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Stressful Life Events, Ethnic Identity, Historical Trauma, and Participation in Cultural Activities: Associations with Smoking Behaviors among American Indian Adolescents in California

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Abstract

Introduction—American Indian (AI) adolescents have the highest prevalence of commercial tobacco use of any ethnic group in the United States. This study examines ethnic identity (EI), participation in cultural activities, and stressful life events (SLEs) as correlates of smoking and examines historical trauma (HT) as a mediator of these associations.

Methods—California AI youth (N= 969, ages 13–19, recruited from 49 tribal youth organizations and cultural activities in urban and reservation areas in California) completed a tobacco survey. Structural equation modeling was used to test a model examining HT as a potential mediator of the associations of EI, participation in cultural activities, and SLEs with cigarette smoking.

Results—Model fit was adequate. EI, participation in cultural activities, and SLEs predicted HT. HT mediated the associations of participation in cultural activities and SLEs with past-month smoking. Stronger EI predicted greater past-month smoking and this effect was mediated by greater HT. The direct effects from HT to both smoking outcomes were positive and the direct effect from EI to past-month smoking was negative.

Conclusions—HT is a risk factor for cigarette smoking both directly and in mediating the links of EI, cultural activities, and SLEs. More efforts are needed to help AI youth to process these thoughts and empower themselves to contribute to their own lives and those of their families and communities without resorting to unhealthy addictive behaviors such as commercial tobacco use.

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Keywords

American Indian; Adolescent; Historical Trauma; Stressful Life Events; Ethnic Identity; Cultural Activities; Smoking

Introduction

American Indians (AI) have the highest cigarette smoking prevalence of any ethnic group in the United States (US) (CDC, 2014). Past-month smoking prevalence among 9th–12th graders was 24.3% among AIs, as compared with 18.6% among Whites, 14.0% among Hispanics, 8.3% among African Americans, and 10.3% among Asians (CDC, 2013). Explanations for the high smoking risk among AI youth include peer influences, parental influences, access to tobacco, and secondhand smoke exposure (Forster, Brokenleg, Rhodes, Lamont, & Poupart, 2008; LeMaster, Connell, Mitchell, & Manson, 2002; Satter et al., 2012; Unger et al., 2003). Fewer studies have examined cultural risk and protective factors such as historical trauma (HT), ethnic identity (EI), and participation in cultural events.

1.1 American Indian Youth in California

California has the largest AI population in the US (Norris, Vine, and Hoeffel, 2012; US Census Bureau, 2010), with 109 of the 566 federally recognized tribes (Bureau of Indian Affairs, 2014). Only 22% of AIs nationwide live on reservations (Norris, Vine, & Hoeffel, 2012). California houses many urban Indians –AI individuals of diverse tribal affiliation who have moved to urban areas by choice to seek employment, education or housing, or by force through federal relocation policies (House, 2002).

1.2 Historical Trauma

HT is a possible cause of risky behaviors such as recreational commercial tobacco use among AI youth (Brave Heart, 2000; Whitbeck, Yu, McChargue, & Crawford, 2009). HT is the “cumulative emotional and psychological wounding over the lifespan and across generations emanating from massive group experience” (Brave Heart, 2003, p. 5). AIs have experienced genocidal policies, pandemics, forced relocation, removal of children from their families to boarding schools, and government bans against ceremonies (Walls & Whitbeck, 2012; Whitbeck, Walls, Johnson, Morrisseau, & McDougall, 2009; Brave Heart, 1998; Duran & Duran, 1995). Daily reminders of HT still exist today: impoverished living conditions on reservations, loss of language, loss and confusion regarding traditional beliefs and practices, and loss of traditional family systems (Evans-Campbell, 2008; Whitbeck, Chen, Hoyt, & Adams, 2004). Although AI youth are generations removed from many HT events, trauma associated with such events can remain in their families and their emotional lives (Whitbeck, McMorris, Hoyt, Stubben, & LaFromboise, 2002; Danieli, 1998). The emotional consequences of HT are transmitted to subsequent generations through physiological, environmental and social pathways (Brave Heart, 2003; Danieli, 1998; Duran & Duran, 1995; Sotero, 2006). HT is associated with impaired family communication (Evans-Campbell, 2008), PTSD symptoms, survivor guilt, anxiety, depression, cultural identity, and substance use (Whitbeck, Adams, Hoyt, & Chen, 2004; Ehlers, Gizer, Gilder,

Ellingson, & Yehuda, 2013). We conceptualize HT as a mediator between three predictor variables (EI, participation in cultural activities, and SLEs) and smoking.

