Drug and Alcohol Policies at Tribal Colleges: A Descriptive Study Assessing Variations in Alcohol and Drug Policy by Setting

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Abstract

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Background: Alcohol and drug (AOD) use represent an important public health issue among college students that has serious implications for both academic success and personal health. Tribal Colleges and Universities (TCUs) are a unique network in higher education that serves many American Indian/Alaskan Native (AI/AN) college students and their communities. This study aims to address a gap in the literature regarding the relationship of TCU AOD policies, policy enforcement, and substance use at TCUs and among students at these institutions of various sizes and in various community AOD policy contexts. It is hoped that this analysis will allow for further study and development of holistic interventions for harmful alcohol and drug use patterns that might reach both TCU students and the communities in which they exist.

Methods: Using, cross-sectional perceptions survey data drawn from TCUs participating in the Tribal Colleges and Universities: Drug and Alcohol Problems and Solutions Study (TCU-DAPSS) (Duran et. al), relationships between TCU size, TCU AOD policy, On-campus housing options, and nearest reservation AOD policy, and faculty/student perceptions of enforcement were assessed. Analysis was performed on both an institutional level as well as individual level, based upon data drawn from a purposeful sampling of TCU faculty, students, and key informants. Analysis of Variance (ANOVA), Pearson's chi-squared test, Fishers Exact test were used for bivariate analysis of relationships between different independent and dependent variables, with ordinal logistic regression used for continuous predictors measured against a categorical outcome assumed to be of an ordered nature.

Results: No relationships of significance were found between TCU size and TCU AOD policy type, AOD

related prevention resources and treatment services, and perceptions of AOD treatment. On campus housing did vary significantly by school size ($p = 0.012$), with more housing at larger schools, and suggestive but not statistically significant relationships noted between presence of housing and TCU AOD policy type. TCU Faculty perceptions of bootlegging at a given TCU appeared to increase where reservation AOD policies were perceived to be more lenient ($p = <0.005$). At smaller TCUs, faculty perceived that TCU AOD policy was more strongly enforced with an increase of 100 students in size of institution resulted odds being 1.06 (95% C.I.=1.00,1.10; $p=0.03$) times greater that faculty perceptions of enforcement fell into a lower enforcement category.

Conclusion: TCU size did not appear related TCU AOD policy, though it did appear related to presence of on campus housing (larger schools with more housing). Results suggested that housing could be related to TCU AOD policy, with stricter policies at schools with on-campus housing. In regards to enforcement of policy, faculty perceptions of TCU AOD policy enforcement did vary by TCU size, with data suggesting that at larger schools faculty feel enforcement is poorer. Similarly, while nearest reservation AOD policy did not predict student perceptions of likelihood of bootlegging at their TCU, faculty felt that presence of bootlegging was decreased where reservation AOD policy was more lenient. This data is both descriptive in nature and suggestive, particularly in regards to mismatched perceptions between faculty and students in regards to AOD issues at TCUs. TCUs are an important but rarely studied network. AOD issues and policy in these settings have deep and varied historical policy contexts that represent the diversity of the populations they seek to serve. More studies are needed to address complex questions of AOD policy in Indian Country, TCU AOD policy, and strategies to support AI/AN students in these settings.

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Introduction

Alcohol and Drug Use Among the American College Student Population

Substance use among college students has long been a recognized public health priority. 44.7 percent of college students report episodic heavy drinking, an estimated 22 percent endorse current use of illicit substances, and 36 percent of students report use of illicit substances within the last year.[1,2,3] Knight et al estimates that 1:3 American college students abuse alcohol.[4] Furthermore, it is well established that alcohol and drug use among college students is associated with increased levels of high-risk behaviors and consequent poor outcomes. Substance use among college students has been associated with risky sexual practices, poorer school performance, increased legal problems, and increased risk of subsequent substance dependence.[3,5] An estimated 1400 students die annually as a direct or indirect result of alcohol use, and nearly half a million experience significant morbidities related to excess drinking.[6] Not surprisingly, it has been established that a great need for treatment interventions exist, with studies indicating that as many as 20% of college students would benefit from substance abuse treatment.[7]

Background and Introduction to the Tribal College and University Network

Considering the vast number of universities and colleges found within the United States, the Tribal College and Universities comprise one unique network. Established in conjunction with tribal leadership and the needs of the American Indian/Alaska Native (AI/AN) populations in mind, Tribal Colleges and Universities (TCUs) are institutions of higher learning aimed at providing education for AI/AN students (though not exclusively) from a supportive, culturally representative base.[8] As of 2010 the TCU network within the United States included 36 colleges spread over 15 states and serving 80 percent of “Indian country.” Individual TCUs student enrollment ranges from 50 students to nearly 2000, with variation in rural versus urban settings as well as on and off reservation locations. College structure varies as well with institutions spanning the spectrum to include full-fledged universities and smaller scale community based colleges. This network reaches approximately 19,000 students directly and an estimated 47,000-community members.[8]

Brief Review of Alcohol and Drug History and Policies Among American Indian/Alaska Native Populations

