

Ethnic Identity and Mental Health in American Indian Youth: Examining Mediation Pathways Through Self-esteem, and Future Optimism

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Abstract Mental health functioning in American Indian youth is an understudied topic. Given the increased rates of depression and anxiety in this population, further research is needed. Using multiple group structural equation modeling, the current study illuminates the effect of ethnic identity on anxiety symptoms, depressive symptoms, and externalizing behavior in a group of Lumbee adolescents and a group of Caucasian, African American, and Latino/Hispanic adolescents. This study examined two possible pathways (i.e., future optimism and self-esteem) through which ethnic identity is associated with adolescent mental health. The sample ($N = 4,714$) is 28.53 % American Indian (Lumbee) and 51.38 % female. The study findings indicate that self-esteem significantly mediated the relationships between ethnic identity and anxiety symptoms, depressive symptoms, and externalizing behavior for all racial/ethnic groups (i.e., the total sample). Future optimism significantly mediated the relationship between ethnic identity and externalizing behavior for all racial/ethnic groups and was a significant mediator between ethnic identity and depressive symptoms for American Indian youth only. Fostering ethnic identity in all youth serves to

enhance mental health functioning, but is especially important for American Indian youth due to the collective nature of their culture.

Keywords American Indian · Mental health · Ethnic identity · Rural · Adolescent

Introduction

Mental health functioning in American Indians is an important, but understudied, topic. American Indian youth have an elevated risk of mental health disorders in general (Beals et al. 1997; West and Newman 2011), and the rates of depression among this population are particularly high. This prevalence of depressive symptoms was demonstrated in a nationally representative sample of approximately 10,000 youth, in which 29 % of American Indian respondents reported depressive symptoms as compared with 22 % of Hispanics, 18 % of Caucasians, 17 % of Asians, and 15 % of African Americans (Saluja et al. 2004). Similarly, data from the 2011 Youth Risk Behavior Surveillance System (CDC 2011) showed that 35.9 % of American Indian youth reported feeling sad or hopeless almost every day for 2 or more consecutive weeks during the past 12 months, leading 21.8 % of American Indian youth to consider suicide and 14.7 % to attempt suicide. Rates of suicidal ideation and suicide attempts among American Indian youth were higher than rates for any other racial/ethnic group (CDC 2011).

Despite mental health difficulties, poverty, social barriers, and a history of US government policies that favored assimilation or genocide, American Indians have clung tenaciously to their cultural identities. Amid persecution and discrimination of native peoples that stretches back

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before the formation of the United States (Stannard 1992), American Indians have sustained their cultural practices, beliefs, heritage, and tribal affiliations. The history of America's native peoples is rife with massacres, forced relocations, and pandemics (Thorton 1987), resulting in a historical trauma that continues to affect child development, welfare, and mental health among American Indians (Campbell and Evans-Campbell 2011). Indeed, these adverse environmental circumstances might have served to heighten the importance of cultural identity and ethnic pride. This cultural protective factor bonds many American Indians together and forms the foundation for identity development. Clear evidence exists for this assertion about the central role of cultural identity in the experiences of the Lumbee Tribe.

The Lumbee Tribe took its name from the Lumber River that flows through four counties in the South-Central region of North Carolina; the area remains the predominant location of the tribe (Lowery 2010). The Lumbee have an especially complex history related to legal recognition as an American Indian tribe. The State of North Carolina formally has recognized the Lumbee tribe, but the Lumbee never have been fully recognized by the US federal government (Bryant and LaFromboise 2005; Lowery 2010). Although Congress passed the Lumbee Act of 1956, which recognized the tribe as "Indian," the Act denied the Lumbee the full benefits and privileges of tribal recognition (Lumbee Tribe 2012). As noted by Dial and Eliades (1975), the struggle for recognition and denial of related benefits has created additional difficulties for the Lumbee: "Indeed...the history of the Lumbees is a history of struggle...struggle to gain acceptance as Indians, to escape the emasculating effects of discriminatory laws and to join the mainstream of society as first-class citizens" (p. xiv). The fight for equality and recognition partially explains the crucial importance that cultural identity holds for Lumbee Indians (Bryant and LaFromboise 2005). This historical and social context underscores the importance of understanding the ways in which resilience is fostered while overcoming adversities. Shared adversity often buttresses the affiliations and affection members feel toward the group or tribe.

Ethnic identity is a salient element of Lumbee identity. Although no singular, universal definition of ethnic identity exists (Phinney 1990), the term commonly refers to the ethnic label or labels used to self-identify with a larger cultural group. The process of ethnic self-identification includes a person's knowledge about his or her ethnic group (e.g., culture, traditions, customs, values, behaviors), and personal responses (e.g., feelings, opinions, preferences) regarding his or her own ethnic group (Bernal and Knight 1993). Positive self-perceptions of ethnic identity can serve as a protective factor for adolescents. For

example, ethnic identity is associated with increased successful psychological functioning and well-being in adolescents (Markstrom et al. 2011; Martinez and Dukes 1997; Phinney 1990; Phinney and Chaviara 1992). This function of ethnic identity is especially important for American Indian youth given the heightened rates of mental health disorders in this population (Beals et al. 1997; West and Newman 2011), including anxiety (Zvolensky et al. 2001), depressive symptoms (Manson et al. 1990), and externalizing disorders (Whitbeck et al. 2008). However, little of the available literature has examined ethnic identity in the American Indian population (Markstrom et al. 2011). Further, the limited research on ethnic identity has yielded an incomplete understanding of the psychological mechanisms that potentiate positive effects related to ethnic identity.

