



*Gender,
Ethnicity
& Culture*



GENDER, ETHNICITY & CULTURE

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WOMEN WHO DRINK MAY BE AT GREATER RISK OF CARDIOVASCULAR COMPLICATIONS THAN MEN

- *Chronic, heavy alcohol consumption can increase the prevalence of cardiovascular complications including hypertension, cardiomyopathy, arrhythmia and stroke.*
- *Some female alcoholics experience more severe cardiovascular effects from heavy drinking than male alcoholics; these effects are noted earlier and at lower consumption levels than those noted in men.*
- *Women who drink chronically may also be at risk for future cardiovascular complications.*

The cardiovascular effects of chronic, heavy alcohol consumption can include an increased prevalence of hypertension, cardiomyopathy, arrhythmia and stroke. Most of the studies to date, however, have focused on males, even though women appear to be more sensitive than men to alcohol's toxic effects on the heart. Research published in the September issue of *Alcoholism: Clinical and Experimental Research (ACER)* confirms that some female alcoholics experience more severe cardiovascular effects from heavy alcohol drinking than those observed in male alcoholics, and these effects are noted at an earlier stage of drinking and at a lower consumption level than those noted in men.

“This work adds to the growing body of literature that confirms what many researchers in the field have suspected,” said Nancy C. Bernardy, a research psychologist at the National Center for PTSD in White River Junction, Vermont. “The use of drugs, such as alcohol and nicotine, has a greater adverse impact on women than on men.” This phenomenon – where women need to drink a lesser amount of alcohol than men do, or for a shorter amount of time, to produce the same degree of damage – is referred to as “telescoping.”

“Additionally,” said Bernardy, also the first author of the study, “I think that this work adds to growing evidence that there are subtle differences in the cardiovascular systems of women in general compared to those of men. Women’s hearts are not just smaller versions of men’s. Their cardiovascular systems respond differently, and this is particularly true in response to stress and toxins like alcohol. Women need to know that they may be exposing themselves to a greater risk of heart disease than the risk noted in men by their behaviors as well as the way they handle stress.”

This study looked at 32 inpatient female alcoholics, abstinent for four weeks, and 16 female social drinkers. Researchers examined the participants’ blood pressure, heart rate, stroke volume and vascular resistance during rest and in response to two stress tests: a five-minute hand grip task, and a five-minute speech exercise. The alcoholics were then divided into subgroups according to their withdrawal blood pressures: those with transitory hypertension (tHT), occasional above-normal blood pressure that normalized after withdrawal, and those with normal blood pressure throughout withdrawal and treatment.

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WOMEN WHO DRINK MAY BE AT GREATER RISK OF CARDIO- VASCULAR COMPLICATIONS THAN MEN

“The women with tHT showed dysfunction across most of the cardiovascular measures,” said Candice Monson, assistant professor of psychiatry at Dartmouth Medical School. “The alcohol-dependent women who experienced hypertension related to detoxification also showed a protracted pattern of cardiovascular dysfunction after a period of abstinence from alcohol. This is in contrast to previous studies showing that men with tHT return to ‘normal’ resting cardiovascular functioning after a period of abstinence, and manifest cardiovascular dysfunction only when faced with an aversive stressor. Furthermore, this finding is congruent with recent studies showing that cardiovascular effects in women are more severe than in men, and emerge sooner with chronic drinking.”

Both Bernardy and Monson noted that these findings suggest that a subgroup of women may compromise, perhaps irreparably, their cardiovascular systems through chronic, heavy alcohol consumption.

“The short-term implication of this dysregulation may be evidenced as an increased risk for the development of hypertension,” said Bernardy, “with the long-term implication of an increased risk for the development of future cardiovascular disorders such as heart attacks, strokes, or cardiomyopathy.”

“This research is to be applauded for furthering our understanding of the consequences of women’s substance abuse,” said Monson. “For years, women’s alcohol use and its consequences has been sorely understudied and neglected. A one-size-fits-all, or perhaps more aptly put, a ‘male-size-fits-all’ approach has been applied to women. In fact, this study, along with other recent studies, shows that women’s alcohol use patterns and their consequences are different from men.”