When considering the TCU education network and the issue of alcohol and drug use among college students, it is useful to contextualize the epidemiology and history regarding substance use and AI/AN populations, a group often noted to suffer disproportionally in the United States from the ill effects of Alcohol and Drug (AOD) use. While various substances were used historically among many AI/AN populations for ceremonial purposes, the widespread health issues surrounding alcohol and drug use widely discussed today correlates with the introduction of alcohol by European colonialists in the 1600s.[9] Initially, alcohol was used widely as a trade commodity with well-established ill effects and historically noted abuses by colonialists (such as use of alcohol to aid in acquiring native lands).[10]

AI/AN populations have continued to suffer disproportionate morbidity and mortality in comparison to other groups in the United States.[11] For example, 11.7% of AI/AN deaths between 2001-2005 were related to alcohol, a rate essentially double that of the general population, with alcohol related suicides, homicides, and unintentional accidents significantly exceeding that of the general populations as well.[12,13,14] While AI/AN drinking patterns bear many similarities to the general population, the bimodal epidemiology is important to note- the two most common alcohol abuse patterns are abstinence and heavy drinking.[15] However, heavy drinking and presence of potentially related mental health disorders are generally higher in AI/AN populations, though accounting for specific tribe and location is important.[16,17]Among AI/AN younger students (7-12th grade), studies seem to indicate that while behavioral trends (choice of substance, etc.) parallel those of the general student population, AI/AN students tend to use at a higher rate.[18] Not only are death rates for AI/AN youth and young adults aged 15-24 higher than all other age-matched groups in the United States, deaths from alcohol use are fifteen times that of the age-matched general population.[19] In another study of AI/AN college students, it was noted that AI/AN students reported greater rates of negative consequences associated with alcohol use when compared to their peers.[20]

Soon after tribal and federal bodies recognized the damaging and disenfranchising effects of heavy alcohol use on AI/AN peoples, conversations and policies attempted to curb consumption. Frequently

lacking from the conversations regarding policies and use were the views and concerns of AI/AN peoples, including addressing culturally relevant interventions and validating the history of colonialism attached to AOD issues in Indian Country.[10] Thus, the presence of AOD issues among AI/AN peoples has a troubled past. One of the most famous examples of this was the 1834 prohibition of all alcohol on tribally governed or appointed land, also known as "Indian Country."[9] Fraught with racist overtones and compromises to tribal self-governance, these policies have been both controversial and arguably helpful.[10] (Already an area heavy with law and government policy, alcohol policy within the United States at large is also a complex and heavily regulated topic- see Appendix A: Figure 1 for a broad overview of United States alcohol policy types and strategies). Despite occurring during a political era in which AI/AN people were being rapidly and forcibly encouraged to assimilate into mainstream American society, the right to enforce alcohol prohibition in Indian Country was only returned to tribal sovereignty in 1953.[9] Changes continue to abound. Over the thirty-two year period between 1976-2006, sixty-three percent of the federally recognized tribes in the lower forty-eight states passed ordinances or tribal legislation altering laws in regards to federal prohibition, in general relaxing the previous restrictions.[21] Because of the scattering of AI/AN people during various assimilation attempts and migrations as well as varied geography and the nature of tribal governments nationwide, the policies and issues surrounding alcohol and drug use can vary from reservation to reservation and community to community. Thus, while AOD use among AI/AN populations has long been a concern of public health, the actual use of substances among AI/AN people varies substantially among tribes and regions.[22] Finally, it is of paramount importance to acknowledge this issue without furthering negative stereotypes that do not account for either the huge diversity throughout this population group as well as the socioeconomic factors that make AOD issues important among any group.[23]

Alcohol and Drug Policies at Mainstream American Colleges and Universities

The Drug Free School/Communities Act of 1989 obligates secondary institutions to have some sort of AOD prevention policy in place.[24] Colleges and universities of all types across the United States also vary greatly in regards to policies surrounding substance use, particularly alcohol. Ranging from "wet" campuses on which alcohol is sold, to "no tolerance" or "dry" campuses. The strength of enforcement also

varies from school to school. It has been noted that small colleges and universities are more likely to have prohibition policies than larger schools and that permissive policies also tend to vary by college size.[25] However, larger schools (enrollment >2500) have been found to have more robust AOD screening and treatment capacity as compared to smaller schools (enrollment <2500).[26] It is possible that the trends noted between sizes of school are related to variation in structural capacity, resources, and staff for administration and enforcement of policies (for example, it may be that more frequent no-tolerance policies at small institutions reflect fewer staff or less resource capacity to enforce more nuanced policies). In one study including 2-year community colleges, <10% reported having AOD screening and treatment capacity, with 82% of responders citing lack of direct funding and 73% citing inadequate time or staffing to address AOD issues.[27] Furthermore, in another study assessing 365 two-year or 4-year colleges, only 20% reported any formal assessment of the implementation of their AOD policies.[28]

How policy and enforcement affect student behavior and access to alcohol and other drugs is less clear. For example, some studies indicate that behaviors such as heavy drinking seem to be comparable between "wet" and "dry" schools, but that overall consumption of alcohol as well as secondhand effects of drinking are significantly lower at schools banning alcohol.[29,30,31] It has also been noted that students who live in on-campus substance free housing are less likely to have alcohol related issues and to suffer secondhand consequences from others' use.[32]

