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Social Network Differences in Alcohol Use and Related Behaviors among Indian and Non-Indian Students, Grades 6–12

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INTRODUCTION

The use and abuse of alcohol and drugs among elementary and high school students are complex phenomena, and race, sex, culture, and economic factors are all interrelated in the development of alcohol and drug use patterns. It is well known that a major health problem for American Indians is alcohol abuse and that prevention of substance abuse is an important health consideration for increasing life expectancy. Such prevention efforts must begin early; often school health curricula include placement of alcohol/drug health teaching towards that end. Is a curriculum effort aimed only at health practices a sufficient target to prevent substance abuse? This article will review the results of survey data gathered from a stratified random sample of 2,234 students, grades 6–12, to review the differences in the social network of American Indian and non-Indian students with regard to alcohol use. The extent to which differences between student groups exists will determine the effectiveness of any one classroom prevention program designed by school educators for the student population.

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The epidemiology of alcohol-related problems among American Indians has been summarized by Heath.[1] Alcohol abuse is thought to be a direct contributing factor in four of the top ten leading causes of Indian death: accidents, liver disease, homicide, and suicide. The frequency of alcohol-related problems among American Indians is thought to be three times the rate for patients in the general population. There exists a high correlation between alcohol and criminal offenses as well as family abuse and neglect. Indian youth are even more apt to die of suicide, homicide, or in accidents than Indian adults. Indian tribes differ widely in the prevalence of alcohol-related problems and community orientation towards alcohol use; for example, Hopis do not drink, while many Navajos not only drink but actively seek intoxication.

Weibel-Orlando[2] has reviewed the research on Indian youth and substance abuse and found a strong social acceptance for drinking among Indian students. The adult role model of alcohol use is also thought to be quite powerful in influencing adolescent alcohol and drug use. Students from rural Indian communities had a heavier consumptive pattern than those in the urban communities, and this may relate to the lack of hope present on reservations. Beer drinking is disproportionately higher among American Indian youth than other groups; Indian youths' use of marijuana and inhalants is also disproportionately higher than among other youth groups.

In terms of gender contrasts, heavy drinking among Indian girls is twice as prevalent as among Anglo girls.[3] There is a high incidence of alcohol-related problems among Native American women: while in the United States the incidence of fetal alcohol syndrome is 1 to 3 per 1,000 live births, among some Native American tribes the incidence is as high as 10.5 per 1,000 live births.[4] It is clear that both male and female Indian students are in need of substance abuse prevention.

THE SURVEY

This paper reports findings from one school district in western Montana located in a valley with a population of 60,000. While not on an Indian reservation, it is near one. An alcohol/drug stu-

dent survey was created by the investigator. The 150 items took about forty-five minutes to self-administer and were divided into five sections: demographics; curricular placement of alcohol and drinking and driving content; alcohol-related behavior; drinking and driving items; and psychoactive drug behavior. Content and construct validity was established by peer review, literature review, and comparison with other drug survey instruments. The tool was pretested before use. The drafts were analyzed by the Statistical Package for the Social Sciences.

Data were collected from half of all students in grades 6 through 12. Subjects completed an anonymous, self-administered questionnaire. The questionnaire described the study and the participant's rights. To insure confidentiality, no forms were signed. At least one of the staff persons associated with the study was present during the completion of the questionnaire to answer students' questions and to insure independent responses from the subjects. The students were free not to participate; however, less than 1 percent chose to decline. The stratified random sample was drawn from approximately half of each grade, and the total size of the sample was 2,234.

Measures which were taken to ensure the validity of students' responses were the sample size, the randomization of the sample, and the confidentiality assurance to the subject. Gfroerer[5] advises researchers that privacy factors impact validity; he urges that surveys be self-administered and that the student be given a legitimate reason for the data collection as well as assurances that those who gather the data can be trusted. All of these factors were present in this study.

THE SAMPLE

The students were divided into two groups, Indian and non-Indian. The sex ratio and numbers of the grade division are listed in Table 1. The racial identity of the non-Indian group is shown in Table 2. Students not identifying their race were not included in this study. The total Indian sample was 70; however, 3 students did not identify their sex, and these students, while included in the general frequency counts, were not in the chi-square comparisons by grade and sex.

