Studies of alcohol and other drug dependencies have demonstrated that these disorders are familial, that is determined, in part, by genetic action. Researchers have been attempting to identify a gene or genes that would increase the risk for addiction, and how these genes interact with the environment to manifest a disorder. This information would help identify people at risk, and would be useful in developing preventive interventions and treatments for ATOD disorders.

The advances now being made are built on the discovery and subsequent research developments of the Human Genome Project and related efforts (Li, 2004). Unlike some physical illnesses that appear to be caused by a single gene, the manifestations of alcohol and substance use disorders are heterogeneous in nature, do not have a clear pattern of inheritance, and affect families from all walks of life. Alcohol and other drug dependencies are good examples of these complex disorders and are considered to be “polygenic” in origin, i.e., several genes acting in concert that contribute to the susceptibility for the disorder. Environmental factors thought to play a role can include social, behavioral, nutritional, or other factors that are nonrandomly distributed among families. Consequently, it is the combination of both genetic and environmental factors that form the liability underlying alcohol and other drug dependencies.

The identification of genetic effects for any individual trait typically begins with the specification of a “phenotype”. In general, a phenotype is defined as the observable manifestations of a trait, and it is assumed these manifestations reflect the actions of gene(s) or an underlying genotype. The study of phenotypes can then be used to identify the relative contributions of genetic and environmental factors on individual traits in populations using behavioral genetic methods. Until recently, specific genes could not be directly assessed and thus the magnitude of genetic effects could only be estimated using statistical models. Consequently, few behavioral genetic studies of alcohol dependence reported in the literature have collected blood samples for genetic analysis. The evidence supporting the genetic basis for the susceptibility for developing an alcohol and drug use disorder is based upon a confluence of information coming from several different types of studies: extended family pedigree studies of biologically related individu-
From the Chair

As I write to you, I am reminded more and more of the courage that family members are showing in the face of a loved one’s alcohol, tobacco, or other drug problem. On my desk is an obituary with the picture of a very pretty 20-year-old woman. It says that she “died of a probable heroin overdose.” A more recent obituary of a prominent local citizen was equally candid about the cause of his death being a direct result of alcoholism. I am grateful for every family willing to tell the truth when the cause of death is due to an ATOD disorder. They are helping to put an end to what my colleague, Carlton Erickson, a faculty member in the College of Pharmacy at the University of Texas at Austin, calls the SPAM in this field—stigma, prejudice, and misunderstanding. I am also heartened by the family members who confide in others and reach out for help when a loved one has an ATOD problem, especially when that loved one is not yet motivated to seek help. They, too, are helping to overcome SPAM.

When I began working in the alcohol and drug field more than 30 years ago, I thought we had reached a watershed because of the expansion of services available to people with ATOD problems. Today, I look back and ask why we are not closer to solving the mysteries of substance use disorders. This issue of the ATOD Section Connection contains three articles that may help push us further along that path.

Michie and Victor Hesselbrock’s article on the genetics of substance use disorders complements the October 2004 Intersections in Practice, which focused on information social workers need to know about genetics. Many people believe that genetic discoveries will play a key role in addressing substance dependence. Others warn that this is one piece of a complex puzzle that involves sociocultural, psychological, and spiritual elements as well. The Hesselbrocks’ article summarizes the current state of research on the genetics of substance use disorders.

Though most practitioners probably agree that culturally competent services are important in promoting recovery, it is often difficult to articulate or operationalize what cultural competence is. Lori Holleran and Sam McMaster’s article helps us look at Alcoholics Anonymous and other twelve-step programs as a subculture and the ways that knowledge of this subculture can help practitioners relate to clients.

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The article by Anthony Centorbi discusses clients’ fear of failure and how motivational anxiety can be used in treating individuals with substance use disorders. Practitioners in the ATOD field have increasingly recognized their role in helping clients develop motivation for recovery as part of the treatment process. Helping clients develop, sustain, or recapture motivation may actually be the most important step of all in the treatment process, because without it, no other steps are taken.

This issue also contains a notice of two new publications from the Substance Abuse and Mental Health Services Administration (SAMHSA). One is a guide for helping individuals with co-occurring mental and substance use disorders. The second is a state-by-state summary of certification standards for substance abuse programs, counselors, and prevention professionals.

Thanks to Catherine Crisp, ATOD Section Committee member, for serving as editor of this issue of the ATOD Section Connection.

