the original AAPI, abusive parents scored significantly lower than non-abusive parents on the empathy scale, indicating less awareness of and sensitivity to children's needs (Bavolek, 1984). Thus the use of a tool measuring attitudes rather than objective behaviors, although not ideal, is acceptable in assessing risk of engaging in child maltreatment.

Many studies utilizing the AAPI-2 have been communicated via reports issued by social service agencies throughout the country (for a thorough review see Bavolek, 2012). For the last several years in North Dakota, annual reports have been compiled and include analysis of change in each of the five AAPI-2 constructs, with results for combined information as well as site by site analysis of change (Brotherson, Conroy, & Tichy, 2011; Brotherson, Saxena, & Tichy,

2012). These and other reports suggest NPP is effective at increasing parenting knowledge and changing attitudes and beliefs about children and parenting. However, peer-reviewed literature on NPP is sparse.

Peer-reviewed research. Two peer-reviewed studies employing simple pretest/posttest comparison suggest general support for NPP's effectiveness in changing parenting attitudes and beliefs. Cowen (2001) reported on a sample of rural at-risk families in Iowa. A pretest/posttest design using the original AAPI showed significant improvement in all four constructs. Participants' attitudes changed in a way that reflects healthier, more nurturing parent-child relationships. Similarly, a study by Devall (2004) compared pretest and posttest means in a sample of high-risk families from New Mexico, but in this sample the AAPI-2 was used and the sample was more culturally diverse. There were significant gains on all five attitudinal scales. In addition to the AAPI-2, an assessment tool called the Nurturing Quiz was used to assess knowledge of discipline techniques. Parents experienced significant gains in knowledge of effective discipline techniques.

More recently, studies evaluating NPP have investigated the impact of individual-level variables and group membership on outcomes of NPP. Palusci, Crum, Bliss, and Bavolek (2008) analyzed data from a modified version of NPP called "Helping Your Child Succeed." The sample came from five different program groups: a community group for individuals referred through mental health providers; inmates participating in a substance abuse program at a county jail; male inmates participating in an intervention program for batterers; residents at a substance abuse treatment facility; and a shortened, 3-day parenting camp attended by individuals, referred through health providers, who could not attend weekly classes. Men showed greater improvement on the AAPI-2 than women, but had lower scores than women at both pretest and

posttest. Regression analysis models of change in AAPI-2 scores indicated that age of participant, program group, and race were not significant predictors of change in AAPI-2 scores, but gender and number of classes attended were strong predictors in a model explaining approximately 18% of the variance.

Dosage was identified as a source of outcome differences in research by Maher, Marcynyszyn, Corwin, and Hodnett (2011). Using a large sample of caregivers (including nearly all of the parents involved with Louisiana's child welfare system from October 2005 to April 2008), Maher et al. explored the relationship between dosage of NPP and subsequent reports and substantiated claims of maltreatment at six months and two years after participation. Logistic regression was used to investigate the relationship between dosage and reported or substantiated claims of maltreatment, controlling for number of children, caregiver education, age, marital status, income, ethnicity, gender and experiencing abuse as a child.

The number of NPP sessions attended was negatively associated with reported maltreatment at six months, but not substantiated maltreatment, though this relationship approached significance (Maher et al., 2011). At two years following participation, dosage was not associated with reported incidence, but was significantly associated with substantiated incidence. For each session attended, the odds of a substantiated report of child maltreatment decreased by 3.3% when all other variables were held at their mean (Maher et al., 2011). In other models using socio-demographic variables as predictors, the only variable significantly associated with likelihood of substantiated maltreatment was caregiver's childhood experience of abuse by a family member. Those who had experienced abuse by a family member were less likely to have a substantiated report at six months. In response to this finding, the authors suggested the program may be "particularly effective in changing the behavioral patterns of

parents with this particular risk factor, given the premise of the program to target and change learned behavior,” (p.1431).

Limitations of existing research. To date, most evaluations of NPP have utilized pretest/posttest comparisons of participants as an aggregate, and most evaluations have not been reported in the form of peer-reviewed research. Though regression has been used to investigate individual-level predictors of change, contextual factors have not been sufficiently examined.

Child maltreatment is connected to factors that exist outside individuals, particularly contextual features of the surrounding neighborhood or community. Coulton, Korbin, Su, and Chow (1995) explored the relationship between community structural and organizational conditions and child maltreatment in 177 residential census tracts of Cleveland and found impoverishment—a factor composed of poverty rate, unemployment rate, vacant housing, population loss, and family headship (proportion of households headed by females)—to be a strong predictor of child maltreatment. Two other factors that were included—child-care burden and community instability in each of the residential tracts—were also predictive of child maltreatment but were weaker in their predictive value than impoverishment (Coulton et al., 1995). In an analysis of the relationship between poverty and child maltreatment at different levels of geographic aggregation, Aron et al. (2010) found moderate to strong correlations between county-level poverty, as well as tract-level poverty, and child maltreatment.

Garbarino and Kostelny (1992) used multiple regression to investigate the role of community-level factors in explaining substantiated reports of child maltreatment in four target areas of Chicago, containing a total of 113 census tracts. Nine variables, including percentage living in poverty and percentage unemployed, accounted for 79% of the variance in rates of child maltreatment. Perceptions of community climate were examined through interviews with

community leaders. Interviews included questions about neighborhood morale, physical appearance, stability, and general quality of life. Areas with a more negative community climate had higher rates of child maltreatment. The authors concluded that when there is trouble at higher social levels (i.e. neighborhood-level problems), “the tendency is for all the social systems to be pulled down together” (Garbarino & Kostelny, 1992, p. 463).

Although Garbarino and Kostelny (1992) made a substantial contribution to the literature on child maltreatment by documenting the importance of neighborhood characteristics, contextual factors were not used as predictors of individual change. Individuals are situated within broader social systems that impact their development, including their attitudes, beliefs and behavioral patterns (Bronfenbrenner, 1979). Thus it is conceivable that community characteristics might impact individual change over the course of a parenting intervention. The inclusion of contextual factors in the prediction of individual change could help illuminate the need for policy and intervention efforts broader in scope. Multilevel modeling must be used to examine the impact of contextual factors on individual outcomes. To date, no evaluations of NPP have utilized multilevel modeling.

Another major shortcoming in the published literature is a lack of representation of Native Americans, North Dakota’s largest minority group. In addition to lack of representation in samples, no research has investigated the effectiveness of NPP in tribal communities. Though culturally specific adaptations of NPP have been created for some groups, including versions for Christian families and for Hmong families, NPP has not been culturally tailored for Native American populations. The format of NPP allows for some adaptation by individual facilitators, but this does not ensure that the content is culturally appropriate for use in North Dakota’s tribal communities.