Bernardy is hopeful that these findings will generate more research on the cardiovascular consequences of heavy drinking in women. “The average reader may be confused since she has heard that one or two drinks a day may be beneficial for her cardiovascular system. Although this appears to be true, we don’t know which of these social-drinking women may be prone to developing chronic heavy drinking down the road. Some of these women may experience fairly rapid health complications from alcohol misuse. That is the message that we need to convey.”



Article is based on the following published research:

Bernardy, N.C.,
King, A.C., Lovallo, W.R.
(September 2003).
Cardiovascular responses
to physical and
psychological stress in
female alcoholics with
transitory hypertension
after early abstinence.
*Alcoholism: Clinical
and Experimental
Research*,
27(9), 1489-1499.

SPECIFYING ALCOHOL-RELATED BRAIN DAMAGE IN YOUNG WOMEN

- *Women seem to have a heightened sensitivity to alcohol's toxic neurological effects.*
- *Thinking and memory abilities may be markedly affected.*
- *Researchers used functional magnetic resonance imaging (fMRI) to "visualize" brain activity in young women.*
- *Young, female alcoholics have significant aberrations in brain and cognitive function.*

A study in the February issue of *Alcoholism: Clinical and Experimental Research (ACER)* uses a variant of magnetic resonance imaging (MRI) to closely examine brain function in young alcoholic women.

"Previous studies have shown that alcoholic women perform just as poorly as alcoholic men on thinking and memory tests," said Susan F. Tapert, first author of the study, "even though the women hadn't been drinking as long as the men had." Furthermore, added Tapert, also an assistant adjunct professor at the VA San Diego Healthcare System and the University of California at San Diego, recent research using MRI has found that alcoholic teens may have shrinkage of a brain part – called the hippocampus – that is critical for memory.

"We have done several studies comparing thinking and memory abilities in teens with and without drinking problems," Tapert continued, "and found that remembering information, solving spatial problems like working with maps or puzzles, and doing mental arithmetic were less accurate in heavy-drinking youth. With our brain imaging study, we wanted to understand what parts of the brain might explain these thinking and memory problems." Tapert and her colleagues used functional MRI (fMRI) to identify the areas of disturbed brain functioning.

The human brain is composed of approximately 90 percent water. Structural MRI is especially sensitive to the detection of water molecules, which means it can yield remarkably high-resolution images of the brain. Scientists can then manipulate image data to differentiate among the three principal tissue types in the brain: gray matter (cell bodies), white matter (fiber tracts connecting cell bodies), and cerebrospinal fluid (which fills cavities in the brain).

Functional MRI uses the same hardware as MRI but is more sensitive to changes in blood flow related to changes in cognitive, motor or sensory tasks performed by individuals while they are being scanned. Typically, fMRI reflects a change in activity between two tasks that differ in only one aspect. MRI provides a very clear picture of the brain so that the size and shape of brain parts can be examined. FMRI takes pictures of the brain every few seconds, so that researchers can paste together what Tapert calls a "movie" of activity in the brain while the subject is doing a mental task.

"FMRI allowed us to examine very subtle changes in blood and oxygen use in the brain while our subjects did tasks that are difficult for young heavy drinkers," said Tapert. After ensuring that all study participants had been abstinent from alcohol for at least 72 hours, researchers

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SPECIFYING ALCOHOL-RELATED BRAIN DAMAGE IN YOUNG WOMEN

tested their cognitive (or thinking) abilities and mood before the fMRI, and working memory abilities both before and during the fMRI.

Certain areas of the frontal and parietal lobes of the brain, even though they are physically distant from each other, are intimately connected through brain circuitry. A number of studies have shown that this brain circuit becomes active when subjects perform working memory tasks. In most people, working memory tasks that require spatial processing of visually presented material rely more heavily on right than left hemisphere function. In this study, the alcoholic women failed to show a “normal” pattern of activation while performing their visual spatial working memory task.