TABLE 1
Sample

Grade	Male %	Female %	N
6–8, Native American	52	48	29
6–8, Non-Indian	51	49	635
9, Native American	50	50	18
9, Non-Indian	51	49	395
10–12, Native American	52	47	21
10–12, Non-Indian	51	49	1,017

TABLE 2
Race of Non-Indians

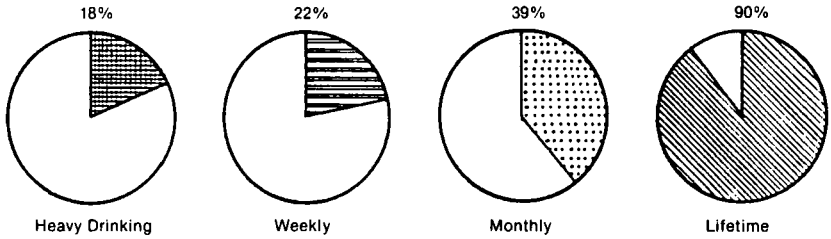
	White %	Black %	Oriental %
Grade 6–8	98	.3	1.7
Grade 9	97.7	.8	1.5
Grade 10–12	98	.5	1.5

RESULTS

Drinking Prevalence

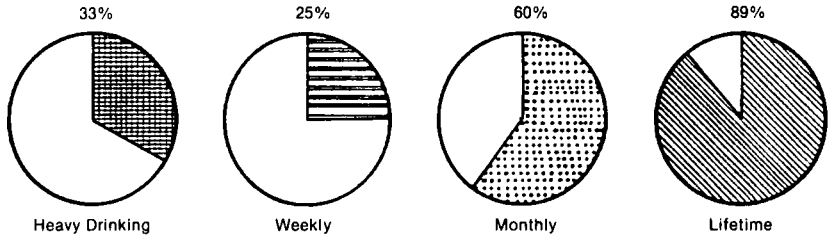
Prevalence rates for Indian lifetime, monthly, weekly and heavy drinking by grade are in Figures 1–3. Heavy drinking is defined as five drinks or more on each drinking occasion. Rates for non-Indian drinking, grades 6–8 were heavy drinking = 12%; weekly drinking = 16%; monthly drinking = 46%; lifetime drinking = 62%. The Indian males in this grade level were significantly more likely to be users of alcohol ($X^2(1)=5.86$, $p<.05$). While 63% of non-Indian males did use alcohol, 93% of the Indian males were users. The Indian females in these grades were significantly more likely ($X^2(1)=11.35$, $p<.001$) to be heavy wine drinkers than non-

Indian girls. Twenty-nine percent of Indian girls have five or more drinks of wine per drinking occasion, in contrast with 3% of non-Indian girls who do. Native American females were significantly more likely to be heavy beer drinkers ($(X^2(1) = 10.88$, $p < .001$). Twenty-nine percent of the Native American girls were heavy beer drinkers in comparison to 3% of non-Indian girls.



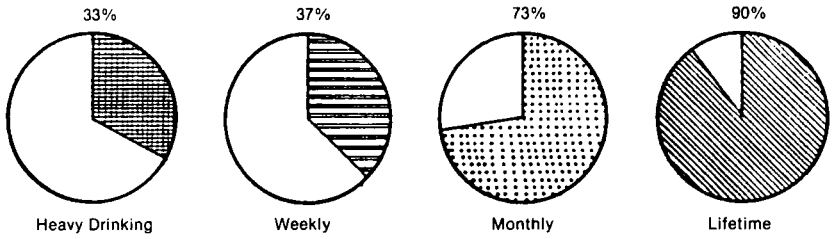
GRADES 6-8, INDIAN DRINKING PREVALENCE

FIGURE 1



GRADE 9, INDIAN DRINKING PREVALENCE

FIGURE 2



GRADES 10-12, INDIAN DRINKING PREVALENCE

FIGURE 3

Rates for non-Indian drinking, grade 9, were heavy drinking =31%; weekly drinking=26%; monthly drinking=65%; and lifetime drinking=83%. Ninth grade Indian males were significantly less likely ($X^2(3)=10.33$, $p<.05$) than non-Indian males to be frequent drinkers. Thirteen percent of Indian males were weekly drinkers, and 27% of non-Indians were. Distressing, however, is the significant difference in heavy drinking. Indian males were significantly more likely ($X^2(1)=6.21$, $p<.01$) to report heavy beer drinking. The entire sample of Indian ninth grade males met the criteria for heavy drinking, while 44% of non-Indians did.