As Bridge, Massie, and Mills (2008) note, not only is it part of the National Association of Social Workers Code of Ethics to ensure that programming is culturally congruent, but “implementing any practice model without careful consideration of diversity has the potential for failure and further exploitation of vulnerable consumers, especially racial and ethnic minorities” (p. 1114). For tribal communities in particular, interventions implemented by government agencies may be met with resistance or indifference, which Horejsi, Craig, and Pablo (1992) attribute to the long history of oppressive and disenfranchising actions of government agencies towards tribal communities. Horejsi et al. suggest that this history impacts many Native American parents’ receptivity to services provided by child protection agencies, emphasizing that parenting interventions need to be culturally informed.

In addition to the concerns described above, the Nurturing Parenting Programs may be insufficient for addressing historical trauma. Many Native American individuals and tribal communities experience historical trauma—“cumulative emotional and psychological wounding across generations, including the lifespan, which emanates from massive group trauma” (Brave Heart, Chase, Elkins, & Altschul, 2011, p. 283). The boarding school era, in particular, is one prominent source of trauma identified as particularly relevant to parenting practices.

During the late 19th and early 20th Centuries, the U.S. Government adopted extreme assimilationist policies explicitly intended to destroy Native cultures (Adams, 1995). One of the primary mechanisms for this forced assimilation was the off-reservation Indian boarding school. Many Native parents were coerced into sending their children to off-reservation boarding schools, and Native children were sometimes forcefully removed from the custody of their parents (Adams, 1995; Lajimodiere, 2012). While at the boarding schools, male children had their hair cut short; all children wore uniforms and were required to speak, read and write in

English. Children were subjected to an “aggressive campaign of Christianization,” which included compulsory attendance at Sunday services as well as daily prayers (Adams, 1995, p.167).

Discipline at boarding schools was harsh and militaristic; corporal punishment was standard practice. Severe whipping and beating of students by teachers and other school officials was common (Adams, 1995). Physical and medical neglect, as well as sexual abuse, also occurred at boarding schools (Adams, 1995; Lajimodiere, 2012). Removed from their parents and subjected to multiple forms of neglect and abuse, Native children at the boarding schools had no way of learning appropriate parenting skills. Instead, they learned harmful practices they brought back to their communities, resulting in high prevalence of child maltreatment and the inability to form healthy parent-child attachments—problems that have persisted over several generations (Horejsi et al., 1992).

In her heart-wrenching exploration of her own family’s trauma resulting from the boarding school era, National Boarding School Healing Project researcher Denise Lajimodiere states:

My brother, sister, and I are the first generation of survivors of boarding school horrors and human rights abuses. We’ve all struggled with emotional or drug and alcohol issues, and so have our children. We are trying to break the cycle with our grandchildren. I am only now grieving the unresolved trauma that my parents and grandparents went through. I also have a deeper understanding of why my parents and grandparents parented in the manner they did. Their only parenting model was the strict, military-style corporal punishment they experienced at boarding school, combined with the total lack of love and caring and absolute forbiddance of tribal cultural traditions. (2012, p. 6-7)

As Brave Heart et al. (2011) suggest, shared and unique trauma experiences across generations, including generational boarding school experiences, must be explored as part of culturally responsive interventions. Such interventions must be developed in partnership with specific tribal communities (Brave Heart et al., 2011). Nurturing Parenting may be inadequate for addressing child maltreatment in tribal communities, as it does not explicitly address historical trauma.

Although investigation of the cultural appropriateness of NPP for tribal communities is warranted, it is useful to first explore differences in attitudinal outcomes of NPP on the basis of community membership (tribal vs. nontribal) because NPP continues to be implemented in tribal communities. Investigation of differences in outcomes could help North Dakota's child welfare system determine whether it is appropriate to continue using NPP in tribal communities.

Two research questions are investigated in the present study: 1) Do Native American participants experience attitudinal changes similar to changes experienced by other participants; and 2) Which combination of individual and contextual variables best predicts attitudinal outcomes of NPP for participants in North Dakota? Given the limitations described in preceding paragraphs, the present study makes a substantial contribution to research literature on NPP. The absence of research on the effectiveness of NPP for Native Americans is addressed through the exploration of attitudinal outcomes for Native American individuals in tribal communities as well as Native Americans outside of tribal communities. The role of contextual factors in individual attitudinal outcomes of NPP is examined using multilevel modeling, incorporating poverty and unemployment as community-level predictors.

METHOD

Program

The present study is secondary research using three years of data from NPP in North Dakota. The programs were funded by the North Dakota Department of Human Services. This study focuses on the data from three consecutive years, 2009-2012. In the 2009-2010 year there were seven sites; in the 2010-2011 year there were 10 sites; and in the 2011-2012 year there were 10 sites. In all three years, one of the sites was located within a reservation community. One of the sites added in the 2010-2011 year was located on the edge of a reservation community. Also in the 2010-2011 year, a correctional center for women was added as a site. Information from the correctional center was excluded from the present study, as this site differed from the other sites in several important ways, including a shortened program format and participation on a strictly voluntary basis. Thus nine sites were used in analysis.

The Extension Service of North Dakota State University partnered with agencies throughout the state to implement NPP. There were three ways by which participants entered the program: self-selection, referral by a social service agency, or requirement by a court of law. Exact numbers for referral status cannot be reported as no formal categorization was used. According to the program director for NPP in North Dakota, it is likely that most participants were referred due to being involved with North Dakota's child welfare system; for some participants, involvement may have been required as part of a reunification plan (A. Tichy, personal communication, October 1, 2012).

Participants were enrolled in either the Nurturing Parenting Program for Parents and Their Infants, Toddlers and Preschoolers or the Nurturing Parenting Program for Parents and Their Children 5 to 12 years. The corresponding curriculum manual was used at all sites, with

some modification of specific activities permitted. Both versions used a format of weekly sessions meeting for approximately two hours, with 15 total sessions in the 2009-2010 year and 16 sessions in the following years. For parents, the basic content of each session included discussion, built-in activities (e.g. audiovisual activities accompanying the curriculum), and parenting skills practice (e.g. role-play). For children, sessions involved games, stories, and other age appropriate activities in line with the principles detailed in the curriculum. Some sessions included games in which parents and children interacted. Sessions were small and typically had 3-18 parent participants.

Program facilitators varied in occupational backgrounds and included social service staff and teachers. The level of training among facilitators varied considerably. Some facilitators completed 3 days of training with Dr. Bavolek, designer of and expert on the Nurturing Parenting Programs. Other facilitators attended a training for new staff that was led by an experienced facilitator. No fidelity checks were conducted.

Participants

The data being used for analysis in this study come from participants who completed all sessions and have matched baseline and follow-up assessments. The total number of participants who were enrolled across all three years was 508. Of these 508 participants, approximately 60% ($n = 303$) completed both assessments. Data were provided in the form of a de-identified data set. Approval was obtained from the Institutional Review Board of North Dakota State University prior to data analysis.

