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A Cautionary Tale: Examining the Interplay of Culturally Specific Risk and Resilience Factors in Indigenous Communities

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Abstract

Efforts to build empirical evidence for the protective effects of Indigenous cultural factors on psychological health have yielded mixed findings. We examine the interplay of previously hypothesized culturally relevant risk (discrimination, historical loss) and protective (spiritual activities) factors among Indigenous people. The sample includes 569 Indigenous adolescents (M age = 17.23, SD = 0.88; 51.0% girls) and 563 Indigenous adult caregivers (M age = 44.66, SD = 9.18; 77.4% women). Our central finding was that indigenous spirituality was associated with poorer psychological outcomes across several domains (depressive symptoms, anger, anxiety, somatization and interpersonal difficulties), but observed effects were attenuated once perceived discrimination and historical losses were added to statistical models. Thus, consideration of relevant stressors drastically changed our conclusions, underscoring the uncertain dynamics through which specific Indigenous cultural factors impact mental health. Researchers should work in collaboration with Indigenous communities to improve measurement and empirical investigation of these complex constructs.

Keywords

American Indians; Culture and Mental Health; Psychological Stress; Risk Factors; Sociocultural Factors

The Indigenous peoples of North America (e.g., American Indian, Alaska Native, First Nations, Metis, Inuit; hereafter *Indigenous*) have long attested the healing, strength building, and protective influences of traditional Indigenous cultural practices, spirituality and beliefs (Coates, Gray, & Hetherington, 2006; Crofoot & Graham, 2002F). Culture is foundational for mental health as a basic building block of behavior, health practices, value systems and norms (Napier, et al., 2014; Kawaga-Singer, Dressler, George, & Elwood, 2014). In the context of “evidence-based” programs, practices, and treatments, and with genuine desire to determine what works for improving mental health, researchers and clinicians working with Indigenous communities are devoting efforts to empirical documentation of culture as a form of mental health promotion, treatment of disorders, and illness prevention (Gone & Calf Looking, 2011; Greenfield & Venner, 2012; Whitbeck, Walls & Welch, 2012).

Simultaneously, there is recognition of the perils of ‘mainstream’ scientific socialization that promotes and interprets research and its results in ways biased towards western value systems (Smith, 1999; Kagawa-Singer, Dadia, Yu & Surbone, 2010), and the validity of most existing instruments meant to assess Indigenous cultural factors is uncertain (Hodge & Limb, 2010; Weaver, 2005). Like all cultures, Indigenous ways of life are ever changing and diverse, not to be reduced to static or homogenous states (Lakes, Lopez, & Garro, 2006). Unlike many other cultures, the colonization of North American Indigenous people includes the implementation and maintenance of colonial rules for tribal membership (e.g., blood quantum) that impact identity and a sense of belonging and, ultimately, mental health (Doerfler, 2015).

Thus, conceptualizing and operationalizing “culture” and interpreting related research findings may be especially difficult in the context of Indigenous mental health, yet striking disparities highlight the importance of this work. Suicide, a profound indicator of mental suffering, is about 60% higher for Indigenous vs. non-Indigenous Americans and is a leading cause of adolescent/young adult death (Indian Health Service [IHS], 2014). Indigenous adults are more likely than Non-Hispanic Whites to experience severe distress and anxiety symptoms (U.S. Department of Health and Human Services, 2012) and display disproportionately high rates and earlier onset of certain psychiatric disorders (Whitbeck, Hoyt, Johnson, & Chen, 2006; Whitbeck, Sittner Hartshorn, Crawford, Walls, Gentzler, & Hoyt, 2014; Beals, Novins, Whitesell, Mitchell, & Manson, 2005). While such disparities have very real public health impacts worthy of our attention, also critical to understanding Indigenous health is evidence of resilience, positive mental health, and abstinence from substance use (Kading, et al., 2015; Substance Abuse and Mental Health Services Administration [SAMHSA], 2014). In addition, socio-cultural contexts likely drive important differences in mental health trends and correlates across diverse tribal groups (e.g., Indian Health Service [IHS], 2008; Novins, et al., 1999).