The current study sought to augment this scant literature and better illuminate the effects of ethnic identity on anxiety symptoms, depressive symptoms, and externalizing behavior in a sample of Lumbee adolescents. We explored the pathways through which ethnic identity is associated with adolescent mental health. The existing literature examining these relationships has tended to focus on direct effects to the exclusion of mediating mechanisms (Schwartz et al. 2007). To fill this gap, we chose to explore possible mechanisms (i.e., self-esteem, future optimism) that mediate the relationship of ethnic identity with anxiety symptoms, depressive symptoms, and externalizing behavior.

Our conceptual model is presented in Fig. 1. We hypothesized that ethnic identity is connected indirectly to adolescent mental health by promoting future optimism and self-esteem; in turn, future optimism and self-esteem have significant direct relationships with multiple domains of mental and behavioral health. Each of these areas is

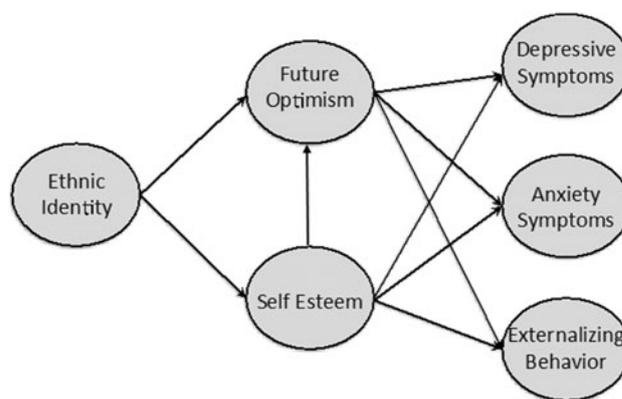


Fig. 1 Pathways from ethnic identity to mental health outcomes. *Note* Direct effects from ethnic identity to mental health outcomes are not shown, but were tested in preliminary analyses. All direct effects from ethnic identity to mental health outcomes are fully mediated

discussed in the following sections detailing pathways of ethnic identity influence.

Pathway 1: Ethnic Identity → Future Optimism → Adolescent Mental Health

Future orientation—the ability to think about and picture the future—enables adolescents to set goals, develop plans, and make commitments (Nurmi 1991a; Seginer 2008). An optimistic future orientation has been identified as a protective factor for vulnerable adolescents (McCabe and Barnett 2000). The theory of possible selves (Markus and Nurius 1986) is a useful foundation for examining the importance of future optimism and its impact on mental health. This theory suggests that adolescent mental health is affected by how vividly a youth can picture himself or herself as different possible selves in the future. A consistent positive bias is found when individuals consider future possible selves (Markus and Nurius 1986). Consequently, this ability to form images of future selves facilitates the formation of personal goals and dreams, positively influencing future optimism and linking this cognitive process to enhanced mental health in the present.

Although research on the association between ethnic identity and future orientation is scarce, some researchers have acknowledged the protective nature of both constructs and have begun to identify links between ethnic identity and future orientation. For example, in a sample of rural African American adolescents, ethnic identity was identified as one of the most important predictors of future education orientation (Kerpelman et al. 2008). Further, Kerpelman and Mosher (2004) also examined a sample of rural African American adolescents and found that identity exploration and commitment (two ethnic identity subscales) were associated with adolescent future orientation.

Extant research has identified an association between future orientation and mental health in a number of adolescent samples. In a sample of Chinese children and adolescents affected by HIV/AIDS, future orientation fully mediated the relationship between traumatic events and mental health (i.e., depression, loneliness, self-esteem; Zhang et al. 2009). In addition, examination of a sample of foster care youth showed a stronger future orientation was associated significantly with lower levels of internalizing symptoms, such as withdrawal, anxiety, and depressive symptoms, as well as externalizing behavior such as delinquency and aggression (Cabrera et al. 2009; Polgar and Auslander 2009). Optimism, a construct consistently linked to future orientation (e.g., McCabe and Barnett 2000; Seginer 2008, 2009), was associated negatively with depressive symptoms and hopelessness among high-school adolescents (Chang and Sanna 2003).

In addition to future orientation serving as a protective factor against negative mental health outcomes, research has suggested an association exists between future orientation and positive psychological functioning, such as self-esteem. A relationship between self-esteem and future orientation is plausible given that “...people evaluate their chances of realizing their goals and plans according to their present view of their capabilities” (Nurmi 1991a, p. 7). Indeed, as compared with adolescents who had lower self-esteem, adolescents with high levels of self-esteem were more likely to attribute both their current and future success to personal initiative and were more likely to look farther into the future (Nurmi and Pulliainen 1991). In addition, an investigation of self-esteem in a sample of Israeli Jewish adolescents showed that self-esteem was associated positively with future orientation (Seginer and Shoyer 2012).

Despite an exhaustive literature search, we were unable to find any research exploring future orientation or future optimism in American Indian youth, indicating a clear need for additional research. These constructs might be particularly salient for the mental health of American Indian adolescents given the potential of historical trauma to affect present levels of well-being. Researchers have suggested that children who learn about past cultural traumas are more likely to be fearful and anxious about their own futures (Campbell and Evans-Campbell 2011). Conversely, adolescents finding resilience in cultural identity formation may devote themselves to redressing past traumas and creating a more positive future for their tribe. Consequently, the pathway from ethnic identity to future optimism, and ultimately to mental health might be particularly salient for American Indian adolescents.

