Indian Student Involvement in Tribal Community-Based Research: Underage Drinking Prevention among Rural Native Californians

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ABSTRACT

The critical need for increased numbers of American Indian/Alaska Native scientists and health professionals motivated the development of the California Native American Research Center for Health (CA-NARCH) initiative. One strategy of the initiative has been to encourage opportunities for applied research experiences for American Indian/Alaska Native students. Placement of CA-NARCH students in funded research assistant positions for a research project "Preventing Underage Drinking by Southwest California Indians: Building Capacity" based at the Southern California Tribal Health Clinic, Inc., in a rural part of Southern California, provides a model in which both American Indian//Alaska Native students and research investigators have benefitted. Six students received training in research ethics, data collection methods and data management and analysis. The students' participation in project activities has resulted in positive experiences for themselves, a productive research staff for the project and positive responses from community members to this sensitive research project.

INTRODUCTION

Low enrollment of American Indians/Alaska Natives (AI/AN) in the sciences and a dearth of resources supporting these students motivated the California Native American Research Center for Health (CA-NARCH) initiative, a collaborative between tribal health service providers and institutions of higher education in Southern California. The simultaneous involvement of the health service provider Southern California Tribal Health Clinic[2] in a community-based research project to reduce underage drinking among Southwest California AI/AN youths provided a unique opportunity for AI/AN student to work as research assistants on the project. In addition to

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[2] The clinic name and acronym are pseudonyms to protect the identities of the participating AI/AN communities.

giving the students hands-on experience in scientific research, their participation has enhanced the community's acceptance and ownership of the research project.

Background

American Indian/Alaska Natives in the Sciences and Research

The college attendance trend for American Indian/Alaska Native (AI/AN) appears hopeful, with 42% percent of AI/AN adults, 25 years or older, having attended at least some college (Freeman & Fox, 2005). However, American Indians are less likely than other U.S. minority groups, with the exception of Hispanics, to complete a bachelor's or graduate degree (Freeman & Fox, 2005). Theories advanced for low graduation rates include the hypotheses that some traditional AI/AN values inadvertently may conflict with the completion of, and the rewards of completion of, advanced degrees (Burk, 2007; Garcia, 2000) or that AI/AN are less well prepared for college (Freeman & Fox, 2005; Snyder, 2008). More AI/AN students live in poverty than the average American student and, as a result, may not have similar access to educational materials, role models, computers and other technologies (Brescia & Daily, 2007; Peng & Hill, 1995; Sequist, 2005). Uncertainty regarding the benefits of higher education and low expectations by parents, high school teachers, college professors, and peers may also be contributing factors (Opp, 2001). This in turn leads to inadequate completion of college preparatory courses, lower scores on college admission tests, failure to complete high school graduation requirements, and a failure to meet other college admissions criteria.

Achievement disparities in the sciences begin in high school and continue through college and graduate school. AI/AN students perform at the same level as, or outperform, Black and Hispanic populations in all subjects until high school, when they fall behind in enrollment in advanced science courses (KewalRamani, Gilbertson, Fox, & Provasnik, 2007). Although Native Americans earning advanced degrees are more likely than other students to obtain doctoral degrees in education or psychology, they are less likely to obtain doctoral degrees in engineering or science (Freeman & Fox, 2005). In college and graduate school, AI/AN students' success is further compromised by a lack of connection with qualified AI/AN mentors, culturally relevant curriculum and social support (Burk, 2007; Campbell, 2007; Campbell & Campbell, 1997; Demmert, 2005; Gloria & Robinson Kurpius, 2001; Guillory & Wolverton, 2008; HeavyRunner & DeCelles, 2002; Jackson, Smith, & Hill, 2003; Pavel, 1999; Sequist, 2007). In addition, their lack of familiarity with institutional resources for minority students in the sciences results in low program participation rates among AI/AN students and delays in recruitment and retention progress.

Lundberg (2007) found that American Indian students reported higher levels of learning when the institutions they are attending have a strong commitment to diversity. Many of these American Indian students have a home culture that is very different from that of the dominant university culture (Astin, 1982; Lundberg, 2007; Rendon, 1996; Torres, 2003). Lundberg (2007) explains, "Native American students share a history of cultural destruction and genocide at the hands of non-Native Americans. Because of this history, engagement in mainstream American culture in the form of higher education may be more difficult for them than for students with a different history."

