# AMERICAN INDIAN SUBSTANCE ABUSE PREVENTION EFFORTS: A REVIEW OF PROGRAMS, 2003-2013

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*Abstract: The purpose of the review was to assess substance abuse prevention (SAP) efforts in American Indian and Alaska Native (AI/AN) communities from 2003-2013. In the past, many SAP programs were unable to meet the unique cultural needs of AI/AN communities adequately. It has been suggested that a disconnect may exist between the theories that are used to guide development of prevention programs in AI/AN communities and culturally appropriate theoretical constructs of AI/AN worldviews. To explore this possible disconnect further, Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines were used to assess a total of 18 articles (N = 31 programs) on program location and method, participant characteristics, described program cultural elements, use of theory, program outcomes, program measures, and future recommendations. Results indicated that SAP programs in AI/AN communities vary widely in their use of theory, implementation strategies, view and definition of cultural constructs, overall evaluational rigor, and reporting methods. Future research is needed to integrate appropriate theory and cultural elements into SAP programs to tie them to measurable outcomes for AI/AN communities.*

## INTRODUCTION

As documented by several studies, substance abuse prevention (SAP) programs implemented in American Indian and Alaska Native (AI/AN) communities frequently have not been able to meet the unique cultural needs of AI/ANs (Beauvais & LaBoueff, 1985; Hawkins, Cummins & Marlatt, 2004; May, 1999; Whitbeck, Walls, & Welch, 2012). Not surprisingly, some AI/AN communities continue to have high rates of substance abuse and addiction compared with the rest of the U.S. (Indian Health Service, 2011; Hawkins et al., 2004). Some researchers have posited that a disconnect exists between the theories used to guide development of prevention programs in AI/AN communities and culturally appropriate theoretical constructs of AI/AN worldviews,

that, when combined, might lead to greater success (Champagne, 2007; Frank, Moore, & Ames, 2000; Walsh, 2014). The general research literature suggests that theory-driven programs are more effective than programs that are not theoretically based (Donaldson & Gooler, 2003; Frank et al., 2000). Furthermore, programs that do employ theory are more likely to become incorporated into communities when the chosen theoretical framework matches the needs of the community (Green & Kreuter, 2005). When interventions and programs are theoretically driven, their components are more easily constructed; they are measured, evaluated, and replicated more accurately; and they are sustained for longer periods of time (Glanz, Rimer, & Viswanath, 2008). We hypothesized that, if SAP programs were theoretically connected and driven by AI/AN communities, it is more likely that they would be integrated into those communities; to be measured and evaluated accurately; to be sustained; and to be deemed successful for those participating. Due especially to the diversity of AI/ANs in the U.S., addressing the apparent gap in culturally relevant SAP services is paramount.

As of 2010, the U.S. Census reported 5.2 million individuals who identified as AI/AN, alone or in combination with one or more other races (U.S. Census Bureau, 2012). AI/ANs live throughout the U.S., in urban, rural, and remote rural areas and on reservation lands, with high population centers in the desert Southwest, Pacific Northwest, and Midwestern Plains (Brown, Baldwin, & Walsh, 2011). To date, there are 566 federally recognized tribes (U.S. Department of the Interior, Bureau of Indian Affairs, 2012) and a number of state tribes recognized by the National Congress of American Indians (National Congress of American Indians, 2014). Each of these tribes has distinct and unique traditions, customs, language, and teachings, making it difficult to generalize characteristics found among different communities (Brown et al., 2011).

AI/AN communities continue to have rates of adult substance abuse consistently higher than national averages for other racial and ethnic groups (National Survey on Drug Use and Health [NSDUH], 2010). An average 43.9% of AI/AN adults reported using alcohol within the last month, higher than the national average of 30.6% (Substance Abuse and Mental Health Services Administration [SAMHSA], 2011). Additionally, of those AI/ANs reporting alcohol use within the last month, 30% also reported engaging in binge drinking episodes (consuming 5 or more alcoholic beverages in one sitting; SAMHSA, 2011), higher than the national average of 24.6% (National Institutes of Alcohol Abuse and Alcoholism, 2014). AI/AN youth alcohol consumption rates are higher than rates of all substance use combined (alcohol, tobacco, and other drugs [ATOD]) when compared to national averages (NSDUH, 2011).

Although there are SAP efforts underway, it is a complex task to determine what programs have made an impact in AI/AN communities (Whitbeck et al., 2012). It is even more difficult to determine if those programs are theoretically driven, and, if so, on what theoretical perspective(s) they are based. To assess whether those programs are successful, and by what definition of success

they are measured, adds more complexity to an already multifaceted task. Whitbeck et al. (2012) stated that, despite the necessary and useful community-based participatory research (CBPR) that is being conducted in AI/AN communities, many non-Native "researchers continue to work from a Western colonial paradigm that ignores, diminishes, and reinterprets native ways of knowing" (pp. 432-433). Furthermore, Frank, Moore, and Ames (2000) also state that the theories being used to guide program development may not appropriately match beliefs and cultural nuances in many AI/AN communities; as such many AI/AN-designed programs are theoretically driven, but the theories do not reflect Western values. There is a need for research that acknowledges that grassroots programs are not atheoretical, but are very much grounded in traditional worldviews and guided by strong assumptions pertaining to risk and protective factors.

The purpose of this review was to assess SAP efforts in the U.S. for AI/AN communities over the last 10 years, from 2003-2013. Our intent was to focus on articles describing alcohol-specific and other drug-specific programs. Program impacts and outcomes, common programmatic elements, and, most importantly, the theories that guide programming were assessed. For this review, we hypothesized that most SAP programs are not theoretically based when applied to AI/AN populations. If theory is being used, the theories may not be appropriate for the culture, thereby calling into question the actual success of these programs. Furthermore, if programs claim to incorporate cultural elements, are those elements actually representative of the AI/AN communities in which programming is being implemented?

We conducted a systematic review following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Liberati et al., 2009). The PRISMA flowchart is included in Appendix A. Furthermore, the current review followed the Matrix Method, a structure and process for systematically reviewing the literature that includes 1) a detailed record of the search process, 2) saving all articles retrieved, 3) a review matrix to organize abstracted information, and 4) a written synthesis of the reviewed literature (Garrard, 2011). The current review specifically addressed the following questions:
• Within the last 10 years (2003-2013):

1. What programs have made an impact on substance abuse in AI/AN communities?

2. What were those outcomes and impacts in AI/AN communities?

3. What are the common programmatic and cultural elements across these efforts? and

4. What are the common theories, if any, that have guided these SAP programs for AI/ANs?

## METHOD

### Data Sources/Retrieval

To answer the research questions noted above, we included the terms "substance abuse," "prevention," "program," "American Indian," and "Native American" in our search. Only programs or interventions that had been implemented were included. Any program or intervention that was in the formative research or developmental stages was not included, as it is difficult to ascertain the impact or outcomes that these efforts may have in AI/AN communities. We intentionally omitted a specific search term for theory, because we anticipated that many SAP programs may include theoretical constructs but not implicitly state them; a review on the need for theory in AI/AN studies has highlighted that concern (Champagne, 2007).

Three bibliographic databases were searched: Web of Science, PubMed, and PsycINFO. Databases were chosen based on the number of records pertaining to behavioral sciences, mental health, and public health. References from all of the included articles were also reviewed for additional relevant publications.

### Inclusion and Exclusion Criteria and Study Selection

Articles were included if they: a) were published in a peer-reviewed English-language journal (inclusive of review papers), b) were published between 2003 and 2013, c) involved research relating to humans, d) included description of a prevention program, e) examined programs that mentioned use or abuse of ATOD, f) provided impact and/or outcome data, and g) discussed or inferred use of theory in relation to substance abuse primary prevention with AI/ANs. Studies were excluded from this review if they: a) were published in non-English-language journals; b) summarized studies conducted outside of the U.S. (e.g., in Australia or Canada); and/or c) primarily focused on substance abuse treatment, recovery, or treatment interventions (i.e., secondary or tertiary prevention).

After removing duplicates, the initial search yielded 29 results from the three databases using the predetermined search terms. We then applied the inclusion criteria to focus the types of articles to be reviewed. When these parameters were applied, a total of 12 abstracts remained. After further review of the selected article's references, we identified 18 additional publications, 6 of which met both the inclusion and exclusion criteria. These steps resulted in a total of 18 articles for this systematic review.