1.3 Ethnic Identity

Ethnic identity (EI) is the strength of one's connection to an ethnic group (Moran, Fleming, Somervell, & Manson, 1999). Strong EI is associated with well-being, self-esteem, coping, sense of mastery, optimism, and resilience (Jones & Galliher, 2007; Umana-Taylor et al., 2013; Yip & Fuligni, 2002). EI is protective against substance use among adolescents from various ethnic groups (Marsiglia, Kulis, Hecht, & Sills, 2004), but this association appears less consistent among AI adolescents (Rivas-Drake et al., 2013). Several studies have found that EI is protective against substance use among AI youth (Kulis, Napoli, & Marsiglia, 2002; Yu & Stiffman, 2007), but other studies have identified it as a risk factor (Marsiglia et al., 2004), have found no association (Yu et al., 2005), or have found opposite associations for boys and girls (Jones & Galliher, 2007; Rivas-Drake et al., 2013). These contradictory findings make it difficult to draw conclusions about the association between EI and addictive behaviors among AI youth. EI could be protective by linking adolescents to their cultural heritage and family, and/or it could increase awareness of HT, leading to attempts to self-medicate with smoking. This study examines whether EI has a direct association with smoking and/or an indirect association mediated by HT.

1.4 Participation in Cultural Activities

Modern-day California AI youth participate in ceremonies and cultural activities such as sweat lodges and drum groups (Unger, Soto, & Baezconde-Garbanati, 2006). Rituals and traditions vary across regions and tribes but typically include prayer, singing, and offerings to the spirit world with the use of tobacco. The presence of tobacco in ceremonies might suggest to AI youth that recreational smoking is acceptable, or alternatively, it might sensitize them to the important differences between ceremonial and recreational tobacco use. Participation in cultural activities with family members, elders, and community members also offers opportunities for youth to learn about HT through storytelling (Evans-Campbell, 2008). Participation in cultural activities likely has greater benefits than risks; AI youth who participate in their traditional cultural practices have lower substance use, stronger antidrug norms (Coe et al., 2004; Kulis et al., 2012) and increased resiliency (LaFromboise et al., 2006; Currie, Wild, Schopflocher, Laing, & Veugelers, 2013). Cultural involvement can act as a protective factor, but its association to HT is unknown. Therefore, we explore direct associations of cultural activities with smoking as well as indirect associations mediated by HT.

1.5 Stressful Life Events

Many AI youth experience stressful life events (SLEs) such as losses of relatives and friends from accidents, homicides, and suicide (Brave Heart & DeBruyn, 1998), violence, economic hardship, and discrimination (Gonzales, Gunnoe, Jackson, & Samaniego, 1999). SLEs have been linked to smoking, substance abuse, depression, and risky behavior among AI youth (Baldwin, Brown, Wayment, Nez, & Brelsford, 2011; Dickerson & Johnson, 2012; Dinges & Duong-Tran, 1992; LeMaster, et al., 2002; Whitbeck et al., 2002). We hypothesize a

direct association between SLEs and smoking and also explore the indirect association mediated by HT.

1.6 Current Study

This article examines HT as a mediator of the effects of EI, participation in cultural activities, and SLEs on smoking among California AI adolescents. We also explore the direct associations of EI, participation in cultural activities, and SLE with smoking.