Though conceptualizing the multi-faceted aspects of diverse, evolving, postcolonial Indigenous “culture” is an unwieldy task, researchers are making progress in terms of identifying constructs that might promote or hinder mental health. Indigenous ethnic identity (Jones & Galliher, 2007; Schiefer & Krahe, 2015; LaFromboise, Hoyt, Oliver, & Whitbeck, 2006; Rieckmann, Wadsworth, & Deyhle, 2004; Wolsko, Lardon, & Mohatt, 2007), involvement in Indigenous traditional cultural activities, (Kading, et al., 2015; Whitbeck, McMorris, Hoyt, Stubben & LaFromboise, 2002; Yoder, Whitbeck, Hoyt, & LaFromboise, 2006), and cultural spiritual orientation (Garrouette, et al., 2003; Kulis, Hodge, Ayers, Brown & Marsiglia, 2012; Stone, Whitbeck, Johnson & Olson, 2006) have been linked to better mental and behavioral health outcomes including positive mental health, reductions in suicidality, alcohol abstinence, and self-efficacy.

Alternatively, Indigenous cultural experiences also include the cumulative and ongoing effects of colonization and social marginalization that exert negative effects on psychological health. For instance, racial/ethnic discrimination is related to worse health/mental health in Indigenous communities (Brockie, Dana-Sacco, Wallen, Wilcox, & Campbell, 2015; Whitbeck et al. 2001). Historical trauma – the persistent, intergenerational group exposure to multiple traumatic events and perpetuated with ethnocidal intent (Brave Heart & DeBruyn,

1998; Brave Heart 1999; Walters et al. 2011) – is viewed by many as a foundational determinant of health (Adelson, 2005; Smylie, 2009; King, Smith, & Gracey, 2009). Accordingly, studies have linked historical cultural losses (Whitbeck, Adams, Hoyt & Chen, 2004; Walls & Whitbeck, 2012a; Whitbeck, Walls, Johnson, Morrisseau, & McDougall, 2009; Armenta, Whitbeck, & Habecker, 2016; Brockie, Dana-Sacco, Wallen, Wilcox, & Campbell, 2015) and intergenerational mechanisms of trauma (Elias, et al., 2012; Bombay, Matheson, & Anisman, 2011; Walls & Whitbeck, 2012b) to worse mental and emotional health. Still, operationalization historical trauma remains under development, and the very conceptualization of this complex construct is not without controversy among scholars (see Kirmayer, Gone & Moses, 2014).

In all, a respectable body of literature supports hypotheses that Indigenous cultural factors are associated with better psychological health and culturally specific stressors increase distress. Yet, the state of the science remains mixed. In the case of protective factors, several studies employing diverse measures of ethnic identity report *null* findings around Indigenous identification and mental health (Whitesell, et al., 2014; Whitesell, Mitchell, & Spice, 2009; Bates, Beauvais, & Trimble, 1997; Paradies & Cunningham). Similarly, an analysis of the Native American Spirituality Scale (NASS) revealed a dual factor structure, with only one dimension associated with lower substance use and neither factor related to mental health outcomes (Greenfield, et al., 2015). Other studies report only indirect pathways or buffering effects as opposed to direct associations between Indigenous culture and health (Baldwin, Brown, Wayment, Nez & Brelsford, 2011; Smokowski, Evans, Cotter & Webber, 2014). Still others suggest that biculturalism or multiculturalism (as opposed to Indigenous enculturation alone) may have the strongest positive influences (LaFromboise, Coleman, & Gerton, 1993; Moran, Fleming, Somervell & Manson, 1999), particularly when the culture with which one identifies with embraces healthy norms (Oetting & Beauvais, 1990-1991). Perhaps most intriguing and perplexing are those few studies we were able to locate that document heightened psychological distress among more enculturated Indigenous participants. A study including Canadian First Nations members found that after controlling for discrimination, one dimension of Indigenous identity (i.e., centrality) was associated with more depressive symptoms, but another dimension (i.e., positive in-group affect) linked to fewer symptoms (Bombay, Matheson & Anisman, 2010). Tucker, Wingate and O'Keefe (2015) documented indirect pathways between American Indian identity and elevated depressive symptoms by way of increased perceptions of historical losses. In an examination of two geographically distinct groups of Ladakhi students, those with *more* exposure to non-Indigenous cultural influences reported less distress (Ozer, 2015). In the same study, however, a direct assessment of traditional cultural orientation was unrelated to mental health outcomes.

Mixed findings lead to confusion regarding the specific mechanisms through which traditional culture and culturally relevant stressors affect wellbeing. There is also prior evidence that measures of cultural stress (e.g. historical loss) are correlated with measures of cultural involvement (Whitbeck, Chen, Hoyt & Adams, 2004; Tucker, Wingate & O'Keefe, 2015). In this paper, we examine the following research questions: 1) Does endorsement of traditional Indigenous spirituality offer protective effects for mental health? 2) Do culturally relevant stressors (i.e., historical loss, discrimination) increase mental distress? 3) What is the interplay of culturally specific risk and resiliency factors in relation to mental health

outcomes? Because of the intricacies of conceptualizing and operationalizing cultural constructs for research purposes, we recognize the need for humility in our ongoing attempts to quantitatively measure “Indigenous cultural factors”. We provide an empirical examination of our research questions that we believe provides a cautionary tale to eager researchers about measuring and interpreting complex constructs among Indigenous cultures.

