

THE PRIMARY COST OF DRUG ABUSE: WHAT INDIAN YOUTH PAY FOR DRUGS

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ABSTRACT. Based on responses to a 1984 survey on a large Indian reservation, conservative estimates are made of the total dollars spent by Indian youths (grades 7 through 12) across the country on drugs and alcohol. The total figure estimated for one year is \$8.3 million. These are only out-of-pocket expenditures and do not include other costs associated with substance abuse such as medical care, loss in productivity, accidents, or emotional and social consequences.

There have been significant increases in the use of drugs and alcohol among young people across the country over the last 20 to 25 years. Within the last 10 years, reliable surveys have measured the actual amount of use and have kept track of how drug use has been changing. In general, drug and alcohol use have increased steadily in this time, although very recently large national surveys have shown a slight decrease in the levels of adolescent drug and alcohol use (Johnston, O'Malley, & Bachman, 1986; Miller et al., 1983). Despite these decreases, use rates remain high and the lives of many young people are being adversely affected.

We have been conducting research for more than 12 years on the patterns of drug use among Indian youth (Beauvais & Oetting, 1987; Beauvais, Oetting, & Edwards, 1985; Oetting & Beauvais, 1985; Oetting, Beauvais, Edwards, Velarde, & Goldstein, 1982; Oetting & Goldstein, 1979). We have found trends very similar to national trends, although reservation Indian youth use drugs more heavily than other American youth. There are some signs that drug and alcohol use among Indian adolescents may also be leveling off; however, the rates are still very high.

Much has been written about the emotional and physical dangers, and other consequences of drug use. This article presents one more piece of information that indicates the size of the drug and alcohol problem and the effect it has on Indian communities. From a retrospective study, we have derived estimates of the amount of money Indian young people are spending to buy drugs and alcohol.

The importance of these figures are two-fold. First, when money is spent for drugs and alcohol, it is not available to the individual or family for other purchases. A young person may be using food or clothing money for non-essential drugs and alcohol. Second, there are adverse effects on the overall reservation economies. Drugs and alcohol are usually supplied from off-reservation sources, and the dollars spent on them can be a serious drain on reservation resources.

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The data presented by no means represent the total cost of drug and alcohol use among American Indians. There are many other associated costs, such as increased medical costs for treatment of drug and alcohol problems (including medical care for accidents), loss of work productivity, legal and enforcement costs, etc. In fact, the out-of-pocket dollars are probably only a small part of the total economic impact of drug and alcohol use. Another limitation of the data is that our figures are restricted to the money spent on drugs and alcohol among school-aged young people only; if the data included drug and alcohol use among adults as well, the costs would no doubt be much higher.

Method

The general approach in this study was as follows. One reservation was selected as representative in the amount of alcohol and drugs used by its adolescents. The tribe is one we have studied at three separate times over the last 6 years. Each time that we surveyed this tribe we also surveyed a sample of five to seven other tribes (different tribes each year). The results for this specific tribe were near the average of the sample of tribes every time.¹ While tribes do differ on a variety of dimensions, we have found that in a given year drug and alcohol use rates tend to be quite similar from one reservation to the next regardless of socioeconomic or cultural factors. This tribe is, therefore, probably reasonably representative of most reservations in the United States.

The survey questionnaire used in this study has been developed and refined over the past 12 years and has been administered to over 35,000 Indian youth. The scales used to measure drug abuse demonstrate very high reliability (Oetting, Beauvais, Edwards, & Waters, 1984). The internal consistency of these scales, and their orderly relationship to other problem behaviors provide evidence for validity (Oetting et al., 1984; Oetting & Beauvais, 1983). In addition, in the long term, the drug use rates derived from the survey show a high degree of correspondence to the trends found in other widely used surveys (Beauvais et al., 1985; Johnston, O'Malley, & Bachman, 1987).

A total of 1,094 young people (grades 7 through 12) were surveyed on one large reservation in 1984 to determine what they spent on drugs and alcohol in one year's time. Then, census data was used to project the amount spent by all Indian youth who live on reservations across the country.