**Data Extraction**

Each of the 18 articles was assessed based upon the program location and method (i.e., school-based curriculum or after-school programs), participant characteristics (i.e., age and gender of the target population), described cultural elements, use of theory, program outcomes, and additional recommendations. Some of the 18 articles ($n = 6$) reviewed multiple programs, increasing the total number of programs discussed ($N = 31$). A matrix listing all of the programs reviewed and a summary of information extracted can be found in Appendix B.

## RESULTS

Following data extraction, the main categories of interest were assessed thoroughly. For each category of interest, we read through and counted the results twice, to ensure accurate reporting. Additionally, when pertinent, we explored associations between main categories.

**Participant Characteristics**

Of 31 total programs reviewed, the majority were targeted toward AI/AN youth and adolescents (71%, $n = 22$). Other programs were targeted toward a combination of individuals, families, and communities (25%, $n = 8$); only one program was designed explicitly for adult women. When locations were named in the articles, they fell into expected classifications: Plains (23%, $n = 7$), Pacific Northwest (19%, $n = 6$), Southwest (16%, $n = 5$), California (10%, $n = 3$), Upper Midwest (7%, $n = 2$), and Alaska (3%, $n = 1$). A total of 23% ($n = 7$) of the reviewed programs did not specify the geographic location. Programs were implemented in a combination of urban and non-urban locations (32%, $n = 10$), urban-only locations (23%, $n = 7$), and non-urban only locations (13%, $n = 4$). The other articles gave no indication (32%, $n = 10$) if they were implemented in urban or non-urban settings.

**Program Focus**

The overwhelming majority of reviewed programs were aimed at combined prevention approaches (ATOD; 77%, $n = 24$) and only a few (16%, $n = 5$) were explicitly focused on alcohol use or abuse. Additionally, a small number of the ATOD programs addressed prevention of other behaviors, such as high-risk behaviors leading to HIV/AIDS (7%, $n = 2$).

## Program Implementation

Frequently, programs took place as in-school and/or curriculum-based interventions (29%, $n = 9$) or in after-school settings (13%, $n = 4$). Many of the programs utilized multiple locations for implementation (32%, $n = 10$). Some articles gave no indication as to where program implementation occurred (19%, $n = 6$).

## Program Approaches

The methods used to implement the programs varied greatly. Most articles detailed a multitude of activities as a means for describing the intervention/program (52%, $n = 16$). Other programs were described as a curriculum (26%, $n = 8$), an electronic intervention (7%, $n = 2$), a community media campaign (3%, $n = 1$), or an environmental approach (3%, $n = 1$). Many (39%, $n = 12$) of the described programs focused on life skills-building activities as a main approach. Other programs descriptions (10%, $n = 3$) did not provide any information on the program/intervention approach.

## Common Cultural Elements

There was wide variation in the cultural elements presented for each of the 31 programs. The vast majority described some cultural factors that had been integrated, adapted, or tailored into the programs (77%, $n = 24$). These cultural factors included the incorporation of AI teachings (23%, $n = 7$), involvement of tribal community members or leaders (19%, $n = 6$), cultural enrichment exercises (13%, $n = 4$), other culturally relevant or appropriate activities (13%, $n = 4$), and integration of described core AI values (10%, $n = 3$), yet further description of these integrated, adapted, or tailored factors was lacking (77%, $n = 24$). However, some articles (23%, $n = 7$) described explicitly the cultural elements that were part of the program activities; these included using talking circles (10%, $n = 3$), providing program materials in AI/AN languages (7%, $n = 2$), and using the canoe journey (3%, $n = 1$); one program used dance, drums, sweat lodge ceremonies, medicine men, and multiple other cultural elements.

## Program Outcomes

Of the articles reviewed, almost all claimed positive programmatic outcomes (87%, $n = 27$), a few did not report any outcomes (10%, $n = 3$), and one program reported a negative outcome. Of the articles reporting positive programmatic outcomes, these outcomes were categorized as specifically showing increases in: knowledge of substance abuse (7%, $n = 2$), overall negative attitudes toward substance abuse (7%, $n = 2$), refusal skills (7%, $n = 2$), general self-efficacy or confidence of

participants (7%, $n$ = 2), negative social normative beliefs toward substance abuse (3%, $n$ = 1), awareness of substance abuse (3%, $n$ = 1), decreases or delays in alcohol or other drug use (26%, $n$ = 8), and a combination of the previous outcomes (23%, $n$ = 7).  Yet, two articles (7%) did not describe any programmatic outcomes. Finally, of all programs reporting positive outcomes ($n$ = 27), a few (11%, $n$ = 3) described increases in connection between program participants and their families and/or communities. Furthermore, many articles (42%, $n$ = 13) reported only immediate, short-term outcomes.

The measures used to assess outcomes consisted of pre/post surveys (16%, $n$ = 5), control or comparison groups (13%, $n$ = 4), state- or county-level data (7%, $n$ = 2), one-on-one interviewing (3%, $n$ = 1), and counting referrals to services (3%, $n$ = 1). Nine programs (29%) utilized assessments with at least one additional follow-up more than 6 months after the initial intervention. Measures were not described in one quarter (26%, $n$ = 8) of all articles.

**Use of Theory**

The inclusion criteria for this systematic review required articles to discuss or, at the very least, infer use of theory in the program. Inference of use of theory was based on provided descriptions of constructs, methods, or mechanisms through which the program was developed, implemented, or evaluated. Programs were divided into those explicitly using theory (39%, $n$ = 12) and those not explicitly using theory (61%, $n$ = 19). Of the articles that contained an explicit use of theory, the theories included: social cognitive theory (6%, $n$ = 2), Cherokee Self-Reliance (6%, $n$ = 2), community empowerment theory (3%, $n$ = 1), cultural compatibility theory (3%, $n$ = 1), cognitive theory (3%, $n$ = 1), cultural historical theory (3%, $n$ = 1), community competence theory (3%, $n$ = 1), ecological risk theory (3%, $n$ = 1), and resiliency theory (3%, $n$ = 1). One program was "based on a theoretical perspective that reflects the culture and values of Native Americans" (Wright et al., 2011, p. 1423).  Often, more than one theory was named in a single article (26%, $n$ = 8).

Furthermore, articles often included methods or approaches to research, and not necessarily theories, as their guiding framework. As an example, CBPR was named or inferred in some articles (16%, $n$ = 5) as a guiding framework. Depending on how the program was described, for the remaining programs (61%, $n$ = 19) the following theories were inferred based on provided descriptions: family systems theory, linguistic theory, community readiness model, empowerment theory, social cognitive theory, socioecological model, and the ecological framework.  Often there were indications of constructs, such as resiliency, self-efficacy, skill-building, and environment adjustment, that were described but not linked to named theoretical constructs or approaches (32%, $n$ = 10).

**Program Recommendations**

Notably, all of the articles recommended some level of incorporation of AI/AN culture, values, and/or beliefs, into programs. The need for cultural specificity of SAP programs was mentioned repeatedly (35%, $n = 11$), as was the need for community-based and community-driven interventions (32%, $n = 10$). Some articles detailed a need for holistic approaches to SAP in AI/AN communities (19%, $n = 6$). Only four articles (13%) recommended assessing the fidelity of current programs in AI/AN communities before continued use.

A number of articles (55%, $n = 17$) emphasized the need for evaluation of SAP programs for AI/ANs, or indicated a need for culturally relevant theory integration into such programs (35%, $n = 11$). Some articles (19%, $n = 6$) alluded to evaluation outcomes through statements, such as "fostered a sense of community" (Moore et al., 2012).

## DISCUSSION

In the current systematic review, we describe SAP efforts in Native communities in the U.S. over the last 10 years (2003-2013). The review identifies programs that have made an impact on substance use in Native communities and describes the common programmatic and cultural elements across these successful efforts. Additionally, this review identifies named and inferred theories, theoretical constructs, frameworks, and models used in these SAP programs for AI/ANs. Lastly, we ascertain evidence of program evaluation by assessing the methods used by programs to measure their outcomes. These results are discussed further below.

**Use of Theory**

We hypothesized that theories being used in SAP programs for AI/ANs may not be based appropriately on cultural relevance. Although the reviewed articles did not provide enough information on the use of theory to address the hypothesis, findings from the systematic review support the fact that there is wide variation in theories driving SAP programming for AI/ANs, as well as in program implementation and fidelity, measurements, and evaluations. Therefore, it is difficult to measure what collective impact SAP programs may have had in Native communities.

