Published in final edited form as:

Psychol Bull. 2009 March ; 135(2): 339–346. doi:10.1037/a0014819.

Reflections on a Proposed Theory of Reservation-Dwelling American Indian Alcohol Use: Comment on Spillane and Smith (2007)

Janette Beals, Annie Belcourt-Dittloff, Stacey Freedenthal, Carol Kaufman, Christina Mitchell, Nancy Whitesell, Karen Albright, Fred Beauvais, Gordon Belcourt, Bonnie Duran, Candace Fleming, Natasha Floersch, Kevin Foley, Lori Jervis, Billie Jo Kipp, Patricia Mail, Spero Manson, Philip May, Gerald Mohatt, Bradley Morse, Douglas Novins, Joan O'Connell, Tassy Parker, Gilbert Quintero, Paul Spicer, Arlene Stiffman, Joseph Stone, Joseph Trimble, Kamilla Venner, and Karina Walters

Janette Beals, Annie Belcourt-Dittloff, Carol Kaufman, Christina Mitchell, Nancy Whitesell, Karen Albright, Candace Fleming, Natasha Floersch, Spero Manson, Bradley Morse, Douglas Novins, and Joan O'Connell, American Indian and Alaska Native Programs, University of Colorado, Denver; Stacey Freedenthal, Graduate School of Social Work, University of Denver; Fred Beauvais, Tri-Ethnic Center, Colorado State University; Gordon Belcourt, Montana–Wyoming Tribal Leaders Council, Billings, Montana; Bonnie Duran, School of Public Health and Community Medicine and Indigenous Wellness Research Institute, University of Washington; Kevin Foley, Na Nihzhoozhi Center, Inc., Gallup, New Mexico; Lori Jervis and Paul Spicer, Department of Anthropology, University of Oklahoma; Billie Jo Kipp and Tassy Parker, Center for Native American Health, University of New Mexico; Patricia Mail, American Public Health Association, Washington, DC; Philip May, Center on Alcoholism, Substance Abuse, and Addictions, University of New Mexico; Gerald Mohatt, Center of Alaska Native Health Research, Department of Psychology, University of Alaska, Fairbanks; Gilbert Quintero, Department of Anthropology, University of Montana; Arlene Stiffman, Department of Social Work, Washington University in St. Louis; Joseph Stone, Behavioral Health Service, Indian Health Service; Joseph Trimble, Department of Psychology, Western Washington University; Kamilla Venner, Department of Psychology, University of New Mexico; Karina Walters, School of Social Work and Indigenous Wellness Research Institute, University of Washington

Abstract

In their recent article, N. Spillane and G. Smith (2007) suggested that reservation-dwelling American Indians have higher rates of problem drinking than do either non-American Indians or those American Indians living in nonreservation settings. These authors further argued that problematic alcohol use patterns in reservation communities are due to the lack of contingencies between drinking and “standard life reinforcers” (SLRs), such as employment, housing, education, and health care. This comment presents evidence that these arguments were based on a partial review of the literature. Weaknesses in the application of SLR constructs to American Indian

reservation communities are identified as is the need for culturally contextualized empirical evidence supporting this theory and its application. Cautionary notes are offered about the development of literature reviews, theoretical frameworks, and policy recommendations for American Indian communities.

Keywords

American Indians; alcohol; problem drinking; reservation

There is much to recommend the article, “A Theory of Reservation-Dwelling American Indian Alcohol Use Risk” (Spillane & Smith, 2007). The article underscores for psychologists the need to augment a focus on individual behaviors with a consideration of the broader contexts in which drinking occurs (e.g., culture, peers, families, communities). Moreover, the proposed theory generates testable hypotheses, which are always an important step in the conduct of good science. At the same time, the central arguments made by Spillane and Smith appear problematic in ways worthy of discussion. Furthermore, their article provides an opportunity to broach a broader discussion of the responsibilities of those reviewing literatures that are complex, are laden with stereotypes, and have major policy implications.