Our goal was to arrive at an estimate of the total dollars spent each year by reservation youth on drugs and alcohol. In doing this, we had to make a number of assumptions and in certain cases rely on estimates. At every point we tried to be conservative in arriving at the dollar figures; that is, where there is some doubt about actual use rates or costs, we have used the lowest estimate. We did this to improve the credibility of our numbers. We did not want to create numbers that are exaggerated just to make a point. We wanted to produce solid information that could be trusted and used to make informed decisions about intervention efforts. In every instance, we tried to be explicit as to how our figures were determined.

Results

The data presented have some specific limitations:

1. The calculations are based on use rates for those young people who are enrolled in school. Young people who have dropped out of school probably have higher rates of drug and alcohol use and thus spend more money (Beauvais & Oetting, 1986; Kandel, 1975).
2. The total estimates arrived at do not include money spent by Indian people younger than or older than those in our survey. The estimates reported here only cover the amount that youth in 7th through 12th grades spend for drugs and alcohol.
3. Specific prices paid for alcohol, marijuana, and cocaine were available from people familiar with the youth drug scene; as a result, reasonable cost estimates for these drugs were possible. The variability in cost for “uppers,” “downers,” lysergic acid diethylamide (LSD), etc., makes estimates for these drugs more difficult; when doubt occurred, we used conservative estimates.

Expenditures for Alcohol

Alcohol is the most widely used drug among all groups of young people in the U.S. (Johnston, O'Malley, & Bachman, 1987). On the reservation where this study was done, 82% of all of the 7th through 12th graders have used alcohol at least once in their lives. As will be seen, a large number of students reported using alcohol on a regular basis.

The survey asked how much alcohol each young person had consumed in the past month. Three types of alcoholic beverages were included—beer, wine, and “hard liquor.” Questions were asked about the number of times the students had been drunk and the number of times they drank but did not get drunk. Using these categories, we determined the number of drinking occasions and the probable amount consumed at each occasion.

The following figures were used in the calculations for amount of alcohol consumed and the cost of the alcohol.

1. One “drink” constitutes: 12 oz can of beer, or 1.0 oz shot of 86 proof liquor, or 4 oz glass of non-fortified wine (2 oz glass of fortified wine).

2. To get “drunk,” a 140 lb person drinking for two hours must consume 5.5 drinks (i.e., any combination of the above amounts) for their blood alcohol content (BAC) to reach 0.1% (Cox, Jacobs, LeBlanc, & Marshman, 1987). Some uncertainty is introduced here. The 0.1% BAC is the usual legal definition of being drunk, but some young people may report being drunk while having consumed less than 5.5 drinks. On the other hand, many drinking sessions last longer than 2 hours, and more than 5.5 drinks may be consumed. These two factors should tend to average out to a conservative estimate of 5.5 drinks per drinking session to get drunk.

3. With regard to alcohol expenditures, we assumed the following. One six-pack of beer (6 drinks) cost an average of \$2.40. One pint of fortified wine (16 oz or 8 drinks) cost an average of \$2. (Fortified wine is most accessible to underage drinker.) One pint of liquor (16 oz or 16 drinks) costs an average of \$3.60. (The cost of alcohol will obviously vary and may be higher than those used here, especially if it is purchased by underage youth or through a “bootlegger.”)

It was not possible to tell from the survey items what type of alcoholic beverage was used at each drinking session. We were able to determine, however, the percentage of times each type of beverage was consumed: during 50% of the drinking occasions the students used beer, 46% of the time they used “hard liquor,” and 4% of the time they consumed wine. These proportions will be used when cost figures are computed.

Costs for alcohol while drunk. Students were asked how many times they had been drunk in the last month. Out of the 1,090 7th through 12th graders surveyed, 300 (28%) said they had been drunk at least once in the last month. Quite a few of these students had been drunk more than once, so the total number of drunk occasions reported during the month prior to the survey totalled 890 times. (Some students reported having been drunk as many as 10 times in the previous month.) If the average number of drinks it takes to get drunk (BAC of 0.1%) is 5.5, then the total number of drinks for all of these occasions is 5.5×890 , or 4,895. These findings are summarized in Table 1.

As Table 1 shows, the total cost “per month” for those who got drunk on all three types of alcoholic beverage was \$1,536. This amounts to \$18,420 spent to get drunk per year by 7th through 12th graders on this “typical” reservation.