Based on this systematic review, we know that many program descriptions are not explicit in how theory is integrated into development and implementation. It is also known that the theories being used to guide program development may not appropriately match beliefs and cultural nuances in communities (Frank et al., 2000). Many AI/AN communities typically operate from a collectivistic worldview, rather than an individualistic stance (Champagne, 2007; Duran, 2006; Vandello & Cohen, 1999; Walsh & Baldwin, 2012; Whitbeck et al., 2012). Research has shown that it is possible to

integrate scientific theories of behavior change (Western-based) with Indigenous holistic health belief systems (Baldwin, Johnson, & Benally, 2009). However, even with a movement toward more community-driven prevention strategies and recognition of the need for cultural specificity, as noted by many programs (68%, $n = 21$), much SAP program development continues to be based on theories with an individualistic worldview (Nation et.al, 2003). Many SAP programs throughout the U.S. and in AI/AN communities are based on an individual risk-factors approach, opposed to a strengths-based approach, adding to a disconnect with the collectivist worldview of many AI/AN communities (Whitbeck et al., 2012).

**Program Participants and Prevention Approaches**

Many programs described in this review were targeted to youth (71%, $n = 22$) and occurred in school (29%, $n = 9$) or in after-school settings (13%, $n = 4$), and in multiple locations, such as school-based and community centers (32%, $n = 10$). The vast majority (84%, $n = 26$) addressed ATOD and/or other behaviors, and only a handful (16%, $n = 5$) specifically addressed alcohol use and abuse in AI/AN communities. Combining prevention messaging can be problematic, as substances are very different from one another, especially when used or abused by youth (Luna, 2002). Prevention efforts work best if targeted specifically in relation to the substance of interest (Gabrielsen, 2002). There are universal approaches that can have a positive influence on the use and abuse of ATOD in all populations, e.g., improving refusal skills, increasing self-efficacy, addressing attitudes and beliefs, and increasing overall awareness (Baldwin, Brown, Wayment, Nez, & Brelsford, 2011; Hawkins, Catalano, & Miller, 1992). Yet, there are precise areas that, when addressed and tailored for SAP, have been shown to be more influential.  These areas include addressing and altering social norms surrounding alcohol and drug use and abuse, navigating peer pressure related to substance use, addressing environmental triggers, and, most importantly, involving family, friends, schools, and community members to reinforce positive nondrug-related behaviors of youth (Hanson & Dusenbury, 2004). However, it should be noted that the efficacy of these target areas has not been assessed rigorously for AI/AN youth; the assessments that have been done included only a handful of AI/AN youth and therefore are not necessarily representative of all AI/AN youth (Hanson & Dusenbury, 2004; Whitbeck et al., 2012).

**Program Evaluation**

These findings lead to the complicated, yet necessary, discussion of what success looks like for SAP programs, and whether those successes are different for AI/AN communities. From an individualistic viewpoint, a successful SAP outcome would be to not engage in the targeted behavior (Nation et al., 2003). Yet, only 26% of the reviewed programs ($n = 8$) reported decreases or delays

in substance use and/or abuse. The rest of the programs (74%, $n = 23$) did not report any impact on or outcomes related to substance abuse behavior. Does that mean the rest of the programs were unsuccessful in preventing substance use and abuse? Not if the positive findings were categorized in other ways (e.g., changes in beliefs or attitudes). In fact, of the programs reporting outcomes (87%, $n = 27$), a few (11%, $n = 3$) also described increases in connection between program participants and their families and/or communities. It is unknown whether this program outcome was intended, yet the authors thought it was important enough to frame the success of their programs in that context.

Program success appears to be dependent on how the program developer, implementer, or evaluator defines it. To address program outcomes for the current review, it would have been beneficial if the expected program success outcomes had been stated explicitly. The outcomes from these programs were almost all positive (87%, $n = 27$), and authors called for other programs to follow their program format and/or methods in other AI communities. However, many articles (42%, $n = 13$) reported only immediate, short-term outcomes, or did not describe the measures used to determine outcomes (26%, $n = 8$). Only nine programs (29%) used multiple-timepoint measures to assess outcomes over time. Therefore, it is difficult to assess the programs' impacts and outcomes, and whether these outcomes were (or are) sustainable. In the past, SAP efforts in AI/AN communities frequently have lacked efficacy evaluation (Beauvais & Trimble, 2003; Dixon et al., 2007; Hawkins et al., 2004), and have been based on "commentary and recommendations and not on the science of prevention" (Beauvais & Trimble, 2003, p. 397). Specific program details often are unpublished or are unavailable for review (Hawkins et al., 2004). Evaluation is an area of much-needed attention for AI/AN SAP programs, as there appears to be a relationship between clarity of SAP program design and associated approaches to evaluation (Dixon et al., 2007; Hawkins et al., 2004; Whitbeck et al., 2012).

There are recommendations for SAP program success to be measured based on what is relevant to the communities in which they are taking place (Hernandez, Nesman, Mowery, Acevedo-Polakovich, & Callejas, 2009; Martinez, Callejas, & Hernandez, 2010). Using practice-based evidence or community-defined evidence programs could facilitate reporting representative outcomes of success (Hernandez et al., 2009; Martinez et al., 2010). Practice-based evidence has been defined as more reflective, based on personal experiences and theoretical knowledge, whereas community-defined evidence is just that—evidence defined by the community in which an intervention is taking place (Hernandez et al., 2009; Martinez et al., 2010). Additionally, there has been an upsurge in the use of CBPR to guide SAP programs in AI/AN communities (Whitbeck et al., 2012). CBPR provides opportunities for communities to be actively involved throughout the process of program development, implementation, evaluation, and dissemination of findings (Minkler & Wallerstein, 2003).

**Limitations**

The current review is not without limitations. The intent of the systematic review was to identify SAP programs for Native communities, yet it was not feasible to assess the strength of the program evaluations rigorously to show whether they were successful. Nor was the intent of review to evaluate programs' use of theory, or how (or what) cultural elements were utilized. Merely identifying a theory does not mean that a program was theoretically driven. Nor does lack of an identified theory indicate that a program was without a theoretical basis or framework. It is possible that authors did not include information on their guiding theories, did not elaborate on the use of theory, or inadvertently misidentified the type of theory used. The same can be said regarding the cultural elements of the reviewed programs. Without access to actual program materials, it is difficult to state what the specific program approaches, methods, and elements might have been.

One of the main limitations of the current systematic review was the inclusion criterion requiring an article to have been published in a peer-reviewed journal. There are "numerous community-based prevention programs currently in progress that have yet to complete randomized control trials or otherwise have been unpublished in academic journals" (Whitbeck et al., 2012, pp. 431). Descriptions of prevention programs that have not been published often can be found in the grey literature, defined as written material that has been published informally (Childress & Jul, 2003). Programs may be extremely successful, yet not published in peer-reviewed journals. For example, program staff may post their information on a website (SAMHSA, n.d.) or write a white paper (Association for Experiential Education, 2011). Furthermore, many current and/or discontinued SAP programs simply may not be reporting their findings.

Numerous articles ($n = 24$) were not included in the current review because they were descriptive pieces on SAP policies, strategies, approaches, and/or research projects (i.e., not program based). Many excluded articles (50%, $n = 12$) focused on the CBPR processes in AI/AN communities, and, although those processes may have resulted in program development or implementation, additional information on those pieces was not provided. Furthermore, a number of articles from the initial search were excluded ($n = 17$) because they combined primary prevention programs with treatment and recovery programs (tertiary prevention programs).

**Implications for Future Research**

It would be informative to conduct a review of the literature prior to 2003, to gain greater insight into the history of SAP efforts in AI/AN communities and how that information might contextualize the current state of affairs. Furthermore, to address the high rates of AI/AN substance abuse, there is a need to understand why certain SAP programs work in Native communities. One

way to increase understanding is by linking theoretical underpinnings of program development with appropriate measures and ensuring accurate program evaluation (Weiss, 2004). A critical assessment of SAP program evaluations in Native communities, regardless of theory inclusion, is necessary (Dixon et al., 2007; Hawkins et.al, 2004; Muraskin, 1993; Whitbeck, 2012); in particular, differing cultural practices and their influences on theoretical fit between smaller reservation tribes and the larger populations of non-reservation and urban AI/AN tribes should be explored.

As AI/AN communities continue to experience the detrimental effects associated with substance abuse, there is a need to design and integrate applicable prevention methods effectively (Coyhis & Simonelli, 2008; Noe, Fleming & Manson, 2003). Ways to accomplish this include identifying appropriate theories to guide development and adaptation of prevention programs (Champagne, 2007), integrating AI/AN cultural elements into programming (Goodkind, LaNoue, & Milford, 2010; Nebelkopf & Wright, 2011), and using CBPR to assist in understanding what AI/AN communities want and need (Teufel-Shone, Siyuha, Watahomigie, & Irwin, 2006; Thomas, Donovan, Sigo, Austin, & Marlatt, 2009). Yet, these efforts are in vain if results are not properly evaluated and reported (Edgerly et al., 2009; Goodkind et al., 2011; Gorman et al., 2013; Montag, Clapp, Calac, Gorman, & Chambers, 2012; Nelson & Tom, 2011).