1. Methods

1.1 Survey Procedure

In 2008, survey data were collected at 49 sites in urban and reservation areas in northern, central, and southern California. Data were collected in three primary settings: (1) high schools (n=6 on reservations) where at least 90% of the students were AI; (2) AI youth programs (n=11 on reservations and n=11 in urban areas) such as after school cultural enrichment and tutoring programs; and (3) cultural events (n=15 in urban areas, n=6 on reservations) attended by AI families such as Pow-Wows. These data collection sites were identified by a six member Advisory Committee of AI tobacco control experts from northern, central, and southern California who worked with urban, rural, and/or reservation AI communities. Formal approval was obtained by each site before data collection, which included describing the study, answering any questions about confidentiality and protection of human subjects. The University's Institutional Review Board (IRB) approved this research study.

Data collection was administered by the program manager (AI), project assistant (non-AI), and trained data collectors (AI and non-AI). At each data collection site, the staff attempted to recruit all AI adolescents ages 13–19 who were California residents. Because the survey was anonymous, the IRB approved a waiver of written consent. After verifying eligibility (self-identification as AI, 13–19 years of age, and California resident), the data collectors explained the study, obtained assent, and distributed surveys. The self-administered survey took approximately 30–40 minutes to complete. Each student received an incentive worth \$6, and each organization hosting data collection sessions received a \$100 gift card to purchase supplies.

2.2 Participants

A total of 1265 adolescents completed surveys. Of those, 296 were excluded: 159 who did not self-identify as AI; 107 who did not live on a reservation or in an urban area; 20 who reported out-of-state zip codes; and 10 who completed the survey twice (e.g., the same student could have participated at school and then participated again at a community event). The remaining 969 respondents were included in the analyses. Because youth were recruited at community events, it was impossible to calculate how many additional eligible adolescents were at the event but did not volunteer to participate.

The tribal representation among the AI youth sample in our study included over 100 tribes from California and other states; some youth reported 2 or more tribes and others self-identified as Mexican or Hispanic in addition to AI.

2.3 Measures

Ethnic identity was assessed with the 12-item Multi-group Ethnic Identity Measure (MEIM) (Phinney, 1992), which measures positive feelings and a sense of belonging to one's ethnic group and EI achievement including exploration and resolution of identity issues. Items were rated on a four-point scale ranging from 1=strongly disagree through 4=strongly agree, with higher scores indicating stronger EI (Cronbach's $\alpha=.93$).

Stressful Life Events were measured with the Multicultural Events Schedule for Adolescents (MESA) scale, developed for use with adolescents living in multiethnic, urban environments (Gonzales et al., 1999). The MESA contains 83 events including family conflict, peer hassles/conflicts, school hassles, economic stress, perceived discrimination, and violence. Students reported how many of the SLEs they had experienced in the past 3 months.

Cultural Activities were assessed with two questions, "Have you ever participated in an American Indian drum group?" and "Have you ever gone to a sweat lodge?" Response options were no or yes. The two questions were recoded to create a new variable "Activity" where 0=no participation in any cultural activity and 1= participation in one or both cultural activities.

Historical Trauma was assessed with the Historical Loss Scale (Whitbeck et al., 2004), which includes 12 items assessing loss of land, language, culture, traditional spiritual ways, family and family ties, self-respect, trust, people through early death, and respect by children for elders and for traditional ways. Respondents rate how frequently they think about each loss on a 6-point scale ranging from 1=several times a day to 6=never (Cronbach's $\alpha=.95$).

Smoking Behaviors or recreational cigarette smoking was assessed with two questions from the Youth Risk Behavior Surveillance Survey (CDC, 2001): "Have you ever tried or experimented with cigarette smoking, even a few puffs?" (yes/no), and "Think about the last 30 days. On how many of these days did you smoke cigarettes?" (recoded to 0 days vs. 1 or more days because of skewness).

Covariates included age (years), gender (0=female, 1=male), socioeconomic status (SES), and region (urban/reservation). SES was calculated by dividing the number of rooms in the home by the number of people living in the home (Myers, Baer, & Choi, 1996). Respondents self-reported their ZIP codes. Based on US Census data, each ZIP code was classified as urban (population density of 1000 or more people per square mile) or rural (less than 1000 people per square mile). Participants were also asked whether they live on a reservation. Because the vast majority of the rural respondents lived on reservations and none of the urban respondents lived on reservations, we created a new "region" variable to classify each respondent's residence as urban or reservation.