“Compared with the nonalcoholics,” explained Edith V. Sullivan, associate professor of psychiatry at Stanford University School of Medicine, “the young women with alcohol dependence appeared to engage their cortical systems less vigorously. In some cases, the brain systems activated by the alcoholic women were different from those activated by individuals with no alcohol problems.”

“The main finding,” said Tapert, “was that the alcohol-dependent women showed less activation in brain areas that are needed for spatial tasks like puzzles, maps and mechanics, and for working with information that is held mentally, like doing math inside your head or making sense of a lecture or set of complex instructions. The brain parts that showed the differences are in areas that we need for finding our way around, and working with all the information we are bombarded with in everyday life.”

“Before the advent of functional imaging technologies, we could only speculate what areas of the brain caused the performance deficits observed in life,” said Sullivan. “Now, fMRI enables us to identify with reasonably good precision circumscribed fields of brain activation occurring in conjunction with specific, experimentally controlled tasks. Previous studies that relied on behavioral testing had consistently reported alcoholism-related deficits in visuospatial nonverbal working memory. The Tapert study has demonstrated that even young women with alcohol dependence suffer significant aberrations in brain and cognitive function, and that this pattern of abnormalities is similar to that documented in older alcoholics with many years of abusive drinking.”



Article is based on the following published research:

Tapert, B.F.,
Brown, G.G.,
Kindermann, S.S.,
Cheung, E.,
Frank, L.R.,
& Brown, S.A.
(February 2001).
fMRI measurement of
brain dysfunction in
alcohol-dependent young
women.
*Alcoholism: Clinical
and Experimental
Research*,
25(2), 236-245.

AFRICAN AMERICAN ALCOHOLICS: AT GREATER RISK FOR IMMUNE DISORDERS?

- *Alcoholism is known to compromise the immune system.*
- *African American alcoholics are at greater risk for certain infectious diseases.*
- *African American ethnicity, in conjunction with alcoholism, seems to signify a more compromised immune system.*
- *These immune changes may be the link to a greater risk for infectious diseases.*

Long-term alcohol dependence is known to compromise the immune system. Many alcoholics have more health problems than most people in general, and African American alcoholics seem to be at greater risk for a number of infectious diseases. A study published in the April issue of *Alcoholism: Clinical and Experimental Research (ACER)* has confirmed an association between African American ethnicity, long-term alcohol dependence and immune-disease risk.

“We know from epidemiological data that African American alcoholics are at greater risk for certain infectious diseases such as tuberculosis, hepatitis C and HIV,” said Michael Irwin, professor of psychiatry at San Diego Veterans Affairs Medical Center and the University of California, San Diego, and lead author of the study. One study found, for example, that among veterans with alcoholic liver disease, African Americans were 2.4 times more likely to have hepatitis C. “African American alcoholics also have increased mortality rates,” he added.

The study examined the effects of chronic alcoholism on three aspects of the immune system. The first was to measure the activity level of “natural killer cells,” a sort of first-line defense of cells in the body that kill other cells already infected by an invading virus. The second was to test the response level of natural killer cells that were artificially stimulated. The third was to look at the production of two types of hormone-like proteins called cytokines that regulate the intensity and duration of immune responses. Interleukin-6 (IL-6) is an inflammatory cytokine that essentially turns on the immune system. Interleukin-10 (IL-10) is an inhibitory cytokine that essentially turns off the immune system.

The findings indicated an across-the-board decrease in natural killer cell activity among all of the alcoholics, but the decrease was more pronounced in the African Americans. African American alcoholics also showed the greatest decline in natural-killer cell activity following artificial stimulation. Furthermore, the expression of IL-6 (the ‘on’ signal) was lower while the expression of IL-10 (the ‘off’ signal) was higher among African American alcoholics. Irwin called this finding a ‘double whammy.’ Not only do they have less production of signals that activate the immune system, but they also have more signals that turn off the immune system.” In summary, he noted, alcoholics have a compromised immune system, African American alcoholics show the greatest immune changes, and this may explain why African American alcoholics are at greater risk for infectious diseases.