## REFERENCES

(*denotes reviewed articles)

*Aguilera, S., & Plasencia, A. V. (2005). Culturally appropriate HIV/AIDS and substance abuse prevention programs for urban Native youth. *Journal of Psychoactive Drugs, 37*(3), 299-304. doi:10.1080/02791072.2005.10400523

Association for Experiential Education. (2011). *White papers: Adventure therapy with American Indian youth*. Boulder, CO: AEE Council on Core Research & Evaluation. Retrieved from http://0-files.eric.ed.gov.opac.msmc.edu/fulltext/ED531759.pdf

Baldwin, J. A., Johnson, J. L., & Benally, C. C. (2009). Building partnerships between Indigenous communities and universities: Lessons learned in HIV/AIDS and substance abuse prevention research. *American Journal of Public Health, 88*(S1), S77-S83. doi:10.2105/AJPH. 2008.134585

Baldwin, J. A., Brown, B. G., Wayment, H. A., Nez, R. A., & Brelsford, K. M. (2011). Culture and context: Buffering the relationship between stressful life events and risky behaviors in American Indian youth. *Substance Use & Misuse, 46*, 1380-1394. doi: 10.3109/10826084.2011.592432

Beauvais, F., & LaBoueff, S. (1985). Drug and alcohol abuse intervention in American Indian communities. *The International Journal of the Addictions, 20*(1),139-171.Retrieved from https://www.ncjrs.gov/App/Publications/abstract.aspx?ID=131933

Beauvais, F., & Trimble, J. E. (2003). The effectiveness of alcohol and drug abuse prevention among American-Indian youth. In Z. Sloboda & W.J. Bukoski (Eds.), *Handbook of drug abuse prevention: Theory, science, and practice* (pp. 393-410). New York: Kluwer.

*Beckett, C. D. (2011). Fetal Alcohol Spectrum Disorders: A Native American journey to prevention. *Family Community Health, 34*(3), 242-245. doi: 10.1097/FCH.0b013e31821962a8

Bogenschneider, K. (1996). An ecological risk protective theory for building prevention programs, policies, and community capacity to support youth. *Family Relations, 15*, 127-138. Retrieved from http://onlinelibrary.wiley.com/journal/10.1111/%28ISSN%291741-3729

Brown, B. G., Baldwin, J. A., & Walsh, M. L. (2011). Putting tribal national first: Historical trends, current needs, and future directions for substance use prevention for American Indian and Alaska Native youths. In S.R. Notaro (Ed.), *Health disparities among children of color: Interventions that work, Vol. 9*. (pp. 3-47). Ithaca, NY: Emerald Publishing.

Castro, F. G., Barrera, M. Jr., & Martinez, C. R. Jr. (2004). The cultural adaptation of prevention interventions: Resolving tensions between fidelity and fit. *Prevention Science, 5*(1), 41-45. doi: 10.1023/B:PREV.0000013980.12412.cd

Champagne, D. (2007). In search of theory and method in American Indian studies. *American Indian Quarterly, 31*(3), 353-372. doi: 10.1353/aiq.2007.0028

Childress, E,. & Jul, E. (2003). Going gray: Gray literature and metadata. *Journal of Internet Cataloging, 6*(3), 3-6.doi: 10.1300/J141v06n03_02

Coyhis, D., & Simonelli, R. (2008). The Native American healing experience. *Substance Use & Misuse, 43*, 1927-1949. doi: 10.1080/10826080802292584

*Dixon, A. L., Yabiku, S. T., Okamoto, S. K., Tann, S. S., Marsiglia, F. F., Kulis, S., & Burke, A. M. (2007). The efficacy of a multicultural prevention intervention among urban American Indian youth in the southwest U.S. *Journal of Primary Prevention, 28*(6), 547-568. doi: 10.1007/s10935-007-0114-8

Donaldson, S. I., & Gooler, L. E. (2003). Theory-driven evaluation in action: Lessons from a $20 million statewide work and health initiative. *Evaluation Program Planning, 26*, 355-366. doi: doi:10.1016/S0149-7189(03)00052-1

Duran, E. (2006). *Healing the soul wound: Counseling with American Indians and other Native peoples*. New York: Teachers College Press.

Edgerly, C. C., Laing, S. S., Day, A. G., Blackinton, P. M., Pingatore, N. L, Haverkate, R. T., & Heany, J.F. (2009). Steps to a healthier Anishinaabe, Michigan: Strategies for implementing health promotion programs in multiple American Indian communities. *Health Promotion Practice*, *10*(2), 109S-117S. doi:10.1177/1524839908331270

*Ellis, B. H. (2003). Mobilizing communities to reduce substance abuse in Indian Country. *Journal of Psychoactive Drugs, 35*(1), 89-96. doi: 10.1080/02791072.2003.10399999

Frank, J. W., Moore, R. S., & Ames, G. M. (2000). Public health then and now: Historical and cultural roots of drinking problems among American Indians. *American Journal of Public Health*, *90*(3), 344-351. Retrieved from http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1446168/

Gabrielsen, K. R. (2002). Prevention program planning. In J. Hogan, K. Gabrielsen, N. Luna, & D. Grothaus (Eds.), *Substance abuse prevention: The intersection of science and practice* (pp. 64-75). Bakersfield, CA: Allyn & Bacon.

Garrard, J. (2011). *Health sciences literature review made easy: The Matrix method*. Boston: Jones Bartlett Learning.

Glanz, K., Rimer, B. K., & Viswanath, K. (2008). *Health behavior and health education: Theory, research, and practice*. San Francisco: Jossey Bass.

Goodkind, J. R., LaNoue, M. D., & Milford, J. (2010). Adaptation and implementation of cognitive behavioral intervention for trauma in schools with American Indian youth. *Journal of Clinical Child & Adolescent Psychology, 39*(6), 858-872. doi: 10.1080/15374416.2010.517166

Goodkind, J. R., Ross-Toledo, K., John, S., Hall, J. L., Ross, L., Freeland, L., . . . Becenti-Fundark, T. (2011). Rebuilding trust: A community, multiagency, state, and university partnership to improve behavioral health care for American Indian youth, their families, and communities. *Journal of Community Psychology, 39*(4), 452-477. doi: 10.1002/jcop.20446

Gorman, J. R., Clapp, J. D., Calac, D., Kolander, C., Nyquist, C., & Chambers, C. D. (2013). Creating a culturally appropriate web-based behavioral intervention for American Indian/Alaska Native women in southern California: The Healthy Women Healthy Native Nation study. *American Indian and Alaska Native Mental Health Research, 20*(1), 1-16. doi: 10.5820/aian.2001.2013.1

Gosin, M., Marsiglia, F. F., & Hecht, M. L. (2003). keepin' it REAL: A drug resistance curriculum tailored to the strengths and needs of preadolescents of the Southwest. *Journal of Drug Education, 33*(2),119-142. doi: 10.2190/DXB9-1V2P-C27J-V69V

Green, L. W., & Kreuter, M. W. (2005). *Health program planning: An educational and ecological approach.* Boston; McGraw-Hill.

*Hanson, J. D., Winberg, A., & Elliott, A. (2012). Development of a media campaign on Fetal Alcohol Spectrum Disorders for Northern Plains American Indian communities. *Health Promotion and Practice, 13*, 842-849. doi: 10.1177/1524839911404232

Hanson, W., & Dusenbury, L. (2004). Alcohol use and misuse: Prevention strategies with minors. In R. J. Bonnie & M. E. O'Connell (Eds.), *Reducing underage drinking: A collective responsibility* (pp. 437-457). Washington, DC: National Academies Press.