The foregoing patterns and trends underscore the importance of assuring linkages and collaboration among universities, community colleges, and the community at large. Many universities and colleges have few or no involved AI/AN faculty for a variety of reasons, including poor institutional commitment and reluctance of AI/AN faculty to work in an environment they fear will lead to professional and personal isolation. In order to improve the admission and participation of AI/AN students, research indicates that senior faculty and/or principal investigators of science-based programs for minority students should commit to developing and reinforcing culturally-relevant recruitment and retention techniques that have been demonstrated as successful (Lintner, 1999; Pavel, 1999; Thomason, 1999), including specific and proven mentoring plans. One successful intervention plan is providing research experience for students. Engaging students in meaningful research, whether in academia or industry, has a positive impact on their research skills, standardized test scores, retention, and competitiveness in graduate school admissions (Anagnopoulos, 2006; Jackson et al., 2003; Kardash, 2000; Larimore & McClellan, 2005; Spilich, 1997; Thurmond & Cregler, 1996).

The need to increase the numbers of minority researchers and scientists has been recognized and is in the process of being addressed with programs and legislation. However, these initiatives have had an under-representation of AI/AN participation. This has in part been attributed to the inherent lack of trust in the educational, research, and health care systems that is pervasive in the AI/AN population. Special efforts are needed to assure that AI/AN students enroll in college, graduate from college, and for those who are interested, pursue scientific and health-related careers. AI/AN doctorates can serve as role models and mentors to younger AI/AN students in order to improve student retention (Lintner, 1999).

Potential solutions to the urgent need for a cadre of trained AI/AN researchers must take into consideration all of the mitigating factors mentioned above as well as complex cultural contributions. Research within AI/AN communities has a history of negative practices (Caldwell et al., 2005; Davis & Keemer, 2002; Manson & Buchwald, 2007; Mitchell & Baker, 2005). The needs of the participants were not always balanced with the needs of the researchers. A lack of respect for and understanding of cultural differences limited the validity and usefulness of many studies. To overcome the distrust generated by this history, research programs should be fully participatory, collaborative, transparent, and clearly beneficial to the community.

Research Programs

California Native American Research Center for Health

The California Native American Research Center for Health (CA-NARCH) initiative aims to address many of the aforementioned critical issues, combining a grassroots AI/AN community outreach team, substantial opportunities for undergraduate research, a synergistic complex of campus minority programs, substantial Native faculty-level mentoring, and documented commitment from university leadership with AI/AN student participation in health research. The CA-NARCH program was developed in 2001 with joint funding from the U.S. National Institutes of Health and the Indian Health Service to sponsor pipeline activities to develop better resources for students to be involved with research projects as well as pipelines to higher centers of learning, to conducting research, and recruiting and retaining the students, more importantly,

within biomedical research career circles, and hopefully to become medical professionals at some point.

The CA-NARCH was established as a new partnership between the Southern California Tribal Health Clinic (SCTHC) in rural Southern California, serving several regional tribes, and San Diego County academic partners, San Diego State University (SDSU) and the University of California, San Diego (UCSD). Although there is a significant number of American Indians living in and around rural and urban communities in San Diego County, AI/AN students are underrepresented in area colleges and universities. The CA-NARCH Student Development Program started as a pilot program in 2003 and then expanded in 2005. Achievements to date include formation of: 1) the Student Development Team with established campus-based presences at SDSU and UCSD; 2) a CA-NARCH student pipeline from late high school through graduate school supported by a series of science enrichment programs; 3) an AI/AN-specific science program developed for undergraduate and graduate science majors which has matched and funded fourteen CA-NARCH students in research laboratories; 4) a web-based student tracking system for management and evaluation; and 5) an effort at ongoing trust-building within AI/AN tribal communities for research and academic institutions. The timely funding of a community-based program to reduce underage drinking among rural American Indian youth in the area served by the Southern California Tribal Health Clinic provided unique opportunities for AI/AN students affiliated with the CA-NARCH program to gain experience in research with direct benefit for AI/AN communities.

Preventing Underage Drinking by Southwest California Indians

The research project "Preventing Underage Drinking by Southwest California Indians: Building Capacity" was developed in response to a request for applications on reducing underage drinking in rural areas and is funded by the National Institute on Alcoholism and Alcohol Abuse and the National Center for Minority Health and Health Disparities. The goal of this three-year pilot project was to lay the groundwork for a five-year intervention project aimed at reducing underage drinking by collecting preliminary data and building research capacities and infrastructure within the Southern California Tribal Health Clinic and building rapport with surrounding communities. The project was a partnership between Southern California Tribal Health Clinic (SCTHC), The Scripps Research Institute (TSRI) and the Prevention Research Center of the Pacific Institute for Research and Evaluation (PIRE).