With great respect for all you do,

Diana DiNitto, PhD, ACSW, LMSW-ACP
Chair, ATOD Specialty Practice Section Committee

**APPLYING A CULTURAL COMPETENCY FRAMEWORK TO TWELVE-STEP PROGRAMS**

Lori K. Holleran, PhD, MSW and Samuel A. MacMaster, PhD

The “culture of AA” is vital to the members’ transformation of identity (Jensen, 2000, p. viii).

Issues of cultural competency have become increasingly important for social workers. While cultural competency has traditionally been viewed as it relates to issues of race or ethnicity, it is important for clinicians to develop and maintain skills in any cross-cultural setting where a working knowledge of the client’s culture is important to the delivery of services. The NASW Standards for Cultural Competence in Social Work Practice (2001) define culture as “the integrated pattern of human behavior that includes thoughts, communications, actions, customs, beliefs, values, and institutions of a racial, ethnic, religious, or social group” (p. 9). Being culturally competent requires the capacity to function effectively in varied cultural contexts, valuing the needs and nuances of social groups, and desiring to learn about, modify, and adapt to the populations’ unique issues. Clinicians must examine their own backgrounds, assumptions, and values in order to become culturally competent (NASW, 2001).

Twelve-step recovery programs represent a distinct subculture, where members have developed their own set of norms, behaviors, and even language. In light of such programs, it is important to examine feelings, thoughts, and values related to substances, addictive behaviors, and recovery in order to be

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effective in rapport building and intervention with individuals in twelve-step programs. This is particularly important given the stigma that is often attached to addiction and substance abuse.

**Twelve-Step Programs as Culture**

Twelve-step programs began with Alcoholics Anonymous (AA) in 1935 and, presently, there are more than 200 programs that utilize the 12 steps. Although much of the literature about twelve-step programs refers to them as “self-help groups” and focus on “therapeutic effects,” other studies recognize the more pervasive implications of twelve-step programs referring to a mutual help community (Davis & Jansen, 1998; Tonigan, Connors, & Miller, 1998), social world (McCormick & Dattilo, 1995), community of healers, (Wilcox, 1998), and culture of recovery (Rapping, 1997). Tonigan, Ashcroft, & Miller (1995) poignantly distinguished between the “program” (i.e., the literature and core ideas of what members need to do) and the “fellowship” (i.e., a sense of mutuality among members in a shared past and common future).

Twelve-step programs demonstrate the construction of a shared reality through language, narrative, principles, actions, and values. Members begin with immersion into the “fellowship” by learning the language. Words and phrases such as recovery, powerlessness, Higher Power, sponsor, inventory, and anonymity, which initially have little intrinsic meaning, must be learned, understood, and integrated into a new belief paradigm for living. The new set of propositions and meanings are repeated in twelve-step meetings. These programs also have a set of traditions on which the “society” has been built. By virtue of these parameters, they maintain what Davis & Jansen called, “a remarkably subtle and, in some ways, counterestablishment worldview that challenges dominant cultural expectations” (1998, p. 172). The literature of twelve-step programs concurs that a “shared ideology” plays an important role in members’ change processes (Wright, 1997). Frank and Frank (1991) added that the twelve-step worldview is a safe refuge of acceptance for the addicted person where the social norms of the group teach new coping mechanisms both in and outside the group. In the context of the group, responsibilities and duties are shared by members and structured by an egalitarian ideology; human relations are defined by reciprocity; and members adopt a “home group,” which they commit to attending on a regular basis and to taking service responsibilities.

Twelve-step programs began as a primarily middle-class phenomenon; however, a meta-analysis found no consistent relationship between socio-economic status (SES) and AA affiliation (Emrick, et al., 1993). Socio-economic composition of program membership varies from country to country relating to the history of the programs’ development and growth in the country rather than the relationship to the class structure of the surrounding society (Makela, 1993).

Cultural identity and spirituality are equally important elements within the culture of twelve-step programs. While Levinson (1983) suggested that twelve-step programs strip members of cultural identity, replacing it with the identity of an “addict/alcoholic” or other concern, it is more accurate to note the “bi-culturality” of members with distinct cultural backgrounds. Members are more
likely to view their program association as complimentary to their membership in other important ethnic or cultural groups (Wilcox, 1998).