Central Arguments of Spillane and Smith (2007)

Two central arguments undergirded Spillane and Smith’s (2007) theory: (a) that reservation-dwelling American Indians have higher rates of problem drinking than do either non-American Indians or those American Indians living in nonreservation settings and (b) that this pattern arises from the lack of contingencies between drinking and “standard life reinforcers” (SLRs) in these reservation communities. A careful review of the literature shows that neither of these arguments is fully supportable.

Reservation-Dwelling American Indians at Higher Risk for Alcohol Problems

As Spillane and Smith (2007) pointed out, the epidemiological data on American Indian alcohol use have lagged behind those of other populations. Indeed, Spillane and Smith cited only two articles to support their assertion of greater risk for alcohol problems for reservation-dwelling American Indians in comparison with other populations. The first (Beauvais, 1992) compared reservation-dwelling American Indian youths with those surveyed in nonreservation settings—both American Indians and non-Hispanic Whites. The American Indian youths living on reservations were about as likely to have used alcohol but appeared more likely to have reported having been drunk than did their nonreservation counterparts. Unfortunately, statistical tests were not reported in this particular piece, so it is impossible to discern whether true differences existed. In a study not cited by Spillane and Smith, a group of predominantly reservation-based American Indian high school seniors did not differ from a nationwide sample of seniors in lifetime alcohol use (Plunkett & Mitchell, 2000). These American Indian youths did have significantly higher levels of 30-day use of alcohol, but those differences disappeared once the authors controlled for geographic region.

In the second article cited by Spillane and Smith (2007), O'Connell, Novins, Beals, and Spicer (2005) conducted a joint analysis of a large reservation-based American Indian data set, which included participants from the Northern Plains and the Southwest, with the National Longitudinal Alcohol Epidemiological Study (NLAES), which provided sufficient numbers of geographically dispersed (and largely nonreservation) American Indians for analysis. Here, Spillane and Smith highlighted the result that reservation residents were likely to report greater quantities of alcohol consumed per drinking occasion than were other Americans. Yet, the authors did not describe two other central findings. First, the Northern Plains reservation participants were most likely to have consumed alcohol in the past year, the Southwest reservation sample was the least likely, and the NLAES sample fell between these two samples. This finding underscores the tremendous variation in reservation-based samples. Second, among drinkers, the NLAES American Indian sample—much more geographically dispersed than the reservation-based samples—was arguably at highest risk for alcohol-related problems: They drank as frequently as other Americans (with the reservation-based samples drinking much less frequently) while also consuming greater quantities of alcohol than did others in the NLAES sample.

These are cases in point that reflect the more robust conclusion in a wide range of epidemiological research: Alcohol use rates across age groups and tribes are immensely variable (Beals et al., 2003; May, 1996; Spicer et al., 2003; Welty, 2002). Moreover, many reservation-dwelling American Indian adults—usually a higher percentage than among most populations—consume little or no alcohol; among drinkers, a subset exhibit a pattern of episodic heavy drinking at levels exceeding those of others in the United States (Beals et al., 2003; May & Gossage, 2001; Welty, 2002).

In sum, Spillane and Smith's (2007) assertion that reservation-dwelling American Indians are at greater risk for alcohol-related problems than are nonreservation Indians was based on two articles from a small but growing literature. This assertion was the foundation of the authors' theory, yet the literature fails to support it fully. Further, the authors overlooked the diversity and complexity of alcohol consumption patterns found in Native America today.