However, studies assessing trends and issues surrounding AOD use, college policies, and enforcement of policies within the network of Tribal Colleges and Universities do not exist as of yet. Furthermore, because the policies regarding alcohol and drug use in Indian country vary widely with tribal sovereignty and location, the governing tribe associated with a given TCU may affect the AOD policies and enforcement context in a way that is unique to this network.[21]

Justification and Framework for TCU-DAPSS Study and Current Study

Desiring to address issues of AOD use and treatment as applied to TCUs, the Tribal Colleges and Universities: Drug and Alcohol Problems and Solutions Study (TCU-DAPSS) represents the first TCU

wide study aiming to assess the particular needs of TCUs in regards to drug and alcohol use and holistic wellness for TCU students (see Appendix B). Using a Community Based Participatory Research Model and partnering with the American Indian Higher Education Consortium, University of Washington researchers and leaders from TCUs nationally are implementing TCU-DAPSS as a 3-phase project.[33] Phase 1) completion of TCU-wide community needs assessment and acquisition of perceptions data regarding substance use at TCUs from students and faculty, Phase 2) epidemiologic study targeting student behaviors regarding substance use, and Phase 3) development of efficacious and appropriate interventions.[33] Bonnie Duran, et al. in September 2012, completed the first phase of data collection for this project.

How AOD issues affect students in the TCU network represents a gap in the body of public health and social medicine literature addressing college students and AOD. Using the TCU-DAPSS perceptions data, this study will provide a descriptive framework and preliminary understanding of the AOD policy related data collected in the TCU-DAPSS study. TCU size as a possible predictor of AOD policies and resources for enforcement will be explored.

Furthermore, it is hypothesized that the presence of on-campus housing may play a role in policy and enforcement patterns, but this is not known. Thus, how on-site housing connects to number of staff and AOD prevention resources will be examined in addition to the questions regarding TCU size and reservation policy. Finally, accounting for the complex history of AI/AN populations and both Federal and Tribal AOD policy, the relationship between reservation alcohol policy and nearby TCU AOD policies will be briefly described

It is hoped that this study will contribute to the substantial gap in the literature regarding the relationship of AOD policies, enforcement, and substance use among students at TCUs of various sizes and in various community contexts and allow for further study and development of holistic interventions reaching both TCUs and the communities in which they exist.

Methods

Study Setting

This study is a descriptive secondary analysis of cross-sectional perceptions survey data drawn from Tribal Colleges and Universities within the United States. Students at these institutions hale from over 250 Tribal affiliations with 76 percent of the students enrolled identifying as American Indian or Alaska Native. As mentioned above, the TCU network is spread over 15 states and covers 80 percent of Indian country.[8] 26 of the 36 Tribal Colleges and Universities within the United States comprised the entity of schools included in this study. Further demographics describing the TCU network from which this data was drawn are shown in Table 1 (See Appendix A: Table A to compare several demographic measures for TCU-DAPSS participating schools compared to larger TCU population).

Data

Using the principles of Community Based Participatory Research, three separate survey instrument questionnaires were developed by the University of Washington Investigative team lead by Dr. Bonnie Duran and a TCU Community Action Board comprised of administrators representing several of the largest TCUs. The questionnaires used in the survey were developed for administration to 1) students, 2) faculty/staff, and 3) key informants at each participating TCU (See Appendix B). Part of a greater community needs assessment regarding drug and alcohol use at TCUs, the questionnaires developed asked demographic and descriptive questions as well as explored perceptions of substance use patterns, availability, substances used, TCU AOD policies and enforcement, connections to outcomes such as violence and academic performance, and access to various treatment modalities at each TCU.

Consents and Data Sharing

The University of Washington Institutional Review Board (IRB) as well the Northwest Indian College (NWIC) IRB approved both the TCU-DAPSS study and this sub-study. Additionally, other research and administrative approvals were granted by other TCU/tribal review boards via proxy IRB consent through UW or NWIC, written consent, or in person presentation.

Study Sample

Subjects were drawn from a sample of persons deemed to be knowledgeable about their respective campuses and recruited by a designated TCU advocate from each TCU. This survey used a convenience-sampling model that helped to achieve high response rates. Purposeful sampling of 5 students, 5 faculty, and 5 administrators from each TCU yielded a total of 340 faculty and student responses were collected, n for faculty =228 with a response rate of 67.8 percent, n for students =112 with a response rate of 61.5 percent, and n =26 for key informants at the 27 participating schools. Additionally, demographic data regarding where each survey questionnaire originated and from which TCU it came was collected. Questionnaires were administered to chosen participants in waves from November 2011-September 2012, made available through both a mailed paper copy and/or access to an online version.

This study uses the data from 26 of the TCUs surveyed in order to take advantage of the schools representing complete data collection with participation by the key informant, students, and faculty. Data analysis of the TCU-DAPSS perceptions data set was performed on both an institutional level (n =26) and an individual participant level, depending upon the variable in question. Because the Key Informant was purposefully chosen as a knowledgeable TCU and community member in each setting, many of the demographic and policy related questions targeted this group. Thus, data was taken from the Key Informant questionnaire and collapsed to allow for analysis of variables at the institutional level (n =26). There were several questions of interest for which the n =25 due to missing key informant data. Where this is the case, it is noted in the analysis Tables.