Further, twelve-step programs’ unique spiritual aspect is characterized by an emphasis on the individuality of spiritual beliefs, rather than a set of beliefs. Consequently, those of varied religious and nonreligious backgrounds can embrace recovery programs. One study even reported counter-intuitive findings that demonstrate that spiritual coping style was unrelated to progress through the 12 steps (Horstmann & Tonigan, 2000).

**Developing Cultural Competence with Twelve-Step Members**

The first step to establishing a framework for cultural competence is augmenting awareness of the culture among clinicians. Members of twelve-step cultures seek understanding and acceptance from those with whom they choose to work. They desire helpers who have knowledge of the program and who know their culture and its nuances. The mistake many clinicians make is referring clients to twelve-step programs and recovering counselors without enhancing their own comfort and knowledge of twelve-step culture. This knowledge, awareness, and sensitivity can be learned. In the literature, there appears to be an emphasis on competency and a preference for recovering clinicians by some clients. This can be interpreted as a preference for cultural competence. Clients seek workers who are aware, knowledgeable, and nonjudgmental. Thus, when a client inquires whether a clinician is in recovery, they are likely asking whether or not the clinician is culturally competent with people in recovery.

Cultural competency involves changing awareness and activities to fit cultural norms. Cultural practices can be adapted to develop culturally grounded tools for treatment (e.g., integration of twelve-step paradigm, common language, etc.). It would appear that interventions grounded in salient cultural values and beliefs related to spiritual recovery, fellowship, and the relationship between addiction recovery and transformation, would engage recovering people in clinical work and build on their own belief systems. Knowledge of these factors would enhance interventions including rapport building, problem solving, advocacy, and empathic, client-centered connections.

Perhaps twelve-step programs are effective because they are culturally grounded in the personal experiences of its members and have components that enable unique successes for some individuals. It is possible that they are not necessarily better than anything that happens in professional mental health or substance abuse treatment, but simply more culturally competent. It is important to listen carefully to the narratives of members who are, after all, experts in their own life experiences.

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**References**


MOTIVATIONAL ANXIETY

Anthony J. Centorbi, LSW, LCDC-3, SAP

Using Motivational Anxiety as a Treatment Option

Chemical dependency professionals must tip the scales of client ambivalence in regards to motivational anxiety and how it can assist and benefit the chemically dependent client. Many professionals in the mental health community view anxiety as a destructive and intrusively debilitating disorder. The basic premise is that most chemically dependent individuals have the necessary defense mechanisms to ensure their safety within their environments. This ignores the possibility that it is mechanism mismanagement that leads to an individual experiencing uncontrolled anxiety. For example, in preparing for an important exam some students may be overcome with a sense of fear and perform poorly on the exam, while others will embrace the fear, manage their anxiety, and perform well on the exam. Anxiety is a very prevalent associative disorder among the chemically dependent population, and it can be “motivationally empowering” in treatment to guide the client towards a more positive understanding of their substance abuse issues.

Basic Construct of General Anxiety

According to the Diagnostic and Statistical Manual of Mental Disorders (APA, 1994), general anxiety is excessive anxiety and worry (apprhensive expectation), occurring
more days than not for a period of at least six months, about a number of events or activities (Criterion A). The individual finds it difficult to control the anxiety and worry (Criterion B), which are accompanied by at least three additional symptoms from a list that includes restlessness, being easily fatigued, difficulty concentrating, irritability, muscle tension, and disturbed sleep (Criterion C).

**An Early Concept of Anxiety**

Sigmund Freud (1935) postulated two major ideas about anxiety. Freud described what he called *objective anxiety* as “a reaction to the perception of an external danger, ... with the reflex of flight, which is instinctual of self-preservation” (p. 342). Freud believed that objective anxiety was rational and perhaps a somewhat expedient thought process. He divided the idea of objective anxiety into two distinct—sometimes consecutive or simultaneous—processes. The first process is anxious readiness and refers to a “heightened sensorial perception and [tightened muscular] motor tension” response (p. 343). Freud identified this as the *expedient element*. Freud identified the second process as the *inexpedient element*, referring to a perceived flash or signal wherein the individual elects a fight or flight response.

The second type is *neurotic anxiety*. Freud described this as “expectant dread” or “anxious expectation.” Freud asserted that people displaying neurotic anxiety always expect the worst outcomes and interpret all uncertainties from that perspective (1935). He later renamed this disorder anxiety-neurosis due to the marked degree of expectant dread.