Lack of Contingencies Between Alcohol Use and Standard Life Reinforcers

The second claim—that the lack of contingencies between drinking and common reinforcers is responsible for the higher rates of problem drinking in reservation communities—was also tenuous. Key to this argument were the assertions that some reinforcers (employment and education) are almost universally unavailable on reservations, whereas others (housing and health care) are, for all intents and purposes, universally available. This portrayal of American Indians' access to these standard life reinforcers both oversimplifies the matter and conflicts with numerous published accounts. For the sake of brevity, we focus on data from the 2000 U.S. Census in the next paragraphs.¹

¹Interested readers are encouraged to read policy reports, such as *A Quiet Crisis: Federal Funding and Unmet Needs in Indian Country* (U.S. Commission on Civil Rights, 2003), for greater detail. Additionally, *Promises to Keep: Public Health Policy for American Indians and Alaska Natives in the 21st Century* (Dixon & Roubideaux, 2001) provides an excellent overview of the state of health care in American Indian communities.

Employment was listed by Spillane and Smith (2007) among the factors asserted to be almost universally unavailable. The 2000 U.S. Census estimated that 14% of those residing on reservations were unemployed compared with 6% of the U.S. total population (U.S. Census Bureau, 2000; Table GCT-P12). Although this level is more than twice the national level, it hardly reflects a universal lack of employment. Similarly, the authors described educational opportunities as being universally unavailable, yet, according to the 2000 U.S. Census, 73% of the reservation-based population had at least a high school degree, as compared to with 80% of the U.S. population as a whole (Table GCT-P11). In the general U.S. population, 24% had a bachelor's degree, in comparison with 13% of the reservation-based population. These figures do not reflect the myriad of other postsecondary educational opportunities many American Indians have pursued that are likely more appropriate for the economic conditions of reservation communities; most notable is the increasing availability of degree programs available within the country's 32 tribal colleges. Although the educational opportunities available to American Indians residing on reservations differ from those available to the general population, they are far from universally unavailable.

Spillane and Smith (2007) also described housing and health care in reservation communities as "nearly universally available" (p. 405). Using the 2000 U.S. Census, Spillane and Smith selected a sample of 159 reservations and found no homelessness on 139 reservations and less than 0.1% on the remaining 20. However, because the 2000 U.S. Census used specialized methods to include homeless persons, users of these data are cautioned that "any attempt to use the results from these specialized operations as a measure of ... homelessness would be inaccurate" (Smith & Smith, 2001, p. 1). Moreover, according to the U.S. Census Bureau (2000), persons living on tribal lands were more than twice as likely to live in overcrowded housing than were other Americans (15% vs. 6%; Table GTC-H8) and over 10 times more likely to live in substandard housing lacking complete plumbing or complete kitchen facilities (Table GCT-H7). Relative to other Americans those living on reservations paid about the same percentage of their monthly income in mortgage (32% vs. 31%) and only slightly less if renting (11% vs. 15%; Tables GCT-H6, GCT-H9, GCT-P14). In sum, a true picture of homelessness in reservation communities is not available, and extant data show that American Indian reservation housing is overcrowded and substandard and that it requires similar levels of monthly financial commitment as for other Americans.

Finally, the assertion that reservation-dwelling Indians enjoy universally available health care is problematic. Although it is true that those meeting certain criteria are eligible for Indian Health Service coverage, agreement exists that the Indian Health Service is "woefully underfunded" (Gone, 2004, p. 12). American Indians receive the fewest health care dollars per capita (\$1,914 in 2003), as compared with other groups with federal health care funding, including veterans (\$5,214), Medicaid recipients (\$3,879), and federal prisoners (\$3,803; Indian Health Service, 2002; U.S. Commission on Civil Rights, 2003). Furthermore, access to health care is often limited, not only by available resources, but also by the extensive distances many American Indian patients must travel as well as other barriers to care they face when they seek to avail themselves of services from the Indian Health Service (Dixon & Roubideaux, 2001).