Rates for non-Indian drinking, grades 10–12, were heavy drinking=42%; weekly drinking=40%; monthly drinking=73%; and lifetime drinking=89%. These prevalence rates are the same as or slightly more than for the Native Americans. The speculation could be that, because of early heavy drinking and drug use, many Native American students have already dropped out of high school, and only those without abusive patterns remain.

First Drink

Seventy-six percent of the sample Native American population had their first drink by the age of thirteen. Indian students in the higher grades reported parental disapproval for the first drink differently according to gender, with males perceiving that drinking was disapproved more than females. Perhaps this relates to the view of male drinking. Indian parental sanction for drinking by female students in grades 10–12 is shown again in the current drinking context. While 70% of Indian girls often drank at dinner with the family, only 6% of non-Indian girls did; this was a significant difference (($X^2(1)=3.70$, $p<.05$).

Student's Best Friend Drinks

Indian students are more likely to have a best friend who drinks. Forty percent of the Indian males, grades 6–8, had a best friend who drank; this increased to 86% by grade 9. Eighty percent of the Indian females, grades 6–8, had a best friend who drank, and 89% of the Indian female students, grades 10–12, reported that their best friend drank. In contrast, 38% of non-Indian males, grades 6–8, had a best friend drinking, and 68% of the non-Indian

TABLE 3
Student Perception of Parental Disapproval of First Drink

Grade	Indian %	Non-Indian %
6–8:		
Male	46	37
Female	56	43
10–12:		
Male	89	51
Female	29	62

males in grade 9 had a best friend who drank. The rates for female non-Indian students, grades 6–8, were 36% and for grades 10–12, 78%. There is far greater difference in the Indian female student drinking network, with 43% more reporting in grades 6–8 that their best friend drinks and 11% more reporting in grades 10–12 than non-Indian.

The range of friends who use alcohol also shows a higher prevalence among Indian students. Inspection of Table 4 shows those differences. Again, it is interesting to note the higher prevalence among Indian girls, grades 6–8, whose friendship network is heavily influenced by the use of alcohol; 13% more girls report that three-fourths or more of their friends use alcohol than do Indian boys at that same grade.

Alcoholic Network

There was a significant difference between Indian and non-Indian student knowledge of teenage alcoholics. In the 6–8 grades, Indian males were significantly more likely than non-Indian males to know numerous teenage alcoholics ($X^2(1)=8.41$, $p<.01$). Seventeen percent of non-Indian males, grades 6–8, knew numerous teenage alcoholics, while 47% of the Indians of similar grade did. The 10–12 grade Indian males also knew significantly more teenage alcoholics ($X^2(1)=6.75$, $p<.01$). Forty-six percent of Indian males in these grades knew numerous teenage alcoholics in comparison to 16% of non-Indian males of the same grade.

TABLE 4
Friends Who Use Alcohol

Grade	None/Few %	Half/More than Half %	Three Fourths or More %
Grades 6–8, Male			
Indian	74	21	7
Non-Indian	79	14	5
Grades 10–12, Male			
Indian	36	9	55
Non-Indian	26	27	47
Grades 6–8, Female			
Indian	70	10	20
Non-Indian	77	14	10
Grades 10–12, Female			
Indian	33	44	22
Non-Indian	26	32	43

Drinking Consequences

There were significant differences between Indian and non-Indian student drinking consequences. The Indian 6–8 grade female students were reporting more frequent trouble with teachers or principals because of drinking ($X^2(1)=9.49$, $p<.01$), trouble with friends because of drinking ($X^2(1)=7.41$, $p<.01$), and trouble with police because of drinking ($X^2(1)=13.73$, $p<.01$). None of the 10–12 grade males had police trouble because of drinking, and this was significantly different ($X^2(1)=3.60$, $p<.05$) from the 25% of non-Indian sample who did.