**Current Concepts**

Anxiety can function as a stimulus to motivate when coping mechanisms and the defenses are working. Kaplan (1984) described two basic types of anxiety referred to as *signal anxiety* and *state of anxiety*. Signal anxiety is identified as a normal part of living wherein the anxiety motivates a behavior or activity that ultimately serves to decrease the anxiety. When coping defenses are not working, Kaplan asserted that “anxiety does not decrease and an anxiety state (panic) occurs during which [normal activities] are not possible” (Kaplan, 1984, p. 262).

Signal anxiety can be a positive and constructive motivating force as a focus-tool in the treatment of the chemically dependent client. Kaplan believed that “maintaining a focus on the role of anxiety as a motivating force ... permits the inference that anxiety occurs when the person is not able to protect [themselves] from it” (p. 263). Without the proper management of defense skills, anyone can experience various degrees of anxiety mismanagement. I believe anxiety can be a motivational impetus redirecting energy and psyche into a positive empowered outcome.

**Motivational Anxiety**

Anxiety alone can be a minor contributing factor in relation to *DSM-IV* mental disorders. Ideally, individuals have the defense mechanisms to ensure survival within their environments. It is the inherent misuse of defense mechanism management that leads an individual to experience *uncontrolled anxiety*. Anxiety has an underlying socio-dramatic influence in today’s society, as it is understood that through human development we develop temperamental predispositions.

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towards the environment with which we interact (Norem, 2001). It is how we, as individuals, experience positive and negative moods or emotions within the environment that affects our anxiety levels. According to Norem, there is “mounting evidence... [suggesting] that there are underlying neuropsychological structures that relate to these emotional predispositions, as well as to an associated pair of motivational predispositions—the tendency to seek reward (an approach motivation) and the tendency to avoid threat or punishment (an avoidance motivation)” (p. 142). From this, one can derive that a client’s predisposition can affect his or her treatment outcome.

Anxiety is motivational if it is sculpted towards a constructive and positive outcome. For example, consider the student who refocuses his or her energy (anxiety) to perform well on an exam. This represents appropriate management of defense mechanisms, or a survivability that can be measured as a client’s “ambivalence about change” (Thombs, 1999). According to Miller et al (1992), “[clients] with [substance abuse] problems ... posses high levels of resistance. Resistance should be avoided at all costs. How a [therapist/counselor] responds to resistant behaviors is key to motivational enhancement” (p. 22).

Many chemically dependent clients lack the proper and necessary management of coping skills and defense mechanisms to deal with life on life’s terms. This has been caused through chemical abuse, neglect, and negative social interactions. Many chemically dependent clients experience varying levels or degrees of anxiety mismanagement as it relates to their treatment. As Schuckit (1992) asserted, “[since] the range of psychological feelings and emotions that can be expressed by [chemically dependent] individuals is relatively limited, it’s not surprising that intoxication and/or withdrawal from most [drugs of abuse]... can produce feelings of confusion... as well as feelings of anxiety...” (p. 402). Even after clients have successfully managed to withdraw from their substance of choice, they may still have the biological residual effects from the drugs.

During this state of confusion, chemically dependent clients may exhume a sense of failure within themselves and perhaps their place in society. Misra (1980) and Thombs (1999) reiterated the Anxiety Achievement Theory, which states that drugs are initially used to seek relief from the pressures of achievement and productivity. Therefore, the client’s motivation or willingness to change has to be addressed immediately. Misra further developed the theory by “noting that continued abuse of drugs tends to reduce the difference between work life and leisure time activities” (p. 245). If clients continue to exhibit non-coping behaviors, it can lead to full-blown chemical addiction.

**Summary**

The fear of underachievement besieges the client into evading the pressure that society places upon him or her. In turn, this places the client at risk to seek relief from this societal pressure by indulging in their substance of choice. Over time, the client becomes socially withdrawn and engrossed in the circular nature of chemical addiction. This sense of failure is very encompassing and difficult for any client to endure. Using anxiety to motivationally empower clients to explore their feelings can assist in overriding their ambivalence toward underachievement. Clients can then accept their imperfections
and start to make positive choices. This social development process leads to the necessary and positive outlook clients must have toward their addiction and recovery. It is possible that motivational anxiety can shed more light as to how anxiety affects chemically dependent individuals across the life span of human development and cross-cultural boundaries.