Table 1
Costs for Alcohol While Drunk

Type of alcohol	Percentage used	Number of drinks while drunk	Drinks per month	Unit cost	Cost/month
Beer	50.0	4,895	2,447.5 = 480 6-packs	\$2.40 ^a	\$ 979
Wine	4.0	4,895	195.8 = 24.5 pints ^b	2.00	49
Hard Liquor	46.0	4,895	142 = 140.7 pints ^c	\$3.60 ^d	<u>507</u>
			Monthly Total		1,536
			Yearly Total		\$18,420

^a Typical price of "cheaper" brands of beer usually used by reservation youth.

^b Based on 2 oz per drink and 16 oz per pint.

^c Based on 1 oz per drink and 16 oz per pint.

^d Price based on asking subjects what they actually drank and actually checking the price of the most commonly used brand.

Costs for alcohol while drinking but not getting drunk. There were 3,100 occasions when 265 students in this group drank in the previous month but during which they did not report getting drunk. We used a conservative figure of one drink per occasion to figure these costs. See Table 2 for results.

Table 2
Costs for Alcohol While Drinking But Not Getting Drunk

Type of alcohol	Percentage used	Number of drinks while not drunk	Drinks per month	Unit cost	Cost/month
Beer	50.0	3,100	1,550 = 280 6-packs	\$2.40 ^a	\$ 620
Wine	4.0	3,100	124 = 16 pints ^b	2.00	32
Hard Liquor	46.0	3,100	142 = 89 pints ^c	\$3.60 ^d	<u>321</u>
			Monthly Total		973
			Yearly Total		\$11,676

^a Typical price of "cheaper" brands of beer usually used by reservation youth.

^b Based on 2 oz per drink and 16 oz per pint.

^c Based on 1 oz per drink and 16 oz per pint.

^d Price based on asking subjects what they actually drank and actually checking the price of the most commonly used brand.

As Table 2 shows, the total cost per month for those who drank but did not get drunk in the past month was \$973, or \$11,676 per year.

Total alcohol cost per year. If the two categories of drinking (Tables 1 and 2) are combined, the 7th through 12th graders surveyed on one reservation spent \$30,096 during 1983 (the year prior to the survey) for alcohol alone.

Expenditures for Marijuana

Within the last 20 years, marijuana has become the second most widely used drug among adolescents in the U.S. (Johnston, O'Malley, & Bachman, 1987). In some places it is used almost as frequently as alcohol. On the reservation where the data for this report was collected, 71% of all adolescents have had some experience with marijuana.

Questions on the survey asked the number of times students had used marijuana in the past month. Based on the resulting self-reports, we were able to compute the total monthly and yearly expenditures for marijuana.

The following assumptions were used.

1. Each occasion involved the use of one "joint," or marijuana cigarette. Several people may share a joint, but when that happens, several joints are usually used, averaging about one per person.

2. We estimated conservatively that each marijuana cigarette cost about \$1. An actual cost is difficult to determine since marijuana is sold in varying quantities.

Reports from the field indicated that the price of one "joint" in 1984 may have varied from \$1 to \$5. The latter price is unusually high, but when the local supply was limited the price may have reached this level. A cost of less than \$1 was also relatively rare unless very large amounts were being processed. Some youth raise their own marijuana, but they are generally older or are dropouts and typically sold to others at the \$1 to \$5 rate.

A total of 510 students reported various occasions of use within the previous month. The number of students who reported using marijuana is included in Table 3.

As Table 3 shows, the total number of times marijuana was used in a month was 3,937. If each occasion represents one joint and each joint costs an average of \$1, the total monthly expenditure among these 1,090 adolescents is \$3,937. The yearly total cost is thus \$47,244.

Table 3
Incidence of Marijuana Use

Average times used in past month		Number of students using at each level		Total occasions/ cost per level
1.5 times	x	206	=	\$ 309
6.0 times	x	140	=	840
14.0 times	x	82	=	1,148
20.0 times	x	82	=	<u>1,640</u>
			Monthly Total	3,937
			Yearly Total	\$47,244

Expenditures for Cocaine

Cocaine has been used by small groups of people for the last 100 years. Recently, however, use has become much more widespread and many different types of people have become users. The most recent expansion has been to adolescents of all social and economic classes (Johnston, O'Malley, & Bachman, 1987). Many people believe that the high cost of cocaine will prevent its use among economically disadvantaged youth, such as Indian young people living on reservations. However, while costs may provide some limit on cocaine usage, we have not found any reservation where it is not available, and we always find a surprisingly high level of use (Beauvais, Oetting, & Edwards, 1985). On the reservation where our survey was conducted, about 10% of 7th through 12th grade students had used cocaine at least once.