AFRICAN AMERICAN ALCOHOLICS: AT GREATER RISK FOR IMMUNE DISORDERS

“Showing that ethnic background makes a difference in terms of immune changes is a very important finding,” said Steven J. Schleifer, chair of the Department of Psychiatry at the University of Medicine and Dentistry of New Jersey - New Jersey Medical School. “There are increasing suggestions that many biological functions differ among ethnic groups, by gender, by age, and so on. Depending on your demographic background, your baseline biological function in some areas like the immune system could be altered.” In other words, he explained, two healthy people with different biological constitutions could respond to something that’s toxic to the immune system – like alcohol – in different ways.

“You may need the two risk factors, so to speak,” Schleifer explained, “to see any results. Neither one alone – alcohol itself or being African American – may have much of an effect. But if you have both elements, constitutional factors may make you more susceptible.”

Schleifer noted that too often studies will look at the outcome and consequences of alcoholism while not systematically controlling for influencing factors. “Many of these research studies,” he said, “don’t tend to carefully distinguish men from women, younger people from older people, people by ethnic differences, whether people have other medical problems or not, or whether they have concurrent use of substances other than alcohol.” He added that “Dr. Irwin has shown that you can’t ignore those factors, that something which could be benign in one group of individuals could be very toxic in another group.”

Irwin’s other research has examined the potential influence of depression, stress levels and disordered sleep on the immune system. He observed that some of the mechanisms which connect these atypical conditions to immune alterations may be very similar in nature.

Schleifer offered suggestions for future research. “First of all, we need to really ‘nail down’ what it is about the ethnic group that is putting them at risk. Could it be nutrition, socioeconomic status, general effects of poverty? Then we need to show that those people showing the most dramatic immune changes in laboratories are, in fact, those people at greatest risk of developing health problems in the real world. Ultimately, what we want to be able to do is not simply make general conclusions, but be able to identify particular individuals at greatest risk so that we can intervene.”



Article is based on the following published research:

Irwin, M., & Miller, C.
(April 2000).
Decreased natural killer
cell responses and
altered interleukin-6
and interleukin-10
production in alcoholism:
An interaction between
alcohol dependence and
African American
ethnicity.
*Alcoholism: Clinical
and Experimental
Research*,
24(4), 560-569.

LIVER CIRRHOSIS IS NO LONGER A “BLACK” DISEASE

- *Cirrhosis mortality rates have historically been higher among Black than White Americans.*
- *A new study has found that White Americans of Hispanic origin now have a greater risk of dying from cirrhosis than do African Americans.*
- *Among Hispanic decedents, the largest group was of Mexican ancestry.*
- *Drinking patterns, socioeconomic status and cultural beliefs are all contributing factors.*

In 1997, liver cirrhosis was the 10th leading cause of death in the United States, responsible for approximately 25,000 deaths. The disease is most frequently associated with heavy drinking. Historically, cirrhosis mortality rates have been higher among Black than White Americans. A study in the August issue of *Alcoholism: Clinical and Experimental Research (ACER)* is the first to document that White Americans of Hispanic origin have a risk of dying from cirrhosis that actually exceeds that of African Americans and is far higher than the risk for other whites.

“We’ve been looking at liver cirrhosis mortality numbers since the 1910 data year,” said Frederick S. Stinson, a survey statistician with the National Institute on Alcohol Abuse and Alcoholism (NIAAA) and lead author of the study. “However, it wasn’t until we examined the newly available death-certificate information on Hispanic origin that we made a surprising finding. White Hispanic males had the highest cirrhosis mortality rates. Among these, the largest group was of Mexican ancestry.” Many of these individuals had been born outside of the U.S. and had low levels of education.

“Death certificates contain a limited amount of information about each person who dies,” said Stinson. “The lower levels of education and immigrant status of many of these White Hispanic decedents suggest that they probably had lower levels of income, and may have had some difficulty reading or understanding English. This could lead to less access to health education and treatment, whether that’s treatment for an alcohol problem or access to medical care for cirrhosis treatment. Perhaps most importantly, there may also be some very, very important differences associated with alcohol consumption that are driving some of these numbers.”