Method

Study Design and Participants

Data are from an 8-wave panel study (i.e., longitudinal study following a constant sample) examining culturally specific risk and resilience factors for mental health among Indigenous adolescents. The study was designed in partnership with four U.S. American Indian Reservations and four Canadian First Nations Reserves that share a common cultural tradition and language with minor regional variations in dialects. Tribal advisory boards at each site were partners in the research process and worked with the university team on construct selection, study design planning, questionnaire development and handling the day-to-day study logistics. Study interviewers and site coordinators were approved by advisory boards and were almost exclusively enrolled Tribal members. As part of confidentiality agreements, the names of the cultural group and participating sites are not provided, nor are any attempts made to distinguish between participants from the various study locations.

Prior to the first wave of data collection, the Reservations/Reserves shared a list of all families who had a Tribally-enrolled child between the ages of 10-12 years and lived on or proximal to (i.e., within 50 miles) the Reservations/Reserves. An attempt to contact all families was made in order to obtain a population sample of the communities. For those families who agreed to participate (79.4% of the target population), the target adolescent and at least one caregiver were interviewed once annually. The families were given \$40 per participant for each wave of the study completed. The study was approved by the Tribal advisory boards and the institutional review board at the University of Nebraska-Lincoln.

For the current analyses we include data from the seventh wave of the study because it is the only wave that included all of the relevant measures for the adolescent sample. Of the initial adolescent sample ($n = 674$), 84.4% ($n = 569$) participated in wave seven. Because the study focused on the adolescents, the adult caregivers were allowed to vary across waves, were not required to be a biological parent, and were not required to have an Indigenous cultural background. Moreover, up to two adult caregivers were allowed to participate at each wave, with one designated as the primary caregiver; only the primary caregiver reported on basic household demographics (e.g., annual household income). Data collected from non-Indigenous caregivers ($n = 63$) were omitted from our analytic sample given our focus on culture-specific experiences. We otherwise used all available data from the adult caregivers ($n = 563$), who came from 487 unique households; i.e., 27.0% of the participants lived in the same household as another participant. As described in the Analytic Approach section of this paper, we took the within-household nesting into account in analyzing our data.

The final analytic samples included 569 Indigenous adolescents (M age = 17.23, SD = 0.88; 51.0% girls) and 563 Indigenous adult caregivers (M age = 44.66, SD = 9.18; 77.4% women). Of the adolescents, 81.5% lived on the Reservations/Reserves and 13.5% lived in what may be considered a remote location (i.e., communities non-adjacent to cities or sizeable townships with non-paved road access). Of the adult caregivers, 85.3% lived on the Reservations/Reserves and 13.7% lived in a remote location.

Measures

Summary scores were computed for each of the following measures by calculating the sum (for traditional spiritual activities) or the average (all other measures) of responses to the relevant items. Coefficient alphas for all measures were within acceptable ranges (cf. description of psychological well-being/distress measures for the adult caregiver sample).

Traditional Spiritual Activities (adolescents and caregivers)—We focus on Indigenous spirituality for several reasons. First, in accord with accounts from our tribal advisory team, we believe that spirituality is an essential indicator of Indigenous cultural worldview related to broader aspects of cultural involvement and identity. Second, our measure of traditional spirituality is psychometrically stable in both the adolescent and adult cohorts of this study sample (see below). Finally, evidence from prior general population studies demonstrates that indicators of spirituality may be more influential for various health/mental health outcomes (Good & Willoughby, 2011; Pargament, Magyar-Russell & Murray-Swank, 2005; Park, Edmondson & Blank, 2009) than are non-spiritual/non-religious activities. Involvement in traditional spiritual activities was assessed with 12 items that describe culture-specific traditional spiritual activities. The items were derived from focus groups that were conducted prior to the beginning of the study with adults from the same cultural group as our sample. The adolescents and adult caregivers were asked to indicate whether or not they had engaged in each traditional spiritual practice during the past year. Specific practices included in the scale were: “offered tobacco,” “participated in a sweat,” “gone to ceremonial feasts,” “participated in ceremonial dance,” “gone to a traditional healer,” “sought advice from a spiritual advisor,” “used traditional medicine,” “smudged/saged,” “attended (traditional) ceremonial funeral,” “sung/participated in drum group,” “been taught ceremonial songs,” or “experienced puberty fast/feast.” Responses were scored as (0) *no* and (1) *yes*.