Consequences of drinking yielded the following percentages for Indian students: friendship difficulty 28%, driving after a good bit to drink 21%, being criticized by a date 11%, trouble with police 10%, and family trouble 31%. Despite the fact that 58% of the Indian students had been drunk six times or more in the past year, not one student had difficulty two or more times in three areas. This points to the social acceptance of heavy drinking and

the need for increased intolerance of student drunkenness. Another parameter of social acceptance is the parent as the source of alcohol, and this occurs among Indian students 10% more frequently than in the non-Indian population.

Alcohol Non-Use

Inspection of Table 5, *Non-Drinkers' Reasons for Abstinence,* shows that Native American students were less likely to abstain for the reasons non-Indians chose, with the exception of the 3% more who said the "fear of getting caught" and the 2% more who said "previous loss of control" were important. Striking is the 11% less who said "health" was important, 6% less who said "parental disapproval" was important, and 7% less who said their "friends never drank."

TABLE 5
Native American
Non-Drinkers' Reasons for Abstinence
Grades 6–12

	Native American %	Non-Indian %
Parental disapproval	17	23
Bad thing to do	17	20
Fear of getting caught	17	14
Health impact	15	26
Taste	15	21
Illegal	12	15
Sports	9	14
Others' bad experience	9	12
Drinking made me ill	7	10
Religious reasons	6	9
Friends' disapproval	4	9
Previous loss of control	6	4
Friends never drink	0	7

Drinking and Driving

Indian students, grades 6–12, were significantly more likely than non-Indians to be a passenger with a drinking driver ($X^2(2) = 9.43$, $p < .01$). See Figure 4, *Frequency of Being Passenger with Drinking Driver*. The sex/grade level contrasts by race where this was significant as well were grade 6, male ($X^2(2) = 13.55$, $p < .01$) and grade 10–12, female ($X^2(2) = 6.41$, $p < .05$). A third of grade 6–8 Indian males were weekly a passenger with a drinking driver, compared to 7% of the non-Indians.

In addition to more frequently being a passenger with a drinking driver, the Indian students were also less likely never to have turned down a ride from such a driver ($X^2(1) = 4.12$, $p < .05$). See Figure 5, *Frequency of Never Turning Down a Ride*, where 64% of non-Indians, in contrast to 49% of Indians, had not declined be-

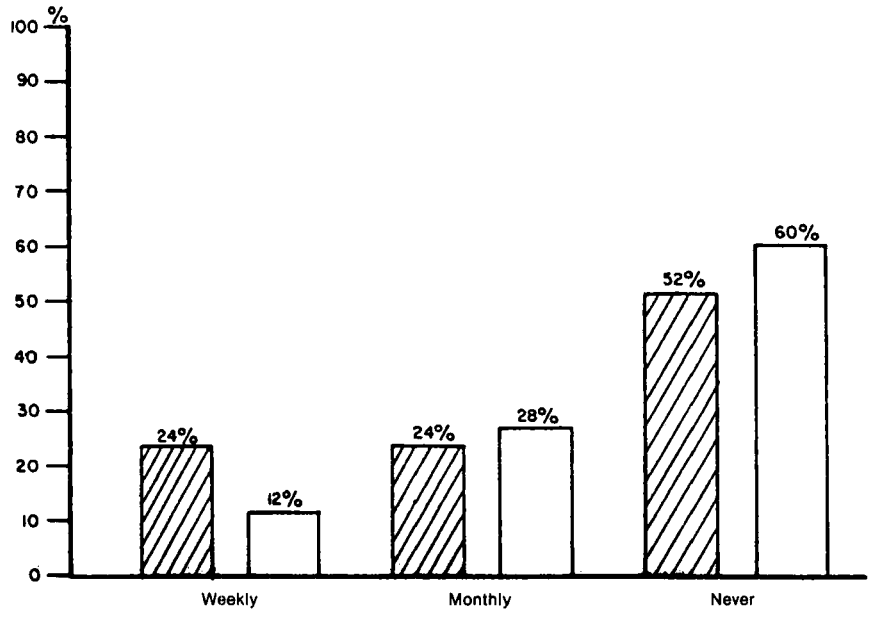


FIGURE 4
Frequency of Being Passenger with Drinking Driver
All Students

▨ = NATIVE AMERICAN □ = NON-INDIAN

ing such a passenger. Grade/sex contrast of Indian/non-Indian grouping showed significant differences in the 6–8 grade, female group ($X^2(1)=8.52$, $p<.01$) and ninth grade, male group ($X^2(1)=3.8$, $p<.05$). Seventeen percent of 6–8 grade, Indian females had never declined such a ride in comparison to 73% of their non-Indian peers. Among ninth grade male Indians, 17% had never declined such a ride; 58% of the non-Indian classmates had never declined a ride with a drinking driver.