“Some Hispanic groups,” explained Deborah A. Dawson, also a statistician with the NIAAA, “especially those of Mexican or Central American heritage, have a style of drinking that is marked by periodic consumption of extremely large quantities of alcohol. Doctors and other health care workers need to be aware of the increased risk of cirrhosis in this group in order to advise them of the risks that seem to be associated with this pattern of drinking.”

Dawson further explained that this pattern of drinking – which seems to increase the risk of liver damage – is somewhat less common among Hispanics of Caribbean (such as Cuban and Puerto Rican) origin, possibly because of differences in education and socioeconomic status. Among White Hispanics in the U.S., Mexican and Central American ancestry has become increasingly predominant over time. Among Black Hispanics, Caribbean ancestry still pre-

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LIVER CIRRHOSIS IS NO LONGER A “BLACK” DISEASE

dominates. The differences in drinking styles among various groups of Hispanics may help to explain why their origin increases the risk of cirrhosis mortality among White but not among Black Hispanics.

“The most important implication of these findings,” added Bridget F. Grant, second author and chief of the Biometry Branch of the NIAAA, “is that Hispanic Americans are in need of targeted prevention and intervention programs that take into account language and other cultural issues. We also need further research into the importance of heavy drinking occasions and not just overall volume of alcohol intake as a risk factor for cirrhosis mortality.”

“These findings have important prevention, policy development and treatment implications,” said Stinson. “They have relevance for health care workers, epidemiologists (people who study numbers) and policy makers.” Researchers at the NIAAA plan to continue with this research, seeking to determine if the risk for White Hispanics varies substantially from state to state.



**Article is based
on the following
published research:**

Stinson, F.S.,
Grant, B.F.,
& Dufour, M.C.
(August 2001).

The critical dimension
of ethnicity in liver
cirrhosis mortality
statistics.

*Alcoholism: Clinical
and Experimental
Research,*
25(8), 1181-1187.

ETHNIC DIFFERENCE IN DUI ARRESTS AND USE OF HEALTH CARE SERVICES IN CALIFORNIA

- *Hispanics in the United States traditionally “under-utilize” health and social services.*
- *Yet this same group, particularly Mexican Americans, tend to have more alcohol-related problems.*
- *In California, Mexican Americans have a proportionately high level of arrests for DUI offenses.*
- *DUI arrests and program referrals may provide a unique opportunity for otherwise lacking alcohol treatment.*

Hispanics in the United States have traditionally been considered an “underserved population” in relation to their use of health and social services, including alcohol treatment. Yet this same population – particularly Mexican Americans – tends to self report more episodes of heavy drinking and alcohol-related problems, and have higher rates of driving under the influence (DUI), than other ethnic groups. A study in the January issue of *Alcoholism: Clinical and Experimental Research (ACER)* examines what proportion of Mexican Americans arrested for DUI in one northern California county have severe alcohol problems, and what health and social services they have utilized.

“Despite higher rates of heavy drinking found among Mexican American DUI arrestees compared to whites,” explained Cheryl J. Cherpitel, a senior scientist with the Alcohol Research Group and author of the study, “Mexican Americans (both those with and without an alcohol use disorder) were less likely to use health and social services. These differences between Mexican Americans and whites were primarily due to the low rate of any services utilization among those Mexican Americans born in Mexico.”

Cherpitel explained that many Hispanics living in the United States, including Mexican Americans, have not had the opportunity to avail themselves of health care and social services. Lower utilization is also related to factors such as acculturation – including language barriers, low comfort with service providers, and an inability to negotiate the system – as well as a lack of insurance coverage. This underutilization of services has historically been most pronounced among migrant workers, who have not only lacked access to such services, but have also lacked access to standard housing and even proper sanitary services at the work site.

“Those born in Mexico may also have different expectations and perceptions regarding how to obtain services and relationships with providers,” said Cherpitel. “They may also be socially isolated due to language barriers. Additionally, it might be expected that those who do not have legal resident status in the U.S. would likely avoid contact with health and social services systems for fear of identification and deportation.” However, she noted, this latter point would not apply to her study’s findings, since any individual with an illegal status who was arrested for DUI would most likely be deported immediately, and never enter a DUI treatment program.