Measures

Independent Variables:

TCU Size: TCU size school as an independent variable was based on institution enrollment and used as continuous variable with enrollment numbers for the colleges of interest based on fall enrollment numbers from 2011, culled from the IPEDs data set and showing a range in TCU size spanned 58-2319 students. When assessing the size of school vs. presence of housing, the TCUs were grouped into categories

based on size of total enrollment, in this case categories being <400 students, 400-700 students, and 700-2400 students. TCU size was also grouped by small (<400 students) vs. large (>400 students) categories for some analysis, as noted in Table 4. Student to faculty ratio was also used as an independent variable related to school size and was culled from the Integrated Postsecondary Education Data System (IPEDS) and American Indian Higher Education Consortium (AIHEC) datasets and run against TCU-DAPPS variables of interest.

Housing: The presence/absence (yes vs no) of on-campus housing was used as an independent variable in some analysis, as taken from the KI survey.

TCU AOD Policy: For the purposes of some analyses, TCU AOD policy was analyzed as zero tolerance vs. other policy (2-3 strikes, access/treatment, multiple, none), collapsing of all categories of TCU policy other than "zero tolerance" into the "other" category.

Reservation Policy: Reservation policy was broken into categories for analysis according to type of tribal policy reported by the KI regarding the reservation the TCU was either on or nearest to. Policy categories were total prohibition, controlled access, legal consumption, and no policy. These were more simply categorized as total prohibition versus other to more broadly assess the effect of reservation prohibition policies on TCU variables of interest (collapsing all reported reservation policies other than "total prohibition" types into "other" category). For the several missing KI responses for TCUs on/near a reservation, the reservation policy was either categorized as "no policy" or independently verified through tribal documents where possible.

Dependent Variables*:*

TCU AOD policy as a dependent variable at the institutional level was broken into categories according to type of policy: zero tolerance, 2-3 strikes, access/treatment, multiple, or none according to survey answer possibilities. Other dependent variables included TCU zero tolerance vs. other, funding for AOD programs, presence of TCU health services counselor, presence of treatment services, presence of AOD

trained staff, AOD issues included in TCU orientation, Staff trained to identify AOD problems, presence of IHS facility. With the exception of Student/Faculty perceptions of bootlegging and Student/Faculty perceptions of AOD policy enforcement (taken from the student surveys and faculty/staff surveys, respectively), all dependent variables were culled from the Key Informant survey in order to provide institutional level data.

Statistical Analysis

Depending on the dependent variable of interest, statistical methods were used to describe data at either 1) institution-level or 2) individual student or faculty/staff-level of analysis. At the institution level, Independent variables were initially looked at using bivariate relationships between policy, treatment, and funding variables of interest to examine whether a relationship existed between these variables and 1) size of institution, as measured by total enrollment for the Fall 2011 year, and 2) the existence of on campus housing. Due to the limited sample size in these analyses, many of the analysis provided chiefly descriptive statistics. When appropriate, Fisher's exact test for categorical predictor (e.g. housing), and one-way Analysis of Variance (ANOVA) for continuous predictor (e.g. size of institution) were used to determine if there was evidence to suggest a relationship between the predictor and dependent variable.

Analyses using other statistical techniques were used when the interest was in examining the relationship between size, housing and the variables selected from the perceptions data collected at the individual-level. Pearson's chi-squared test for categorical was used for independent variables but for continuous predictors measured against a categorical outcome assumed to be of an ordered nature, ordinal logistic regression with maximum likelihood estimation was used, where perceptions of AOD enforcement were assumed to be in the naturally ordered responses: 1) strongly enforced, 2) moderately enforced, or 3) weakly enforced or not enforced at all (though we make no assumption about the distance between the adjacent category levels). Ordinal logistic regression was used to assess evidence for the possible relationship between these enforcement perceptions and size of the institution. Additionally, in order to take into account the impact on the size of the standard deviations of potential non-independence of response within a given institution, clustered sandwich estimators were used when running regression

analyses. All statistical analyses were performed using Stata 12.1.[34]

Results

Size of TCU

No relationships of significance were found to exist between TCU size and the variables of TCU policy type, AOD designated funds, presence of AOD treatment services, presence of health services, AOD training for staff, AOD information in student orientation, presence of outside AOD treatment services, and perceptions of AOD treatment (Table 2). Presence of housing for students did vary significantly by school size ($p = 0.012$), with more housing available at progressively larger schools (Table 3).

Presence of Student Housing

When assessing the effect of the presence of on-campus student housing to AOD issues there appeared to be no significant difference between on-campus housing and AOD designated funds, presence of health services, increased training for staff regarding AOD, inclusion of AOD education in student orientation, and number of staff dedicated to AOD issues (Table 4). However, relationships approaching significance existed between TCUs with on-campus housing and a higher number of zero tolerance policies (10 of the 13 schools with housing had zero tolerance policies as opposed to 4 of the 13 schools without housing) as well as on-campus housing and greater availability of TCU AOD treatment services (5 of the 13 schools with housing reported presence of treatment services, whereas only 1 of the 13 schools without housing) (Table 4). Similarly, the relationship between availability of AOD referral services and presence of housing and larger school size approached significance, suggesting increased likelihood of availability in these settings (Table 4).