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References


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In this article, the main focus will be placed on a discussion of these behavioral genetic approaches to the study of alcohol dependence, and current issues regarding genetic findings. While genetic studies of substance use disorders other than alcoholism have been ongoing, most literature reviewed focused on alcohol use disorders. Reflecting the advances in gene identification technology, a description of an ambitious study, the Collaborative Study on the Genetics of Alcoholism (COGA), will also be presented. COGA was designed to identify specific genes that contribute to the susceptibility for alcohol dependence and recently has had some success in this effort.

Family Pedigree Studies

Family pedigree studies begin with the index case (proband) having alcohol dependence; his/her blood relatives are assessed.
for their alcohol use. The familial nature of the disorder is demonstrated when a higher prevalence of alcoholism is found among the biological relatives of the alcohol dependent proband than the rates typically found in the general population. In general, most studies reported that alcohol dependence was familial in nature, although the size of the familial effect varied from one study to the other. Both gender and the proband’s severity of alcohol were found to moderate the effect. (cf., review by Walters, 2002). It was also noted that the stronger heritabilities of alcohol misuse were found in studies that employed a more severe definition of alcohol abuse/dependence.

However, while family pedigree studies have demonstrated higher than expected lifetime prevalence rates of alcohol dependence, this type of study cannot separate the genetic and environmental sources of influence. Other types of study designs such as twin studies would more specifically determine the relative contribution of genes and environmental factors.

**Twin Studies**

Evidence for a genetic component to the transmission of alcoholism can be found in twin studies through a comparison of the concordance rates for alcoholism in monozygotic twins compared to dizygotic twins. Monozygotic twins have identical genotypes while dizygotic twins share, on average, half of their genes in common. Based upon the assumption that twins are raised in very similar environments, higher concordance rates of the disorder found among monozygotic twins compared to dizygotic twins would be suggestive of genetic factors for developing the disorder. Since the first reported study of alcoholism in Swedish twins by Kaij (1960), many studies of twins have been conducted in the U.S. and elsewhere. In general, higher heritabilities for alcohol dependence were found among male subjects, while the heritabilities ranged from zero to moderate for female twins. The variations in heritability between male and female samples and in relation to severity of alcohol dependence have been replicated by more recent studies. Most studies do seem to find a stronger genetic influence for more severe forms of alcohol dependence, while milder forms of alcohol abuse and misuse seem to be more heavily determined by environmental factors. (Prescott and Kendler, 2000; Heath, 1995).

While twin studies are very useful for estimating the magnitude of the genetic contribution to alcohol dependence susceptibility, they are unable to provide good estimates of the importance of environmental factors.

**Adoption studies**

Studies of adoptees separated at birth or very early infancy from their biological parents and reared in a foster home or adoptive home provide a natural experiment to examine both genetic and environmental factors that contribute to the vulnerability for alcohol dependence. A basic assumption of the adoption study is that the genetically based trait transmitted from the affected biological parent to the adopted away offspring will be expressed, regardless of the genotypic status and environmental circumstances of the adoptive parents. The adoptee study method can provide direct estimates of both the genetic and environmental/familial effects on the transmission of alcoholism.

The classic adoption studies were conducted in Sweden and Denmark in the early 70’s and 80’s. In the hallmark Danish adoption study, “alcoholism” in biologic parents was
associated with higher rates of alcoholism in adoptees, but being reared by an alcoholic father was not associated with the offspring’s risk for developing alcoholism. When the adopted away sons of an alcoholic parent were compared to their brothers who had been raised by the alcoholic biologic parent, the rate of alcoholism at follow-up was similar in the two groups (Goodwin et al, 1974).

Two types of alcoholism with different heritabilities were identified from a cross-fostering study of Swedish adoptees of alcoholic parents (Cloninger, et al., 1981). Type I alcoholism was defined as only moderately heritable and characterized by a late age of onset, loss of control when drinking, and feeling guilty about drinking. Type II alcoholism was defined as being highly heritable, characterized by an early onset of problems, an inability to abstain, and criminality. Similar to Goodwin et al (1973), being reared in an alcoholic family was not related to the risk for the more severe type of alcoholism.

In a further analysis of this data set, Bohman et al (1987) identified milieu-limited alcoholism, characterized by both genetic and environmental factors, as the most frequent type of alcoholism among both the male and female adoptees. A less common type of ‘male-limited’ family vulnerability, characterized by a highly heritable form of alcoholism among the male adoptees, was also identified. A third type of vulnerability was associated with violent criminality and recurrent alcohol abuse in the male family members and a high frequency of somatic complaints and disability among the female relatives. They conclude that these three types of alcoholism are relatively discrete. Thus, the likelihood of developing a particular type of alcoholism seems to depend on a variety of social/environmental and genetic factors.