The majority (approximately 69%) of the sample was female. The median age was 30 and the mean age was 31 ($SD = 8.53$). Most participants had two or three children and had completed some college. Few participants ($n = 25$) held a 4-year degree or higher. The racial

composition was 69% Caucasian, 25% Native American, and 6% from the following groups: Black; Hispanic; Asian or Pacific Islander; Other. To ensure confidentiality, specific Native American tribes are not identified in the present study due to the small number of Tribal participants in the sample. The majority of participants lived below the poverty line, with 52% reporting an annual income of \$15,000 or less. Experiences of childhood abuse were common: approximately 33% ($n = 170$) reported childhood abuse by a person within the family and 25% ($n = 127$) reported childhood abuse by a person outside of the family. Approximately 16% ($n = 83$) had experienced childhood abuse in both contexts.

Measures

Dependent variable. The dependent variable was parent attitudes, as measured by the Adult-Adolescent Parenting Inventory, revised edition (AAPI-2; Bavolek & Keene, 1999). Participants completed baseline and follow-up self-report assessments. Completion of the assessments was an expectation. Baseline assessments were completed at the first session; follow-up assessments were completed at the 15th session. As is customary, Form A was used as the pretest and Form B as the posttest. The forms are parallel, containing similar items for each construct (see Bavolek & Keene, 2010). Most items on Form B are reworded versions of items on Form A, though some items are identical.

The AAPI-2 is separated into five scales corresponding to five constructs: Parental Expectations; Empathic Awareness; Corporal Punishment; Role Reversal; and Power and Independence. The entire inventory consists of 40 items to which respondents indicate level of agreement using a five point Likert scale, from *strongly agree* (1), to *strongly disagree* (5). A description of each scale is provided below.

The Parental Expectations scale consists of seven items measuring the appropriateness of parents' expectations of their children. A low score suggests poor understanding of children's developmental needs and capabilities. A high score indicates appropriate expectations. An example item is "Parents need to push their children to do better." Bavolek and Keene (1999) reported a reliability alpha of 0.89.

The Empathic Awareness scale consists of ten items measuring empathic awareness of children's needs (e.g. "Children who feel secure often grow up expecting too much"). A low score indicates a lack of sensitivity to children's feelings and needs. A high score indicates sensitivity and high empathic awareness. Bavolek and Keene (1999) reported a reliability alpha of 0.93.

The Corporal Punishment scale is composed of 11 items measuring endorsement of corporal punishment as a discipline technique. A low score indicates approval of corporal punishment and belief in its utility. A high score indicates preference for nonviolent discipline. An example of an item is "Children who are spanked behave better than children who are not spanked." Bavolek and Keene (1999) reported a reliability alpha of 0.96.

Role Reversal is a scale measuring the degree to which parents reverse parent-child roles. This scale consists of seven items (e. g. "Children should be aware of ways to comfort their parents after a hard day's work"). A low score suggests belief that children should be sensitive to the needs of parents, providing comfort and assurance. A high score suggests a proper view of parent-child roles. Bavolek and Keene (1999) reported a reliability alpha of 0.92.

The fifth scale, Oppression of Children's Power and Independence, measures beliefs about the amount of power and independence children should have. This scale is composed of five items (e. g. "Parents who encourage their children to talk to them only end up listening to

complaints”). A low score indicates belief that children should be obedient to authority. A high score suggests parents recognize compromise and independent thinking as valuable skills.

Bavolek and Keene (1999) reported a reliability alpha of 0.86.

Though the reliabilities reported by Bavolek and Keene are high, an independent evaluation of the AAPI-2 by Connors, Whiteside-Mansell, Deere, Ledet & Edwards (2006) resulted in much lower reliabilities for some of the scales. For Parental Expectations, the alpha reliability was 0.79; for Empathic Awareness, the alpha reliability was 0.64; for Corporal Punishment, the alpha reliability was 0.79; for Role Reversal, the alpha was 0.59; and for Power and Independence, the alpha reliability was 0.50 (Connors et al., 2006). The dissimilarities in alpha reliabilities between the two investigations may be due to sampling differences.

The reliability analysis conducted by Bavolek and Keene used a nationally representative sample, including multiple geographic regions and substantial variation in demographic variables. The Connors et al. study consisted of a fairly homogenous sample of low-income parents in rural Arkansas with lower literacy than the general U.S. population. Because of literacy concerns, the assessment items were read aloud to participants. As suggested by Connors et al., more studies are needed regarding the mode of administration of the AAPI-2 as well as the use of the instrument with different populations (2006).

The data set provided for the present study did not allow for analysis of the reliabilities of the scales, as it did not contain individual items. When assessments were completed by participants at each site, the site facilitators entered the assessments into NPP’s secure website, www.assessingparenting.com, where assessments were scored and converted to sten scores. Sten scores, scores on a scale of 1-10, follow a normal distribution based on national sampling. Scores of one to three (1-3) indicate high risk of engaging in abusive or neglectful parenting, scores

from four to seven (4-7) represent a moderate risk of engaging in maltreatment, and scores above seven (> 7) indicate low risk. The dataset resulting from the assessments contained only the sten scores for each of the five scales, not the raw scores or individual items.

Independent variables. The first page of the AAPI-2 includes a number of demographic items, several of which were used as independent variables. Race was measured with one question on the AAPI-2, with the following response options: Unknown, White, Black, Asian, Hispanic, Native American, Pacific Islander. The structure of the race variable in the data set allowed only one racial category to be selected for each participant, and it is unknown if participants indicated more than one racial category on the assessments.

Education was measured categorically, with a total of seven ordinal variables. Due to minimal frequencies at the extremes, variables were collapsed to form four ordinal categories: Less than high school/GED; high school diploma or GED; some college or two year degree; four year degree or higher. Three dummy variables were created for use in regression analyses: a dummy variable for completion of less than high school, a dummy variable for completion of high school, and a dummy variable for completion of a four year degree or higher. Thus, the implicit reference group is participants who completed some college or a two year degree (the median and modal category of educational attainment for the entire sample).

Income was measured with one item, “What is your annual household income,” with the following options: unknown; under \$15,000; \$15,001 - \$25,000; \$25,001 - \$40,000; \$40,001 - \$60,000; Over \$60,000. A response of “unknown” was coded as missing.

History of abuse was measured by two items. Participants were asked, “As a child, did you experience any type of abuse by a person:” with two endings “Outside your family?” and “Within your family?” to which participants indicated “Don’t Know,” “Yes,” or “No”. These

two variables were combined into a single, dichotomous variable representing abuse experienced in any context (1 = Experienced abuse, 0 = Did not experience abuse). A response of “Don’t Know” was coded 0. Participants also indicated age and gender on the first page of the assessment.

The contextual variables, poverty and unemployment, were added from publicly available government datasets. Poverty was measured by Census data for percent of county population below the poverty line 2007-2011 in each of the counties in which program sites were situated. Unemployment was measured by Bureau of Labor Statistics data at the county level with a variable for the average unemployment rate from 2007-2011.