Reservation Policy

There did not appear to be any specific relationships of significance between types of reservation policy (prohibition, controlled access, legal consumption, no policy) and type of TCU AOD policy (zero tolerance, 2-3 strikes, access/referral, and multiple) (Table 5). Similarly, no relationship appeared to exist between the TCU AOD policy types and location on or off of a reservation.

Questions regarding bootlegging (illegal acquirement of alcohol), though not representing a formal TCU AOD policy, represents a possible policy influenced behavior at TCUs. There were no relationships of significance between student and faculty in regards to perceptions of bootlegging and TCU AOD policy. When perceptions of bootlegging were compared to Reservation AOD polices, relationships suggesting less bootlegging where AOD policies are more lenient did appear significant among faculty ($p = <0.005$). However, low student and faculty *n* (76 and 161 respectively) as well as large response groups indicating "Don't know" (n =19 and 27 respectively) in regards to the question make this difficult to interpret (Table 6).

Enforcement of Policy

Looking at enforcement of policy by school size, student perceptions of enforcement did not appear to vary with TCU enrollment numbers. However, at smaller TCUs, faculty perceived that TCU AOD policy was more strongly enforced. An increase of 100 students in size of institution resulted odds being 1.06 (95% C.I.=1.00,1.10; p=0.03) times greater that faculty perceptions of enforcement fell into a lower enforcement category (data not shown in table). Interestingly, this did not seem to correlate with a change in student to faculty ratio. However, this is complicated by the overall small spread of school sizes and significant standard deviations for each size category.

Considering role of AOD staffing in perceptions of enforcement, there appeared to be no relationship between presence of AOD designated staff and perceptions of strength of TCU AOD policy enforcement by faculty. Furthermore, no significant relationships were noted between perceptions of enforcement strength and student to faculty ratio.

Discussion

Size of TCU and AOD Policies: Does it matter?

No relationship appeared to exist between size of TCU and type of AOD policy in place, perhaps due to the diverse geographical and tribal locations as well as the overall size spread of TCU enrollment.

Whereas it was predicted that smaller schools would be more likely to have zero-tolerance and stricter policies as a function of enforcement capacity, the data from other studies indicating this trend among colleges do not necessarily apply to TCUs as the overall enrollment tends to be lower in addition to low numbers of TCUs total in the sample size. TCU enrollments lie in the 50-2500 student range rather than the 500-25,000+ student enrollment variations seen in mainstream colleges and universities, thus, basically all TCUs would fall within the "small school" categories of other studies.[35]

Despite aforementioned limitations in interpreting TCU size as an independent variable, it is interesting to note that TCU size did not appear to clearly predict other potentially resource-bound variables such as AOD designated funds, presence of AOD treatment services, presence of health services, AOD training for staff, AOD information in student orientation, and presence of outside AOD treatment services. More than illustrate differences in TCU size, this may suggest that access to necessary AOD intervention funding is a problem experienced by most TCUs, with more than 50% of nearly every AOD funding/staffing category analyzed indicating low resources or absence (Table 4).

Presence of On-Campus Housing and AOD Policies and Resources

This study suggested, perhaps not surprisingly, a significant relationship between size of TCU and presence of on-campus housing with increasing availability as TCU size increased. This makes intuitive sense as you consider the need for housing to accommodate larger numbers of students, but introduces potential layers of policy in regards to housing rules, etc. that were not addressed in this study.

It was noted that TCUs with on-campus housing had a relationship approaching significance indicating that on-campus housing may be related to no-tolerance AOD policies and greater access to AOD treatment services. Again, this could be connected to the way in which resources are allotted at TCUs where on-campus housing is a priority and more oversight of students at schools in which students spend 24-hours/day on campus (Table 4), though what was considered "treatment services" at each TCU is unclear given that formal treatment on any TCU is rare. Also interestingly, in non-TCU studies, on

campus housing is actually associated with alcohol use- but often in the context of fraternities, sororities, and athletic teams (not necessarily applicable to TCUs). [32]

In one study of 52 mainstream colleges, the presence of substance-free residences (i.e., a ban on alcohol and tobacco) appeared to predict lower heavy alcohol use among those student residents and fewer secondhand negative effects when compared to students living in unrestricted housing. [32] However, restricted housing did not correlate with less overall alcohol involvement. [32] How this applies to TCU housing situations is not yet clear.