Pathway 2: Ethnic Identity → Self-esteem → Adolescent Mental Health

A significant body of literature has examined the connection between adolescent ethnic identity and self-esteem. The findings have suggested a positive association between ethnic identity and self-esteem exists across racial groups, including African Americans (Blash and Unger 1995; Phinney et al. 1997; Phinney and Chaviara 1992), aboriginal Canadians (Corenblum and Armstrong 2012), Hispanics, Asian Americans (Martinez and Dukes 1997; Phinney and Chaviara 1992), and Caucasians (Martinez and Dukes 1997; Phinney et al. 1997). The positive relationship of ethnic identity and self-esteem has emerged across varying sample sizes [i.e., 18 participants (Phinney and Chaviara 1992) to 12,386 participants (Martinez and Dukes 1997)] and has been found in studies that used longitudinal (Phinney and Chaviara 1992) and cross-sectional designs (Corenblum and Armstrong 2012; Phinney

et al. 1997). Few studies were specific to American Indian adolescents, and the findings from these studies have provided conflicting pictures of the relationship between ethnic identity and self-esteem.

Some researchers have found a significant, positive association between ethnic identity and self-esteem for American Indian youth (Jones and Galliher 2007; Martinez and Dukes 1997). However, in two longitudinal studies of Northern Plains, Southwest, and Pueblo American Indian adolescents, researchers found a significant, but weak positive association (Whitesell et al. 2006) and a significant, but moderate positive association (Whitesell et al. 2009) between ethnic identity and self-esteem. Further, in samples of Lumbee American Indian (Newman 2005) and Lakota/Dakota Sioux adolescents (Pittenger 1998), researchers found no evidence of a relationship between ethnic identity and self-esteem. The inconsistent findings regarding the relationship between ethnic identity and self-esteem for American Indians in general, and the lack of studies on Lumbee Indians specifically, warrants additional research.

Self-esteem has been associated inversely with depressive symptoms in that high levels of depressive symptoms often co-occur with low levels of self-esteem (Derdikman-Eiron et al. 2011; Glendinning 1998; Millings et al. 2012). Although research on the relationship of self-esteem with depressive symptoms among American Indian adolescents is limited, the available evidence from a sample of American Indian females indicated an inverse association between depressive symptoms and self-esteem (Ginsburg et al. 2008). Self-esteem also has been shown as inversely associated with anxiety symptoms (Derdikman-Eiron et al. 2011; Moksnes and Espnes 2012) in the general adolescent population as well as in a sample of Lumbee adolescents (West 2004). In addition, other research has shown adolescent self-esteem was associated negatively with externalizing behavior such as conduct disorder (Ybrandt and Armelius 2010).

Caucasian adolescents generally report higher levels of self-esteem than American Indian adolescents (e.g., Markstrom et al. 2011). One suggested explanation holds that this finding is consistent with cultural foci on individualism versus collectivism. Specifically, individualistic cultures socialize their youth to value competition, freedom, and personal achievement. This socialization results in a buttressing of individuals' self-esteem through social mirroring that stresses individual achievement and glorifies a personal sense of self apart from others. Conversely, collectivism emphasizes group affiliation, duty, harmony, belonging, and hierarchy. Within the collectivism framework, self-esteem is de-emphasized whereas group identification is highlighted. Therefore, self-esteem, and its connection to mental health, is typically stronger in

individualistic cultures. In collectivist cultures, the strength of an individual's group affiliation, or ethnic identity, may be the primary source of self-esteem.

After completing an extensive meta-analysis in this area of individualism-collectivism, Oyserman et al. (2002) reported that European Americans were both more individualistic (valuing personal independence more) and less collectivistic (feeling less sense of duty to groups) than other racial/ethnic groups. Differences in individualism and collectivism had moderate effects on self-esteem and cognitive style. It is therefore plausible that the relationship between ethnic identity (a construct that includes collectivist ethnic group orientation) and self-esteem (a salient construct in individualistic social contexts) varies by racial/ethnic group. Collectivist American Indian youth may display a stronger direct relationship between ethnic identity and self-esteem compared with youth of other races/ethnicities. Youth who tend to be more individualistic are likely to have their self-esteem buttressed by personal factors and achievements outside of ethnic identity.

Overall, evidence has suggested direct links between ethnic identity and self-esteem as well as between self-esteem and mental health outcomes. The logical extension of this body of research suggests that self-esteem should be explored as a mediator in the relationship between ethnic identity and mental health outcomes. Indeed, one group of researchers examining a sample of Hispanic adolescents found the relationship between ethnic identity and externalizing symptoms was significantly mediated by self-esteem (Schwartz et al. 2007). However, it remains unclear whether this mediation effect exists across racial/ethnic groups or for other mental health outcomes.

Current Study

The current study aimed to address gaps in the literature on positive psychology for American Indians by advancing the understanding of the relationships between three potential protective factors—ethnic identity, self-esteem, and future optimism—and mental health (i.e., anxiety symptoms, depressive symptoms, and externalizing behavior). Based on current literature, this study sought to test five hypotheses for a racially/ethnically diverse sample of adolescents. First, Ethnic identity will be positively associated with self-esteem and future orientation. Second, Self-esteem will be positively associated with future optimism. Third, an inverse relationship will exist between future optimism and mental health problems. Fourth, an inverse relationship will exist between self-esteem and mental health outcomes. Fifth, self-esteem and future optimism will mediate the relationships between ethnic identity and mental health outcomes. This final hypothesis tests the two hypothesized

mediation pathways described above. In addition, given our special focus on protective factors for American Indians, we sought to determine whether these hypothesized relationships differed for Lumbee Indian youth as compared with adolescents of other races/ethnicities.