Perceived Discrimination (adolescents)—Perceptions of discrimination for the adolescent sample were assessed using 12-items modified from the Schedule of Racist Events (Landrine & Klonoff, 1996). The items were modified in order to specifically assess perceptions of discrimination stemming from membership in the cultural group of the sample. The adolescents were asked to indicate the frequency with which they had experienced common forms of discrimination during the past year. Sample items include, “[In the 12 months] how often have you been suspected of doing something wrong because you are [a member of your cultural group]” and “[In the 12 months] how often have you had a teacher who didn't expect you to do well because you are [a member of your cultural group].” Responses were provided on a 3-point scale, anchored by (1) *never* and (3) *many times*.

Perceived Discrimination (caregivers)—Perceptions of discrimination for the adult caregiver sample were assessed using 14-items modified from the Schedule of Racist Events (Landrine & Klonoff, 1996). The items were modified in order to specifically assess perceptions of discrimination stemming from membership in the cultural group of the sample. The adult caregivers were asked to indicate the frequency with which they had experienced common forms of discrimination during the past year. Sample items include, “[In the 12 months] how often has someone said something derogatory or insulting to you because you are [a member of your cultural group]” and “[In the 12 months] how often have police hassled you because you are [a member of your cultural group].” Responses were provided on a 4-point scale, anchored by (1) *never* and (4) *always*.

Historical Loss (adolescents and caregivers)—Thoughts about historical loss were measured with the Historical Loss scale (Whitbeck, Adams, Hoyt, & Chen, 2004), which assesses the frequency with which Indigenous individuals think about the losses to their culture and people as a result of European colonization. The adolescent version includes 10 items while the adult caregiver version includes 12 items (Whitbeck, Adams, Hoyt, & Chen, 2004). Sample items include, “loss of our land,” “loss of our language,” and “loss of our family ties because of boarding/residential schools.” The adolescent and adult versions are identical with the exception of the two additional items in the adult version (i.e., “loss of respect by our children and grandchildren for elders” and “loss of respect by our children for traditional ways”). Responses were provided on a 6-point scale ranging from (1) *several times a day* to (6) *never*. The responses were reverse scored from 1 - 6 so that higher values indicate more frequent thoughts about historical loss.

Psychological Well-being/Distress (adolescents)—The adolescents completed the Tri-ethnic Center for Prevention Research self-esteem, depressive symptoms, anxiety, and anger measures (Oetting, Swaim, Edwards, & Beauvais, 1989; Swaim, Oetting, Edwards, & Beauvais, 1989). For these measures, participants were asked to indicate how often they felt various different ways, such as “proud of yourself” (self-esteem; 9 items), “lonely” (depressive symptoms; 7 items), “nervous” (anxiety; 4 items), and “hotheaded” (anger; 6 items). Responses were provided on a 3-point scale, anchored by (1) *most of the time* and (3) *none of the time*. The responses were reverse scored from 0 - 2 so that higher values indicate higher levels of the respective constructs.

Psychological Well-being/Distress (caregivers)—The adult caregivers completed the 20-item Center for Epidemiologic Studies Depression measure (CES-D; Radloff, 1977). The CES-D assesses past week experiences indicative of major depression, with items tapping into negative affect (e.g., You felt lonely; 7 items), somatic difficulties (e.g., You felt like you could not get going; 7 items), interpersonal difficulties (e.g., You felt people were unfriendly; 2 items), and positive affect (e.g., You felt you were as good as other people; 4 items). Responses were provided on a 4-point scale, anchored by (1) *0 days* [in the past week] and (4) *5-7 days* [in the past week]. Composite scale scores are typically computed by taking the sum or average of the responses across the 20 items, after reverse scoring the positive affect items to reflect a lack of positive affect. Preliminary confirmatory item factor analyses (with the responses treated as ordinal), however, suggested that a single-factor

model provided a subpar fit to our data, $\chi^2(170) = 1051.74$, CFI = .920, TLI = .911, RMSEA = .096 (Hu & Bentler, 1999). We subsequently estimated a four-factor model (see also Armenta, Hartshorn, Whitbeck, Crawford & Hoyt, 2014) including positive affect, negative affect, somatic complaints, and interpersonal difficulties. This model provided a good fit to the data, $\chi^2(164) = 471.55$, CFI = .972, TLI = .968, RMSEA = .058. It should be noted that the coefficient alpha for the interpersonal difficulties items was low. This is to be expected, however, given that the measure consists of only two items (John & Benet-Martínez, 2000).