The use of the adoption paradigm to study the genetic basis of alcoholism in the United States has been limited, as no national registries exist and available records, particularly on the biologic parents, are often scant. The single exception is a series of published adoption studies from Iowa which began in late 70’s, based on samples derived from two children’s social service agencies in Des Moines. Cadoret and Gath (1978) found that primary alcoholism occurred more frequently among the adoptees of alcoholic or heavy drinking biologic parents than among the control group. Alcoholism in adoptees was not associated with any other psychiatric diagnosis in the biologic parent nor with any environmental variable (e.g., socioeconomic status of adoptive parents, adoptive parents psychiatric status, time in foster care, and adoptee’s age). Due to the small sample size (84 adoptees), no gender comparisons could be made. A significant association between adoptee alcoholism and an alcoholic family background was later replicated in an expanded sample. Further, drinking problems in the adoptive home contributed to the prediction of adult alcohol abuse problems among the male, but not the female adoptees (Cadoret, et al., 1985; Cutrona et al., 1994; Cadoret, et al., 1996). More recently, Langbehn, et al., (2003) reported an increased risk for drug abuse and dependence among adoptees whose biological parents had a lifetime history of both antisocial personality disorders and substance abuse.

The Gene Versus Environment Controversy

There have been a number of challenges to
the role of genetic factors in the transmission of alcoholism (cf. Murray et al, 1983; Peele, 1986; Searles, 1988; Vanyukov and Tarter, 2000; Xian, et al, 2000). Principal issues behind the controversy are the inconsistency across studies and the variation in the heritability of alcoholism found to be explained by genetic factors. One reason for the lack of convergence in the literature may have to do with the heterogeneous nature of the disorder under investigation, and the lack of agreement in describing the clinical phenomenon of “alcoholism”. Since different individuals will be identified as being ‘affected’ using different diagnostic systems, variations in their genotypes and, therefore, in the explanatory power of genetic factors in the transmission of ‘alcoholism’ should be expected.

A second, related point that may cloud the gene-environment issue is the presence of an additional comorbid psychiatric disorder in the alcohol dependent proband. Other psychiatric disorders such as affective disorder and antisocial personality disorder are also strongly familial in nature and may have genetic factors contributing to their heritability. The presence of an additional psychiatric condition may complicate the specification of the alcoholic phenotype since symptoms of these disorders often mimic those associated with alcoholism. The inclusion of ‘false positives’ in genetical analyses can lead to an artificial attenuation of the size of genetic effects found. While certain comorbid conditions such as depression or antisocial personality disorder are neither necessary nor sufficient causes of alcoholism, their presence may increase a person’s vulnerability for developing alcohol problems.

The ages of the proband and the proband’s biological family members at the time of ascertainment may also influence estimates of genetic heritability. The age at which a person is likely to become affected (i.e., the age of ‘risk’) varies across psychiatric disorders. Failure to find genetic effects may arise, for example, when the sample contains a number of youthful probands. Thus, families showing little or no familial aggregation of alcoholism at the initial assessment may show substantial familial aggregation when followed years later after the majority of the biologically related individuals have passed through the period of risk.

A variety of studies that examined risk factors for alcoholism found the importance of non-genetic effects, as well as psychological and social factors that could attenuate or enhance genetic effects of developing alcoholism among children. The examples of these factors include social competence, or the ability of the individual to respond effectively in variety of social situations; academic competence, the ability of an individual to work to his/her level of proficiency; parenting, parental support, affections, disciplining, and monitoring; family interactions; and environment.