Method

Participants

The sample data came from the North Carolina Academic Center for Excellence Rural Adaptation Project (RAP), a 5-year longitudinal panel study of more than 5,000 middle-school students from 28 public schools in two rural, economically disadvantaged counties in North Carolina. These data were collected in spring 2011 and spring 2012 (i.e., years 1 and 2 of the 5-year project). All middle-school students in grade 6 through grade 8 in county 1 were included in the sample. Because county 2 was both larger geographically and had a larger student population than county 1, we included a random sample of 40 % of middle-school students from county 2.

In both counties, data were collected using an online assessment tool that students completed in school computer labs. Following school district policies, county 1 adopted the assessment as a part of normal procedures and all students were included on the study roster. Parents from county 2 received a letter explaining the study. If parents did not want their child or children to participate, they returned the letter requesting nonparticipation and their child was removed from the study roster. All students were told they were free to decline to participate in the data collection. Students assented to participate by reading and electronically signing an assent screen prior to completing the online assessment. The administration of the online assessment in the computer labs was closely monitored by the research staff. Each student received an incentive (i.e., a \$10 gift card in year 1 and a \$5 gift card in year 2) for his or her participation in the study. To maintain confidentiality, student assessments had an identification number attached and no identifying data were collected. Participants were tracked from year 1 to year 2. The overall response rate was approximately 86 %.

The initial sample consisted of 5,614 participants, but some participants were removed because their assessments were missing data for all the variables of interest. In addition, participants self-identifying their racial/ethnic status as Asian, other, or mixed race were removed because of small sample sizes. The final analytic sample included 4,714 participants. A series of bivariate analyses (i.e., *t* tests, Chi square tests) were performed to identify demographic differences between students included in the

analysis and students removed from the analysis. The results indicated no significant differences between the two groups in terms of gender, age, or language spoken at home. However, the unanalyzed sample was slightly more likely to receive free/reduced price lunch than the analyzed sample (i.e., 7.93 % more likely, $p < .001$). In addition, the unanalyzed sample was slightly less likely to live with a family with two adults than the analyzed sample (i.e., 6.29 % less likely, $p < .01$).

The racial/ethnic composition of the final sample mirrored the diversity of the surrounding community: 33.20 % ($n = 1,565$) of participants identified as Caucasian, 28.81 % ($n = 1,358$) identified as American Indian (Lumbee), 28.53 % ($n = 1,345$) identified as African American, and 9.46 % ($n = 446$) identified as Latino. The sample was almost evenly divided by gender, with 51.38 % ($n = 2,418$) of participants identifying as female. The mean age of the sample was 13.39 years. More than half of the sample (67.15 %; $n = 2,576$) received free/reduced price lunch, and 93.7 % ($n = 4,417$) spoke English at home. In terms of family structure, 21.04 % ($n = 992$) lived with a family with one adult, 71.17 % ($n = 3,355$) lived with a family with two adults, and 7.79 % ($n = 367$) lived in a different type of family situation.

Measures

The school success profile (SSP; Bowen and Richman 2008) is a 220-item youth self-report survey that measures attitudes and perceptions about school, friends, family, neighborhood, self, and health and well-being. Since its creation in 1993, the SSP has been administered to tens of thousands of students, and research with the SSP has well documented the validity and reliability of the measure (Bowen et al. 2005). This study used a modified version of the SSP, the school success profile plus (SSP+), which included 152 of the SSP items and three additional subscales. The first subscale was a modified version of the Rosenberg Self-Esteem scale (Rosenberg 1965). The second subscale was the multigroup ethnic identity measure (Phinney 1992). The last subscale was formed with subscales from the Youth Self-Report (YSR), which is the adolescent version of the Child Behavior Checklist (Achenbach and Rescorla 2001).

Ethnic Identity

The exogenous latent variable used in our analytic model was ethnic identity from year 1. The strength of participants' ethnic identity was measured using six items from Phinney's 14-item multigroup ethnic identity measure (MEIM; Phinney 1992). Rather than using the entire MEIM, we selected the six items to reduce the burden of a

lengthy assessment. Example items included, “I have a strong sense of belonging to my own ethnic group,” and “I feel a strong attachment towards my ethnic group.” Each item was rated on a 5-point Likert scale (*strongly disagree*, *disagree*, *neither agree nor disagree*, *agree*, and *strongly agree*) and the Cronbach’s alpha reliability was .92 in this sample.

Self-esteem

Year 2 self-esteem was assessed using a five-item scale adapted from the Rosenberg Self-Esteem scale (Rosenberg 1965). For brevity on a long assessment, five of the items from the original Rosenberg Self-Esteem scale were deleted and other items were reworded for a low-literacy middle-school population. Example items included, “I feel good about myself” and “I am able to do things as well as most other people.” Each item was rated on a 3-point Likert-like scale (*not like me*, *a little like me*, or *a lot like me*) and the Cronbach’s alpha reliability was .91 in this sample.

Future Optimism

Year 2 future optimism was assessed with the 12-item SSP future optimism scale (Bowen and Richman 2008) that measures attitudes and expectations for future success. Example items included, “When I think about my future, I feel very positive” and “I see myself accomplishing great things in life.” Each item was rated on a 4-point Likert scale (*strongly disagree*, *disagree*, *agree*, and *strongly agree*) and the Cronbach’s alpha reliability was .95 in this sample.