Frequency of car driving may be a factor impacting this pattern. The 10–12 grade Indian males were significantly less likely ($X^2(3)=9.22$, $p<.05$) to be frequent drivers than their non-Indian counterparts. The same is true for the 10–12 grade Indian females ($X^2(3)=25.07$, $p<.001$).

DISCUSSION

This study demonstrates significant differences between Indian and non-Indian students within the same grade. The prevalence of alcohol use by Indian students is higher as is the extent of personal knowledge of teenage alcoholics and the prevalence of drinking by the friendship group. Significant differences in frequency of drinking consequences existed, with the Indian female student group often more likely at the earlier grade to report consequences.

Despite the fact that over half of the Indian students had been drunk six times or more in the past year, not one student had encountered social criticism two or more times in three potential areas (school, parents, dates, friendship, drinking and driving). Frequency of being with a drinking driver was more prevalent for Indian students. This points to tolerance for drunkenness. Another indicator of tolerance for drinking was the fact that Indian parents were 10 percent more likely than non-Indian parents to be the source for obtaining alcohol. The Indian motives for abstinence were less likely to be "health," "parental disapproval," "bad thing to do" or "another's bad experience."

It is clear that a school curriculum prevention program designed solely on health promotion is not sufficient to impact the social network issues defined in this paper. The societal intervention model may include, but not limit itself to, a student-oriented classroom health curriculum.

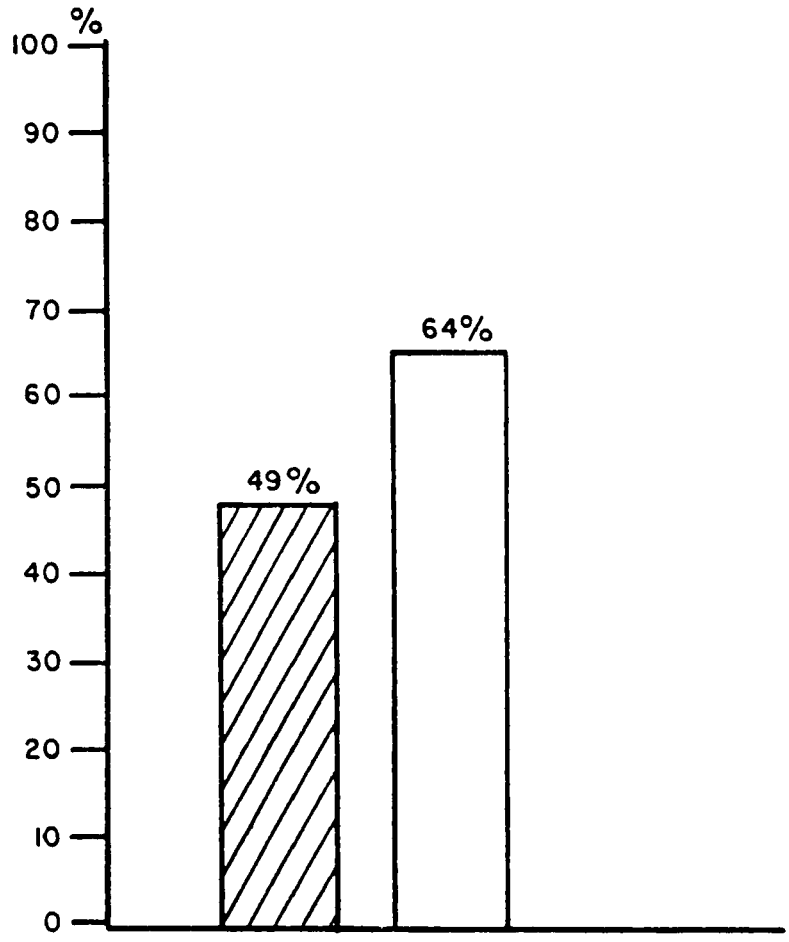


FIGURE 5
Frequency of Never Turning Down Ride
with Drunk Driver, All Students Drinking

There has been little research on the methodology which is most useful in preventing abuse of alcohol and other drugs in young Native Americans. Most of the available literature is concerned with patterns of use and the causal factors associated with use. The major works have focused on the Southwest and the Navajo, with no quantitative studies of young urban Indian alcohol and drug use. Equally limited is the literature on the enhancement of young American Indians' competence through problem-solving, decision-making, positive attitudes, social networks, and knowledge.[6] This article will discuss some of the latter types of studies.

