The National Council on Alcoholism and Drug Dependence (NCADD), in cooperation with the Research Society on Alcoholism (RSA), is proud to provide Research in Alcoholism: Models and Science as the first article in the new NCADD Research Update. The 5 Part series provides background information on the different ways of thinking about alcoholism that contribute to our understanding today. Following Part 1, The Introduction, Part 2- Models of Alcoholism: Belief Structure / Individual Choice, Parts 3 and 4 will review, different models of alcoholism, and the final Part 5 will respond to reader questions and comments. Because science, like prevention, treatment, and recovery, depends on the health of the community, we invite questions and comments from readers (click on Add New Comment at the end of the article).

## Habit Models

With the advent of modern psychology over the course of the 20th Century, models derived from other animal species began to be applied to human alcoholism. One model viewed alcohol dependence as a conditioned habit: a repeating behavior that occurs in response to a repeated triggering cue in the environment. The habit itself may then repeat, with or without the cue. Applied to uncontrolled drinking, cued responses continue to be investigated today. In respect to treatment for alcoholism, the same model suggested that the same habits could be tied to negative cues, resulting in programs in which cues and drinking itself were immediately tied to negative consequences such as violent nausea and vomiting[1].

These had the effect of providing abstinence but only for short periods of time until the negative conditioning "wore off." While providing hope over the short term, this model, called aversive therapy, was clearly not useful over very long periods of time.

## Learned Behavior Models

Similarly, another model held that drinking alcohol is itself a learned behavior, not something people are born with but learn to do in imitating others or identifying with them. In this model problematic drinking can occur as a result of imitating a drinking parent or responding to peer pressure. Having learned to drink heavily or problematically, this model postulated that uncontrolled alcohol drinking could be unlearned: supplanted by programs of learning that focused on controlled, non-problematic alcohol use. In a sample of persons with uncontrolled—dependent—alcohol use, a famous study found this to be true at 18 months after the learning program[2]. But the same sample showed no effect after 4 years when the dependent drinkers were once again drinking without control. This contributed to the understanding that the lost ability to stop or control drinking episodes—known as the Loss of Control phenomenon—appears to be a continuing risk ever after. Another result of this work was the recognition that alcohol dependence carries a high risk of relapse that must be regarded as coursing over many years, not just weeks or months.

## Self-Harm Model

Alcoholism has likewise been viewed as self-harm in a model that recalls earlier formulations of individual choice. This however carries with it the unfortunate stigma of blaming the alcoholic for his/her own fate as a drinker. The United States Supreme Court referred to alcoholism as "willful misconduct."[3] Perhaps the most telling instance that allows questioning of this approach surfaces in liver transplant evaluations and decisions. For some, the alleged moral aspect of self-harm meant that alcohol dependent persons with alcoholic liver disease did not "deserve" access to a new liver since they had "already destroyed" their native organ. Countering this are widely replicated data showing that only about 15% of heavy drinkers suffer alcoholic liver disease with no pre-existing biological indications of who will and who won't. As clinical evidence marched forward, post-transplant studies have found that alcoholic liver graft recipients evidence remarkably high abstinence rates, a phenomenon under further investigation as to possible biologic mechanisms. While the self-harm model does not survive careful scientific scrutiny of carefully gathered data, it does raise again the issue of personal choice.

## Political/Governmental System Models

In contrast to this, some models suggest that the socio-political and governmental system in which the alcoholic lives is the source of alcoholism. If true, remedy lies in effective political and governmental action, rather than relying on individuals. Two examples illustrate aspects of this, beginning with the British Pub system, mentioned earlier, that originated in response to the "gin epidemic" in 18th Century England. In order to limit the damage caused by a sudden surplus of cheap gin on the market of the time, the English Parliament instituted strict controls on the use of alcohol but did not prohibit its use, in part by limiting the use of high alcohol content gin but not to the detriment of those who made low alcohol content beer.[4] It could only be sold during certain hours at Public Houses (Pubs) that were under strict monitoring but it was not forbidden fruit. This had the effect of reducing consumption and with it the rates of alcohol related disease, including fetal alcohol syndrome, a condition first reported in that era.

By contrast, the US tried to control alcoholism by amending the Constitution to prohibit alcohol, only to repeal the 18th "Prohibition" Amendment with the 21st Amendment a few years later.[5] Owing to the relative unavailability of alcohol beverages during the early Prohibition years, the rate of alcoholic liver disease went down, one marker of pathological drinking. But the effect of glamorizing organized crime activities and the resentment of those who objected to overly intrusive government intervention outweighed the social good of the prohibition model. Nonetheless, both the British and the US experiments brought forward the role social sanctions play in managing alcohol use.

[1]Fox, R., Antabuse as an Adjunct to Psychotherapy in Alcoholism, New York State Journal of Medicine, 1958
[2]Armor, D.J., Polich, M., Braiker, H.B., Alcoholism and Treatment, RAND Corporation, 1976
[3]Traynor v. Turnage - 485 U.S. 535, 1988
[4]Beerhouse Act of 1830 (11 Geo. 4 and 1 Will 4 c. 64), Parliament of Great Britain, 1830

[5]Burns, K., Prohibition [DVD], United States: Florentine Films, 2009

## Models of Alcoholism: Sociocultural Influences / Learned Behaviors

| Etiology of | Approach | Clinical Intervention | Response/Effect | Clinical Outcome(s) |
|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| **Alcohol Abuse or Dependence** | | | | |
| **Sociocultural Influences / Learned Behaviors** | Habit[i] | Provide aversive negative conditioning | Generally short term effect only | Disulfiram ("Antabuse") as a disincentive/reminder not to drink that day |
| | Learned Behavior[ii] | Learning new behavioral patterns | Breaking drinking cue patterns | Techniques useful for individuals; specific programs find short term gains |
| | Self-Inflicted[iii] | None | No treatment | Social Stigma-Based: Does not account for physiological dependence on alcohol |
| | Political/Governmental Problem[iv] | 1) British Pub System; 2) 18th and 21st Amendments, United States Constitution | 1) Social sanctions against drunkenness, controlled availability; 2) Ban drinking | 1) Improved public health, decreased medical burden; 2) Decreased cirrhosis rates; increased prominence of organized crime[vvi] |

[i]Fox, R., Antabuse as an Adjunct to Psychotherapy in Alcoholism, New York State Journal of Medicine, 1958; "Treatment Programs Overview," Retrieved September 28, 2013 from http://schickshadel.com/treatment-programs-overview/
[ii]Miller, W., Munoz, R.F., Controlling Your Drinking, Second Edition, Guilford Press, 2013; Armor, D.J., Polich, M., Braiker, H.B., Alcoholism and Treatment, RAND Corporation, 1976
[iii]Traynor v. Turnage - 485 U.S. 535, 1988; Fingarette, H., Heavy Drinking: The Myth of Alcoholism as a Disease, University of California Press, 1989
[iv]Beerhouse Act of 1830 (11 Geo. 4 and 1 Will 4 c. 64), Parliament of Great Britain

The NCADD Research Update welcomes constructive comments on current installments and suggestions for further topics.

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