Depressive Symptoms

Year 2 depressive symptomology was an outcome variable in the current model and was measured using a four-item scale (Bowen and Richman 2008). Example items included, “I often feel sad” and “I often wonder whether anyone really cares about me.” Each item was rated on a 3-point Likert scale (*not like me*, *a little like me*, *a lot like me*) and the Cronbach’s alpha was .89 in this sample.

Anxiety Symptoms

Year 2 anxiety symptomology was the second outcome variable and was measured by the three-item anxiety subscale from the YSR (Achenbach and Rescorla 2001). Example items included, “I often worry about my future” and “I often feel nervous or tense.” Each item was rated on a 3-point Likert scale (*not like me*, *a little like me*, and *a lot like me*); the Cronbach’s alpha was .80 in this sample.

Externalizing Behavior

The third outcome variable was year 2 externalizing behavior, which was measured by the modified 12-item aggression subscale from the YSR (Achenbach and Rescorla 2001). Example items included, “I get in many fights” and “I break rules at home, school, or elsewhere.” Each item was rated on a 3-point Likert scale (*not like me* to *a lot like me*); the Cronbach’s alpha was .87 in this sample.

Structural Equation Modeling Data Analysis

Structural equation modeling (SEM) permits exploration of the relationships between latent variables as well as the relationships between observed and latent variables (Bowen and Guo 2012). A unique feature of SEM is its capacity to combine multiple regression equations and factor analysis (Hoyle 2012). Using SEM also enables researchers to test equations simultaneously, which is ideal for mediation analysis and models with more than one outcome variable. Although it is preferable to have at least three waves of data to test mediation (Cole and Maxwell 2003), SEM can be used successfully with two waves of data (Vaughan and Halpern 2010). This SEM feature was important because the RAP study had only two waves of data available for our analyses. The current study used multiple group SEM to compare model parameters for American Indian adolescents (i.e., American Indian Group) with adolescents of other race/ethnicities (i.e., Other Race Group; encompassed Caucasian, Hispanic/Latino, and African American subgroups of adolescents). Following the protocol suggested by Cole and Maxwell (2003) and Byrne (2012), SEM analysis was conducted in Mplus version 7.0 (Muthén and Muthén 1998–2012).

The SEM analysis was carried out in two stages. In the first stage, we established invariance of the measurement model by comparing an unconstrained measurement model (i.e., a model in which the factor loadings of observed indicators were allowed to vary between groups) with a fully constrained measurement model (i.e., a model in which factor loadings of observed indicators were constrained to be equal for the two groups). Invariance of the measurement model suggests that individuals from different cultural groups have similar interpretations of the constructs. Therefore, establishing measurement invariance is a crucial prerequisite for testing the proposed structural model and determining whether the hypothesized relationships are moderated by race/ethnicity.

In the second stage of our analysis, we tested the equivalence of the structural model parameters (i.e., gammas and betas) across the two groups of adolescents. This step was achieved by first constraining the gammas (i.e., parameter estimates of the paths between the exogenous

and the endogenous variables) to be equal for the two groups and comparing this model with a model that allowed the gamma parameters to be freely estimated for each group (i.e., an unconstrained model). The gamma parameters were then released and the betas (i.e., parameter estimates of the paths between endogenous variables) were constrained; the resulting model was then compared with the unconstrained model. For the final model, the constrained gammas were restored to the model and this model was compared with the unconstrained model. Throughout the measurement and structural invariance testing sequence, change in the Chi square statistic (as calculated by the Mplus DIFFTEST procedure; Muthén and Muthén 1998–2012) was used to determine if the particular equality constraints imposed in a model resulted in significantly worse fit than the less constrained model (Byrne 2012). The final model retained only those parameter constraints that did not yield a significantly worse fit.

Results

Before testing the study hypotheses (i.e., self-esteem and future optimism mediate the relationships between ethnic identity and mental health outcomes), invariance of the measurement model was established. The measurement model fit the data exceptionally well based on fit statistic criteria (West et al. 2012). The Chi square value was $\chi^2 = 5,985.286$ (1,704), $p < .001$. Although a nonsignificant Chi square value is desirable and indicative of good overall model fit, a nonsignificant value was unlikely in our model given the Chi square statistic's known sensitivity to large sample sizes (Hoyle 2012). Therefore, we used other fit indices to gauge model fit, including the root mean square error of approximation (RMSEA), the comparative fit index (CFI), and the Tucker–Lewis index (TLI). Before running our analyses, we set cutoff values for each fit index that indicate good model fit. RMSEA values of .06 or lower and CFI and TLI values of .95 or higher are considered indicative of good model fit (Hu and Bentler 1999). This study's measurement model had an RMSEA value of .033 with a 90 % confidence interval of .032–.034 and a CFI and TLI of .982. After establishing adequate fit of the measurement model, we tested for measurement invariance across ethnic groups using Chi square difference tests. Results of the difference tests (i.e., change in Chi square value and p value) were nonsignificant, indicating measurement invariance across the two groups. Thus, the factor loadings of the observed indicators (i.e., lambdas) could be constrained across groups.

Analyses of direct effects from ethnic identity to mental health outcomes indicated that ethnic identity was inversely associated with depressive symptoms, anxiety

symptoms, and externalizing behavior for youth from all cultural groups. The significance levels were $p < .05$ for direct effects from ethnic identity to depressive symptoms and externalizing behavior and $p < .10$ for anxiety symptoms. All of these direct effects became nonsignificant when future optimism and self-esteem were included in the statistical models, indicating fully mediated indirect effects. Consequently, we turned our attention to the SEM model delineating the two hypothesized mediation pathways.