The project built upon epidemiological research conducted by Dr. Cindy Ehlers and colleagues at The Scripps Research Institute over a 15-year period assessing risk and protective factors for the development of alcohol dependence in Southern California AI/AN communities. Alcohol researchers working in the U.S. have abundant evidence that delayed onset of drinking by adolescents is associated with reduced risk of alcohol dependence in their adulthood (Grant & Dawson, 1997; Hingson & Kenkel, 2004), including in Southwest California Indians (Ehlers, Slutske, Gilder, Lau, & Wilhelmsen, 2006). Studies have found that age of onset of drinking is not heritable in this population, and that it has a separate and independent association with alcohol dependence from externalizing psychopathology (Ehlers et al., 2006). These data suggest that environmental factors may influence early onset of drinking, independent of the influence of factors such as family history and the presence of other problem behaviors (Frank,

Moore, & Ames, 2000). These data further suggest that effective prevention efforts at reducing underage drinking may be a potentially effective strategy to lower the prevalence of alcohol dependence in this high risk population. These findings led to the development of the current project on underage drinking.

The first aim of the project was to build the capacity of SCTHC and allied coalitions to assess the extent of underage drinking in the rural areas that they serve. The team investigated not only the prevalence of underage drinking but also the social contexts within which adolescents drink and how they obtain alcohol in order to develop effective intervention strategies. The data collection methods for this component included surveys with tribal youths and interviews with key leaders in the community, youths as well as adults. A second aim was to strengthen the capacity of SCTHC to intervene to reduce underage drinking through a series of trainings and workshops focusing on multiple aspects of alcohol problem prevention in AI/AN communities and through training clinical staff in motivational interviewing, which has emerged as a promising way to interact with youth (Monti et al., 1999; Monti, O'Leary, & Colby, 2001; Spirito et al., 2004) and with AI/AN populations (Spillane & Smith, 2007; Villanueva, Tonigan, & Miller, 2007; Woodall, Delaney, Kunitz, Westerberg, & Zhao, 2007). A third aim of the project was to mobilize the community in preparation for intervention activities. Initially, the investigators proposed that SCTHC staff would be trained by the research staff in scientifically-valid methods of collecting, analyzing and interpreting data as well as in conducting outreach for the purpose of mobilizing community support. However, due to the unique position of SCTHC and its staff as key members of both the project lead investigators and the CA-NARCH, the team quickly realized the potential for student development within these components of the research project.

The Southern California Tribal Health Clinic and its Service Populations

The Southern California Tribal Health Clinic (SCTHC) serves a number of rural tribes. In California there are 107 federally-recognized tribes, more than in any other state. Whereas many tribes, for example in the Southwest, are very large with many thousands of members, California tribal enrollment varies from 20 to thousands of members. The SCTHC has two clinic sites to serve geographically dispersed tribes. The SCTHC consortium tribes have pooled monies received from the Department of the Interior and Indian Health Service for SCTHC to provide healthcare in this area. SCTHC offers a wide variety of services including podiatry, ophthalmology, clinics in obstetrics and gynecology and diabetes as well as community health services. The clinic staff is closely linked to the community. Key leaders of the clinic are members of local tribes.

Training Opportunities

CA-NARCH Student Involvement in the Alcohol Prevention Program

Although the CA-NARCH program aims to provide research opportunities for AI/AN undergraduate students including a student stipend, resources for student stipends are limited. SCTHC's executive staff had suggested that CA-NARCH students might serve as Research Assistants on the project, positions which were budgeted but as-yet unfilled. Students were selected based on their majors and career interests, class schedules, transportation availability

and interest in working in the AI/AN community. The six students who were placed in the alcohol prevention project represented three local institutions of higher education, as well as a wide range of AI/AN tribes, including two students from California State University, San Marcos (Kumeyaay and Tlingit), three from San Diego State University (Luiseño/Chippewa/Diegueño/Cahuilla, Diné, and Pima) and one from Mira Costa Community College (Cupeño/Luiseño). The two Preventing Underage Drinking Research Project Coordinators to date at SCTHC have been CA-NARCH students. The students received training from the CA-NARCH staff, including an orientation to SCTHC clinic programs and to the AI/AN community served, as well as protocols and procedures specific to the clinic, and from the alcohol prevention research staff, including research ethics, survey interview techniques, particularly those specific to collecting data on alcohol use among underage youth, subject recruitment techniques, conducting in-person interviews, data management and monitoring, analysis of quantitative and qualitative data, and presentation of data at meetings and in written publications.