Spillane and Smith's (2007) assertions that a lack of contingency exists between drinking and alternative reinforcers were also inaccurate. Contingencies do exist. As Spillane and Smith themselves noted, American Indians are more likely than middle-class Whites to experience serious alcohol-related health problems and premature death (May, 1996; Nixon, Kayo, Jones-Saumty, Phillips, & Tivis, 2007). Spillane and Smith also cited the high incarceration rates for alcohol offenses. Furthermore, the laws of some tribes are comparatively severe; for example, possession of alcohol or drinking while pregnant can lead to incarceration (Berman, Hull, & May, 2000). American Indians experience higher alcohol-related arrest rates than all other races (Perry, 2004), and ethnographic work has consistently demonstrated how deeply troubled American Indian individuals are by the consequences of their drinking (Mohatt et al., 2004; Spicer, 1997).

In sum, existing research does not support the central arguments made by Spillane and Smith (2007)—that most reservation-dwelling American Indians are at increased risk for alcohol problems and that a lack of contingency exists between problematic drinking and other aspects of their lives.

Responsibilities of Reviewing Alcohol Use Among American Indian Populations

Spillane and Smith (2007) do advance the literature by commencing their theory generation within the reservation context rather than the more typical approach of seeking to adapt theories developed in other cultures to American Indians. Also important, their article has provided an opportunity for a discussion of the responsibilities of scholars committed to the use of theory and research to address issues such as alcohol use in American Indian reservation communities. Indeed, those familiar with American Indian health research know that many community members and leaders feel that the extent and consequences of alcohol use have received disproportionate attention among the health issues they face. In comparison with other Americans, American Indians are at higher risk for a number of physical ailments (e.g., diabetes, oral health diseases, unintentional injuries and trauma, tobacco-related illnesses, certain infectious diseases; Rhoades, 2000) and mental health problems (e.g., depression, posttraumatic stress disorder, suicide; Manson, 2001). Further, high levels of comorbidity among all of these have been noted (as is true generally). Although few community members or researchers would dispute that alcohol-related health disparities exist, many argue that these problems receive undue attention because they fit the stereotype that many Americans hold of American Indian drinking. To be guided by such stereotypes and focus on only one aspect of the interrelated health problems facing American Indian communities severely limits our understanding of the etiology of these problems.

The Complex Problems of American Indian Alcohol Use

Problems surrounding alcohol use in American Indian communities are multifaceted. Spillane and Smith's (2007) goal of an integrative theory is an admirable one, yet inclusion of interdisciplinary perspectives would strengthen it further (Stokols, 2006). Although we appreciate that a full summary of such multidisciplinary perspectives is impossible in a journal article, reference to these extensive literatures is important, and any theory development should be amenable to their inclusion. For instance, how might the proposed

theory integrate the relatively high levels of recovery from alcohol use disorder found in at least some studies of American Indians (Spicer et al., 2003)? Further, how does this theory incorporate common comorbidities, such as posttraumatic stress disorder among those with alcohol problems, particularly given that these problems often predate significant alcohol use (Beals et al., 2002; Kunitz et al., 1999)?

A major—and important—component of Spillane and Smith's (2007) argument focused on the centrality of the contexts in which American Indians live; we would encourage the adoption of multilevel approaches to better capture contextual relationships. Alcohol-related findings in demography, sociology, family studies, and other fields have advanced our understanding of the importance of placing individual behavior in the broader context (Duncan, Duncan, & Strycker, 2002). In addition, it is critical to incorporate ethnographic literatures. Anthropology has the longest history of grappling with the meaning and context of alcohol use in American Indian communities, and anthropologists have explicitly grounded their theories in the lived experiences of those with whom they work. The inclusion of such perspectives could help to contextualize the rationalist approach in Spillane and Smith's model, as well as to underscore the important cultural variations that shape alcohol use (Levy & Kunitz, 1974; Spicer et al., 2003).

In fact, researchers have a responsibility to explicitly include the perspectives of those most impacted by their work. Several remarkable incidents in American Indian communities where researchers acted with perceived negligence have fueled explicit expectations in this regard (Chapman & Khabbaz, 1994; Foulks, 1989). Tribes increasingly require review and approval of projects before their implementation and of publications before submission; tribal institutional review boards are becoming common-place. These actions emanate from a need to ensure that research conducted in American Indian communities is culturally grounded and that both individuals and communities are protected from harm (National Congress of American Indians, 2005).