The initial full SEM model had adequate model fit: $\chi^2 = 5,302.38$ (1,710), $p < .001$, with an RMSEA value of 0.030 and a 90 % confidence interval of 0.029–0.031; both the CFI and TLI were .985. A Chi square difference test was used to evaluate the invariance of gamma and beta parameters across groups: $\chi^2 = 16.920$ (9), $p < .05$. The results indicated the presence of non-invariance somewhere in the structural model, which necessitated testing gammas and betas separately. We used a Chi square difference test to compare a gamma-constrained model with a gamma-unconstrained model: $\chi^2 = 0.671$ (2), $p > .05$. This nonsignificant Chi square value indicated that model fit did not become significantly worse when the gammas were constrained, and therefore, invariance of gammas existed across the two groups.

A Chi square difference test was then used to evaluate invariance of the beta parameters. Results from the comparison of the beta constrained model with the beta unconstrained model [$\chi^2 = 20.208$ (7), $p < .01$] indicated the presence of non-invariance across beta parameters. In other words, some of the estimated effects differed for Lumbee Indians as compared with other racial/ethnic groups. To determine which betas were non-invariant and could be applied to all adolescents, a sequence of testing was conducted in which each beta was constrained separately. As shown in Fig. 2, the following path parameter estimates were found invariant across groups, and therefore, could remain constrained: (1) ethnic identity to future optimism; (2) ethnic identity to self-esteem; (3) self-esteem to future optimism; (4) future optimism to externalizing behavior; and (5) self-esteem to anxiety symptoms. These relationships were equally important for Lumbee Indians and other racial/ethnic groups. The other path parameter estimates varied between Lumbee Indians and other racial/ethnic groups, and thus, required separate (i.e., unconstrained) parameter estimates. The path from future optimism to depressive symptoms was significant for Lumbee Indians but not for other racial/ethnic groups. The path from future optimism to anxiety symptoms was not significant for either Lumbee Indians or other racial/ethnic groups. Although self-esteem was related significantly and inversely to depressive symptoms for all adolescents, this relationship was weaker for Lumbee Indians. Conversely,

though self-esteem was a protective factor against externalizing behavior for all adolescents, this effect was stronger for Lumbee Indians than other racial/ethnic groups.

The constrained gammas were retained in the final model, which was compared with the structural unconstrained model using a Chi square difference test: $\chi^2 = 4.039 (5), p > .05$. This nonsignificant Chi square value indicated a parsimonious model. The final model had good model fit. The Chi square value was $\chi^2 = 4,605.167 (1,715), p < .001$. The obtained RMSEA was .027 with a 90 % confidence interval of .026–.028. The model had a CFI and TLI of .988. See Fig. 2 for the full SEM model.

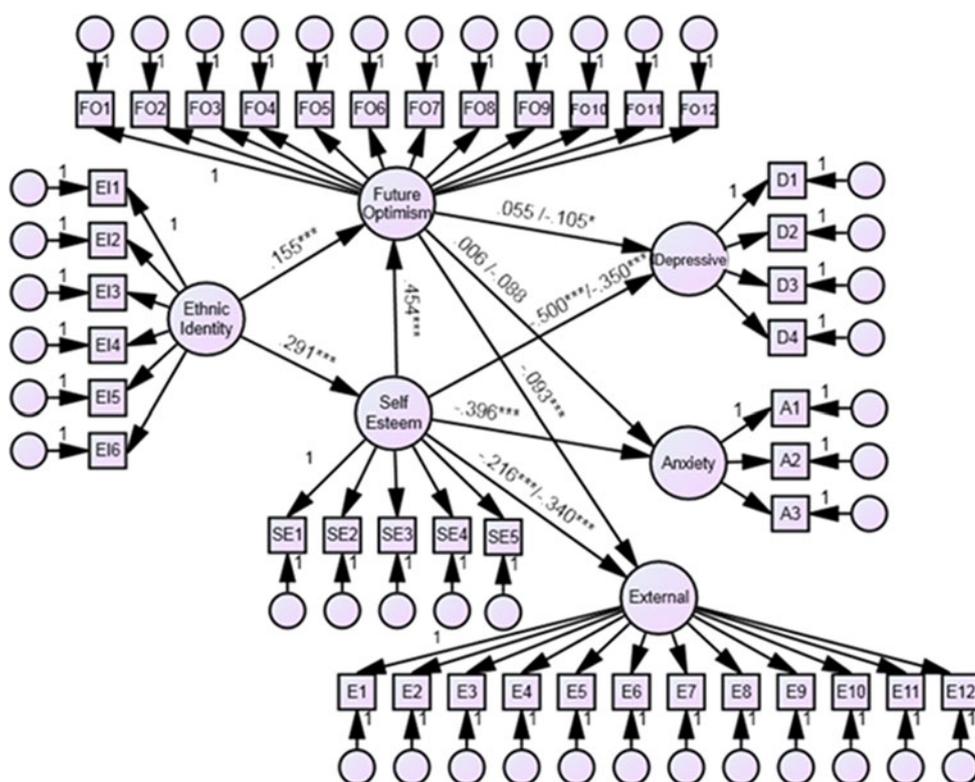
Ethnic identity in year 1 was associated significantly with increased levels of self-esteem and future optimism in year 2. Mediation relationships were evaluated by testing indirect effects using the IND command in MPlus. Results showed that self-esteem significantly mediated the relationships between ethnic identity and anxiety symptoms, depressive symptoms, and externalizing behavior for both racial/ethnic groups ($p < .001$). Future optimism significantly mediated the relationship between ethnic identity and externalizing behavior for both racial/ethnic groups ($p < .01$) and was a significant mediator between ethnic identity and depressive symptoms for Lumbee Indian youth only ($p < .05$). Future optimism was not a significant mediator between ethnic identity and symptoms of anxiety for either racial/ethnic group ($p > .05$).