The following section illustrates the two key research activities the students have undertaken in data collection for the alcohol prevention project, as described by the students themselves.

Survey Recruitment

This section describes the activities conducted by CA-NARCH students responsible for recruiting underage AI/AN youth to complete a survey on topics including their general health and well-being as well as their use of and access to alcohol. The surveys were anonymous, but as the youths were considered too young to fill out the surveys unassisted, the research assistants conducted the survey with the youths. Additionally, the study design called for youths to be recruited at the SCTHC's clinics, in the waiting areas as the youths arrived in the company of their parents for medical, dental or mental health treatments, and for the survey to be conducted in a private space near the waiting area. All of these factors necessitated a great need for tact, discretion and assertiveness, in addition to the usual survey researchers' skills in impartial techniques to collect data without imparting a bias, on the part of the research assistants.

Recruitment for survey participants had occurred in one of three ways: manned information tables, approaching youth who appeared to be in the target age range, or receiving referrals from receptionists in the SCTHC waiting rooms. Flyers were displayed prominently on information boards and appointment check-in counters throughout the clinic. The $15 gift card incentive that was offered for participation in the survey was successful. Additionally, parents were encouraging of their children's participation. Because an adult was required to be present at all appointments for youth under the age of 18, often researchers were able to obtain the consent of the parent and the assent of the child simultaneously. The age of the student researchers appeared to be comforting to the youth and the fact that there was a common ethnic heritage provided a certain level of trust and understanding from the onset.

Key Leader Interviews

The other key data collection activity pursued by the research assistants was conducting interviews with key leaders. The key leader interviews described in the following section

required a different skill set from those needed for conducting the underage survey. The key leaders included tribal leaders and influential persons from each of the tribes served by SCTHC. The research assistants were tasked with identifying these persons, contacting them to schedule in-person interviews, traveling to the interview location which occurred in locations throughout the 118 square miles of the research area, conducting the interviews using a combination of structured and semi-structured questions, digitally-recording the interviews, and uploading the recordings for transcription. They also were asked to write up brief notes summarizing each interview and uploading this data to a project database as well.

An important cultural factor of note within the AI/AN community relationship-building is the issue of trust. Past unethical research in conjunction with historical trauma (Brave Heart & DeBruyn, 1998) has led to a general distrust of outsiders. It is imperative to create a rapport with the person being interviewed. One researcher noted that she would often be asked, "Where are you from? Are you Native?" Again, the commonality of ethnic heritage was in the favor of the AI/AN student researchers that work on the study. Additionally, SCTHC has been an institution in this area for over 30 years, and The Scripps Research Institute has been conducting research with the American Indians of the region for 15 years. Because of this longstanding presence in the area, tribal members have gained familiarity and have come to trust that these institutions aim support and help improve the community. In this respect, affiliation with such institutions has been to the study's advantage.

The qualitative interviews seemed to benefit not just the research project but the community members as well. Perhaps it placed the issue of underage drinking in the forefront of their minds and encouraged them to think about what efforts were out there and how alcohol had been affecting their community as a whole. When the problem was seen on a day-to-day basis, it was easy to become desensitized to it. Crosses on the side of the roads were meant to remind drivers of those that have been lost, many of them to drinking and driving accidents, yet the problem persisted on these winding rural roads.

A unique cultural component to note in the AI/AN population was the power of the elders and the tribal leaders. As teachers and educators of the younger generations, traditionally they held a great influence in their communities. Support for this study from this group of people was advantageous. In talking with parents and community leaders, there appeared to be a general consensus that something needed to be done about underage drinking. The question remained, "Why hasn't anything been done?" It had been repeatedly noted by community leaders in local strategic planning meetings that they would like to see a return to the Native culture, and that alcohol is not part of the American Indian culture, despite the stereotypes. By encouraging a restoration of American Indian customs and traditions, youth may learn that respect for nature, the community, and self do not include the abuse of alcohol.

Outcomes of the CA-NARCH Student Research Participation

From the perspective of the scientific research investigators, the contributions of the students have been pivotal for advancing the capacity-building aspect of the cooperative research project. In addition to the considerable energy and enthusiasm the students have brought to the project, they continually offered their insights into refining culturally-sensitive survey and interview

recruitment protocols and data collection instruments. The outreach efforts by the students at tribal health fairs, local coalitions focusing on underage drinking and particularly at the SCTHC clinics have been well-received by community members, especially AI/AN parents concerned about underage drinking. The students have experienced a great deal of satisfaction from their participation including giving back to the AI/AN community, working with a research team, understanding research aims and goals and special considerations such as the protection of human subjects, networking and collaborating with other organizations and community leaders and contributing to a program that aims to improve the quality of life for AI/AN people.