Analysis

Repeated measures ANOVA and ANCOVA were used to investigate outcomes for Native American participants. Separate analyses were conducted for each of the five AAPI-2 scales. The grouping variable was created from participant race and program site as follows: Native American, who attended the program site on a reservation or within five miles of a reservation, hereafter referred to as Tribal participants ($n = 47$); Native American who attended off a reservation, hereafter referred to as non-reservation Native Americans ($n = 29$); and all other participants ($n = 227$, approximately 95% Caucasian). Based on data exploration and descriptive findings, educational attainment and history of childhood abuse were included as covariates in analysis.

Determination of the best combination of individual and contextual predictors of individual outcomes was achieved by engaging in a process of model building utilizing multilevel techniques. Separate models were tested for each of the five scales, using Time 2 score as the outcome variable. Each unconditional model was tested and intra-class correlations

were calculated to determine if MLM was appropriate. When MLM was warranted, individual-level (Level 1) predictors were explored first, followed by contextual (Level 2) variables. Variables were entered separately in a step-wise manner. Level 1 variables were entered in the following order: Time 1 score, to control for initial attitudes; female dummy variable (1 = female, 0 = male); history of abuse dummy variable; dummy variable for young parent (1 = less than 25 years of age, 0 = 25+ years of age), and education dummy variables. Due to skewed distribution of the income variable concentrated on the first category, \$15,000 per year or lower, household income could not be used in analysis.

For Level 2 variables, the first variable entered was percent of county population living in poverty, followed by percent of county population unemployed. When MLM was not indicated, OLS regression was utilized to investigate individual-level predictors only. When OLS regression was used, baseline scores were entered in step one and other predictors were added in a second step.

RESULTS

Missing Data and Data Exploration

Missing data. Due to the large proportion of individuals who did not complete follow-up assessments, individuals with follow-up data were compared to individuals missing follow-up data on demographic variables (race, gender, age, education, and income), experiences of childhood abuse, and baseline scores for all constructs. Attrition across sites was compared.

Comparisons indicated that individuals who did not complete follow-up assessments did not differ from individuals who did complete follow-up assessments in their experiences of childhood abuse, nor did they differ demographically except in the category of race. Caucasian participants and Native American participants had approximately the same percentage of missing data, (38.5% and 39.7%, respectively), while participants of other races—combined into one category due to low frequencies—had a greater percentage of missing data (approximately 63%). A chi-square test of independence was significant, $\chi^2(2, N = 507) = 7.13, p = .028$. Additionally, individuals missing follow-up data differed from participants with full data on only one of the five assessment constructs, Power and Independence. Participants missing follow-up scores had higher baseline scores, $M = 6.53, SD = 2.18$, than individuals with full data, $M = 5.97, SD = 2.17$, $t(505) = 2.85, p = .005$.

Comparisons of attrition across the nine program sites also revealed unequal distribution, $\chi^2(8, N = 508) = 18.99, p = .015$, though no clear pattern appeared to exist. At the program site with the highest attrition, 57.7% of participants did not complete follow-up assessments; at the site with the lowest attrition, 14.3% of participants did not complete follow-up assessments. The sites with the highest attrition did not include Tribal sites.

Data exploration. Individuals missing follow-up data were filtered out during data exploration. Variables were checked for normalcy of distribution. All five AAPI-2 constructs passed inspection at both time points. Participant household income was positively skewed, with most participants belonging to low income categories (approximately 50% in the lowest of the five categories, and approximately 68% in the lowest two categories). Consequently, household income could not be used as an independent variable.

Repeated Measures ANOVA

A separate ANOVA was conducted for each of the five constructs from the AAPI-2, and results are organized accordingly. Descriptive results are displayed in Table 1. After each initial ANOVA, covariates were added and a second ANOVA was conducted.

Covariates. The three ANOVA groups were compared on the categorical variable for education and the dichotomous variable for history of abuse. The groups differed in their educational attainment, $\chi^2(4, N = 290) = 19.30, p = .001$. (Note: Due to low cell counts, the category representing completion of a four year degree or graduate work was removed during chi-square analysis.) The median educational attainment of Tribal participants was completion of high school/GED, though the mode was less than high school/GED. The median educational attainment of non-reservation Native Americans was completion of high school/GED; the mode was some college or a two year degree. The median and mode educational attainment of the group representing all other participants was some college or a two year degree.

Groups also differed in their reported experiences of childhood abuse, $\chi^2(2, N = 298) = 7.22, p = .027$. Approximately 26% of Tribal participants reported experiencing abuse as a child, while about 41% of non-reservation Native Americans and about 47% of all other participants reported childhood experiences of abuse. The national rate of child maltreatment—abuse and

neglect combined—across races was 9.1 victims per 1,000 children in 2011 (U.S. Department of Health and Human Services, 2012). For White children the rate was 7.9 and for American Indian or Alaska Native (Native American) children the rate was 11.4 (U.S. Department of Health and Human Services, 2012). Thus the groups in the present study reported higher incidence of childhood abuse, and racial differences present in the population are not reflected in the sample.

Table 1

Descriptive Results and Group by Time Interactions

Variable	Tribal		Native American non-reservation		All others		G X T Interaction
	Time 1 M (SD)	Time 2 M (SD)	Time 1 M (SD)	Time 2 M (SD)	Time 1 M (SD)	Time 2 M (SD)	<i>p</i>
Expectations	4.52 (1.87)	5.20 (2.08)	6.24 (1.73)	6.07 (2.09)	5.96 (1.83)	6.17 (1.94)	.194
Empathic Awareness	3.67 (1.94)	4.50 (2.17)	5.38 (2.47)	6.03 (2.23)	4.88 (2.11)	6.35 (2.38)	.060
Corporal Punishment	6.11 (1.65)	5.83 (1.70)	6.69 (1.76)	7.03 (2.10)	5.78 (1.92)	6.72 (1.69)	< .001
Role Reversal	3.85 (2.07)	4.35 (2.14)	5.76 (2.05)	6.24 (1.79)	6.01 (2.17)	6.41 (2.05)	.927
Power and Independence	4.80 (2.30)	4.89 (2.29)	6.21 (2.31)	5.79 (2.11)	6.17 (2.01)	6.44 (2.14)	.329

Note. Unadjusted means for sten scores. Group by time interactions do not include covariates.

Tribal *n* = 47; Native American non-reservation *n* = 29; All others *n* = 227.

Parental expectations. In the initial model, participant scores did not change from baseline to follow-up, as the effect of time was not significant. There was no group by time interaction. A main effect of group occurred, $F(2, 299) = 11.32, p < .001$. Tribal participants scored lower than the other two groups in the parental expectations construct ($p < .05$) (see Table 1 for descriptive information).

In the second model which included education and experiences of abuse as covariates, the effect of time was not significant and there were no significant interaction effects for group by time or covariates by time. A main effect of education occurred, $F(1, 292) = 19.33, p < .001$ and main effect of group remained significant, $F(2, 292) = 6.67, p = .001$. Higher educational attainment was associated with higher scores at both time points. Inspection of means adjusted for covariates showed that Tribal participants scored lower than the other groups at both time points but experienced the greatest improvement from baseline to follow-up.