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*F*THNIC DIFFERENCE IN DUI ARRESTS AND USE OF HEALTH CARE SERVICES IN CALIFORNIA

In contrast to their low usage of health and social services, Hispanics – particularly Hispanic men – tend to have high levels of alcohol-related problems. Several studies by other researchers at the Alcohol Research Group demonstrate a disturbing pattern. The studies indicated that those who reported frequent heavy drinking during the previous year (defined as drinking once a week or more often, and having five or more drinks at one sitting at least once a week) were as follows: White males (12%) and females (2%) versus Hispanic males (18%) and females (3%). Those who reported three or more alcohol-related problems during the previous year (from a list of 29 social and dependence experiences) found: White males (11%) and females (4%) versus Hispanic males (16%) and females (5%). The mean number of drinks required to feel drunk showed that whites reported 6.3 while Hispanics reported 7.9. Comparable findings exist at some state levels. For example, a 1990 Department of Motor Vehicles study found that while Hispanics comprised 25 percent of the population in California, they accounted for 45 percent of DUI arrestees. According to Tom Greenfield, center director at the Alcohol Research Group, this problem continues to challenge policy makers.

“Since there tend to be high levels of DUI among the Hispanic group in California,” he said, “arrest for DUI, and mandatory referral to DUI programs, represent a crucial opportunity to address the higher-than-average alcohol-related problems seen in this group, treat their alcohol abuse and alcoholism, and perhaps help prevent later drunk driving offenses and other alcohol-related problems.” In addition, he noted, “disparities in health insurance have also been implicated in the service disparities that have been found, emphasizing the need to move toward universal health coverage that includes parity for alcohol-related treatment.”

Cherpitel reiterated that there were several caveats to her study’s findings. “Mexican Americans should not be considered a homogeneous group with respect to drinking patterns and health and social services utilization,” she said. “We found considerable differences between Mexican Americans born in Mexico and those born in the U.S., when compared to whites. Given this, future research on Mexican Americans should take into account the country of birth, which may be a more important variable to consider. Another few words of caution: these findings were obtained among those arrested, convicted and sent to a DUI treatment program. These individuals are not representative of the larger population of Mexican Americans or of whites in relation to demographic characteristics, drinking patterns and, possibly, health and social services utilization. Nor will a DUI-treatment-program clientele include those most likely to be underutilizers, those born in Mexico who are here illegally. Findings from this study are most likely conservative in relation to the under-utilization of health and social services by Mexican Americans compared to other whites.”

**Article is based
on the following
published research:**

Cherpitel, C.J.
(January 2001).
Differences in services
utilization between
White and Mexican
American DUI arrestees.
*Alcoholism: Clinical
and Experimental
Research*,
25(1), 122-127.



RE-EXAMINING ALCOHOL PROBLEMS AMONG AMERICAN INDIAN COMMUNITIES

- *Numerous stereotypes exist about American Indians' use of alcohol.*
- *New research examines alcohol dependence among Northern Plains and Southwest tribes.*
- *Although rates of alcohol dependence are higher than U.S. averages, they are not as high as previous research has indicated.*

Numerous stereotypes exist about American Indians' use of alcohol. However, a new study of alcohol dependence among two culturally distinct tribes in the United States – called Northern Plains (NP) and Southwest (SW) tribes in the report – has found that alcohol problems are not nearly as serious as some stereotypes may suggest. Results are published in the November issue of *Alcoholism: Clinical and Experimental Research (ACER)*.

“Previous research has tended to report on only one tribe or to aggregate American Indian samples in ways that do not permit explicit examination of cultural issues,” said Paul Spicer, associate professor of psychiatry in American Indian and Alaska Native Programs at the University of Colorado Health Sciences, and first author of the study. “While no one study could do justice to the tremendous cultural diversity among contemporary American Indian tribes, we wanted to include two distinct tribal populations representing important variations in aboriginal subsistence adaptation, social organization, and religious/spiritual traditions in order to document possible cultural differences in alcohol dependence.”