2.4 Statistical Analysis

Preliminary analyses included descriptive statistics and intercorrelations between variables. For mediational analyses we used Dave MacKinnon's asymmetric distribution of products tests (MacKinnon, 2008). The product of the two unstandardized path coefficients that comprise the mediating pathway is computed, and if this product is statistically significant, then mediation is assumed. We used MPlus 7.1 (Muthén & Muthén, 2012) to test the structural equation model shown in Figure 1. Latent variables for EI and HT were created using parceled indicators (Little, Cunningham, Shahar, & Widaman, 2002) so that no more than four indicators were attached to either latent variable. The covariates – age, gender, SES, and region--were allowed to predict both of the smoking outcomes. Before estimating the model, the assumptions of multivariate normality and linearity and absence of outliers were evaluated for each variable ($p < .001$). Maximum likelihood estimation was used to include cases with missing data. Model fit was evaluated with the Non-Normed Fit Index (NNFI) .90, Comparative Fit Index (CFI) .90, Root Mean Square Error of Approximation (RMSEA) .08, and Weighted Root Mean Square Residual (WRMSR) 0.90, and ratio of chi-square to degrees of freedom (χ^2/df) 3 (Markus, 2012; Schreiber, Nora, Stage, Barlow, & King, 2006).

2. Results

3.1 Preliminary Analyses

Among the 969 respondents, 59% were female, the mean age was 15.5 years ($SD = 1.75$; range 13–19). Sixty percent of the sample was urban and 40% lived on a reservation. Lifetime smoking prevalence was 54% and past-month prevalence was 25%. Although only 21% thought about HT at least daily, 66% of the AI youth endorsed at least some HT on one or more items. The most frequently reported SLEs were; 1.) “Your close friend(s) got drunk or high (52%),” 2.) “A close family member or someone you live with got drunk or high (46%),” and 3.) “You did poorly on an exam or assignment (45%).” Thirty-five percent of the participants participated in one of the cultural activities, and 19% participated in both cultural activities.

Table 1 presents the means, standard deviations, and correlation matrix. EI, cultural activities, and SLEs were positively correlated with HT. HT and SLEs were both positively correlated with both smoking outcomes. EI was not correlated with either smoking outcome.

3.2 Mediation Analyses

Figure 1 presents the final mediated model examining the links of the predictors (EI, cultural activities, and SLEs) to the mediator (HT) and the outcomes (experimental and past-month smoking). The overall fit of the model was adequate based on the following fit indices: $\chi^2(76) = 203.10$, $p < .0001$, CFI = .935, NNFI = .902, the RMSEA = .04, WRMR = 1.054, and $\chi^2/df = 2.67$. Figure 1 shows the standardized parameter estimates. EI, cultural activities, and SLEs were significantly and positively related to HT. Positive paths from HT to both smoking outcomes were significant. SLEs were positively and significantly related to both outcomes. EI had a significant negative direct path to past-month smoking. No significant direct paths emerged between cultural activities and smoking outcomes. SLEs predicted

greater past-month smoking and this effect was mediated by HT (standardized coefficient = .03, $p < .05$). A positive indirect effect (mediation) with cultural activities to HT to past-month smoking (standardized coefficient = .02, $p < .05$) and a positive indirect effect with EI to HT to past-month smoking (standardized coefficient = .05, $p < .05$) emerged. Because the direct effect from EI to past-month smoking was negative, the indirect effect through HT can be interpreted as suppression (MacKinnon, Krull, & Lockwood, 2000; Tzelgov & Henik, 1991), resulting in an inconsistent mediation effect. The model paths did not differ between urban and reservation adolescents, $\chi^2(20) = 15.33, p = .76$.