Certain statements in Spillane and Smith's (2007) article are unrepresentative of many reservation residents' experiences, for example, "In addition, on reservations, there is little contact with Caucasians, so one is unlikely to experience the advantages biculturalism brings" (p. 401) and "A comparison of reservation-dwelling American Indians to middle-class U.S. Caucasians may essentially involve comparing two groups that are on opposite ends of the continuum of SLR access and drinking–SLR contingency" (p. 406). Had community advisory groups been consulted, such overgeneralizations likely would have been challenged.

In summary, it is incumbent upon those developing literature reviews or generating theories to ensure that their work considers these varying perspectives and accounts for available empirical evidence from different disciplines. Most importantly, researchers have a responsibility to accurately reflect the experiences of those about whom they write.

The Stereotypes Surrounding American Indian Alcohol Use

Negative stereotypes about American Indian alcohol use are pervasive and enduring. It is impossible to work in the field of American Indian health and not be confronted by

astounding stereotypical assumptions. Yet, alcohol problems are not universal in American Indian communities, and researchers should be careful not to suggest that they are. Further, the diversity within American Indian communities is immense and should be underscored. In this vein, those summarizing literatures focused on ethnically defined groups are urged to attend carefully to the problems inherent in “ethnic gloss”—the assumption, often implicit, that those in a given group are inexorably the same (Trimble, 2007).

Responsibilities Around Public Policy Recommendations

Finally, in areas as complex and replete with misunderstanding and gross generalizations as American Indian alcohol use, policy recommendations must always follow, not precede, the evidence. Spillane and Smith (2007) concluded,

A comprehensive model might consider both the evolution of institutionalized discrimination against American Indians and the emergence of apparently well-meaning, perhaps compensatory efforts to provide housing and health care on reservations. Both of these factors may actually facilitate American Indian drinking, if our analysis is correct. (p. 412)

Such recommendations are not only suspect, as argued above, but also extremely dangerous, because they could offer the impetus to further decrease the already minimal funding for housing, health care, education, and employment in reservation communities. Unlike Medicare and Medicaid, for instance, Indian Health Service monies are not entitlements but rather derive from discretionary Congressional budgets (Dixon & Roubideaux, 2001). Although the treaties that the U.S. government forced upon tribes promised these very supports, the fiscal pressures that the federal government faces continue to diminish the available resources. Without solid empirical evidence to support their assertions, those invested in American Indian health must take extreme care not to precipitously provoke further cuts.

Possible Adaptations to Spillane and Smith’s (2007) Model

This commentary was prepared by a diverse group of scholars, both multidisciplinary (e.g., psychology, sociology, anthropology, medicine, social work) and multicultural (non-American Indian and American Indian, the latter representing many tribes and urban American Indian communities). Of particular salience are the perspectives of scholars and community members who have spent substantial periods of their lives on reservations, because they are especially qualified to identify inaccuracies with Spillane and Smith’s (2007) depictions of American Indian reservation life. The theoretical model presented in Figure 1 of Spillane and Smith’s article was discussed. Many expressed concerns about the assumed “universals,” suggesting instead that it would be critical to measure—within specific communities—resources such as education, health care, employment, and housing. Some of these assessments could be derived from sources such as the U.S. Census, but many would optimally require specifically designed, culturally contextualized data collection efforts. For instance, it is not uncommon for more traditional tribal members to earn a subsistence living; goods obtained in this manner may not easily be captured by Census questions. Examples exist for each of the four domains (education, employment, housing, and health care), and use of such data would help to prevent inaccurate generalizations and

misrepresentations. In addition to individual-level measures, community-level constructs, such as trauma exposure, social disorganization, alienation, and hopelessness, would also provide important context. Indeed, a comprehensive test of Spillane and Smith's theory would require a very large study involving multiple reservation communities representing not only the cultural diversity of American Indian populations but also other populations where levels of SLRs vary. All of the authors involved in this commentary were in agreement that if such a study were to be conducted, a critical first step would be a meaningful dialogue with community members—including elders, tribal leaders, and youths. At the same time, all were impressed by the practical hurdles to such a study, even if funding for such an effort could be obtained.