Of the six students who have participated in the research projects to date, four are co-authors on peer-reviewed reports which are in review or in press, including this article. The students have presented on their involvement in the project and on project findings at three national conferences and at a meeting with program officers of the National Institute on Alcohol Abuse and Alcoholism. All of the students are continuing in their training in the sciences. Two students left the project to pursue graduate training in psychology (one of these has just completed her MA in clinical psychology) and four others are at different points in the process of applying to graduate programs in the sciences and medicine.

One of the participating students noted, "It has been beneficial to me in so many ways such as my career choice, working with others in various age groups and learning about my background as a Native American. I have always wanted to go into biomedical research but this has encouraged me to go further."

For the research project, the students' participation has been an enormous added value to the original project design. To date, 200 underage surveys, 34 adult key leader interviews and 36 youth key leader interviews have been completed and analyzed; all surveys and interviews were completed by CA-NARCH students, as well as much of the work analyzing these data. In terms of community outreach, the students have conducted 12 community presentations on the project, 5 meetings with youths in after-school programs and at tribal charter schools, and had an information booth stationed at 8 community events including powwows, health fairs, and graduations. The NARCH students created a workshop on alcohol use to present to local youth groups. The workshop is an informational presentation about the harmful of effects of early alcohol use, followed by a game show quiz formatted like a popular game show. The staff conducted their first workshop with youth who attended the Native American Student Alliance Student Empowerment Conference at San Diego State University, a conference for AI/AN youth who are interested in pursuing higher education. There were 25 youth who participated in this workshop. The workshop was a great success with the enthusiastic participation from the youth as well as many compliments from mentors who attended this event.

Additionally, the NARCH students have enhanced the research project in unexpected ways. For example, when local wildfires burned down a billboard in the rural area and SCTHC was presented with the opportunity to provide content for a new sign, the students took the initiative to develop a culturally-appropriate message about alcohol abuse. They have also taken the initiative to develop a comic book aimed at AI/AN youth with culturally-appropriate messages about alcohol abuse. These projects were not part of the original design of the research project, but evolved specifically in response to community feedback and were developed in collaboration

with local youth. Youth participation has in turn not only proven helpful to the project but more importantly given the youth a feeling of accomplishment and a sense of ownership in these projects, thereby instilling a sense of pride within the youth. Active community participation further develops trust between the researchers and community.

CONCLUSIONS

Bolstering AI/AN enrollment in science and research projects may help close achievement gaps and disparities between AI/AN and other communities. Identifying appropriate research projects for placement of AI/AN research assistants can expand existing AI/AN student development projects. For properly preparing AI/AN students for research, faculty and mentors should keep in mind issues specific to the emotional, cultural and social circumstances of these students (Sequist, 2007), particularly cultural differences, voice of the student, and scholarship assistance (Lundberg, 2007). AI/AN students need to feel that their ideas are heard and that they are a part of the project. Lundberg (2007) found that "discussing ideas with other people was also central to the success of the students."

The collaboration between the CA-NARCH educational initiative and the alcohol prevention research project described here demonstrates that properly prepared and supported AI/AN undergraduate students can participate effectively in research programs of direct relevance to their communities. For research projects touching on sensitive issues such as underage drinking and requiring a great deal of community support, the involvement of AI/AN students can critically enhance the attainment of program goals. Placement of AI/AN undergraduate students on tribal community-based research projects mutually benefits the students, investigative team and the AI/AN community. Increase in AI/AN representation on the research team helps ease mistrust in AI/AN populations and more closely links research activities and outcomes with AI/AN communities. Students, in turn, can not only gain valuable skills in data collection, management and analysis, but also obtain experience working with seasoned researchers who serve as mentors and advisors. Such experiences can bolster their self-confidence in conducting scientific research and enhance their ability to compete for positions in graduate programs in the sciences and medicine.

Financial barriers are a significant challenge to many AI/AN students. Educators and mentors working with AI/AN students should be aware of scholarship programs available such as the Research Initiative for Scientific Enhancement (RISE) and Minority Access for Research Careers (MARC), which are funded by the government to address the issue of underrepresentation of minority students. The U.S. Indian Health Service also provides a scholarship geared to specific careers in health and sciences that are identified by AI/AN community leaders as areas of need for their communities.

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