Harthun, M. L., Drapeau, A. E., Dustman, P. A., & Marsiglia, F. F. (2002). Implementing a prevention curriculum: An effective researcher-teacher partnership. *Education and Urban Society, 34*, 353-364. doi: 10.1177/0013124502034003005
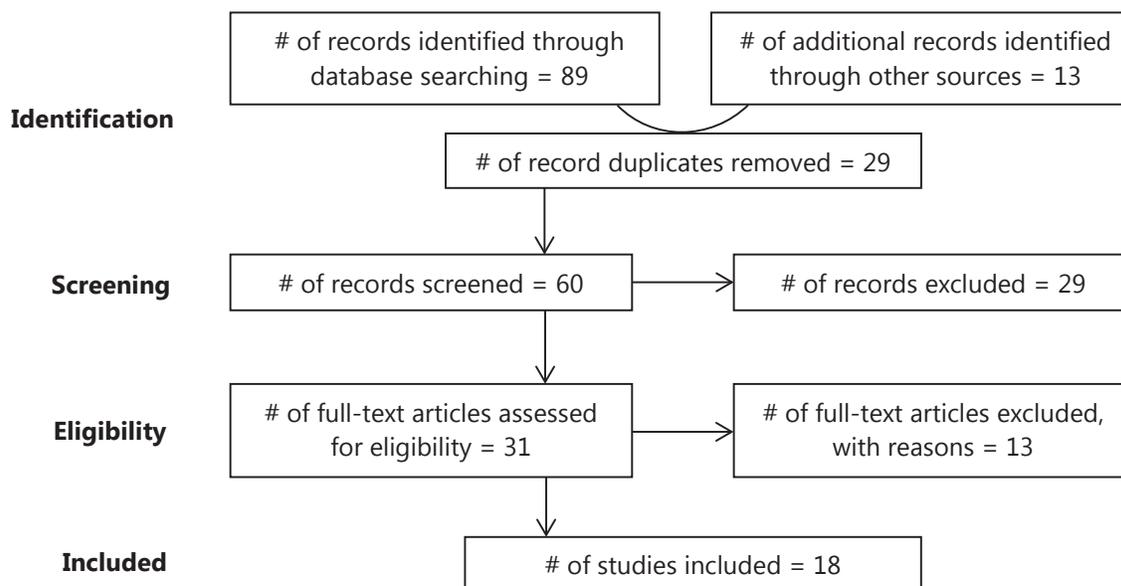
*Hawkins, E. H., Cummins, L. H., & Marlatt, G. A. (2004). Preventing substance abuse in American Indian and Alaska Native youth: Promising strategies for healthier communities. *Psychological Bulletin, 130*, 304-323. doi: 10.1037/0033-232909.130.2.304

Hawkins, J. D., Catalano, R. F., & Miller, J. Y. (1992). Risk and protective factors for alcohol and other drug problems in adolescents and early adulthood: Implications for substance abuse prevention. *Psychological Bulletin, 112*(1), 64-105. doi: 10.1037/0033-2909.112.1.64

*Henry, D., Allen, J., Fok, C. C. T., Rasmus, S., Charles, B., & People Awakening Team. (2012). Patterns of protective factors in an intervention for the prevention of suicide and alcohol abuse in Yup'ik Alaska Native youth. *The American Journal of Drug and Alcohol Abuse, 38*(5), 476-482. doi: 10.3109/00952990.2012.704460

Hernandez, M., Nesman, T., Mowery, D., Acevedo-Polakovich, I. D., & Callejas, L. M. (2009). Cultural competence: A literature review and conceptual model for mental health services. *Psychiatric Services, 60*(8), 1046-1050.

Indian Health Service. (2011). *American Indian and Alaskan Native behavioral health briefing book*. Rockville, MD: Author. Retrieved from http://www.ihs.gov/medicalprograms/Behavioral/documents/AIANBHBriefingBook.pdf

*Jackson, K. F., & Hodge, D. (2010). Native American youth and culturally sensitive interventions: A systematic review. *Research on Social Work Practice, 20*(3), 260-270. doi: 10.1177/1049731509347862

*Kulis, S., Dustman, P.A., Brown, E. F., & Martinez, M. (2013). Expanding urban American Indian youths' repertoire of drug resistance skills: Pilot results from a culturally adapted prevention program. *American Indian and Alaska Native Mental Health Research, 20*(1), 35-56. doi: 10.5820/aian.2001.2013.35

Liberati, A., Altman, D. G., Tetzlaff, J., Mulrow, C., Gotzsche, P. C., Ioannidis, J. P. A., . . . Moher, D. (2009). The PRISMA statement for reporting systematic reviews and meta-analyses of studies that evaluate healthcare interventions: Explanation and elaboration. *British Medical Journal Online*, *3*(b2700), 1-27 doi: 10.1136/bmj.b2700

*Lowe, J. (2006). Teen Intervention Project-Cherokee (TIP-C). *Pediatric Nursing, 32(5)*:495-500. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/17100083?dopt=Abstract

*Lowe, J., Liang, H., Riggs, C., & Henson, J. (2012). Community partnership to affect substance abuse among Native American adolescents. *The American Journal of Drug and Alcohol Abuse, 38*(5), 450-455. doi: 10.3109/00952990.2012.694534

Luna, N. (2002). Facts about drugs. In J. Hogan, K. Gabrielsen, N. Luna, & D. Grothaus (Eds.), *Substance abuse prevention: The intersection of science and practice* (pp. 89-102). Bakersfield, CA: Allyn & Bacon.

*Marlatt, G. A., Larimer, M. E., Mail, P. D., Hawkins, E. H., Cummins, L. H., Blume, A. W., . . . Gallion, S. (2003). Journeys of the circle: A culturally congruent life skills intervention for adolescent Indian drinking. *Alcoholism: Clinical and Experimental Research, 27*(8), 1327-1329. doi: 10.1097/01.ALC.0000080345.04590.52

Martinez, K., Callejas, L., & Hernandez, M. (2010). Community-defined evidence: A bottom-up behavioral health approach to measure what works in communities of color. *Report on Emotional & Behavioral Disorders in Youth: Evidence-based Assessments, 10*(1), 11-16. Retrieved from http://nned.net/index-nned.php/NNED_wiki/Report-on-Emotional-%26-Behavioral-Disorders-in-Youth%3A-Evidence-Based-Assessments

May, P. A. (1999). The epidemiology of alcohol abuse among American Indians: The mythical and real properties. In D.A. Champagne (Ed.), *Contemporary Native American cultural issues* (pp. 227-244). Walnut Creek, CA: Altamira Press.

Minkler, M. & Wallerstein, N. (2003). Introduction to community-based participatory research. In M. Minkler & N. Wallerstein (Eds.), *Community-based participatory research for health: From process to outcomes* (pp. 3-26). San Francisco: Jossey-Bass.

Moher, D., Liberati, A., Tetzlaff, J., Altman, D. G., & The PRISMA Group. (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *British Medical Journal Online, 339*(b2535), 332-339. doi: 10.1136/bmj.b2535

Montag, A., Clapp, J. D., Calac, D., Gorman, J., & Chambers, C. (2012). A review of evidence-based approaches for reduction of alcohol consumption in Native women who are pregnant or of reproductive age. *The American Journal of Drug and Alcohol Abuse, 38*(5), 436-443. doi: 10.3109/00952990.2012.694521

*Moore, R. S., Roberts, J., McGaffigan, R., Clac, D., Grube, J. W., Gildern, D. A., & Ehlers, C. L. (2012). Implementing a reward and reminder underage drinking prevention program in convenience stores near southern California American Indian reservations. *American Journal of Drug and Alcohol Abuse, 38*(5), 456-460. doi:10.3109/00952990.2012.696758

*Moran, J. R., & Bussey, M. (2007). Results of an alcohol prevention program with urban American Indian youth. *Child and Adolescent Social Work Journal, 24*(1), 1-22. doi: 10.1007/s10560-006-0049-6

Muraskin, L. D. (1993). *Understanding evaluation: The way to better prevention programs.* Publication No. ED/OESE92-41. Washington, DC: U.S. Department of Education. Retrieved from http://www2.ed.gov/PDFDocs/handbook.pdf

Nation, M., Crusto, C., Wandersman, A., Kumpfer, K. L., Seybolt, D., Morrissey-Kane, E., & Davino, K. (2003). What works in prevention: Principles of effective prevention programs. *American Psychologist, 58*, 449-456. doi: 10.1037/0003-066X.58.6-7.449

National Congress of American Indians. (2014) *State recognition.* Washington, DC: Author. Retrieved from www.ncai.org/policy-issues/tribal-governance/federal-recognition

National Institutes of Alcohol Abuse and Alcoholism. (2014). *Alcohol facts and statistics*. Washington, DC: Author. Retrieved from http://www.niaaa.nih.gov/alcohol-health/overview-alcohol-consumption/alcohol-facts-and-statistics

National Survey on Drug Use and Health (NSDUH). (2010). *The NSDUH report: Substance use among American Indian or Alaska Native adults*. Washington, DC: Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration. Retrieved from http://www.samhsa.gov/data/2k10/182/AmericanIndian.htm