Empathic awareness. In the model without covariates, participants improved in their Empathic Awareness scores from baseline to follow-up, as suggested by the main effect of time $F(1, 299) = 28.36, p < .001$. The group by time interaction trended towards significance, $F(2, 299) = 2.84, p = .06$. Tribal and non-reservation Native American participants experienced about the same amount of improvement, but the group encompassing all other participants experienced greater improvement than these groups. A main effect of group occurred, $F(2, 299) = 12.47, p < .001$. Tribal participants scored lower than both other groups, $p < .05$.

When education and experiences of abuse were included as covariates in the second model, the effect of time was not significant. No interaction effects were present. Main effects were significant for education, $F(1, 292) = 13.63, p < .001$, and group, $F(2, 292) = 7.80, p <$

.001. Higher educational attainment was associated with higher scores at both time points.

Adjusted means indicate Tribal participants scored lowest at both time points.

Corporal punishment. In the first model, participants demonstrated significant improvement in Corporal Punishment scores from baseline to follow-up, $F(1, 299) = 5.43, p = .020$. However, improvement was not experienced uniformly by all participants, as suggested by the group by time interaction effect, $F(2, 299) = 10.03, p < .001$. Tribal participants decreased slightly from baseline to follow-up; non-reservation Native American participants increased slightly; and the group representing all other participants increased by almost an entire point. A main effect of group trended towards significance, $F(2, 299) = 2.91, p = .056$.

In the model with covariates, the effect of time was no longer significant. An interaction effect for experiences of abuse by time trended toward significance, $F(1, 292) = 5.20, p = .066$. Participants who reported childhood experiences of abuse experienced greater improvement from baseline to follow-up. The group by time interaction effect found in the initial model remained significant in the second model, $F(2, 292) = 7.80, p < .001$. A main effect of education trended towards significance, $F(1, 292) = 3.41, p = .066$. A main effect of group also trended towards significance, $F(2, 292) = 2.74, p = .066$. Examination of group means adjusted for covariates revealed that Tribal participants decreased slightly from baseline to follow-up, non-reservation Native American participants increased slightly, and the group representing all other participants experienced substantial improvement (see Figure 1).

Role reversal. In the initial model, participants improved their Role Reversal scores from baseline to follow-up, $F(1, 299) = 8.06, p = .005$. No interaction effect of group by time occurred, but a main effect of group was significant, $F(2, 299) = 25.07, p < .001$. Tribal participants scored lower ($p < .05$) on Role Reversal than both other groups.

In the model containing covariates, the effect of time was no longer significant. An interaction effect of experiences of abuse by time trended towards significance, $F(1, 292) = 3.61$, $p = .058$. Participants who had not experienced childhood abuse increased more from baseline to follow-up. A main effect of education was found, $F(1, 292) = 9.26$, $p = .003$, and higher levels of educational attainment were associated with higher scores at both time points. The main effect of group found in the initial model remained significant, $F(2, 292) = 17.70$, $p < .001$. Covariate-adjusted means suggested that while all groups appeared to experience similar change, Tribal participants had substantially lower scores at both time points.

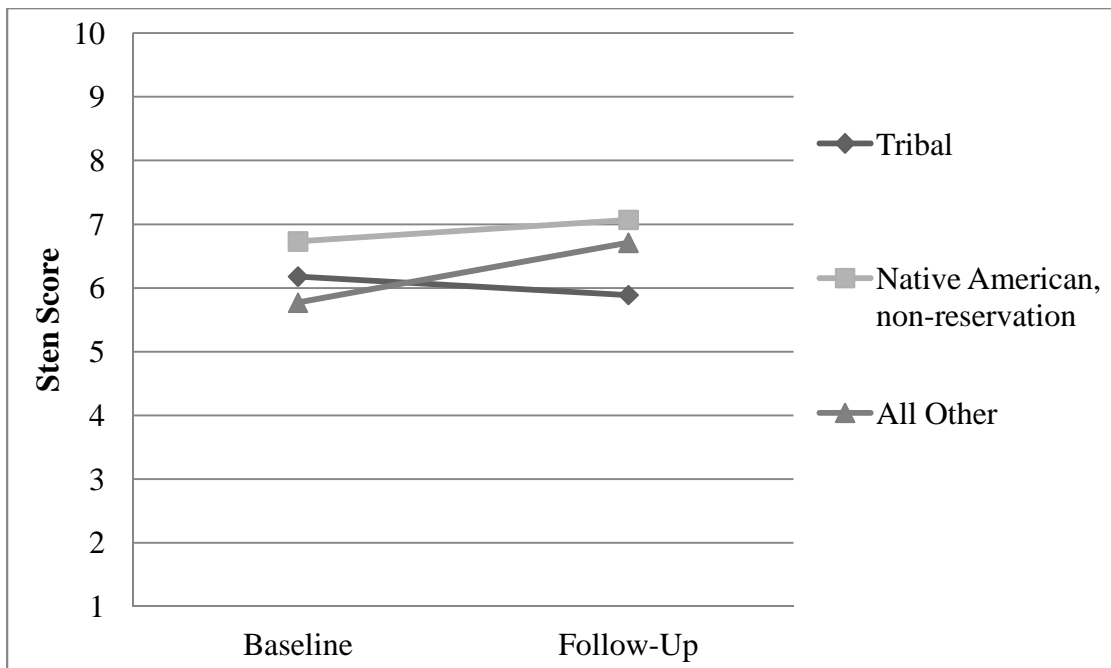


Figure 1. Group covariate-adjusted means for corporal punishment.

Power and independence. In the model without covariates, participants did not change in their scores from baseline to follow-up, and no group by time interaction occurred. A main effect of group occurred, $F(2, 299) = 12.65$, $p < .001$. Tribal participants scored lower ($p < .05$) than both other groups (see Table 1).

In the model with covariates, no significant effects were found for time or any interactions with time. A main effect of experiences of abuse occurred, $F(1, 292) = 4.88, p = .028$, as well as a main effect of education, $F(1, 292) = 11.98, p = .001$, and a main effect of group, $F(2, 292) = 7.50, p = .001$. Participants who had experienced childhood abuse scored higher than participants who had not experienced childhood abuse. Higher educational attainment was again associated with higher scores. Covariate-adjusted means indicated Tribal participants had lower scores at both time points.

Multilevel Modeling

Unconditional models. Intra-class correlations (ICCs) were computed using the results of tests of the unconditional models. Decisions regarding the use of MLM were based on the criterion $ICC > .05$. MLM was judged appropriate for three of the five variables: empathic awareness ($ICC = .12$), corporal punishment ($ICC = .09$), and role reversal ($ICC = 0.12$).