Analytic Approach

We conducted our analyses separately for the adolescent and adult caregiver samples using Mplus Version 6.0 (Muthén & Muthén, 1998). For descriptive purposes, we first estimated the zero-order correlations among the study variables. We then estimated four latent variable regression models, with psychological well-being/distress as outcomes for each model. As predictors we included, respectively for the four models, (1) traditional spiritual activities alone, (2) traditional spiritual activities and perceived discrimination, (3) traditional spiritual activities and historical loss, and (4) traditional spiritual activities, perceived discrimination, and historical loss. For these models, the individual measure items served as indicators for the respective latent variables. Responses to the measures were treated as ordinal (i.e., order categorical) and we used a means and variances adjusted weighted least squares estimator (WLSMV in Mplus). Model identification was achieved by fixing the latent variable means and variances to 0 and 1, respectively. The within-household nesting for the adult caregiver sample was taken into account by using the sandwich estimator (type = complex in Mplus, clustered by family id).

We conducted preliminary analyses in order to identify potential demographic variables that should be included as covariates in our latent variable regression models. Towards this end, we estimated the zero-order associations of age, gender (0 = boys/men, 1 = girls/women), annual family income, living on (coded as 0) vs. off (coded as 1) the reservations/reserves, and living in a remote (coded as 1) vs. non-remote (coded as 0) location with the psychological well-being/distress variables.

Results

Descriptive Statistics and Zero-order Associations

Demographic Correlates, Adolescent and Adult Sample—For the adolescent sample, gender was positively associated with depressive symptoms ($r = .28$, $p < .01$), indicating that boys reported lower levels of depressive symptoms than did girls. For the adult caregiver sample, gender was negatively associated with positive affect ($r = -.18$, $p < .01$) and positively associated with negative affect ($r = .31$, $p < .01$) and somatic complaints ($r = .22$, $p < .01$); household income was positively associated with positive affect ($r = .21$, $p < .01$) and negatively associated with negative affect ($r = -.25$, $p < .01$), somatic complaints ($r = -.21$, $p < .01$), and interpersonal difficulties ($r = -.13$, $p < .01$); and living in a remote location was negatively associated with positive affect ($r = -.18$, $p < .05$) and somatic complaints ($r = -.18$, $p < .05$). These results indicate that women had lower levels of positive

affect and higher levels of negative affect and somatic complaints compared to men; positive affect increased and negative affect, somatic complaints, and interpersonal difficulties decreased with higher levels of household income; and individuals living in remote locations had higher levels of positive affect and somatic complaints than individuals living in non-remote locations. Based on these results, we included gender as a covariate in our adolescent latent variable regression models and gender, household income, and remote location as covariates in our adult caretaker latent variable regression models.

Adolescent Sample—Additional zero-order associations and descriptive information for the adolescent sample are provided in Table 1. The traditional spiritual activity measure was positively and significantly associated with perceived discrimination and historical loss; the effect sizes were moderate (Cohen, 1992). In addition, the traditional spiritual activities, perceived discrimination, and historical loss measures each were positively and significantly associated with depressive symptoms, anxiety, and anger at this bivariate level (but see Latent Variable Regression results, below); the effect sizes were small to moderate. The culture-related variables were not significantly associated with self-esteem; we thus omitted self-esteem from our subsequent analyses.

Adult Caregiver Sample—The zero-order correlations and descriptive information for the adult caretaker sample are provided in Table 1. Traditional spiritual activities were positively and significantly associated with perceived discrimination and historical loss; the effect sizes were moderate to large. In addition, traditional spiritual activities, perceived discrimination, and historical loss each were positively and significantly associated with negative affect, somatic complaints, and interpersonal difficulties in these bivariate analyses (but see Latent Variable Regression results, below); the effect sizes were small to moderate. The culture-related variables were not significantly associated with positive affect; we thus omitted positive affect from our subsequent analyses.

Latent Variable Regression Models

All of the adolescent and adult caregiver latent variable regression models provided a good fit to the data based on Hu and Bentler's (1999) recommendations of CFI value close to or above .95 and a RMSEA value close to or below .06 (Table 4).

Adolescent Sample—The results for the adolescent models are provided in Table 2. As can be seen, traditional spiritual activities remained positively and significantly associated with depressive symptoms, anxiety, and anger after statistically controlling for gender (Model 1). The association between traditional spiritual activities and the three outcomes dropped to a non-significant level and standardized coefficients were reduced by half or more when perceived discrimination (Model 2), historical loss (Model 3), or both perceived discrimination and historical loss (Model 4) were added as additional predictors. In the final model (Model 4), perceived discrimination and historical loss both were positively and significantly associated with depressive symptoms and anxiety, while only perceived discrimination was positively and significantly associated with anger.