NSDUH. (2011). *The NSDUH report: Substance use among American Indian or Alaska Native adolescents*. Washington, DC: Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration. Retrieved from http://www.samhsa.gov/data/2k11/WEB_SR_005/WEB_SR_005.htm

Nebelkopf, E. & Wright, S. (2011). Holistic system of care: A ten-year perspective. *Journal of Psychoactive Drugs, 43*(4), 302-308. doi: 10.1080/02791072.2011.628922

Nelson, K., & Tom, N. (2011). Evaluation of a substance abuse, HIV and hepatitis prevention initiative for urban Native Americans: The Native Voices program. *Journal of Psychoactive Drugs, 43*(4), 349-354. doi: 10.1080/02791072.2011.629158

Noe, T., Fleming, C., & Manson, S. (2003). Healthy nations: Reducing substance abuse in American Indian and Alaska Native communities. *Journal of Psychoactive Drugs, 35*(1), 15-26. doi: 10.1080/02791072.2003.10399989

*Raghupathy, S., & Go Forth, A. L. (2012). The HAWK$^2$ program: A computer-based drug prevention intervention for Native American youth. *The American Journal of Drug and Alcohol Abuse, 38*(5), 461-467. doi: 10.3109/00952990.2012.694531

*Ringwalt, C., & Bliss, K. (2006). The cultural tailoring of a substance use prevention curriculum for American Indian youth. *Journal of Drug Education, 36*(2), 159-177. doi: 10.1007/s10935-008-0150-z

Spitzberg, B. II., & Cupach, W. R. (1984). *Interpersonal communication competence*. Beverly Hills, CA: Sage Publications.

Substance Abuse and Mental Health Services Administration (SAMHSA). (n.d.). *Annual Native American Service to Science Academy Meets in DC*. Rockville, MD: Author. Retrieved from http://captus.samhsa.gov/news-and-events/annual-native-american-service-science-academy-meets-dc

SAMHSA. (2011). *Results from the 2010 National Survey on Drug Use and Health: Summary of national findings*. NSDUH Series H-41, HHS Publication No. (SMA) 11-4658. Rockville, MD: Author.

Teufel-Shone, N. I., Siyuha, T., Watahomigie, H. J., & Irwin, S. (2006). Community-based participatory research: Conducting a formative assessment of factors that influence youth wellness in the Hualapai community. *American Journal of Public Health, 96*(9), 1622-1628. doi:10.2105/AJPH.2004.054254

Thomas, L. R., Donovan, D. M., Sigo, R. L. W., Austin, L., & Marlatt, A. G. (2009). The community pulling together: A tribal community-university partnership project to reduce substance abuse and promote good health in a reservation tribal community. *Journal of Ethnicity in Substance Abuse, 8*(3), 283-300. doi: 10.1080/15332640903110476

U.S. Census Bureau. (2012). *The American Indian and Alaska Native Population: 2010 Census Briefs*. Suitland, MD: Author. Retrieved from http://www.census.gov/prod/cen2010/briefs/c2010br-10.pdf

U.S. Department of the Interior, Bureau of Indian Affairs. (2012). Indian entities recognized and eligible to receive services from the Bureau of Indian Affairs. *Federal Register 77(155)*, 47868-47873. Retrieved from: http://www.bia.gov/cs/groups/public/documents/text/idc-041248.pdf

Vandello, J. A., & Cohen, D. (1999). Patterns of individualism and collectivism across the United States. *Journal of Personality and Social Psychology, 77*(2), 279-292. doi: http://dx.doi.org/10.1037/0022-3514.77.2.279

Walsh, M. L. (2014). *Substance abuse prevention in American Indian and Alaska Native communities: Exploration of guiding theoretical underpinnings and theoretical fit in practice.* Unpublished doctoral dissertation, University of South Florida, Tampa.

Walsh, M. L., & Baldwin, J. A. (2012, September). *Designing theoretically-based substance abuse prevention interventions for American Indians: Reflections on the need for community-driven creation*. Paper presented at the meeting of the International Network of Indigenous Health Knowledge and Development , Brisbane, Australia.

Weiss, C. H. (2004). Theory-based evaluation: Past, present and future. *New Directions for Evaluation, 76*(Winter), 41-55.

*Whitbeck, L. B., Walls, M. L., & Welch, M. L (2012). Substance abuse prevention in American Indian and Alaska Native communities. *The American Journal of Drug and Alcohol Abuse, 38*(5), 428-435. doi: 10.3109/00952990.2012.695416

*Wright, S., Nebelkopf, E., King, J., Maas, M., Patel, C., & Samuel, S. (2011). Holistic system of care: Evidence of effectiveness. *Substance Use & Misuse, 46*, 1420-1430. doi: 10.3109/10826084.2011.592438

**Appendix A**
**Flow of Information Through Different Phases of the Systematic Review[1]**

| | | | |
|---|---|---|---|
| **Identification** | # of records identified through database searching = 89 | | # of additional records identified through other sources = 13 |

# of record duplicates removed = 29

| | | | |
|---|---|---|---|
| **Screening** | # of records screened = 60 | → | # of records excluded = 29 |
| **Eligibility** | # of full-text articles assessed for eligibility = 31 | → | # of full-text articles excluded, with reasons = 13 |
| **Included** | # of studies included = 18 | | |

**[1] Moher, Liberati, Tetzlaff, Altman, & the PRISMA Group, 2009**

**Appendix B**
**Matrix**

| **1** | Citation | Aguilera & Plasencia (2005) |
|---|---|---|
| | Program Name | 1. Native American Health Center's Family & Child Guidance Clinic<br>2. Youth Services Program |
| | Participant Characteristics | Native youth ages 9-22 years, Oakland, California |
| | Approach | Integrating traditional healing and cultural wellness education, life skills training, school-based services, and collaborative prevention-focused activities |
| | Substance | Alcohol, tobacco, and other drugs (ATOD), safer sex practices, prevention of HIV/AIDS |
| | Cultural Elements | Holistic model based on Native American Wellness concepts involving four traditional, sacred elements: air, water, fire, and earth. Gathering of Native Americans (GONA) cultural enrichment exercises and experiential activities to create positive change. |
| | Theory | GONA: connections to family, culture, teachings, and belonging<br>NOT EXPLICIT: Process described is similar to Socioecological Model, Family Systems Theory, and/or Empowerment Theory |
| **2** | Citation | Beckett (2011) |
| | Program Name | Navajo Nation Fetal Alcohol Spectrum Disorders Prevention Program |
| | Participant Characteristics | Navajo women of childbearing years, youth ages 11-18 years across the Navajo Nation, families, community members |
| | Approach | Participation in health and community fairs, Navajo Nation Fun Runs, veterans' events, Navajo puberty ceremonies, school education programs, and media relations. Peer Educator Program. Billboard messaging. |
| | Substance | Alcohol |

**Appendix B, Continued**
**Matrix**

| | | |
|---|---|---|
| | Cultural Elements | Incorporation of cultural factors and practices into mainstream methods |
| | Theory | NOT EXPLICIT: None mentioned |
| **3** | Citation | Dixon et al. (2007) |
| | Program Name | *keepin' it REAL.* |
| | Participant Characteristics | 4,222 students (685 who claimed any AI ethnicity and 3537 who did not claim this ethnicity) |
| | Approach | A culturally grounded, video-enhanced prevention intervention that was developed and normed from the narratives of Latino, African American, and European American youth (Gosin et al. 2003), and validated (Gosin et al., 2003; Harthun et al., 2002) |
| | Substance | ATOD |
| | Cultural Elements | The cultural specificity of the program components is based on prior research, which found ethnic differences in common communication styles, competencies, and norms |
| | Theory | EXPLICIT: Draws from a variety of theoretical frameworks, such as communication competence theory (Spitzberg & Cupach, 1984) and ecological risk and resiliency theory (Bogenschneider, 1996) |
| **4** | Citation | Ellis (2003) |
| | Program Name | Part of multiple policy, programmatic, and community efforts:<br>1. Pathfinder<br>2. Adolescent program for underage drinking prevention |
| | Participant Characteristics | Pathfinder is an alternative high school for students who have dropped out or have been removed from other school settings |
| | Approach | Communities mobilized their leadership and citizenry to address local substance abuse prevention and treatment problems through coordinated and community-supported initiatives. Developed a long-term mentoring relationship to enhance substance abuse effort; modeled the benefits of specific policies and programs, and have helped lead successful efforts to extend these innovations statewide. |
| | Substance | ATOD, special focus on alcohol |
| | Cultural Elements | Incorporating key stakeholders from the tribal communities (community-based participatory research [CBPR]) from the beginning of coalition development |
| | Theory | NOT EXPLICIT: Ecological Framework—the communities mobilized at multiple levels (individual, interpersonal, community, policy, system) |
| **5** | Citation | Hanson, Winberg, & Elliott (2012) |
| | Program Name | The purpose of the project was to develop a culturally and linguistically appropriate media campaign focused on fetal alcohol spectrum disorder (FASD) prevention and awareness for AIs |
| | Participant Characteristics | AI populations in the Northern Plains |
| | Approach | Media campaign to prevent FASD using marketing campaign and grassroots outreach, with AI community members overseeing the outreach |
| | Substance | Alcohol |