Discussion

Extant research has highlighted the heightened prevalence of mental health disorders among American Indian youth (e.g., Beals et al. 1997; Saluja et al. 2004; West and Newman 2011). Historical trauma, resulting from a history of cultural persecution, massacres, and forced relocation, combined with socioeconomic disadvantage continues to impact the mental health and well-being of the American Indian people (Campbell and Evans-Campbell 2011). The history of the Lumbee Indians, specifically, is rife with struggle for recognition as an American Indian tribe. Despite these challenges, cultural traditions, rituals, and norms remain strong, providing an enduring heritage through which American Indian youth can find resilience. Consequently, culture remains the foundation for identity development and group affiliation for many American Indian youths.

Although limited research has considered the way in which ethnic identity affects mental health outcomes among American Indian youth generally, a particular dearth of research exists for Lumbee Indian youth. To address this gap, this study examined the impact of three important protective factors—ethnic identity, future optimism, and self-esteem—on adolescent mental health. Two theory-driven pathways from ethnic identity to adolescent mental health indicators were supported for youth from all

Fig. 2 Structural equation model: final analysis diagram. Note Path coefficients are unstandardized. A single parameter denotes a constrained path. For unconstrained paths, “Other than American Indian” parameters are listed first, followed by American Indian parameters. * $p < .05$, *** $p < .001$. Lambda coefficients and correlations among endogenous variables are absent from the figure



racess/ethnicities, and the model was modified to maximize fit for Lumbee Indian adolescents.

Our first hypothesis regarding positive associations between (1) ethnic identity and self-esteem and (2) ethnic identity and future optimism was supported. This finding extends the extant literature, which is primarily cross-sectional and has little reference to Lumbee Indians. For self-esteem, this finding is consistent with earlier research that found a positive association between ethnic identity and self-esteem for American Indian youth (Jones and Galliher 2007) as well as youth of other races/ethnicities (Martinez and Dukes 1997; Phinney et al. 1997; Phinney and Chaviara 1992). A strong ethnic identity is often indicative of participation in cultural activities and community involvement, and these positive interactions may serve to bolster self-esteem. Within a collectivist American Indian culture, the strength of a person's affiliation with the larger group is a source of pride and anchors personal identity. Consequently, self-esteem for American Indian youth may be tied to the strength of a person's connection to in-group dynamics related to family and community (Oyserman et al. 2002). Even so, we found that cultural group affiliations are salient for all adolescents; the connection to traditions, rituals, norms, symbols, and a common heritage that includes family and community roots bolsters identity development and fuels self-esteem.

For all adolescents, ethnic identity also was significantly connected to subsequent future optimism. Prior research has suggested that ethnic identity was associated with future academic orientation for African American adolescents (Kerpelman et al. 2008). The current study expands this research base to include Lumbee Indian, Caucasian, African American, and Hispanic/Latino youth. We used the theory of possible selves to help explain the relationship we found between ethnic identity and future optimism. Adolescents who are developing high levels of ethnic identity commonly spend time with role models from their ethnic background. These youth tend to be keenly aware of their ancestors' achievements and struggles, respect their elders, and acknowledge hierarchies in their families and communities. Thus, ethnic identity provides such adolescents with a sense of their place within the larger cultural group. Cultural role models serve as examples of success, and shared success ties each group member to a larger historical movement. These dynamics are relevant to all adolescents, but are particularly salient in collectivist minority cultural groups in which a person's future optimism for himself or herself is inextricably tied to the person's future optimism for the larger cultural group. The awareness that comes with ethnic identity serves to heighten understanding of the social and historical context, increasing adolescents' hopes that the future will be better because of the group's past and present efforts.

Our second hypothesis regarding the positive relationship between self-esteem and future optimism was supported for all adolescents. Indeed, the relationship between self-esteem and future optimism was the strongest relationship in the model. Although both self-esteem and future optimism were measured at time 1, this directionality makes theoretical and substantive sense. Adolescents use their present evaluations of personal strengths, attributes, and capabilities as the foundation for their future goals and plans, fashioning future possible selves largely based on current evaluations of personal capacities (Nurmi 1991b; Nurmi and Pulliainen 1991; Oyserman et al. 2002). Thus, self-esteem potentiates future optimism: those who view themselves favorably can expect more success in the future and those who are struggling in the present can hope for a better future.

Our third and fourth hypotheses examined how future optimism and self-esteem were associated with adolescent mental health. Of these two protective factors, self-esteem was clearly stronger, and self-esteem was related inversely to depressive symptoms, anxiety symptoms, and externalizing behavior for adolescents from all racial/ethnic backgrounds. This finding confirms previous research on the link between self-esteem and depressive symptoms (Derdikman-Eiron et al. 2011; Glendinning 1998; Millings et al. 2012), anxiety symptoms (Moksnes and Espnes 2012; West 2004), and externalizing behavior (Ybrandt and Armelius 2010) and extends this research to a large and diverse sample of rural adolescents. The protective effect of self-esteem in lowering anxiety symptoms was applicable to all races/ethnicities; however, Lumbee Indian youth had a slightly weaker, though significant, link from self-esteem to depressive symptoms and a stronger link from self-esteem to externalizing behavior relative to adolescents from other races/ethnicities. Despite this modest variation, the final model clearly showed self-esteem to be a protective factor with wide-ranging positive effects on adolescent mental health. This finding held true over the course of 1 year for a large, diverse sample of adolescents. Whether rooted in individualistic or collectivistic cultures, adolescents make personal evaluations about themselves using information from a variety of external and internal sources. These cognitions about the self not only have an important role in forming the foundation of confidence and pride but also have a dramatic influence on mental health and behavior.