Empathic awareness. Model-building results are displayed in Table 2. In Model 1, the female dummy variable was not a significant predictor and was removed prior to testing experiences of abuse in Model 2. Experiences of abuse were not predictive of follow-up scores, thus this variable was removed in Model 3. In Model 3, educational attainment dummy variables were entered together and educational attainment of less than high school was a significant predictor of follow-up scores. Finally, in Model 4 the dummy variable for young parent was added and was not significant.

The estimate for the random effect of program site was near zero and the effect of program site was not significant in any model. Because of the diminutive amount of variance explained by program site, Level 2 predictors could not be included. Inclusion of either of the Level 2 predictors caused analysis results to be unsound.

The most appropriate model for explaining follow-up Empathic Awareness scores is Model 3, which contains the only significant predictor of follow-up scores aside from baseline score. In Model 3, individuals with educational attainment of less than high school had a coefficient estimate lower than individuals with some college. Therefore, in relation to individuals with some college, individuals who attained less than a high school diploma had lower empathic awareness and were at greater risk of engaging in maltreatment. Model 3 contains a large amount of unexplained variance. However, Model 3 was a significant improvement compared to the unconditional model. See Table 3 for the associated -2 Log Likelihood values, chi-square value for model change, and corresponding p-value for model improvement.

Corporal punishment. Model-building results are displayed in Table 4. The female dummy variable was not significant in Model 1 and was removed in Model 2. Experiences of abuse were significant in Model 2. The estimate for experiences of abuse was positive, meaning individuals who had experienced abuse during childhood had higher follow-up scores (lower risk of engaging in maltreatment) than those who had not experienced abuse. In Model 3 the educational attainment dummy variables were added. None were significant, so they were removed from analysis in Model 4. The dummy variable for young parents was not significant in Model 4.

Testing of contextual variables began in Model 5. Although the random effect of program site was never significant, enough variation existed that Level 2 predictors could be explored. County-level poverty (Model 5) and county-level unemployment (Model 6) both approached significance. Higher levels of poverty and higher levels of unemployment were associated with

lower follow-up scores (higher risk) for individuals. However, in terms of practical significance Level 2 predictors did not make a notable contribution.

Model 2 is the most appropriate final model because it contains the only significant predictor of follow-up scores, experiences of abuse. A substantial amount of unexplained variance was present in Model 2; however, the final model demonstrated a significant improvement over the unconditional model. See Table 3 for more information.

Table 2

Model-building Results for Empathic Awareness Follow-up Scores

Parameter	Estimate	SE	p
Model 1			
Baseline Score (F)	0.56	0.06	< .001
Female (F)	-0.43	0.26	.096
Program Site (R)	0.12	0.15	.426
Residual	4.12	0.34	< .001
Model 2			
Baseline Score (F)	0.57	0.06	< .001
Experienced Abuse (F)	0.20	0.24	.416
Program Site (R)	0.14	0.17	.416
Residual	4.08	0.34	< .001
Model 3			
Baseline Score (F)	0.56	0.06	< .001
Less than High School (F)	-0.81	0.30	.006
High School Graduate (F)	0.22	0.29	.448
College Graduate (F)	1.08	0.59	.069
Program Site (R)	0.01	0.10	.943
Residual	4.05	0.34	< .001
Model 4			
Baseline Score (F)	0.56	0.06	< .001
Less than High School (F)	-0.88	0.31	.004
High School Graduate (F)	0.16	0.30	.580
College Graduate (F)	1.08	0.59	.067
Young Parent (F)	0.26	0.29	.372
Program Site (R)	0.01	0.10	.940
Residual	4.04	0.34	< .001

Note. F = fixed effect, R = random effect. *N* = 303.

Table 3

Change in Model Fit

Dependent Variable	Unconditional -2LL (Parameters)	Final Model -2LL (Parameters)	Chi-square value	<i>p</i>
Empathic Awareness	1,382.73 (3)	1,279.86 (7)	χ^2 (df = 4) = 102.87	< .001
Corporal Punishment	1,194.30 (3)	1,078.12 (5)	χ^2 (df = 2) = 116.18	< .001
Role Reversal	1,312.21 (3)	1,160.35 (8)	χ^2 (df = 5) = 151.86	< .001

Role reversal. Model-building results are displayed in Table 5. The female dummy variable tested in Model 1 was significant and negative, meaning females received lower Role Reversal follow-up scores than males. The dummy variable for experiences of abuse was added in Model 2, was not significant, and was therefore removed in Model 3. The educational attainment variables were added in Model 3. The dummy variable for attainment of less than high school was significant and negative. In comparison to individuals with some college coursework, individuals with less than a high school diploma were at higher risk for engaging in maltreatment. In Model 4, the young parent dummy variable was not significant.

The random effect of program site was never significant, but enough variation was present to explore Level 2 predictors, beginning in Model 5. County-level poverty (Model 5) was not a significant predictor of individual Role Reversal follow-up scores. When county-level unemployment was entered as a predictor, the resulting estimates were rendered unsound.

The most appropriate final model is Model 3, containing both the significant female dummy variable and the significant educational attainment variable of less than high school. A large amount of variance was left unexplained in Model 3, but this model was a substantial improvement compared to the unconditional model. See Table 3 for information on model change.

Table 4

Model-building Results for Corporal Punishment Follow-up Scores

Parameter	Estimate	SE	p
Model 1			
Baseline Score (F)	0.46	0.05	< .001
Female (F)	-0.25	0.19	.187
Program Site (R)	0.10	0.09	.297
Residual	2.17	0.18	< .001
Model 2			
Baseline Score (F)	0.47	0.05	< .001
Experienced Abuse (F)	0.48	0.17	.006
Program Site (R)	0.09	0.09	.305
Residual	2.16	0.18	< .001
Model 3			
Baseline Score (F)	0.47	0.05	< .001
Experienced Abuse (F)	0.52	0.17	.003
Less than High School (F)	-0.35	0.22	.118
High School Graduate (F)	0.02	0.21	.931
College Graduate (F)	0.48	0.46	.295
Program Site (R)	0.07	0.08	.399
Residual	2.14	0.18	< .001
Model 4			
Baseline Score (F)	0.47	0.05	< .001
Experienced Abuse (F)	0.49	0.18	.006
Young Parent (F)	-0.03	0.21	.870
Program Site (R)	0.09	0.09	.306
Residual	2.16	0.18	< .001
Model 5			
Baseline Score (F)	0.48	0.05	< .001
Experienced Abuse (F)	0.45	0.17	.010
County Poverty (F)	-0.02	0.01	.063
Program Site (R)	0.01	0.04	.815
Residual	2.17	0.18	< .001
Model 6			
Baseline Score (F)	0.48	0.05	< .001
Experienced Abuse (F)	0.46	0.17	.010
County Unemployment (F)	-0.08	0.03	.077
Program Site (R)	.01	0.04	.874
Residual	2.17	0.18	< .001

Note. F = fixed effect, R = random effect. $N = 303$.