“A lot of what was ‘known’ in the past about alcohol use among American Indians was anecdotal, stereotypical and fueled by bias,” added Fred Beauvais, senior research scientist at the Tri-Ethnic Center for Prevention Research at Colorado State University. “This manuscript helps to clarify that there is more abstinence from alcohol among American Indians than there is among non-Indians.”

Spicer and his colleagues analyzed data collected by the American Indian Service Utilization, Psychiatric Epidemiology, Risk and Protective Factors Project (AI-SUPERPFP) since 1997 from 3,084 NP and SW individuals living on or within 20 miles of their reservations. “Our goal was to describe reservation and near-reservation American Indian populations as opposed to urban Indian populations,” said Spicer, “as the former have not been included in sufficient numbers in national studies to permit inferences about their health status.”

Rates of *Diagnostic and Statistical Manual of Mental Disorders, Third Edition, Revised (DSM-III-R)* alcohol dependence among the NP and SW tribes were then compared with U.S. averages collected by the National Comorbidity Survey (NCS).

“There are two major sets of findings in this paper,” said Spicer. “The first concerns prevalence rates, which indicate that alcohol dependence is a serious concern in these American Indian communities, but not nearly as dramatic as has been reported in previous research using non-random samples that may have provided biased estimates. The second concerns the

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importance of cultural differences, both in terms of alcohol dependence and related to other factors such as gender, age and marital status.”

Although the study found higher rates of alcohol dependence among men in both tribes than in the NCS sample, NP women had lifetime rates of *DSM-III-R* alcohol dependence twice that of NCS women; whereas SW women had rates very similar to those of NCS women. Both Spicer and Beauvais said these findings warrant further investigation.

“Indian men are clearly accounting for the greatest proportion of the difference between Indian and non-Indian rates of alcohol use,” said Beauvais. “There is some speculation that disruption of traditional culture is a heavier burden for Indian men, thus they endure more stress and are likely to use more alcohol. The much lower rates of alcohol abuse among the SW women than the NP women is very intriguing, but there is no readily obvious explanation for this. It could be that there are cultural/historical reasons why the NP women are more at risk.”

He continues, “Women have often been characterized as ‘bearers of the culture’ and thus eschew alcohol since it interferes with their cultural responsibilities. It could be that in the NP, there has been such cultural disruption that culture no longer provides this deterrent. This explanation is, of course, speculative and must await further research. This is an example of why research is important. If the exact nature of the protective factors existent among the SW women could be determined, it would provide information for designing more effective prevention interventions.”

In summary, said both Spicer and Beauvais, although rates of *DSM-III-R* alcohol dependence found in the AI-SUPERPPF were generally higher than U.S. averages, they are not nearly as high as other studies using less stringent sampling methods have found.

“Most important is the finding that only a minority of American Indian people in these samples met the criteria for alcohol dependence,” said Spicer. “There are significantly higher levels of alcohol dependence in the Northern Plains for both men and women and in the Southwest for men, and these are worth continued serious attention, but the level of such problems is not nearly as high as stereotypes of the ‘drunken Indian’ might lead people to believe.”



Article is based on the following published research:

Spicer, P., Beals, J.,
Croy, C.D., Mitchell, C.M.,
Novins, D.K., Moore, L.,
Manson, S.M.,
American Indian Service
Utilization, Psychiatric
Epidemiology, Risk and
Protective Factors Project
Team.

The prevalence of
DSM-III-R alcohol
dependence in two
American Indian
populations.

*Alcoholism: Clinical
and Experimental
Research*,
27(11), 1785-1798.



THE GENETIC COMPLEXITIES OF SENSATION SEEKING BEHAVIOR IN ALCOHOLIC MEN

- *Researchers know that sensation seeking behavior is prevalent among men with a particular subtype of alcoholism.*
- *New research has found a genetic link between the DdeI polymorphism of the D1 dopamine receptor gene and sensation seeking among alcoholic patients.*
- *These findings are limited to male alcoholics.*

Previous research has found a significant degree of sensation seeking behavior in male patients with a particular subtype of alcoholism called Cloninger's Type I. A study in the August issue of *Alcoholism: Clinical and Experimental Research (ACER)* has found for the first time an association between the DdeI polymorphism of the D1 dopamine receptor (DRD1) gene and sensation seeking among alcoholic men.

