BEHAVIORAL APPROACHES TO ALCOHOLISM:

TOWARDS FORMULATION OF AN INTERVENTION PROGRAM
Behavioral approaches in understanding of alcoholism and its intervention involve diverse conceptual models emphasizing the interaction between environmental factors and the individual's response. Models such as classical conditioning, operant conditioning, drive reduction, social learning and cognitive behavioral and various others provide varying mechanisms to understand the nature of alcoholism. These models have provided alternative approaches to the traditional models, in conceptualizing the etiology of alcoholism with emphasis on the acquisition and maintenance of problem drinking, leading to the development of appropriate intervention strategies (George and Marlatt, 1983).

In general, these behavioral models assume that:

1) all patterns of alcohol use and abuse are learned;
2) the antecedents of drinking behavior can be objectively identified, assessed and intervened; and
3) alcoholics can be helped through application of specific learning principles (George and Marlatt, 1983).

In the following section, brief description of various models is given. These models include: 1) Classical conditioning model; 2) Operant conditioning model; 3) The tension reduction hypothesis; 4) Motivational model of alcohol use; 5) Perceptual narrowing model; 6) The self-awareness model; 7) Expectancy model; and 9) Biopsychosocial model.
1) Classical Conditioning Model:

The classical conditioning model (Pavlov, 1927) postulates that contiguous pairing of neutral (conditioned) stimulus with an unconditioned stimulus leads the conditioned stimulus to elicit an anticipatory (conditioned) response when presented alone. Application of the classical conditioning model to alcohol addiction has been limited and few attempts have been made to develop a comprehensive model to understand the etiology of alcoholism (George and Marlatt, 1983). However, this model explains the tolerance, craving and relapse in alcoholism. According to this model, the organism learns to use available situational cues to predict the onset of drug action and reacts by generating an anticipatory counterresponse that dampens the drug's action (Siegel, 1978).

According to Ludwig and Wikler (1974), presence of exteroceptive (e.g., physical setting or drinking companions) or interoceptive (e.g., emotional states) stimuli (cues) associated with heavy drinking/withdrawal elicits craving, thereby predisposing the individual to take alcohol. This consumption further intensifies the craving and leads to loss of control. This model assumes that craving occurs due to 1) the presence of conditioned stimuli that elicit the internal state; and 2) the convergence of certain
situational factors that determine how the internal state is labelled. When these are active, the individual takes first drink, leading to increased craving and finally going for loss of control.

The classical conditioning model has been adopted in the treatment of alcoholism. Various aversive conditioning procedures based on this paradigm have been in use in the intervention of alcoholism.

2) Operant conditioning model:

The operant model has been used to explain the acquisition, maintenance and modification of problem drinking. According to this model, the problem drinking is developed through selective reinforcement of incipient components of behaviour. When the behavior is established the intermittent occurrence of reinforcement enhances the resiliency of the behavior. Modification of drinking behavior requires removal of positive reinforcers (i.e., extinction) and/or application of punishment. A variety of positive (e.g., money, tokens, social interaction) and negative (e.g., electric shock, social isolation) reinforcers have been in use within a number of operant paradigms (e.g., punishment, escape, token economy and contingency contracting) to modify drinking behavior (George and Marlatt, 1983).
3) Tension reduction hypothesis:

Tension reduction hypothesis (TRH) was first proposed by Conger (1956). According to this model, a) there is an increased internal tension in an individual which leads to heightened drive state; b) alcohol consumption reduces the tension by lowering the individual's drive-level by its pharmacological properties; and c) this drive-reduction, acts as a reinforcer and in turn, strengthens alcohol consumption. This cycle of events leads an individual to habitual drinking as alcohol consumption becomes a primary response to heightened internal tension. This model, does not adequately explain alcohol consumption. The proposition that alcohol reduces tension has also proven 'untenable'. TRH without applying cognitive factors, seems unable to provide a sufficient explanation of problem drinking, its etiology and maintenance (George and Marlatt, 1983).