3. Discussion

In this survey of AI adolescents throughout rural and urban areas of California, HT mediated the associations of EI, cultural activities, and SLEs with smoking. This finding highlights the importance of HT in the lives of AI youth and underscores the need for interventions to help AI youth to cope with HT without resorting to recreational smoking. With 66% of the sample reported any thoughts of the losses due to HT, it is prevalent and impacts the AI youth in CA. Additionally, the 25% reported past month smoking is consistent with national data on American Indian youth (CDC, 2013).

Our findings provide an explanation for the inconsistent associations between EI and smoking in previous studies (Rivas-Drake et al., 2013; Weaver, 1999; Yu et al., 2005). EI had direct and mediated effects on smoking. The direct effect of EI was protective, but the mediated effect was in the opposite direction (EI led to higher levels of HT, which in turn increased the risk for smoking). If HT had not been included as a mediator in the model, these two effects would have canceled each other out and the association between EI and smoking would have appeared to be nonsignificant. Depending on which of these opposing effects is stronger in a given sample, the association between EI and smoking could appear to be positive, negative, or nonsignificant. The inclusion of HT as a mediator helps to describe this complex association more accurately. This also indicates that EI development in general is protective for adolescents, but it is also important to help them cope with the HT that they may encounter during the process of EI development.

AI youth also reported higher levels of HT if they participated in cultural activities. Participation in cultural activities is central to many AI cultures and spiritual life to heal the mind, body and soul through the ritual process of singing and praying (Schweigman, Soto, Wright, & Unger, 2011; Unger et al., 2006). As they engage in cultural practices, youth may become more aware about how much more there is to learn about their own tribal cultural ways and what has been lost in terms of their Native languages, culture, and traditions, thereby increasing their HT thoughts (Whitbeck et al., 2009).

Involvement in cultural activities did not directly predict smoking, although many of these cultural activities incorporate the tobacco plant. The link between cultural activities and past-month smoking was fully mediated by HT. This suggests that exposure to tobacco at cultural activities may not be inherently risky, but participation in cultural activities can have the unfortunate effect of reminding AI youth about troubling historical events. We do not recommend that AI youth reduce their participation in cultural activities, because

cultural activities have many benefits including strengthening EI (Schweigman et al., 2011), resilience (Currie et al., 2013; LaFromboise et al., 2006) and positive health outcomes (Kulis et al., 2012; Buchwald, Beals & Manson, 2000; Garrouette et al., 2003). Research has also shown the most resilient youth are those who participate in their cultural ways and traditions (LaFromboise et al., 2006; Goodkind, LaNoue, & Milford, 2010); therefore, inclusion of cultural activities within interventions can help promote and sustain the cultural ways for youth.

AI youth who experienced more SLEs reported more thoughts about HT and more smoking. Poverty and neighborhood disadvantage may expose AI youth to more proximal negative life events (Yu et al., 2005), increasing their risk of smoking. HT also partially mediated the association between SLEs and past-month smoking, consistent with findings by Whitbeck and colleagues (2004) with alcohol use.

4.1 Implications for Culturally Based Interventions for AI Youth

AI researchers, practitioners, and educators have partnered to create culturally specific interventions to confront and transcend HT through activities such as cultural mentorship, traditional ceremonies, and participation in extreme sports in natural environments to negotiate contradictions between Western and traditional ways (Brave Heart, 2000; Brave Heart, Chase, Elkins, & Altschul, 2011; Brave Heart & DeBruyn, 1998; Goodkind et al., 2010; National Congress of American Indian, 2012). Examples include the Return to the Sacred Path intervention to help the Lakota community understand, confront, and transcend HT and unresolved grief with traditional culture and ceremonies (Brave Heart, 2000; Brave Heart et al., 2011; Brave Heart & DeBruyn, 1998); and a youth program called RezRIDERS (Reducing Risk through Interpersonal Development, Empowerment, Resiliency, and Self Determination) to reduce substance abuse and depression among high risk AI youth (National Congress of American Indian, 2012), an experiential youth intervention that incorporates extreme sports (snowboarding, white-water rafting, rock climbing) to link youth to the sacred cycle of water (mountain snow, rivers, rains, and clouds). These approaches appear promising, but rigorous evaluations are needed to establish them as evidence-based programs. This will require a community-based participatory approach to foster trust between tribes and researchers. Youth smoking prevention and cessation programs that use these strategies and convey the distinction between ceremonial and recreational tobacco use could reduce commercial tobacco abuse behaviors in this high-risk group.