Adult Caretaker Sample—The results for the adult caregiver models are provided in Table 5. Traditional spiritual activities remained positively and significantly associated with negative affect, somatic complaints, and interpersonal difficulties after statistically controlling for gender, income, and living in a remote location (Model 1). The association between traditional spiritual activities and the three outcomes dropped to a non-significant level and effect sizes substantially reduced (similarly to the model for adolescents) when perceived discrimination (Model 2), historical loss (Model 3), or both perceived discrimination and historical loss (Model 4) were added as additional predictors. In the final model (Model 4), perceived discrimination and historical loss both were positively and significantly associated with negative affect, somatic complaints, and interpersonal difficulties.

Discussion

The purpose of this paper was to examine the impact and interplay of previously hypothesized culturally relevant risk (discrimination and historical loss) and protective (involvement in traditional spiritual activities) factors among a sample of Indigenous youth and their adult caregivers. Several major themes are evident in our findings: 1) our attempts to measure traditional spiritual activity involvement were significantly and positively associated with culturally relevant risk factors with moderate to strong effect sizes in both adult and adolescent samples; 2) we found moderate and statistically significant effects between traditional spirituality and mental health factors like depressive symptoms, anxiety, interpersonal difficulties, and somatic complaints; *however, and importantly,* 3) when we included measures of culturally-relevant risk factors in multivariate models, the impact of spirituality on psychosocial outcomes dropped from statistical significance and standardized effect sizes reduced substantially.

Regarding the first theme and associations between proposed risk and protective factors, our findings do correspond to some evidence in the existing literature wherein historical losses are linked to measures of cultural involvement (e.g., Tucker, Wingate & O'Keefe, 2015). Reports of higher Indigenous ethnic identification have also been linked to microaggressive and discriminatory experiences (Jones & Galliher, 2015). Moghaddam and colleagues (2013) found that discrimination was associated with a nearly 3 times greater likelihood of participation in traditional healing. The authors of these studies note that discrimination might prompt cultural exploration (including possible traditional help-seeking) or that close identification with traditional Indigenous values might create more awareness of experiences with broader societal/institutional discrimination. Future research to discern the direction and extent of these processes among Indigenous adolescents and adults is warranted.

The second and third themes have important implications for research with Indigenous communities, especially given growing scholarly attention to the ways in which cultural factors impact mental health (Napier, et al., 2014; Kagawa-Singer, Dressler, George, & Elwood, 2014). Had we included only traditional spirituality as a predictor variable in our multivariate models, we might have erroneously concluded that spiritual involvement leads to worse Indigenous mental health. Indeed, one of the major motivators for this manuscript was our personal communications with colleagues, students, and other researchers who

sought advice when their own data revealed implausible associations between cultural factors and health/mental health (see also select findings in Bombay, Matheson & Anisman, 2010; Ozer, 2015). As we have shown, consideration of relevant risk factors drastically changes the message and underscores the uncertain dynamics through which cultural factors might impact mental health.

We found near-zero coefficient values in our focal examination of the cultural risk and resilience factors and two *positive* mental health constructs: self-esteem for youth and positive affect for adults. Folkman (2008) has described an imbalance in stress and coping research whereby “distress” overshadows positive emotions despite evidence the two are not simply polar opposites, but rather unique and potentially co-occurring constructs (see also Keyes, 2002). Furthermore, and in line with our findings, others have documented differential predictors of negative/positive emotions (Folkman & Moskowitz, 2004). Research aimed at identifying common and distinct influences on positive/negative psychological outcomes is needed, particularly in the context of Indigenous community calls for strengths-based approaches to improving mental health (Wexler, et al., 2015).