4) Motivational model of alcohol use:

This model, developed by Cox and Klinger (1988), posits that nonchemical incentives and affective changes due to alcohol determine alcohol use, by contributing to the individual's motivation to drink. The individual decides to drink or not to drink based on whether the expected positive affective consequences of alcohol outweigh the expected ones due to nondrinking. Addiction occurs when factors that contribute to the decision to drink strongly outweigh factors
that contribute to the decision not to drink. Individual's drinking depends on:

1. his decision to drink or not to drink;
2. historical factors such as 1) individual's physiological reactivity to alcohol; ii) his personality characteristics; and iii) sociocultural environment;
3. Current factors such as situational factors and the individual's positive and negative incentives obtained from alcohol consumption;
4. Cognitive mediating events such as thoughts, perceptions and memories;
5. Expected physiological effects of drinking; and

5) Perceptual narrowing model:

This model developed by Steele, Southwick and Pagano, assumes that alcohol has an indirect effect on individual's psychological stresses, and is mediated through impairment of information processing capacity. Alcohol narrows down the perception to immediate cues and reduces the cognitive abstracting capacity. This restricts the attention of an individual to the most immediate, and salient aspects of experience. Accordingly, the activity in which intoxicated alcoholic engages determines the alcohol's effects. In the
presence of a stressful event, intoxication without a neutral or pleasant distracting activity would not reduce anxiety, but would result in increase in anxiety because of the narrowing of attention. Intoxication with a pleasant activity reduces anxiety by blocking out of awareness distress-eliciting thoughts. (cf. Wilson, 1987).

6) Self-awareness model:

   Self-awareness model, developed by Hull (1981), was based on the assumption that alcohol decreases an individual's level of self-awareness. According to this model, alcohol interferes with encoding processes which are fundamental to the state of self-awareness. This decreases individual's sensitivity to 1) self-relevance of cues regarding appropriate forms of behavior; and 2) self-evaluative nature of feedback about past behaviors. This feedback information provides a source of self-criticism and negative affect; alcohol as an inhibitor of self-awareness processing provides psychological relief. This model also provides insight into potential sources of the motives to drink.

7) Self-handicapping theory:

   Self-handicapping theory, developed by Jones and Berglas (1978) and Tucker, Vuchinich and Sobell (1981) was based on the attributional principles. This theory posits that an
individual abuses alcohol due to its role in impairing performance; an individual with poor self-confidence in certain situations tends to take alcohol, in advance, in order to attribute the failure, if occurs, to the intoxicated nature due to alcohol, but not to his own incompetence. The individual 'self-handicaps' i.e., drinks, in anticipation of failure, to protect his positive self-image which he had achieved through his previous successful endeavors.

8) Marlatt's expectancy model:

Marlatt, Demming and Reid (1973) explained the potency of alcohol expectancy by demonstrating that alcoholic's drinking is determined by his alcohol expectancies rather than by its mere pharmacological effects. This model assumes that an individual learns to expect short-term positive consequences of drinking. This occurs as there is an initial increase in the physiological arousal when a person consumes alcohol. Alcohol also tends to reduce the negative affect as it blocks the memory of aversive consequences of excessive consumption. Alcohol also reduces the past negative experiences and thereby reducing the outcome expectation of negative consequences of excessive consumption. According to this model, drinking tends to transform negative feelings into positive feelings rather than reducing the negative affect. Hence, such positive expectations of an individual
about alcohol and its consumption would interact with the degree of perceived stress and other coping responses to determine the extent of drinking.

9) Biopsychosocial model:

Mishra and Kumaraiah (1989) proposed a model in which the biopsychosocial factors are given emphasis in the acquisition and intervention of substance dependence. According to this model, acquisition can occur at three levels: 1) psychological; 2) physiological; and 3) social. When acquisition occurs at a particular state of cue control (i.e., psychological, physical or social), then the intervention should start at that level first, and subsequently, all other associated 'cues' be intervened adequately. A broad-spectrum approach for the management and prevention need to be conceptualized to combine biopsychosocial and rehabilitative efforts in addiction. The cognitive and resocialization aspects with additional intervention for the associated problems of alcoholics are emphasized.

**ALCOHOLISM: TOWARDS A BIOPSYCHOSOCIAL APPROACH**

Alcoholism is known to be heterogeneous in its manifestation and aetiology. Accordingly, the present approach takes into consideration the biopsychosocial aspects in understanding aetiology of problem drinking and
development of a treatment model with suitable techniques. This model consists of the following aspects.

I. Predisposing factors;

II. Acquisition of problem drinking;

III. Maintaining factors;

IV. Behavioral formulation; and

V. Towards a treatment program.

I. PREDISPOISING FACTORS:

All individuals are not equally predisposed for alcoholism. Some of these predisposing factors include 1) genetic vulnerability and 2) personality.