Reservation AOD Policy Effect on TCU AOD Policy

No direct relationship appeared to exist between the AOD policies of the nearest reservation and that of the on-reservation or near reservation TCU. Neither students nor faculty perceived a change in strength of policy enforcement based on the location of the TCU. Relationships between the lower rates of illegal acquirement of alcohol and more lenient reservation policy were suggested by the data- but only among faculty. This finding again would make intuitive sense in regards to access to alcohol and illegal procurement where it is unavailable legally, but may indicate interesting differences in faculty vs. student perceptions and norms. Again, this data is somewhat difficult to interpret as the overall number of TCUs on reservations represents a small sample. Outside studies have suggested that local and state law regarding AOD does affect college student use within that jurisdiction, for example, less binge drinking at colleges in states with stricter alcohol policy.[36] Furthermore, reservation policy is a difficult variable to assess in this context as it varies widely from tribe to tribe. It is conceivable that variations in enforcement of even similar AOD policies may vary significantly by local resources, by cultural practices, and by geography.[37,38, 39]

Perceptions of AOD Policy Enforcement in Various TCU Settings

Regarding school size and enforcement, an interesting relationship was noted. Faculty appeared to feel that AOD policy enforcement was stronger and better applied at smaller schools, becoming progressively less confident in enforcement of policy as the TCU size increased. This was not true for student

perceptions and did not vary with student to faculty ratio. This finding may represent a difference in faculty vs. student perceptions of drinking norms, perhaps faculty at smaller schools feeling better connected to students and more aware of the social context surrounding them. However, no relationship was noted between change in enforcement perceptions and student to faculty ratio, a postulated measure of faculty to student contact. However, it is still possible that unique characteristics of smaller TCUs endow faculty with more perceived insight into student AOD use patterns.

Interpreting student perceptions of norms regarding AOD issues is notoriously opaque, however, Bourgeois et al notes that college students frequently overestimate the drinking patterns of their peers and even tend to perpetuate perceived drinking norms that have no valid data supporting them. [40] Having access to accurate information regarding college student drinking norms has been shown to affect drinking behavior, with misperceptions leading to increased drinking and accurate portrayals of norms predicting reduction in excessive drinking. [40]

No relationship was found between TCU policy type and amount of AOD designated funds and faculty. In many ways, this is consistent with the national pattern in which even where trained AOD staff are present, other staff have decidedly limited training in regards to recognition of AOD issues among their students. [26] However, this lack of resources dedicated to staff who can identify and treat AOD problems with students is concerning as studies nationwide indicate that only 3.6 % of students needing help seek it and that untreated AOD related issues can carry serious negative outcomes. [41]

Implications for Overall Context of AOD Issues at TCUs

So what does all this mean? As of late, TCUs have fielded deep criticism in terms of graduation/retention rates and their connection to federal funding- calling into question the success of the TCU strategy for making education more accessible to AI/AN students. [42]

TCUs arose from a context in which access to education for AI/AN people were either denied or frequently required radical deculturation, either by overt policy or covert negative social pressures. TCUs

offer educational opportunities within a cultural and frequently a regional context more familiar to many AI/AN students, one supportive of AI/AN heritage and culture and in a unique position to leverage community strengths. While only 12% of AI/AN young adults are noted to have completed a bachelors degree (compared to 37% of white young adults), overall employment for this sector equaled that of their white peers (84% to 87%).[43] Thus, access to higher education continues to be seen as an important social determinant and upward mobility factor for many AI/AN students, with renewed calls for root cause analysis of low retention rates and challenges for alternatives sounding out from TCU proponents.[44] AOD issues plague AI/AN peoples all across North America, notably among AI/AN young people. It is well established that AOD use can have negative consequences both in terms of health and social damage as well as harder to measure losses such as future opportunity or community connections. Thus, addressing this issue as a factor in student success is crucial in improving and supporting AI/AN students and communities.

Importance of Culturally Appropriate AOD Interventions in Improving TCU Student Outcomes

As mentioned above, retention and recruitment of AI/AN students in the higher education has shown slow growth. For example, in the period from 1976 to 2012, the percentage of American Indian/Alaska Native students rose from 0.7 to only 0.9 percent compared to a 4 percent to 15 percent rise for Hispanic students, 2 percent to 6 percent rise for Asian/Pacific Islander students, and a 10 percent to 15 percent rise for African American students.[35] While there are many factors at play in regards to access to higher education, TCUs represent an important possibility for many students.

It has been suggested that indigenous models of AOD interventions focus less on individuality and more on the community aspects of AOD use, addressing underlying issues such as historical trauma and ongoing oppression. [17,45] Thus, using a Community Based Participatory Research approach can allow for harnessing of inherent community strengths. No TCU exists in a vacuum, thus addressing the community aspect is a huge issue- making community-based approaches seem highly appropriate for TCUs. [46] AOD prevention that involves more than just designated AOD staff is supported in the literature with studies in regards to AOD college policy suggesting that enforcement is most efficient when consistently practiced

by many faculty.[31] Furthermore, TCUs may be a place where treatment can occur not only for students, but for their communities at large as this is a notoriously underfunded and underserved area in Indian Country.[47,48]

One successful screening/intervention tool that has been developed at the University of Washington and is being adapted for other settings is the Brief Alcohol Screening and Intervention for College Students (BASICS).[49] This screening/intervention tool uses a harm reduction approach that centers around understanding the social norms related to AOD use among college students. This intervention shows significant promise for use in a CBPR model at TCUs and is in fact being adapted by Duran et al. for that purpose as part of the great TCU study discussed in the introduction.