Future optimism was not related significantly to adolescent anxiety symptoms, but was related inversely to depressive symptoms for only the Lumbee Indian youth, and modestly related to lower externalizing behavior in all youth. These findings present a mixed picture of the effects of future optimism, and the effect of future optimism is certainly less powerful than self-esteem. Even so, the negative association between future optimism and

depressive symptoms for Lumbee adolescents has important implications. Historical trauma has been suggested as one explanation for the high prevalence of depressive symptoms among American Indians (Campbell and Evans-Campbell 2011). The history of persecution and oppression experienced by the American Indian population, coupled with ongoing discrimination and disadvantage, likely contributes to higher rates of depressive symptoms. Consequently, an American Indian youth's future optimism for himself or herself as well as the person's tribal community might be a particularly important protective factor for Lumbee Indian youth. Future optimism might help Lumbee Indian adolescents fashion possible selves within and outside of their tribal affiliations, thus decreasing the bleak views of the future that come with depression.

Our final hypothesis predicted that self-esteem and future optimism would mediate the relationships between ethnic identity and mental health outcomes. This hypothesis was supported for self-esteem mediating the impact of ethnic identity on depressive symptoms, anxiety symptoms, and externalizing behavior. Future optimism was less powerful, but mediated the effects of ethnic identity on externalizing behavior for all adolescents and on depressive symptoms for only the Lumbee Indian youth. The pathway from ethnic identity to self-esteem, ultimately leading to positive mental health and behavior, is an important contribution to positive psychology. These mediation pathways provide evidence for the ecological model of personality development. Messages from multiple ecological levels, such as cultural groups, communities, and (most importantly) families, transmit information to adolescents about where they come from (ethnic identity), who they are (self-esteem), and who they might become (future optimism). In turn, these foundational cognitions about aspects of the self profoundly impact youth mental health and interpersonal behavior.

This information is relevant and useful when considering cultural adaptations for prevention programming. Building self-esteem should be a central intervention target in promoting positive adaptation and mental health for all adolescents. Enhancing self-esteem should have a widespread effect by fostering future optimism, decreasing depressive symptoms and anxiety symptoms, lowering the risk of externalizing behavior, and positively affecting other indicators of well-being. Programs that engender ethnic identity development also may have a positive "ripple effect" that enhances future optimism and self-esteem, leading to positive changes in mental health functioning. Cultural programming that increases ethnic identity and self-esteem might be particularly effective in decreasing negative mental health symptoms and behavioral problems for Lumbee Indians; however, this assertion requires further investigation.

Our analytic model supports interventions that promote ethnic identity, self-esteem, and future optimism, which can have a strong combined impact on adolescent mental health. The pathways to reducing mental health symptoms and behavioral problems are particularly poignant for Lumbee Indian youth, and can be addressed effectively using bicultural skills training or brief structural family therapy models (LaFromboise and Rowe 1983; Smokowski and Bacallao 2010; Szapocznik et al. 1986; Szapocznik and Williams 2000). The creators of these interventions were cognizant of cultural identity issues. Moreover, these interventions are inclusive of family values and dynamics, and have been shown effective in addressing self-esteem and future optimism in participants. Clearly, more work remains to be done in this area.

This study's findings must be understood in light of specific limitations. A four-item scale was used to measure depressive symptoms and a three-item scale to measure anxiety symptoms. Although the scales we used were reliable and empirically validated, depression and anxiety are complex constructs. The scales we used were not designed or intended to evaluate clinical levels of depression or anxiety; both scales were intended to measure the presence, not severity, of symptoms of depression and anxiety. Our study might have been strengthened by including measures of depression and anxiety that were more comprehensive. However, including comprehensive measures was not feasible given the time constraints around administration of the SSP+ survey (i.e., surveys were completed during the school day using school computer labs). Generalizability of the study findings is limited because this study took place in a rural, low-income region of the Southern United States. Although the study sample had excellent representation of the areas where the data were collected, caution is warranted in applying our findings to adolescents in other geographic areas. Further, generalizability from Lumbee adolescents to other American Indian groups is also questionable. There are many different customs, norms, behaviors, and traditions across American Indian tribes. Recognizing these differences, we recommend caution in applying our results to other American Indian tribes. Finally, having three waves of data for SEM analysis would have been ideal, but the third wave of RAP data was not yet available.

Conclusion

This study examined the impact of three important protective factors—ethnic identity, future optimism, and self-esteem—on adolescent mental health. Two theory-driven pathways from ethnic identity to indicators of adolescent mental health were supported for youth from all races/

ethnicities, and the model was modified to maximize fit for Lumbee Indian adolescents. Adolescent self-esteem was a key mediator, linking baseline ethnic identity to mental health outcomes 1 year later. Self-esteem also was strongly connected to future optimism for all adolescents. The path from ethnic identity through future optimism was significant for all adolescents in lowering externalizing behavior and for Lumbee Indian youth in lowering depressive symptoms. These findings contribute to positive psychology by delineating the relationships among protective factors and mental health outcomes in a diverse sample of rural adolescents and by providing a conceptual map for the development of culturally informed interventions to prevent mental health and behavioral problems.

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