Computing the amount paid for cocaine is much more difficult than for alcohol and marijuana. The primary reason is that, at least for most adolescents, the pattern of use is highly variable. Alcohol and marijuana are generally used at regular rates. The light user uses them at parties once or twice a month, others may use them several times a week, or daily. Cocaine, on the other hand, is used more sporadically, and the amount used on each occasion differs depending on how much is available. Another difference in use pattern is that cocaine is rarely "saved up." The amount that is purchased is all used on one occasion; several doses may be used over the course of a day or evening; and/or the cocaine is commonly shared with anyone present who wants to use it. In order to arrive at a reasonable estimate of the cost of cocaine use among American Indian youth, the following assumptions were used.

1. On each occasion of use, each person inhales two "lines" of cocaine. This again is a conservative estimate since many cocaine users will sniff four or more lines per occasion of use.
2. A line of cocaine consists of 25 milligrams (Fischman, 1984).

3. One gram of cocaine (1,000 milligrams) costs \$100 on the average. Since there are 40 lines in a gram of cocaine, each line costs \$2.50 (\$100 divided by 40). In our estimate, every occasion of use (2 lines per occasion) would then cost the user \$5. (Crack use is new, but rough estimates suggest a similar cost structure. Less crack may be smoked at one time, but repeating the use immediately is more frequent.)

Among the 1,090 students surveyed, we found a total of 75 occasions of cocaine use in the month prior to the survey. Some students used cocaine more than one occasion, so the total number of students involved in cocaine that month was actually 67.

If each occasion costs \$5, the total cost of cocaine use in this population per month is \$375 (75 occasions x \$5 per occasion). The yearly total is thus \$4,500.

Expenditures for Other Drugs

In figuring the costs of cocaine, we used a number of assumptions that are difficult to clearly justify. The rates of use and costs per occasion were estimates, although they are probably conservative. The problem of getting reliable numbers for rates of use and costs becomes even more difficult for other drugs used by young people.

The survey contained questions about the number of times students used stimulants, sedatives, psychedelics (e.g., LSD), and phencyclidine (PCP). The total number of occasions of use in the past month was computed for the students surveyed. A total of 888 occasions of use were found, with many students reporting multiple occasions of use in the one-month period. Actual cost figures for this diverse group of drugs are difficult to determine. We used a conservative estimate per occasion of \$.50.

These figures probably underestimate the possible costs of many drugs. A capsule of a barbiturate, for example, may sell for anywhere from \$.50 to \$1.50. Typical cost of an amphetamine capsule is from \$.50 to \$1. Although these costs may be somewhat low, increasing them slightly would not alter the total figures greatly, since total alcohol and marijuana costs are much higher than costs of other drugs. The lower costs used here help keep the results conservative.

For this group, then, a total of \$444 (880 occasions x \$.50) was spent on "other" drugs in one month. This yields an annual expenditure of \$5,328 for this category for this one reservation.

Expenditures for Indian Young People Nationally

The data reported here were collected from one reservation. Based on our 12 years of survey work among Indian youth we believe that the expenditures reported are about average for reservations across the country (Beauvais, Oetting, & Edwards, 1985). The 1980 census reported that there were 103,309 Indian young people from rural areas across the country old enough to be enrolled in the 7th through 12th grades. This includes all reservation youth plus a small percent who live in rural areas but not on reservations. We used this number as our basis for computing costs spent by all rural Indian youth. (Only 88.5% of the 103,309 adolescents were actually enrolled in school. The remaining 11.5% were composed mostly of dropouts, but may have included a few adolescents not enrolled for medical or personal reasons. The 11.5%, being primarily dropouts, probably use drugs at higher rates than other Indian youth; however, we conservatively estimated use as comparable to that of enrolled students.)

The 1,090 adolescents in our survey represented 1.05% or 1/95.2 of all Indian young people. When we extended the expenditures from our survey to the total national 7th through 12 grade Indian population (103,309) for alcohol, marijuana, cocaine, and other drugs, we found that almost \$8.3 million was spent in one year alone. Calculations are included in Table 4.