Conclusions

As we close this commentary, we again acknowledge the opportunity that Spillane and Smith's (2007) article has provided, bringing attention to the importance of theory development concerning problematic alcohol use in American Indian communities. Yet, a full understanding of the scope of alcohol use and—most importantly, viable remedies—requires a very careful and culturally contextualized consideration of the facts and their implications.

Acknowledgments

This research was supported by grants from the National Institute on Alcohol Abuse and Alcoholism (R01 AA08474; Christina Mitchell, principal investigator) and the National Institute of Mental Health (MH073965; Jan Beals, principal investigator; R01 MH075831; Carol Kaufman, principal investigator).

References

- Beals J, Manson SM, Shore JH, Friedman M, Ashcraft M, Fairbank J, et al. The prevalence of posttraumatic stress disorder among American Indian Vietnam veterans: Disparities and context. *Journal of Traumatic Stress*. 2002; 15:89–97. [PubMed: 12013069]
- Beals J, Spicer P, Mitchell CM, Novins DK, Manson SM, The AI-SUPERPFP Team. Racial disparities in alcohol use: Comparison of two American Indian reservation populations with national data. *American Journal of Public Health*. 2003; 93:1683–1685. [PubMed: 14534221]
- Beauvais F. Comparison of drug use rates for reservation Indian, non-reservation Indian and Anglo youth. *American Indian and Alaska Native Mental Health Research*. 1992; 5(1):13–31. [PubMed: 1420537]
- Berman M, Hull T, May P. Alcohol control and injury death in Alaska Native communities: Wet, damp and dry under Alaska's local option law. *Journal on the Studies of Alcohol*. 2000; 61:311–319.
- Chapman LE, Khabbaz RF. Etiology and epidemiology of the Four Corners hantavirus outbreak. *Infectious Agents and Disease*. 1994; 3:234–244. [PubMed: 7866656]
- Dixon, M.; Roubideaux, Y., editors. *Promises to keep: Public health policy for American Indians and Alaska Natives in the 21st century*. Washington, DC; American Public Health Association: 2001.
- Duncan SC, Duncan TE, Strycker LA. A multilevel analysis of neighborhood context and youth alcohol and drug problems. *Prevention Science*. 2002; 3:125–133. [PubMed: 12088137]
- Foulks E. Misalliances in the Barrow Alcohol Study. *American Indian and Alaska Native Mental Health Research*. 1989; 2(3):7–17. [PubMed: 2490286]
- Gone JP. Mental health services for Native Americans in the 21st century. *Professional Psychology: Research and Practice*. 2004; 35:10–18.