An example of substance abuse intervention programs that directly impact the social system is a peer-managed self-control program for American Indian high school students. Carpenter[7] designed a research methodology that randomly placed thirty American Indian students who were at high risk for problem drinking in three separate groups which incorporated alcohol education, self-monitoring alcohol use, and peer-assisted self-control training. This intervention program was based on the social learning paradigm of alcohol abuse which holds that excessive alcohol use is a socially initiated, overlearned, and reinforced habit. Group A had the full program, Group B had only peer counseling, and Group C had only self-monitoring as its treatment. A significant decrease in alcohol consumption occurred regardless of the grouping, and this decrease was maintained at follow-up. Self-esteem increased significantly for the group having peer counseling. Self-control training, which includes social network training, seems quite promising as an alcohol intervention/prevention model.

The Northwest Indian communities design youth-oriented substance abuse intervention programs with collaborative efforts. Human service workers, tribal leaders, school staff, parents, and youth all work together to form a partnership. This partnership extends through each of the program phases: assessment, design, implementation, and evaluation. The tribal leaders, professionals, youth, and parents all form a like-minded community which is oriented towards prevention.[8] Cultural cohesion based on norms and values of the tribal groups and family kin systems needs to be a target for substance abuse prevention strategy.[9] Currently the Department of Substance Abuse Prevention is

funding research which intertwines family, community, and individual assistance in the reduction of substance abuse among Indian youth, treating these young people both as a minority group and as youth at high risk for substance abuse.

One example of support network intervention has been done by Red Horse.[10] He has designed a natural support network intervention model as a means of delivering adolescent services for pregnant Indian girls in Minneapolis. The program combines formation of culturally supportive ties, problem-solving ties with elders, curriculum on self and family, Indian values and identity, and the use of family-as-treatment with community paraprofessional training. Such a program looks promising for substance abuse/dependence as well.

Drs. Beauvais, Oetting and Edwards[11] have studied drug use among American Indian youth since 1974. They cite boredom due to lack of community youth programs, peer pressure towards substance abuse, poor economic hope, family instability, and lack of Native American spiritual values as contributing factors in the substance abuse etiology.

Another prevention strategy which is socially oriented is bicultural competence skills training. This training is concerned with learning how to make one's desires known both in Indian and non-Indian settings. Schinke[12] created a study based on using bicultural competency skills and social-learning-based intervention skills to prevent drug, alcohol, and tobacco abuse among young Native American students. The training in knowledge/practice in communications, coping, and discrimination skills was tested on two groups. One group received no prevention training, while the other group was led by two American Indian counselors who modeled turning down offers of alcohol, drugs, and tobacco from both American Indian and non-American Indian friends. Alternatives to substance use were also taught as was discrimination about healthy and high-risk behaviors. The group members were encouraged to form a social network that did not tolerate alcohol/drug abuse. The control group and prevention group were contrasted after six months. The prevention group had more knowledge about substance use and held less favorable attitudes about substance use. In addition, the prevention group had more self-control and assertiveness, and reported less use of tobacco, alcohol, marijuana, and inhalants. Bicultural competence appears to be a promising approach.

SUMMARY

The scope of alcohol and drug abuse among Native American youth is just beginning to be defined. Trimble[13] sums up the efforts thus far by observing, "A particular dearth of information exists." It is clear that the local survey data related in this paper demonstrate that a blanket approach to heterogeneous student populations is ineffective. Miller and Nirenberg[14] note that "specific interventions must be matched up with specific populations." An ecological model of substance abuse prevention which includes cultural networking, interpersonal competence training, health education, peer counseling, and community awareness is called for by the Indian student population discussed in this paper.

NOTES

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