Implications for TCUs who Participated in this Analysis

In many ways, this limited study serves largely to promote thought and further study within the TCU network. Valid questions of interest for both TCU faculty and students arise: for TCUs with housing, what are your policies and how do you enforce them on an individual level? For TCUs without housing, how does this affect your students' access to AOD treatment and overall retention rates? Is there a way to help ancillary staff become better trained on AOD issues? In a rapidly changing world of policy, how do TCUs respond to their policy environment on and off reservations? What are the AOD norms of students arriving at TCUs? Finally, and perhaps most importantly, how can studying issues of size, policy, and housing help AI/AN students succeed? What has worked for TCUs already and how can we build on the strengths of this network?

Connection to Future Studies

The connection between policy and behavior correlates, though not measured in this TCU-DAPSS, is an obvious interesting future application that is being pursued by Dr. Duran's team. Studies of other college networks have variable conclusions- for example, in one-study students at 4-year public universities in the Midwest continued to drink at similar rates regardless of school AOD policy.[50] However, given the unique

characteristics of TCUs, data that addresses TCUs specifically will provide targeted data that is likely to aid in development of culturally appropriate interventions.

Conclusion

Tribal Colleges and Universities represent a unique and important educational network within the United States- one rich with cultural and historical meaning as well as community influence. With such a broad cultural and geographical spread, this network is uniquely positioned to understand and address the needs specific to its students and to the communities in which they exist. Thus, this network deserves special attention in both the realm of public health, social justice, and public policy.

Limitations

The TCU-DAPSS study is the first of its kind to study this educational network, starting by gathering data from faculty and students about their perceptions of AOD issues on their TCU campuses. This sub-study looked specifically at how size of TCU, presence of on-campus housing, and AOD policies on hosting or nearby reservations might affect TCU AOD policies and perceptions of AOD policy enforcement. In the case of this study, some of the interesting and unique characteristics of TCUs also made interpretation of the TCU-DAPSS data difficult. Notably, the overall limited spread in school size and number of schools total made TCU size a difficult variable to draw strong conclusions about, while the rich and varied nature of different tribes and reservations make neat conclusions about reservation policy nearly impossible. Also, because of the unique nature of TCUs, the data from TCU students may be less generalizable when compared to mainstream college students and campuses.

Plan for Analysis and Dissemination

This study has been completed as part of a Masters Thesis project for the University of Washington School of Public Health and is considered a contributing part of the greater TCU-DAPSS project. Distribution of this study through publication in relevant academic journals may be sought and will also be made available to the participating TCUs for their use.

Tables

Table 1: Institutional Characteristics of Tribal Colleges and Universities (TCU) that participated in TCU-DAPSS Study

TCU-DAPSS Institutional Characteristics	
Rural location** No	(n= 25) 22 3
TCU On or Near Reservation No	(n=26) 20 6
Highest degrees offered Associates Degree Masters	(n=25) 13 10 2
	Mean (Standard deviation)
Percentage of TCU Students Completing Degree Women AI/AN Total	(n=22) 27.0 (23.6) 17.1 (14.4) 23.6 (22.9) 24.6 (22.9)
Annual Retention Rates, 2012 Full time students Part time students	(n=22) 51.3 (20.7) 35.2 (27.2)

**Institutional level data where number of TCUs varies from field to field (n) due to availability of specific question data for the subset of TCUs included in this study.
AI/AN: American Indian/Alaska Native
TCU: Tribal Colleges and Universities
TCU-DAPSS: Tribal Colleges and Universities: Drug and Alcohol Problems and Solutions Study

Table 2: Relationship of TCU Size to TCU Policy and AOD-related resources/ funding using Analysis of Variance

	Fall 2011 Enrollment, Mean (SD)*	**p-value (F-test)**
TCU Zero Tolerance		0.17
No	402 (207)	
Yes	731 (674)	
Funding for AOD programs		
No	589 (608)	0.83
Yes	523 (122)	
TCU Health Services Councilor		
No	528 (466)	0.36
Yes	751 (718)	
Treatment Services		0.51
No	557 (599)	
Yes	734 (385)	
Any Trained AOD Staff		0.91
No	571 (586)	
Yes	651 (553)	
AOD included in orientation		
No	702 (640)	0.22
Yes	417 (304)	
Staff trained to identify AOD problems		
No	643 (642)	0.58
Yes	507 (306)	
IHS facility available		0.95
No	676 (529)	
Yes	667 (563)	

TCU: Tribal Colleges and Universities, AOD: Alcohol and Drug, IHS: Indian Health Services
*Enrollment numbers culled from IPEDS 2011

Table 3: On campus housing availability and association with size of institution, as measured by enrollment

	Housing		**p-value***
Size of School	No (N=12)	Yes (N=13)	0.009
<400	6 (50.0)	5 (38.5)	
400-700	6 (50.0)	2 (15.4)	
700-2400	0	6 (46.2)	
Mean Enrollment (sd)	370 (192)	811 (690)	0.012

* The significance of the statistical association was measured using Fisher's exact test for the categorized size, and by the F-test from one-way ANOVA to test for the difference in means.