Table 4
National Costs of Drug and Alcohol Use

Alcohol	\$30,096	x	95.2	=	\$2,865,139
Marijuana	47,244	x	95.2	=	4,497,629
Cocaine	4,500	x	95.2	=	428,400
Other Drugs	5,328	x	95.2	=	<u>507,227</u>
			Yearly Total		\$8,298,395

If the \$8.3 million figure is divided by the number of young people living on reservations, we find that each spends an average of \$80 per year on drugs and alcohol. This is an average. We know, of course, that not all young people spend this amount. Some do not spend any money on drugs or alcohol, and some spend much more.

Discussion

An indirect method, a self-reported survey questionnaire, was used to assess expenditures for drugs and alcohol. The survey includes questions that identify exaggerators and measures that isolate unreliable or inconsistent respondents; these are removed from the sample before analyses. Internal consistency reliabilities for drug use scales range from the high 80s to the 90s (Oetting, Beauvais, Edwards, & Waters, 1984).

Accuracy of these estimates depends on three factors: (a) whether the estimates of drug use are reliable; (b) whether results from one tribe can be generalized to all reservation youth; and (c) whether cost estimates are accurate. Reliability studies of the survey used show that the rates of drug use are likely to be very accurate for this specific reservation. While drug use rates for reservation youth have varied over time, this reservation has been near average every time it was studied. Costs are, therefore, likely to be reasonably representative of reservation youth in general. The estimates of cost are quite precise for alcohol and marijuana on the reservation, and necessarily less precise for other drugs; however, in every case an effort was made to keep cost estimates conservative. There is reason to believe that our estimate—that Indian youth spend more than \$8 million dollars each year for alcohol and drugs—is reasonably accurate.

This figure is in some respects startling, for it is an enormous amount of money that is being diverted toward non-productive and in many cases counter-productive ends. It is a particular burden for those reservations where the economy is already depressed. An immediate question that comes to mind is, "Where do these adolescents get the money they spend on drugs and alcohol?" Unfortunately, we have no good answers to this question; it must await future research.

One important finding reflected in the figures is the amount of money being spent on marijuana alone. Marijuana expenditures are about double those found for alcohol, and they are a little over half of what is spent for all drugs combined. Marijuana is not only a common drug of abuse among Indian adolescents, but is an extremely important factor in the economics of drug abuse on reservations.

The total dollar figure presented here is most likely only a fraction of what is actually being spent by Indian people of all ages on drugs and alcohol. We know from previous research that many children younger than 7th graders are using drugs and alcohol (Oetting et al., 1982). The amount they spend is undoubtedly much smaller than what we found for older youth, yet in the aggregate it could be significant.

The more important figure would be the amount spent by all Indian people over the age of 18. We have no rates of use for this older population, but it is undoubtedly very high (Young, 1988). The drug and alcohol use we find during the school years does not stop immediately when students graduate. We have no valid basis for projecting expenditures beyond the high school years. Would the total amount spent be double, triple, or be even higher? Clearly this is an important area for future research.

As was mentioned in the introduction to this article, the amount paid for drugs is only one aspect of the economic consequences of drug and alcohol abuse. Health costs (both mental and physical), property damage, job loss, and loss of productivity undoubtedly have even higher dollar amount attached to them. Furthermore, it would be a mistake to reduce the problems associated with drug and alcohol use to simply dollars and cents. Chemical abuse leads to a tremendous degree of human misery that cannot be counted just in terms of money. Broken relationships, the loss of self esteem, and the loss of hope in the future are but a few examples of the tremendous burden brought on by the abuse of drugs and alcohol.

Finally, we would point out that the amount of money being spent on treatment of drug and alcohol abuse among Indian people is extremely limited. The resources that are available to counter this problem pale in comparison to the economic and other social costs exacted from Indian communities. The money authorized under the Omnibus Drug Bill will provide some help, but interest in this initiative must be sustained over time. We wonder what savings, purely in economic terms, would accrue from an investment of modest and continuing amounts of money in drug and alcohol abuse prevention. Perhaps more importantly, how would such prevention efforts affect the overall quality of life for Indian youth who have become involved with drugs and alcohol?

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Note

1. We have an agreement with all of the tribes we work with that we will never identify them in any of our publications; therefore, we cannot divulge the name or location of this tribe.

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