4.2 Limitations and Conclusions

The cross-sectional design of our study precludes inferences about causality or directionality. We assessed participation in only two cultural activities (i.e. sweat lodge and drum group). These two activities do not necessarily represent the traditions of all California Indian tribes. The measure of SLEs did not specify the intensity, duration and frequency of events, or the subjective impact of the events on the individual (i.e., strain). The items in the HT measure are negatively worded, which may create a response set and induce concurrent negative thinking in subsequent items. Additionally, this measure was designed to assess HT among those who live on or near rural reservations (Whitbeck et al., 2009). Although the

measure has not been validated among urban AIs, the consistency of the Cronbach's alpha across our reservation and urban subsamples suggests that the measure is likely reliable and valid among urban AIs as well. It is possible that self-reports of cigarette smoking were elevated because of the ceremonial use of tobacco among the AI population. Youth in this study live in urban and reservation areas of California, and it is unclear whether the results would generalize to other states.

This study has identified HT as an important mediator of cultural influences on recreational smoking among AI youth. Participation in traditional cultural activities and development of EI are important for overall well-being, positive self-concept, collective identity, sense of belonging, and positive relationships with family and community members. However, it appears equally important to help adolescents cope with the HT that they may encounter while learning about their cultural heritage without resorting to unhealthy behaviors such as recreational tobacco use. Future research is needed to understand why HT increases the risk of recreational tobacco use, as well as the ways in which cultural assets and resiliency can be maximized to reduce tobacco-related health disparities among the next generation of AIs.

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Highlights

1. We examine the risk and protective factors to smoking behaviors among rural and urban American Indian youth in California.
2. We use structural equation modeling to test the model of ethnic identity, participation in cultural activities, and stressful life events as correlates of smoking and examines historical trauma as a mediator of these associations.
3. Increase knowledge about associations to smoking behaviors to a unique population – American Indian youth in California
4. Understanding the influence of traditional tobacco use in traditional American Indian cultural activities
5. Ethnic identity is examined as a potential risk factor and protective factor to historical trauma and smoking behaviors among American Indian youth in California.