Table 5

Model-building Results for Role Reversal Follow-up Scores

Parameter	Estimate	SE	<i>p</i>
Model 1			
Baseline Score (F)	0.56	0.04	< .001
Female (F)	-0.55	0.21	.010
Program Site (R)	0.06	0.07	.395
Residual	2.80	0.23	< .001
Model 2			
Baseline Score (F)	0.57	0.04	< .001
Female (F)	-0.52	0.22	.018
Experienced Abuse (F)	-0.06	0.21	.753
Program Site (R)	0.06	0.07	.393
Residual	2.84	0.24	< .001
Model 3			
Baseline Score (F)	0.56	0.04	< .001
Female (F)	-0.50	0.21	.016
Less than High School (F)	-0.80	0.24	.001
High School Graduate (F)	0.01	0.24	.971
College Graduate (F)	-0.21	0.49	.672
Program Site (R)	0.04	0.07	.508
Residual	2.70	0.22	< .001
Model 4			
Baseline Score (F)	0.56	0.04	< .001
Female (F)	-0.53	0.21	.013
Less than High School (F)	-0.84	0.25	.001
High School Graduate (F)	-0.03	0.24	.910
College Graduate (F)	-0.21	0.49	.674
Young Parent (F)	0.16	0.24	.514
Program Site (R)	0.05	0.07	.492
Residual	2.69	0.22	< .001
Model 5			
Baseline Score (F)	0.55	0.04	< .001
Female (F)	-0.48	0.21	.021
Less than High School (F)	-0.77	0.24	.002
High School Graduate (F)	0.03	0.16	.875
College Graduate (F)	-0.19	0.48	.690
County Poverty (F)	-0.02	0.01	.133
Program Site (R)	0.00	0.04	.971
Residual	2.70	0.22	< .001

Note. F = fixed effect, R = random effect. *N* = 303.

OLS Regression

Parental expectations. Results are displayed in Table 6. Other than baseline scores, the only significant predictor of follow-up scores was the dummy variable representing educational attainment below a high school diploma. The unstandardized beta for individuals who had attained less than a high school diploma suggests that, compared to individuals who had some college, those with less than a high school diploma scored almost one point lower. No other education dummy variables were significant predictors of Parental Expectations follow-up scores. The dummy variable for young parent trended towards significance ($p = .053$). The age trend suggests individuals below the age of 25 scored higher at follow-up than individuals 25 year of age or older. The full regression model explained approximately 22% of the variance in follow-up scores, adjusted $R^2 = .22$, $F(6, 290) = 15.24$, $p < .001$.

Power and independence. Results are displayed in Table 7. Beyond baseline scores, two variables were significant predictors of follow-up scores. The dummy variable representing Native American participants was a significant predictor of follow-up scores, and Native American participants as a group scored lower than other participants on the follow-up assessment. Childhood experiences of abuse predicted follow-up scores: individuals who had experienced childhood abuse had higher scores at follow-up than individuals who did not experience childhood abuse. The full regression model explained approximately 22% of the variance in follow-up scores, adjusted $R^2 = .22$, $F(6, 290) = 14.93$, $p < .001$.

Table 6

Regression Results for Parental Expectations Follow-up Scores (N = 303)

Variable	<i>B</i>	<i>SE B</i>	β	ΔR^2
Step 1				.20***
T1 score	.48***	.06	.45	
Step 2				.04*
T1 score	.43***	.06	.41***	
Female	-.38	.24	-.09	
Native American	-.03	.25	-.01	
Less than High School	-.90**	.28	-.19**	
High School	-.09	.26	-.02	
College	.45	.54	.04	
Age	.48	.26	.10	
Abuse	.11	.22	.03	

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 7

Regression Results for Power and Independence Follow-up Scores (N = 303)

Variable	<i>B</i>	<i>SE B</i>	β	ΔR^2
Step 1				.19***
T1 score	.44***	.05	.43***	
Step 2				.05**
T1 score	.39***	.05	.38***	
Female	.03	.26	.01	
Native American	-.73*	.28	-.14*	
Less than High School	-.35	.32	-.07	
High School	-.23	.28	-.05	
College	.71	.60	.06	
Age	.18	.29	.04	
Abuse	.53*	.24	.12*	

* $p < .05$, ** $p < .01$, *** $p < .001$

DISCUSSION

The first objective of the present study was to explore outcomes for Native American participants of NPP in North Dakota. The second objective was to identify predictors of outcomes for all North Dakota participants, taking into account both individual and contextual factors. Attitudinal outcomes, measured using sten scores in the five constructs of the AAPI-2, were the focus of analysis.

Results for Native American participants were mixed. Both Native American groups increased by over half of a point in Empathic Awareness and approximately half of a point in Role Reversal. Furthermore, Tribal participants increased by greater than half of a point in Parental Expectations. Yet a number of findings were disconcerting. Tribal participants exhibited a slight decrease (worsening) in scores on the Corporal Punishment construct, a change in the opposite direction of the program's intent. Whereas Tribal participants decreased from baseline to follow-up, non-reservation Native Americans improved slightly, and the group encompassing all other participants improved by nearly one point.

Non-reservation Native Americans as a group experienced decreases from baseline to follow-up in Parental Expectations and Power and Independence. Tribal participants experienced essentially no change in their Power and Independence scores. Group by time interactions were not significant for these two constructs, but from a practical standpoint it is alarming to see decreases—no matter how small—or no change in scores after months of participation in the programs.

An important consideration with regard to findings for Native American participants is the cultural appropriateness of the AAPI-2 as an assessment tool. Reliability of the AAPI-2 for Native American participants could not be investigated in the present study. However, based on

the findings and conclusions of Connors et al. (2006), further evaluation of the reliability and validity of the AAPI-2 in different racial and ethnic groups is advisable.

Inclusion of childhood experiences of abuse as a covariate in analysis yielded interesting results: the interaction of abuse by time trended toward significance for Corporal Punishment as well as Role Reversal. Individuals who had experienced abuse in childhood exhibited slightly greater improvement from baseline to follow-up. Although only trends, these results suggest support for the effectiveness of NPP in addressing intergenerational cycles of maltreatment, particularly in light of previous research findings. Maher et al. (2011) found that parent participants who had experienced abuse in childhood were less likely to have a confirmed report of maltreatment within six months after programming than parent participants who had not experienced childhood maltreatment.

Regarding the second research objective, the random effect of program site was never significant in exploratory multilevel modeling. When contextual variables could be explored in analysis they were not significant predictors of individual follow-up scores. This may be related to the structure of the data in the present study: only nine sites were used in analysis, and each site contained a fairly large number of participants. Multilevel modeling using a nested design typically requires many groups with small *n*-sizes in each group (Bickel, 2007).