Our results may help to explain why a number of studies report null or mixed findings in the association between Indigenous cultural factors and mental health by illustrating the importance of simultaneously considering culturally meaningful risk factors. Additional explanations are also possible. For example, our review of the literature demonstrates a highly diverse operationalization of “culture” in Indigenous communities. Beyond the topics mentioned earlier (e.g., identity, spirituality, and practices), other constructs of interest include Indigenous language familiarity and usage, racial self-actualization (Chae & Walters, 2009), and worldview/orientation factors (Lowe & Struthers, 2001; Mohatt, Fok, Burket, & Allen, 2011). It is also possible that some cultural practices used in prior research (e.g., hunting, fishing) have little or no impact on negative behaviors or affect unless there is recognition or emphasis on their spiritual meanings and related teachings. Furthermore, Indigenous cultures are diverse, and contextual influences within and between reservations, and between urban, rural, and remote areas likely impact the degree to which various cultural constructs influence health/mental health outcomes. Certain measures meant to denote enculturation may in fact be capturing aspects of social location such as economic status, education, living on a reservation or even certain districts within reservations boundaries. In essence, the field of Indigenous mental health research faces some of the same challenges presented in a recent National Institutes of Health report (Kagawa-Singer, et al., 2014): conceptualization of culture is inadequate and inconsistent, the dynamic nature of culture may not always be considered, and studies of cultural groups sometimes omit consideration of diverse socio-historical, political, and geographical contexts within which members of cultural groups exist.

Although our data reflects information from reservation/reserve communities belonging to a single cultural group, the lessons learned about the interplay of cultural factors have meaning beyond these communities to inform additional research. An important limitation of this report lies in the fact that our measures of traditional spiritual involvement, historical loss, and perceived discrimination are but a few of the possible constructs of relevance for mental health. Furthermore, our measure of spiritual activity involvement includes a range of

items that may be more or less familiar, accessible, or common across communities. In addition, as in all survey research, it is possible that certain items were subject to diverse interpretation. For example, participation in ceremonial feasts may have been conflated with more commonplace community feast attendance. Also, a closer look at the descriptive characteristics of key study variables in Table 1 reveals low mean endorsement values for the spiritual activities and perceived discrimination measures, while perceptions of historical loss averaged at the midpoint of the scale ($M = 2.5$; range = 1-6). It is important to question if these values should be interpreted as “true” indications of little involvement in spiritual activities and attenuated experiences with discrimination, or, if our measures are failing to adequately tap into the intended constructs of interest.

Conclusion

Health and mental health inequities for Indigenous people may be exacerbated by blind application of theories, measures, and “evidence” based programs developed without due consideration of Indigenous cultural expression, diversity, and contexts (Trickett, et al., 2011). This paper provides a cautionary tale for researchers to engage in collaborative, deliberate, and thoughtful approaches to measuring the cultural factors that may have an influence health and mental health. Refined measurement evaluation and development approaches in collaboration with tribal communities are imperative to specifying more precisely the cultural constructs of relevance to Indigenous mental health, and the processes through which they influence wellbeing. This message may be especially salient for Indigenous communities where the word *culture* frequently evokes emotions around that which has been attacked, ignored, and even forbidden (Gregory, Easterling, Kaechele & Trousdale, 2015) alongside the survival of traditional cultural ways and reclamation efforts ongoing in many Indigenous spaces.

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Table 1
Zero-order associations (observed variables below the diagonal, latent variables above the diagonal) and descriptive statistics for adolescent sample

	1	2	3	4	5	6	Scale Range	M	SD	Alpha
Adolescent Sample										
1. Traditional Spiritual Activities	--						0-12	2.84	2.60	.81
2. Perceived Discrimination	.27**	--					0-2	0.18	0.25	.86
3. Historical Loss	.32**	.31**	--				1-6	2.47	1.16	.95
4. Self-esteem	.04	.06	-.04	--			0-2	1.55	0.34	.83
5. Depressive Symptoms	.13**	.21**	.20**	-.26**	--		0-2	0.55	0.43	.89
6. Anxiety	.15**	.20**	.22**	-.11**	.59**	--	0-2	0.78	0.49	.79
7. Anger	.10**	.19**	.13**	-.15**	.48**	.41**	0-2	0.72	0.40	.82
Adult Sample										
1. Traditional Spiritual Activities	--						0-12	4.10	2.90	.84
2. Perceived Discrimination	.24**	--					1-4	1.38	0.40	.89
3. Historical Loss	.40**	.37**	--				1-6	2.81	1.09	.95
4. Positive Affect	.02	-.01	-.03	--			1-4	3.46	0.60	.71
5. Negative Affect	.11**	.20**	.17**	-.51**	--		1-4	1.53	0.61	.89
6. Somatic Complaints	.13**	.26**	.23**	-.41**	.79**	--	1-4	1.82	0.62	.80
7. Interpersonal Difficulties	.14**	.23**	.20**	-.19**	.34**	.38**	1-4	1.67	0.67	.55