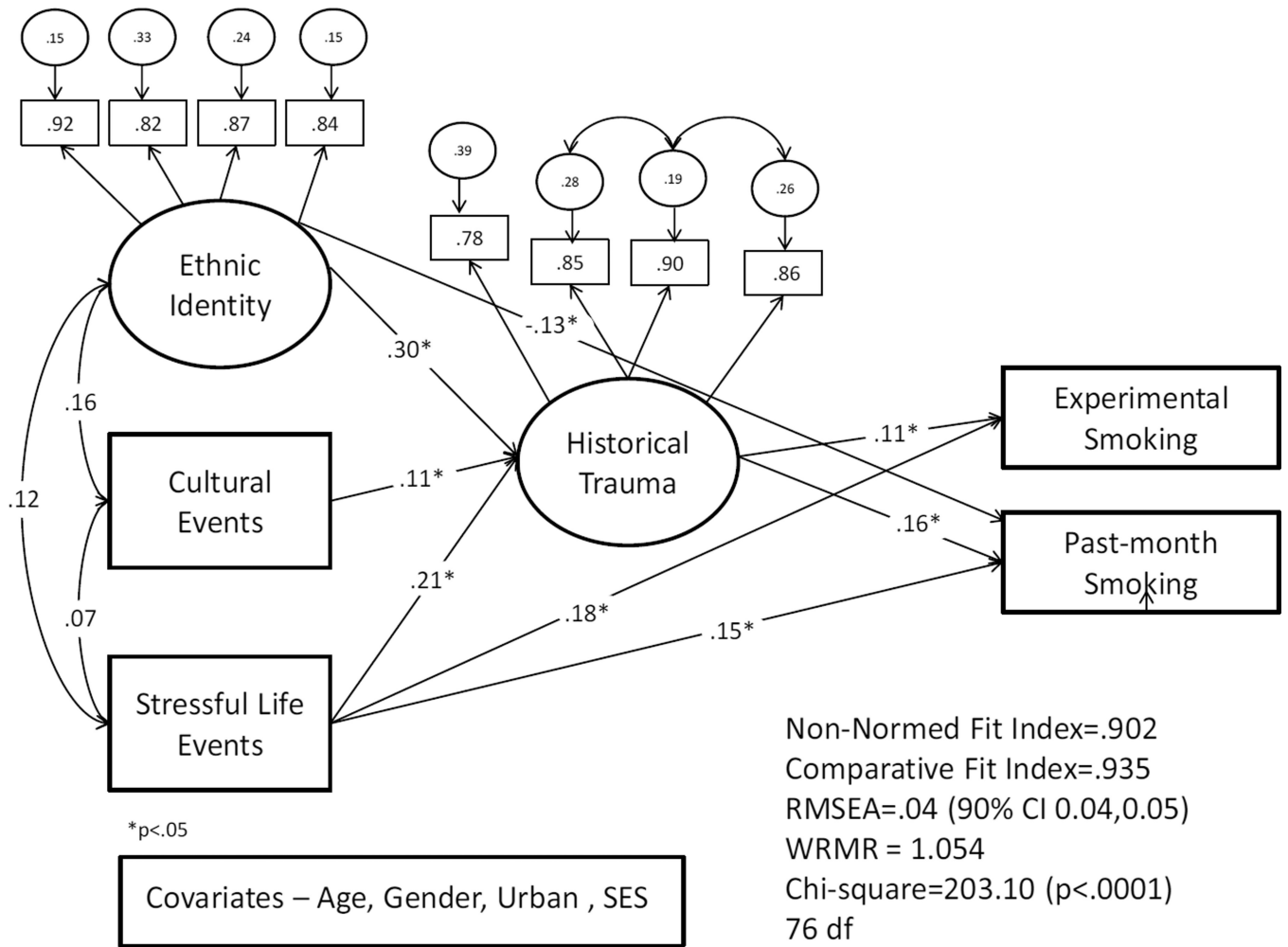


Figure 1.
SEM Final Model

Table 1

Correlations, Mean, and Standardized Deviation for Variables.

Pearson Correlation Coefficients										
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	
1. Ethnic Identity	1.0									
2. Cultural Activities	0.136 ^{***}	1.0								
3. Stressful Life Events	0.134 ^{***}	0.045	1.0							
4. Historical Trauma	0.337 ^{***}	0.168 ^{***}	0.257 ^{***}	1.0						
5. Experimental Smoking	0.051	0.132 ^{**}	0.185 ^{**}	0.173 ^{**}	1.0					
6. Past-month Smoking	0.006	0.149 ^{**}	0.150 ^{***}	0.163 ^{***}	0.518 ^{***}	1.0				
7. Age	0.146 ^{***}	0.046	0.156 ^{***}	0.195 ^{***}	0.3558 [*]	0.275 ^{***}	1.0			
8. Gender	-0.108 ^{**}	0.170 ^{***}	-0.162 ^{***}	-0.057	-0.006	0.034	-0.038	1.0		
9. Region (urban vs. rez)	-0.055	-0.027	0.127 ^{**}	-0.078 [*]	-0.026	0.016	0.1165 ^{***}	-0.052	1.0	
10. Socioeconomic status	0.025	-0.017	-0.089 [*]	0.017	-0.056	-0.010	0.066	-0.094 ^{**}	1.0	
Mean	3.04	0.52	14.26	2.77	0.53	15.57	0.43	0.57	0.81	
SD	0.61	0.49	11.75	1.35	0.49	1.75	0.49	0.49	0.37	

*** p<.0001,

** p<.01,

* p<.05

Gender coded 0=female, 1=male; Region coded 0=urban, 1=reservation