**Appendix B, Continued**
**Matrix**

| | | |
|---|---|---|
| Cultural Elements | Traditional language and images from the tribal communities were incorporated into the marketing campaign of three posters and five radio ads | |
| Theory | NOT EXPLICIT: Use of CBPR approach to development of the media campaign | |
| **6** Citation | Hawkins, Cummins, & Marlatt (2004) | |
| Program Name | Review of strategies and programs in AI communities<br>1. Red Cliff Wellness School Curriculum<br>2. Target Community Partnership<br>3. PRIDE (Positive Reinforcement in Drug Education)<br>4. Bicultural Competence study<br>5. Cognitive Behavioral Therapy (CBT) life skills study<br>6. Seventh Generation project | |
| Participant Characteristics | 1. Red Cliff: youth grades 4-12<br>2. Target Community Partnership Project: an effort that utilized the community empowerment approach to address substance abuse with an AI tribe in Washington State<br>3. PRIDE: Puyallup Tribe of Indians, high school youth, urban<br>4. Bicultural Competence study: participants included 137 youth (mean age = 11.5 years) living on two western Washington reservations<br>5. CBT life skills study: 1,396 Native youth grades K-12 from 10 reservations<br>6. Seventh Generation project: urban AI youth grades 4-7 in Denver | |
| Aproach | 1. Red Cliff: a culturally focused, skills-based substance abuse curriculum in school<br>2. Target Community Partnership Project Strategies included: (a) creating partnerships among community members, professional services staff, and tribal departments; (b) implementing a process of ongoing training for the community around ATOD issues; (c) organizing community-wide alcohol- and drug-free events; (d) enhancing health, welfare, and youth services for those individuals with substance abuse or children affected by substance-abusing parents; and (e) advocating for new tribal policies restricting the use and abuse of drugs and alcohol<br>3. PRIDE: a prevention program conceived and developed through the guidance of the Puyallup Tribal Council and local school administration included four components: (a) development of students' cultural identity through both curricular and extracurricular instruction and activities in the schools; (b) implementation of a school-based prevention curriculum dealing with health awareness, drug and alcohol awareness, refusal skills, and life skills; (c) enforcement of a security policy for reducing in-school drug use and development of a drug-free environment on school campuses; and (d) coordinated counseling, referral, and/or case management services for those students identified as drug users<br>4. Bicultural Competence study: bicultural competence skills intervention for preventing substance abuse. Students were instructed in and practiced communication, coping, and discrimination skills using behavioral and cognitive methods to address culturally relevant examples of verbal and nonverbal influences on substance use, were guided in self-instruction and relaxation techniques to help cope with the pressure of substance use situations, and were taught techniques to anticipate temptations and explore healthier alternatives to substance use | |

**Appendix B, Continued**
**Matrix**

| | | |
|---|---|---|
| Approach, continued | 5. CBT life skills study: two of the three conditions involved 15- to 50-minute weekly sessions focusing on cognitive-behavioral life skills training. Youth learned problem-solving, coping, and communication skills for preventing substance abuse. The standard life skills training techniques and content were expanded and adapted to fit the bicultural world of AI adolescents | |
| | 6. Seventh Generation project: after-school alcohol prevention program utilized a life skills approach with the following content areas: correcting misperceptions of alcohol use norms, enhancing values that conflict with alcohol use, improving self-esteem, learning structured decision making, increasing refusal skills, and making a personal commitment to sobriety | |
| Substance | Programs 1-6: ATOD | |
| Cultural Elements | 1. Culturally focused<br>2. Cultural life skills<br>3. Cultural identity<br>4. Bicultural competence focused<br>5. Bicultural skill building<br>6. Local community-based focus groups determined seven culturally specific core values, which were emphasized throughout the curriculum: harmony, respect, generosity, courage, wisdom, humility, and honesty. | |
| **7** Citation | Henry et al. (2012) | |
| Program Name | People Awakening (Qungasvik intervention) | |
| Participant Characteristics | Families and communities throughout Alaska | |
| Approach | Qungasvik, a Yup'ik word meaning "toolbox," is a prevention program toolkit providing very basic outlines for prevention activities the community can choose from and adapt.  Each activity stresses 1 or more of 12 protective factors, identified through a program of collaborative research between university researchers and AN leadership. | |
| Substance | ATOD | |
| Cultural Elements | All activities were culturally relevant and based on AN beliefs, values, traditions | |
| Theory | NOT EXPLICIT: Article referenced community-based participatory research, but is not a theory | |
| **8** Citation | Jackson & Hodge (2010) | |
| Program Name | Review of 4 programs:<br>1. Native American Prevention Project against AIDS and Substance Abuse<br>2. Skill enhancement program<br>3. Not explicit—referred to as "culturally sensitive interventions" (CSI)<br>4. Bicultural skills program | |

**Appendix B, Continued**
**Matrix**

| | | |
|---|---|---|
| Participant Characteristics | 1. 2,704 primarily Native youth from schools in Arizona (790 grade 8; 1,021 grade 9; 227 grades 8-9)<br>2. 102 urban and rural Native youth residing in the Pacific Northwest were randomly assigned via site to an intervention or a non-treatment control condition<br>3. Rural Native youth population; 1,937 surveys were collected over 3 years from participating students (grades 4-12) across eight schools and five communities in northern Wisconsin and Minnesota<br>4. 137 Native students from tribal and public schools from two western Washington reservations | |
| Approach | No information provided in the article about the interventions in Programs 1, 3, 4.<br>1. Outcomes were assessed pre-/post-test and at 1-year follow-up using the American Drug and Alcohol Survey, and the NAPPASA Health Behavior Survey (attitude, knowledge, and behavior questions on non-substance use topics, i.e., sex, HIV/AIDS, STDs)<br>2. Culturally tailored 10-sessions delivered in school and tribal center classrooms<br>3. The pre-/post-test survey assessed substance use, school bonding, and the relationship between cultural affiliation and substance use<br>4. Measures to assess participants' knowledge of substance use and health, attitudes about substance use in AI culture, interactive peer influences, and recent substance use at pre-/post-test and at 6-month follow up | |
| Substance | Programs 1-4: ATOD | |
| Cultural Elements | 1. The CSI involved local Native community members in the development, facilitation, and evaluation of the project. Native community leaders participated in interviews and focus groups designed to identify and incorporate cultural values and beliefs into the curriculum.<br>2. The CSI incorporated trained AI research staff and guest speakers from local tribal alcohol treatment programs.<br>3. The CSI incorporated tribal legends and cooperative learning techniques associated with the Red Cliff Band of Lake Superior Chippewa.<br>4. The CSI incorporated AI cultural beliefs and values and was administered by AI group counselors. | |
| Theory | Review did not specify theories of programs and not implied | |
| **9** Citation | Kulis, Dustman, Brown, & Martinez (2013) | |
| Program Name | Living in 2 Worlds (L2W): Based on *keepin' It REAL* program | |
| Participant Characteristics | Urban AI youth | |
| Approach | L2W teaches four drug resistance strategies (refuse, explain, avoid, leave [R-E-A-L]) in culturally appropriate ways. The adaptation of *keepin' it REAL* for urban AI youth followed the cultural adaptation model (Castro, Barrera, & Martinez, 2004). | |
| Substance | ATOD | |
| Cultural Elements | Referred to culturally appropriate ways and incorporation of cultural values and heritage | |
| Theory | NOT EXPLICIT: Ecological framework likely would be a good match | |