** *p* .01,

* *p* .05

Table 2

Results for adolescent models

	Model 1		Model 2		Model 3		Model 4		
	<i>b</i>	<i>SE</i>	β	<i>b</i>	<i>SE</i>	β	<i>b</i>	<i>SE</i>	β
Depressive Symptoms									
Gender	.47	.09	.25**	.48	.10	.23**	.49	.10	.23**
Traditional Spiritual Activities	.18	.05	.17**	.09	.06	.08	.10	.06	.09
Perceived Discrimination	--	--	--	.27	.06	.25**	--	--	.22
Historical Loss	--	--	--	--	--	--	.21	.05	.20**
Anxiety									
Gender	.12	.10	.06	.13	.10	.06	.13	.10	.06
Traditional Spiritual Activities	.19	.06	.18**	.10	.10	.09	.11	.06	.10
Perceived Discrimination	--	--	--	.24	.07	.23**	--	--	.20
Historical Loss	--	--	--	--	--	--	.23	.05	.22**
Anger									
Gender	-.01	.10	-.01	-.01	.10	-.06	-.01	.09	-.01
Traditional Spiritual Activities	.11	.05	.11*	.02	.06	.02	.06	.06	.06
Perceived Discrimination	--	--	--	.25	.07	.24**	--	--	.23
Historical Loss	--	--	--	--	--	--	.14	.05	.13**

*** *p* .01,

* *p* .05

Note: *b* = unstandardized coefficient; *SE* = standard error; β = standardized coefficient; Gender (0 = boys, 1 = girls) is dummy coded.

Table 3

Results for adult caregiver models

	Model 1			Model 2			Model 3			Model 4		
	<i>b</i>	<i>SE</i>	β	<i>b</i>	<i>SE</i>	β	<i>b</i>	<i>SE</i>	β	<i>b</i>	<i>SE</i>	β
Depressive Symptoms												
Gender	.41	.11	.16**	.42	.12	.16**	.42	.12	.16**	.42	.12	.16**
Income	-.10	.02	-.22**	-.10	.02	-.22**	-.10	.02	-.22**	-.10	.02	-.22**
Remote Location	-.05	.15	-.02	-.05	.15	-.02	-.05	.15	-.02	-.05	.15	-.02
Traditional Spiritual Activities	.12	.05	.12*	.05	.05	.05	.03	.06	.03	-.01	.06	-.01
Perceived Discrimination	--	--	--	.23	.05	.22**	--	--	--	.19	.05	.18**
Historical Loss	--	--	--	--	--	--	.22	.05	.20**	.17	.06	.15**
Somatic Complaints												
Gender	.25	.12	.10**	.26	.12	.10*	.26	.12	.10*	.27	.12	.10*
Income	-.09	.02	-.20**	-.09	.02	-.20**	-.09	.02	-.20**	-.09	.02	-.20**
Remote Location	-.29	.17	-.09	-.30	.17	-.10	-.29	.17	-.09	-.30	.17	-.09
Traditional Spiritual Activities	.16	.05	.15**	.08	.05	.08	.06	.06	.05	.02	.06	.02
Perceived Discrimination	--	--	--	.26	.05	.24**	--	--	--	.22	.05	.20**
Historical Loss	--	--	--	--	--	--	.24	.05	.23**	.18	.05	.17**
Interpersonal Difficulties												
Gender	.15	.13	.06	.16	.14	.06	.16	.14	.06	.16	.14	.06
Income	-.04	.02	-.10*	-.05	.03	-.10	-.05	.03	-.10	-.05	.03	-.10
Remote Location	.14	.17	.05	.14	.18	.05	.14	.17	.05	.15	.18	.05
Traditional Spiritual Activities	.18	.06	.18**	.07	.07	.06	.07	.07	.07	.01	.07	.01
Perceived Discrimination	--	--	--	.41	.07	.37**	--	--	--	.37	.07	.33**
Historical Loss	--	--	--	--	--	--	.26	.07	.25**	.17	.07	.15**

**
p < .01,
*
p < .05

Note: *b* = unstandardized coefficient; *SE* = standard error; β = standardized coefficient; Gender (0 = men, 1 = women) and remote location (0 = non-remote location, 1 = remote location) are dummy coded.

Table 4
Model Fit for Latent Variable Models

	χ^2	<i>df</i>	CFI	RMSEA
Adolescent Sample				
Model 1	740.71	397	.973	.039
Model 2	1230.16	807	.971	.030
Model 3	1468.77	728	.978	.042
Model 4	2003.98	1257	.978	.032
Adult Caretaker Sample				
Model 1	707.46	419	.978	.035
Model 2	1506.65	926	.966	.033
Model 3	1771.21	841	.972	.044
Model 4	2673.50	1515	.967	.037

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