“Alcohol-dependence is a clinically heterogeneous disorder that arises from a combination of genetic and environmental biopsychological factors,” said Frédéric Limosin, a psychiatrist at the Albert Chenevier Hospital in Créteil, France and corresponding author for the study. “Substances such as alcohol that share a potential for abuse by humans also share an ability to enhance dopaminergic activity in mesolimbic mesocortical circuits, which are thought to be important for reward and reinforcement behaviors. Among the different candidate genes, those acting in the dopaminergic pathway may be specifically involved.”

Environmental factors may include personality characteristics such as impulsiveness or sensation seeking. “Experimental studies on animals have demonstrated that behavioral characteristics such as impulsivity, excessive or deficient behavioral inhibition, and a larger tendency to explore, may predict genetically determined excessive alcohol consumption in animals,” said Limosin.

Previous studies of both healthy subjects and alcohol-dependent patients have found associations between novelty seeking and polymorphisms of dopaminergic genes such as DRD2, DRD4, and DAT. Polymorphisms of the D1 receptor (DRD1) gene, however, have been much less examined in alcohol-dependence than other dopamine receptor genes.

For this study, participants comprised 72 alcoholic inpatients (39 men, 33 women) admitted to a psychiatric ward for alcohol withdrawal. All participants were assessed according to the *Diagnostic and Statistical Manual of Mental Disorders III - Revised (DSM-III-R)* criteria, genotyped using standard methods, and scored for sensation seeking behavior according to the Zuckerman scale (a 34-item self-report questionnaire designed to assess sensation seeking by focusing on four components: disinhibition, thrill seeking, novelty seeking and boredom susceptibility). Patients completed the Zuckerman scale at least one week after beginning the alcohol-withdrawal process.

THE GENETIC COMPLEXITIES OF SENSATION SEEKING BEHAVIOR IN ALCOHOLIC MEN

Results indicate a limited association between the DdeI polymorphism of the DRD1 gene and sensation seeking among alcoholic males. “An essential part of our results is that the association revealed is limited to male subjects,” said Limosin. “This is in accordance with Cloninger’s biopsychological typology which describes Type I alcoholism as sex-specific, characterized by an earlier age at onset, a more severe course, with more social and somatic complications, more frequent paternal previous history of antisocial behaviors, and a personality profile with high levels of sensation seeking and low levels of harm avoidance and reward dependence.”

Limosin added that these findings have three main implications for alcohol research and treatment. “First,” he said, “in view of the heterogeneous results that are often found in association studies performed in alcohol-dependent patients, it may be relevant to restrict association studies with genetic polymorphisms to more homogeneous subgroups of patients. Our results, for example, contribute to a better understanding of a subgroup of alcohol-dependent men who are characterized by a higher level of sensation seeking that could be explained by a genetic factor of vulnerability, namely, the DRD1 gene DdeI polymorphism.”

“Second,” he added, “by focusing on the D1 dopamine receptor to improve our knowledge of the biochemical mechanisms involved in the vulnerability to alcohol-dependence, we may one day be able to develop new, highly targeted drugs. Third, it may be well worth our while to examine the impact of specific treatments, such as cognitive-behavioral techniques, on subgroups of alcohol-dependent patients who have particular personality traits.”

Limosin said he plans to continue searching for associations between genetic polymorphisms and personality traits, such as temperament dimensions, among alcoholics. “I think this is a particularly promising area of research,” he said, “because we know that personality dimensions are highly involved in the vulnerability to alcoholism. We’re just not sure to what degree they are involved.”



Article is based on the following published research:

Limosin, F., Loze, J.Y.,
Rouillon, F., Adès, J.,
Gorwood, P.
(August 2003).
Association between
dopamine receptor
D1 gene DdeI
polymorphism and
sensation seeking in
alcohol-dependent men.
*Alcoholism: Clinical
and Experimental
Research*,
27(8), 1226-1229.