**Appendix B, Continued**
**Matrix**

| | | |
|---|---|---|
| **10** Citation | Lowe (2006) | |
| | Program Name | Teen Intervention Project-Cherokee (TIP-C) |
| | Participant Characteristics | High school Cherokee adolescent substance abusers |
| | Approach | 10-week, school-based, group intervention over 3 years |
| | Substance | ATOD |
| | Cultural Elements | Culturally relevant programming, use of talking circle, tribal leader led program activities |
| | Theory | EXPLICIT: Cherokee self-reliance |
| **11** Citation | Lowe, Liang, Riggs, & Henson (2012) | |
| | Program Name | Cherokee Talking Circle |
| | Participant Characteristics | Oklahoma; 179 United Keetoowah Band of Cherokee Indian high school students, ages 13-18 years |
| | Approach | 10-session manual based interventions, led by counselor in a talking circle format done in 45 minutes over 10 weeks |
| | Substance | ATOD |
| | Cultural Elements | Talking circle |
| | Theory | Cherokee Self-Reliance |
| **12** Citation | Marlatt et al. (2003) | |
| | Program Name | Journeys of the Circle project is a partnership between the University of Washington, Department of Psychology, Addictive Behaviors Research Center, and the Seattle Indian Health Board (SIHB) |
| | Participant Characteristics | A sample population of 117 youth was recruited from Seattle Public School enrollments and outpatient service contacts at SIHB. The majority of participants were Native adolescents living in an urban setting. |
| | Approach | The project developed a culturally congruent life skills course entitled Canoe Journey, Life's Journey.  The Northwest Native tradition of the canoe journey served as a metaphor for life skills essential to bicultural competence. Participants received an 8-session life skills course, which used aspects of the canoe journey as well as other Native symbols (e.g., the Medicine Wheel) to teach skills such as communication, decision making, and goal setting as well as providing information about alcohol and drug use and its consequences. |
| | Substance | ATOD |
| | Cultural Elements | Canoe journey, bicultural competence, Native symbols and stories |
| | Theory | NOT EXPLICIT: Social cognitive theory (self-efficacy) |
| **13** Citation | Moore et al. (2012) | |
| | Program Name | Culturally tailored "reward and reminder" program aimed at reducing convenience store alcohol sales to youth living on or near 9 AI reservations. |

**Appendix B, Continued**
**Matrix**

| | | |
|---|---|---|
| Participant Characteristics | 12 purchase attempts, three repeated reward and reminder visits were made to 13 convenience stores selling alcohol within 10 miles of the reservations ($n$ = 51 total attempts). | |
| Approach | Use of decoys to assess alcohol sales to youth. The buyer also recorded additional descriptive information about the interior of the outlet (e.g., number of cash registers, presence of signs stating age identification policies). | |
| Substance | Alcohol | |
| Cultural Elements | Culturally tailored prevention program described as "involving tribal members" | |
| Theory | NOT EXPLICIT:  Similar to Socioecological model | |
| **14** Citation | Moran & Bussey (2007) | |
| Program Name | Seventh Generation Program | |
| Participant Characteristics | 257 AI youth in grades 4-7 were recruited for the intervention; Lakota and Navajo | |
| Approach | The intervention focused on decision making and problem solving, resistance skills, enhancement of self-esteem, strategies to cope with stress and anxiety, and general social skills. The 13-week after-school program was divided into seven main topics. Six months after the completion of the program, a series of booster sessions was offered to all children in the intervention group. The 6 booster sessions reviewed the basic content of the 13-week program. | |
| Substance | Alcohol | |
| Cultural Elements | To address culture in a meaningful manner, a multigenerational concept of responsible decision making became the focal point for much of the program. The Seventh Generation program incorporated the general ideas of harmony and balance as part of its cultural components. For Northern plains tribes such as the Lakota, the Medicine Wheel carried great significance. However, for the Southwest tribes such as the Navajo, it had little meaning and in fact was considered inappropriate. After extended conversations with people from a variety of tribal backgrounds, the metaphor Circle of Life was settled on to represent the ideas of harmony and balance. | |
| Theory | NOT EXPLICIT: Social Cognitive Theory, holistic approach | |
| **15** Citation | Raghupathy & Go Forth (2012) | |
| Program Name | HAWK[2] (Honoring Ancient Wisdom and Knowledge; Prevention and Cessation) | |
| Participant Characteristics | Native youth grades 4-6 | |
| Approach | Computer-based version of the Statewide Indian Drug Prevention Program; seven 25- to 30-minute lessons; use of facilitator, workbooks, homework exercises | |
| Substance | ATOD | |
| Cultural Elements | Bicultural competence; AI legends, youth representation reflected in videos | |
| Theory | NOT EXPLICIT: Community Readiness Model, Empowerment and Self-Efficacy, Cultural tailoring | |

**Appendix B, Continued**
**Matrix**

| | | |
|---|---|---|
| **16** Citation | Ringwalt & Bliss (2006) | |
| Program Name | "Protecting You/Protecting Me" (alcohol prevention curriculum) | |
| Participant Characteristics | Curricula for a program for youth, no human participants | |
| Approach | Application of models of cultural tailoring.  Program tested the applicability of this model to real-world situations, with a curriculum that has recently undergone a conscious and deliberate cultural tailoring process to accommodate it to AI youth in three Nebraska tribes. | |
| Substance | Alcohol | |
| Cultural Elements | Cultural tailoring by changing language, images, deep/structural sociocultural elements, and evidential strategies, and use of culturally appropriate implementation methods | |
| Theory | EXPLICIT: Cultural Compatibility Theory, Cognitive theory, Cultural Historical Activity Theory<br>NOT EXPLICIT: Linguistic theory | |
| **17** Citation | Whitbeck, Walls, & Welch (2012) | |
| Program Name | 1. Botvin's Life Skills Training<br>2. Seventh Generation Program<br>3. Bii-Zin-Da-De-Dah (Listening to One Another) Program | |
| Participant Characteristics | 1. 1,396 AI students from 27 elementary schools in five states were randomized into two intervention arms and one control arm, with three annual follow ups<br>2. 257 intervention students and 127 controls in grades 4-7<br>3. Ojibwe children (ages 10-12 years in grades 5-8) and families | |
| Approach | 1. School-based adaptation<br>2. School-based adaptation<br>3. 8 sessions based on Strengthening Families Program curricula | |
| Substance | 1. Alcohol and marijuana<br>2. ATOD<br>3. ATOD | |
| Cultural Elements | Cultural adaptation (Programs 1-3) | |
| Theory | NOT EXPLICIT: Programs 1-3 | |
| **18** Citation | Wright et al. (2011) | |
| Program Name | Under the Holistic System of Care (HSOC)<br>1. Gathering of Native Americans (GONA)<br>2. Positive Indian Parenting (PIP) | |
| Participant Characteristics | AI youth and families | |

**Appendix B, Continued**
**Matrix**

| | |
|---|---|
| Approach | HSOC is a flexible service provision framework that allows a variety of cultural practices to be incorporated with evidence-based practices such as motivational interviewing and manualized "best practices" such as GONA and PIP.<br>1. Consists of a curriculum that provides a structured format for AIs to address substance use issues in a historical, social, and cultural context<br>2. Provides a structured format for AIs to develop and incorporate traditional practices into modern-day child-rearing |
| Substance | Programs 1 & 2: ATOD |
| Cultural Elements | HSOC: Smudging, talking circles, powwows, use of tribal leaders and medicine men, sweat lodge ceremony, acknowledgment of spirit in every aspect of life; teaching about the essential need for balance and harmony in everyday life; exposure to positive AI role models; opportunity to participate in ceremonies with Native healers.<br>1. Native values such as traditional and historical teachings, storytelling, ceremony, and spirituality provide a foundation for developing community cohesion<br>2. Incorporating traditional parenting approaches |
| Theory | EXPLICIT: HSOC perspective—AIs have a relational worldview, rooted in tribal culture. Interventions are focused on bringing the person back into balance.<br>1. EXPLICIT: based on a theoretical perspective that reflects the culture and values of AIs<br>2. NOT EXPLICIT |

## AUTHOR INFORMATION

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For almost 25 years, Dr. Julie A. Baldwin (Professor, Department of Community and Family Health, College of Public Health, University of South Florida) has had a consistent program of applied research focused on HIV/AIDS and substance abuse prevention in youth, with a special emphasis on American Indian adolescents and their families.  She has been PI or Co-PI of several federally funded projects from such agencies as CDC, NIMH, NIAAA, NIDA, NCI, NIMHD, the Robert Wood Johnson Foundation and HRSA/AMERSA-SAMHSA/CSAT. She continues to contribute significantly to this field of research today, as the Director of a NIDA Research Education grant, the

"Institute for Translational Research in Adolescent Behavioral Health" and Co-Director of another NIDA grant entitled the "Intertribal Talking Circle for the Prevention of Substance Abuse in Native Youth." As an enrolled member of the Cherokee Nation of Oklahoma, she has made a lifelong commitment to serving diverse communities and to advocating for health promotion programs for children, adolescents and families.