**The Collaborative Study on the Genetics of Alcoholism (COGA)**

As indicated above, the evidence for the genetic basis of alcohol dependence is based upon indirect estimates of genetic effects since the methods for identifying specific genes was too expensive or was lacking. However, over the past 10-15 years, important technological advances now permit direct examination of the entire human genome and the identification of specific genes responsible for increased vulnerability to alcohol dependence and other conditions. The Collaborative Study
on the Genetics of Alcoholism (COGA) is a large scale, multi-site, extended family study designed to identify genes that contribute to the susceptibility of alcohol dependence and related conditions. Initiated in 1989, this ongoing longitudinal study has recruited approximately 1800 male and female index cases (probands) that have been identified through inpatient and outpatient treatment services for alcohol dependence. Patients and their first, second and third degree biological relatives were invited to participate in this study, and those participating completed a structured psychiatric interview, several personality tests, a neurophysiological battery and provided a blood sample for DNA analysis. To date, more than 1800 families and over 13,500 family members between 7 – 103 years old have been assessed. The initial DNA analysis has indicated that genes that may contribute to the susceptibility for alcohol dependence may be located on several different chromosomes, including chromosomes 1, 2, 4, and 7 (Reich et al., 1998; Foroud et al, 2000). Importantly, two specific neurotransmitter genes, GABRA2 (Edenberg et al., 2004) and CHROM2 (Jones et al, 2004), have been shown to be linked to the vulnerability for alcohol dependence. GABRA2 is a receptor in the gamma aminobutyric system while CHROM2 is a cholinergic gene. The GABRA2 finding has now been independently replicated in three separate samples. Genes responsible for aspects of the electroencephalographic waveform, [slow beta EEG (Porjesz et al., 2002); P300 amplitude (Hesselbrock, et al, 2001)] as well as a reduced subjective response to the intoxicating effects of ethanol (Schuckit et al, 2000) also contribute to the susceptibility for alcohol dependence. Interestingly, it is likely that there are few, if any, genes that specifically predispose to alcohol dependence. Instead, the genes that do contribute to the susceptibility for alcohol dependence also likely contribute to other alcohol-related conditions such as suicide (Hesselbrock et al., 2004), childhood conduct disorder (Dick et al., 2004), depression (Nurnberger et al., 2000), and tobacco dependence (Bierut et al., 2004). The analyses of additional alcohol dependence phenotypes is continuing.

Implications for Social Work Practice
Significant progress is being made in understanding the genetic bases of the susceptibility for alcohol dependence and its related conditions. The familial nature of alcoholism is well documented and a variety of studies confirm the importance of the roles of genetic and environmental factors in the transmission of heavy drinking behavior and the pathological use of alcohol. To date, however, there is no evidence that a specific gene or genes predetermine alcoholism for an individual. While working with clients whose family members are affected by alcoholism, social workers can help their clients to better understand the role of genetics and social, psychological, and environmental factors that interact with genetic factors in providing increased and reduced susceptibility for the development of alcoholism.

• The information regarding the genetics of alcohol and other drug use disorders would help identify people at risk, and would be useful in developing prevention and treatments.
• Genetic factors are important in determining the vulnerability to substance use disorders, but they are not deterministic. Social, psychological and environmental

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factors play an equally important role, and can also provide some levels of protection.

- Developing a family genogram related to alcohol use patterns may help young people to understand why they are at high risk, and why they should be cautious about taking a drink.

- Based upon existing studies of risk for troublesome substance use, prevention must begin at an early age. Prevention efforts must be multifaceted – targeting the individual, family, peer group and the community.

- A variety of evidence based, exemplary prevention programs are available. For resources, visit www.SAMHSA.gov.

- Prevention efforts must be focused not only on substance use but on a broader range of outcomes (mental health concerns, conduct problems, etc.).

- Both genetic and non-genetic factors that contribute to the development of substance use disorders have important clinical considerations. However, their importance varies depending upon whether the client is in the early stage of a substance abuse problem, in active treatment, or in recovery. The effectiveness of different intervention strategies in assisting change may vary according to the number of affected family members, psychiatric comorbidity, and family and social environment where the client lives.

References


**NASW STANDARDS**

The NASW Standards for Social Work Practice with Clients with Substance-Related Disorders are posted on NASW’s Web site through May 31, 2005. Members are invited to review the standards and submit comments before the final version is presented to the NASW’s Board of Directors. NASW and SPS members may review the draft at: http://www.socialworkers.org/practice/standards/0305Review/default.asp
WHAT’S NEW FROM THE SUBSTANCE ABUSE & MENTAL HEALTH SERVICES ADMINISTRATION

SAMHSA publishes a variety of books and articles that are relevant to practice with people with alcohol and substance use disorders. Two recently published books that may be of interest to NASW members are:

• TIP 42: Substance Abuse Treatment for Persons With Co-Occurring Disorders: This TIP has information about a variety of tools for working with people with co-occurring disorders including guidelines, assessment instruments, strategies, and treatment models. Visit http://store.health.org/catalog/productDetails.aspx?ProductID=16979


To go directly to SAMHSA’s National Clearinghouse on Drug & Alcohol Information, visit www.health.org