Table 4: Relationship of School Size Category and Student Housing Options to TCU Policy and AOD-related resources/ funding

	Size category of TCU (number of TCUs)		**p-value***	**On Campus Housing, N (%)**		**p-value***
	Small (<400 students) (N=10)	Large (>400 students) (N=15)		No (N=13)	Yes (N=13)**	
TCU AOD Zero Tolerance Policy			1.00			0.11
No	4 (40.0)	5 (35.7)		7 (58.3)	3 (23.1)	
Yes	6 (60.0)	9 (64.3)		5 (41.7)	10 (76.9)	
Designated TCU funding for AOD programs			0.62			0.32
No	9 (90.0)	11 (78.6)		12 (92.3)	9 (75.0)	
Yes	1 (10.0)	3 (21.4)		1 (7.7)	3 (25.0)	
TCU Health Services Councilor			1.00			0.20
No	7 (70.0)	10 (66.7)		11 (84.6)	7 (53.9)	
Yes	3 (30.0)	5 (33.3)		2 (15.4)	6 (46.2)	
Treatment Services			0.35			0.16
No	9 (90.0)	10 (66.7)		12 (92.3)	8 (61.5)	
Yes	1 (10.0)	5 (33.3)		1 (7.7)	5 (38.5)	
Alcohol Referral Services			0.07			0.07
No	5 (55.6)	2 (14.3)		6 (46.2)	1 (8.3)	
Yes	1 (44.4)	12 (85.7)		7 (53.9)	11 (91.7)	
Any Trained AOD Designated Staff			1.00			0.43
No	3 (33.3)	6 (40.0)		6 (50.0)	4 (30.8)	
Yes	6 (66.7)	9 (60.0)		6 (50.0)	9 (69.2)	
AOD issues included in orientation			0.09			0.41
No	4 (40.0)	12 (80.0)		10 (76.9)	7 (53.9)	
Yes	6 (60.0)	3 (20.0)		3 (23.1)	6 (46.2)	

* Fisher's exact 2-sided test of significance

**n = 13 for schools with housing, however, for several of the dependent variables n = 12 due to missing data from the KI survey.

Table 5: Relationship of TCU AOD policy to Alcohol policy of hosting or nearby Reservation

	Reservation Policy		
	Alcohol Prohibition	**Alcohol Permitted**	
	Number of TCU	Number of TCU	p-value*
TCU AOD Policy			0.23
Zero Tolerance	7 (50.0)	3 (60.0)	
2-3 Strikes	3 (21.4)	0 (0.0)	
Access/Treatment	3 (21.4)	0 (0.0)	
Multiple	1 (7.1)	1 (20.0)	
None	0 (0.0)	1 (20.0)	

* Fisher's exact 2-sided test of significance

Table 6: Relationship of hosting/nearby Reservation to TCU student/faculty perception of alcohol bootlegging

Student and Faculty Perceptions of Bootlegging by TCU reservation AOD policy			
	Reservation policy		
	Alcohol Prohibition	**Alcohol permitted**	Chi-square p-value
Student Perceptions of presence of bootlegging (N=76)			0.18
No	10 (55.6)	39 (67.2)	
Yes	4 (22.2)	4 (6.9)	
Don't Know	4 (22.2)	15 (25.9)	
Faculty/Staff Perceptions of presence of bootlegging (N=161)			<0.005
No	21 (51.2)	92 (76.7)	
Yes	14 (34.2)	7 (5.8)	
Don't Know	6 (14.6)	21 (17.5)	

TCU: Tribal Colleges and Universities, AOD: Alcohol and Drug

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Appendix A: Additional Figures/Tables

Figure 1: Broad Categorization of Current United States Alcohol Control Policies*

Broad Alcohol Policy Categories in United States	**Examples of Areas of Governance and subcategories of each Policy Area**
1. Alcohol Beverage Control	Manufacture, distribution, retail sales
2. Taxation and Pricing	Specific taxes, state control
3. Advertising, Marketing, and Media	Media, marketing, promotion
4.Transportation, Crime, and Safety	Vehicle operation, alcohol related non-violent crimes/violent crime
5. Health Care Services and Financing	Providers, financing, facilities for treatment, health insurance
6. Education	Primary school, secondary school, colleges and universities
7. Public service functions, and programs	Child protection, public housing, welfare, public lands
8. Employment and Workplace	Profession specific regulations, alcohol in the workplace
9. Other Alcohol Policy	Pregnancy, coroners, other workplace issues

*Based on data culled from National Institute of Health funded Alcohol Policy Information System, 2015.

Table A: Institutional Characteristics of Tribal Colleges and Universities (TCU) that participated in Integrated Postsecondary Education Data System (IPEDs) Survey, 2011

TCU Institutional Characteristics System-wide (N=31)	
	Mean (standard deviation)
Percentage of TCU Students Completing Degree (2008 Cohort) Women Men AI/AN Total	 25.1 (22.0) 17.3 (14.6) 22.2 (22.2) 23.1 (23.1)
Annual Retention rates, 2010 Full time students Part time students	 49.4 (20.1) 35.4 (26.0)

AI/AN: American Indian/Alaska Native
TCU: Tribal Colleges and Universities

Appendix B: Conceptual Model: See supplemental documents

Appendix C: Survey Instruments: See supplemental documents