The strongest individual-level variable to emerge as a predictor during both multilevel modeling and OLS regression was education. For three of five constructs—Empathic Awareness, Role Reversal, and Parental Expectations—individuals who had attained lower than a high school diploma or GED had negative coefficients, indicating lower follow-up scores and thereby greater risk for maltreatment than individuals who had completed some college or a 2-year degree. An additional individual-level predictor deserving of attention is the dummy variable

representing experiences of childhood abuse. For the Corporal Punishment and Power and Independence constructs, having experienced abuse in childhood predicted higher follow-up scores, again suggesting NPP may help address intergenerational cycles of maltreatment.

The findings concerning childhood experiences of abuse can be readily explained, but it is less clear how the findings regarding educational attainment should be explained. It is unlikely that participants with low educational attainment experienced less benefit due to problems with accessibility of NPP materials. Program materials are designed to be easily understood, and the National Registry of Evidence-based Programs and Practices (NREPP) notes the quality and appropriateness of program materials for parents and children as major areas of strength in the category of “Readiness for Dissemination” (Substance Abuse and Mental Health Services Administration, 2012). It is possible the role of education in attitudinal outcomes is better explained by confounding variables such as openness to experience or willingness to reconsider previously held beliefs. Additionally, it is possible that parents with higher levels of education may have previously been exposed to information on parenting and/or child development during their formal education.

Limitations

The main limitation in the present study is sampling. The sample of non-reservation Native Americans was small ($n = 29$); thus results may not be reflective of the larger population. Likewise the sample size for Tribal participants was small ($n = 47$) and participants came from only two program sites with a heavy concentration in one site. It is possible that the results for Tribal participants are reflective of lower program quality rather than indicative of problems of cultural appropriateness in program content or implementation. Due to the lack of fidelity checks, the possibility of lower program quality cannot be investigated. However at the larger of

the two sites, a number of problems occurred resulting in the termination of several facilitators; therefore, concerns about lower program quality are justified.

Another limitation is the lack of records for participant referral status. It is likely that differences in attitudinal outcomes of the program are related, at least in part, to the motivation behind program attendance. Records of referral status would have been helpful in attempting to establish motivation behind attendance. Even better, assessment of motivation or readiness to change prior to participation may have provided considerable insight on differences in program outcomes. The Transtheoretical Model of Change (e.g. Prochaska & DiClemente, 1982; Prochaska, DiClemente, & Norcross, 1992) suggests interventions are unlikely to contribute to long-term change if participants are not at an appropriate stage of readiness for change.

The Transtheoretical Model of Change describes five stages of change: precontemplation, contemplation, preparation, action, and maintenance (Prochaska et al., 1992). Precontemplation is a stage characterized by a lack of awareness or possible denial of the problem(s), and individuals in pre-contemplation have no intention to change (Prochanska et al., 1992). In the contemplation stage, awareness of the problem is present without serious commitment to change, though potential solutions might be considered; ambivalence about change is common during the contemplation stage (Prochanska et al., 1992). During the preparation stage individuals plan to make major changes in the near future, and changes are made during the action stage which is characterized by definite commitment and concerted effort to resolve or overcome problems (Prochanska et al., 1992). Lastly, maintenance is the continuation of gains realized during the action stage (Prochanska et al., 1992).

Choice and internal motivation are crucial considerations in trying to understand the stage a person may occupy. Someone could appear to be in the action stage, but if the primary or sole

motivation is external—a court of law requiring a parent to attend parent education programming, for example—it is possible the individual is in another stage (Prochaska & DiClemente, 1982). Child welfare clients are typically low in internal motivation to change their parenting attitudes and behaviors (Chaffin et al., 2009). Altman (2008) perceptively notes, “Nearly all child welfare clients can be considered involuntary or nonvoluntary clients. They frequently have not asked for nor do they want services; many do not see the need and/or value of the service for their families” (p. 56). Thus, many individuals in the present study were likely in the precontemplation stage at the beginning of participation in NPP. Furthermore, participants could have appeared to be in the action stage during the course of the intervention, but may have been attending programming begrudgingly.

It is noteworthy that participants at the program site excluded in the present study—a rehabilitation and correctional center for women—participated in programs consisting of fewer sessions yet experienced gains in sten scores from approximately one to greater than three points depending on the AAPI-2 construct (Brotherson et al., 2011; Brotherson et al., 2012). Given participation at the correctional center was completely voluntary, it is likely that participants were higher in intrinsic motivation. However, other factors may have contributed to improvement, including participants’ isolation from their families and communities. Such isolation could have allowed correctional center participants to have greater focus on personal goals and be less impacted by social factors that would detract from success in the program (e.g. domestic violence).

Future Directions

The cultural appropriateness of program content as well as concerns of cultural sensitivity in the implementation of programming should be explored in Native American populations,

particularly tribal communities. Qualitative research with Native American individuals and groups participating in NPP could identify potential reasons for unsatisfactory outcomes observed in the present study.

The ability of NPP to address historical and intergenerational trauma without significant modification to program content or format should also be investigated. Parenting interventions explicitly addressing Native parents' experiences of trauma and grief may be more appropriate in reservation communities. One example of such an intervention, Historical Trauma and Unresolved Grief (HTUG), has been incorporated as part of parenting interventions in Lakota communities and is centered on the perspective that, "parents need support to address their own trauma before being emotionally present for their children and being able to absorb parenting skill training" (Brave Heart et al., 2011, p. 286). At a minimum, deliberate efforts to include tribal culture in parent training programs should be encouraged.

Motivation to change should be considered as an important explanatory variable in understanding outcomes of NPP participation. Additionally, social service agencies may benefit from identifying the motivational stage of prospective NPP participants and utilizing Motivational Interviewing, a particular form of motivational coaching used to increase intrinsic motivation, to help facilitate transition from lower motivational stages to stages of greater openness and commitment to change (Snyder, Lawrence, Weatherholt, & Nagy, 2012). The utility of motivational coaching for client retention has been investigated in welfare populations. For example, in a randomized investigation of the impact of a motivational intervention on child welfare client retention, Chaffin et al. (2009) found improved retention in Parent-Child Interaction Therapy when participants completed self-motivation orientation sessions prior to

participation in parent training. Motivational coaching may have potential for increasing the effectiveness of NPP.

In general, further training of program facilitators in North Dakota may be needed, including specialized training. Assessment of the degree to which NPP programming uses principles of trauma-informed child welfare (TICW) may be worthwhile, given that parent participants in NPP are likely to have experienced trauma in their own lives and many face multiple sources of stress on a daily basis. TICW seeks to support and empower clients by incorporating awareness and knowledge of the effects of trauma into multiple aspects of organizations and programming, including staff education and training, formal policies, and organizational culture (Hendricks, Conradi, & Wilson, 2011). Several TICW toolkits and assessment instruments exist at present. Descriptions of these resources and how they have been utilized can be found in Hendricks et al. (2011).

Finally, a randomized controlled trial of NPP with one or more empirically-supported parent education programs (e.g. Incredible Years, Webster-Stratton, 1992) would contribute substantially to research literature on the effectiveness of NPP in child welfare populations.

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