- Indian Health Service. Final report of the Restructuring Initiative Workgroup, 2002. Author; Rockville, MD: 2002.
- Kunitz SJ, Gabriel KR, Levy JE, Henderson E, Lampert K, McCloskey J, et al. Alcohol dependence and conduct disorder among Navajo Indians. *Journal of Studies on Alcohol*. 1999; 60:159–167. [PubMed: 10091952]
- Levy, JE.; Kunitz, SJ. Indian drinking: Navajo practices and Anglo-American theories. Wiley; New York: 1974.
- Manson, SM. Behavioral health services for American Indians: Need, use, and barriers to effective care. In: Dixon, M.; Roubideaux, Y., editors. Promises to keep: Public health policy for American Indians and Alaska Natives in the 21st century. American Public Health Association; Washington, DC: 2001. p. 167-192.
- May, PA. Overview of alcohol abuse epidemiology for American Indian populations. In: Sandefur, GD.; Rindfuss, RR.; Cohen, B., editors. Changing numbers, changing needs: American Indian demography and health. National Academy Press; Washington, DC: 1996. p. 235-261.
- May PA, Gossage JP. New data on the epidemiology of adult drinking and substance use among American Indians of the northern states: Male and female data on prevalence, patterns, and consequences. *American Indian and Alaska Native Mental Health Research*. 2001; 10(2):1–26. [PubMed: 11698981]
- Mohatt GV, Rasmus SM, Thomas L, Allen J, Hazel K, Hensel C. “Tied together like a woven hat”: Protective pathways to Alaska Native sobriety. *Harm Reduction Journal*. 2004; 1(10):1–12. [PubMed: 15169546]
- National Congress of American Indians. The National Congress of American Indians Resolution #TUL-05–059: Tribal Ownership of Health-Related Data. Author; Washington, DC: 2005. Retrieved October 30, 2005, from <http://www.ncai.org/ncai/data/resolution/annual2005/TUL-05–059.pdf>
- Nixon SJ, Kayo R, Jones-Saumty D, Phillips M, Tivis R. Strength modeling: The role of data in defining needs and response for American Indian substance users. *Substance Use & Misuse*. 2007; 42:693–704. [PubMed: 17558958]
- O’Connell JM, Novins DK, Beals J, Spicer P. Disparities in patterns of alcohol use among reservation-based and geographically dispersed American Indian populations. *Alcoholism: Clinical and Experimental Research*. 2005; 29:107–116.
- Perry, SW. American Indians and crime: A BJS statistical profile, 1992–2002. U.S. Department of Justice, Office of Justice Programs, Bureau of Justice Statistics; Washington, DC: 2004.
- Plunkett M, Mitchell CM. Substance use rates among American Indian adolescents: Regional comparisons with Monitoring the Future high school seniors. *Journal of Drug Issues*. 2000; 30:593–620.
- Rhoades, E., editor. American Indian health: Innovations in health care, promotion, and policy. Johns Hopkins University Press; Baltimore, MD: 2000.
- Smith, AC.; Smith, DI. Emergency and transitional shelter populations, 2000. U.S. Census Bureau, Census Special Reports; Washington, DC: 2001.
- Spicer P. Toward a (dys)functional anthropology of drinking: Ambivalence and the American Indian experience with alcohol. *Medical Anthropology Quarterly*. 1997; 11:306–323. [PubMed: 9292860]
- Spicer P, Beals J, Mitchell CM, Novins DK, Croy CD, Manson SM, et al. The prevalence of DSM–III–R alcohol dependence in two American Indian reservation populations. *Alcoholism: Clinical and Experimental Research*. 2003; 27:1785–1797.
- Spillane NS, Smith GT. A theory of reservation-dwelling American Indian alcohol use risk. *Psychological Bulletin*. 2007; 133:395–418. [PubMed: 17469984]
- Stokols D. Toward a science of transdisciplinary action research. *American Journal of Community Psychology*. 2006; 38:63–77. [PubMed: 16791514]
- Trimble JE. Prolegomena for the connotation of construct use in the measurement of ethnic and racial identity. *Journal of Counseling Psychology*. 2007; 54(3):247–258.
- U.S. Census Bureau. Census 2000 Summary Files 1, 2, 3 (SF1, SF2, SF3). 2000. Retrieved October 25, 2007, from <http://www.census.gov/main/www/cen2000.html>

- U.S. Commission on Civil Rights. A quiet crisis: Federal funding and unmet needs in Indian country. U.S. Commission on Civil Rights; Washington, DC: 2003.
- Welty, TK. The epidemiology of alcohol use and alcohol-related health problems among American Indians. In: Mail, PD.; Heurtin-Roberts, S.; Martin, SE.; Howard, J., editors. Alcohol use among American Indians and Alaska Natives: Multiple perspectives on a complex problem. National Institutes of Health; Bethesda, MD: 2002. p. 49-70.