1) Genetic vulnerability:

It is known from the literature, that some individuals are more susceptible for alcohol problems due to genetic factors. Certain aspects such as ability to metabolize alcohol, central nervous system's sensitivity to alcohol and the capacity to adapt rapidly to the presence of alcohol are known to be genetically inherited. Some of the important aspects are:

a) Enzyme variations and acquisition of alcoholism: some individuals have a deficiency of enzyme Acetaldehyde dehydrogenase (ALDH) which plays a major role in the metabolism of alcohol. Individuals deficient in this enzyme are likely to avoid alcohol. It has also been hypothesized...
that the particular combination of variant alcohol-metabolizing enzymes that individuals inherit can affect both their ability to handle alcohol and their susceptibility to alcoholism (NIAAA, 1985).

b) Neurotransmitter variations and alcoholism: It was hypothesized that alcoholism could be due to genetic variations in the protein molecules involved in neurotransmitter release and reception (NIAAA, 1985).

c) Reinforcing effects of alcohol and alcoholism: It has been hypothesized that an individual's genetic predisposition to alcoholism could be due to inheritance of neurochemical mechanisms in the brain's reward center that is abnormally responsive to alcohol. Such individuals may become alcoholics because alcohol is abnormally stimulating and rewarding to them (NIAAA, 1985).

2) Personality:

Literature on personality characteristics and susceptibility to alcoholism suggests that certain individuals with specific personality characteristics are more prone to develop problem drinking. Various longitudinal studies have provided valuable information about the personality precursors of alcohol problems. Across various studies, certain personality characteristics have been consistently found among adolescents who later developed
problems with alcohol. These characteristics include independence, aggressiveness, nonconformity and rejection of societal values, antisocial behavior, impulsivity and hyperactivity. Personality characteristics shown by adolescents who develop problem with alcohol suggest that they have less interest in working to achieve long-range, enduring goals that are generally valued in the society. They find sources of positive reinforcement in immediately available, short-term incentives that they act impulsively to acquire. (cf. Cox, 1987). Loper, kammier and Hoffman (1973) found that the prealcoholics were significantly higher on the F, Pd and Ma scales on the MMPI.

II. ACQUISITION OF PROBLEM DRINKING:

The individual acquires the drinking behavior through various ways. These may include peer group pressure, curiosity, fun, avoidance of negative emotional states and certain physical states. Raistrick (1979) classified these antecedent cues into internal (e.g., anxiety) vs. external (e.g., work problem) and acute (e.g., seeing an alcohol bottle) vs. chronic (e.g., depression).

Alcohol intake is viewed as a learned behavior acquired in a vicarious fashion, due to certain antecedent cues. These antecedent cues can be classified as: 1) Physical; 2) Psychological; and 3) Social. Often, one or more antecedent
cues may influence the drinking behavior, in combination within an individual.

1) Physical:

Many a time, alcohol consumption may help in alleviating certain physical states of an individual such as fatigue after day's work, physical exhaustion and body pains. These physical antecedents may force the individual to continue drinking regularly (Mishra and Kumaraiah, 1989).

2) Psychological:

Certain psychological cues play a significant role in the acquisition of drinking behavior. These may include nonassertiveness, lack of social skills, Psychological states such as anxiety, depression, feelings of inferiority, boredom, and inadequacy. Other aspects such as temporary relief from psychosocial stressors may also influence the alcohol consumption. When the individual consumes alcohol, he may feel subjectively well with decreased inhibitions. He may also feel more assertive due to the short-term positive effects of alcohol. Consequently, the individual learns that alcohol helps him and hence would attempt to drink regularly (Mishra and Kumaraiah, 1989).

3) Social:

Various social cues play a major role in the acquisition of drinking behavior. These may include peer group pressure,
approval from friends, enhanced social interaction, reduced inhibition in the social situations and modeling the significant others. Other social cues include family, marital, occupational and financial stressors. Some times, alcohol consumption also occurs as a familial custom or as a religious rite (Mishra and Kumaraiah, 1989).

III. MAINTAINING FACTORS:

Individual learns vicariously that alcohol consumption would help in various physical, psychological and social states and he starts drinking. This increases in quantity and frequency, due to tolerance. However, daily consumption is also maintained by certain factors which may include:

1. Attraction towards alcohol;
2. Alcohol related expectancies; and
3. Alcohol related withdrawal.

1. Attraction towards alcohol:

As the individual drinks regularly, he may develop attraction towards alcohol. Consequently, when the individual comes across the alcohol related stimuli (e.g., alcohol glasses, alcohol bottles, bar and wine shop) either overtly or covertly, he tends to develop attraction; this attraction, in turn, maintains the drinking behavior, hence the problem drinking continues.
2. Alcohol related expectancies:

   It has been described that alcohol related expectancies play a major role in the maintenance of drinking behavior. The individual expects that alcohol would help in developing positive behavior (e.g., feeling assertive and better occupational and sexual performance) and in reducing negative behavior (e.g., alleviating anxiety and depression). Hence he would continue drinking to maintain these expected effects of alcohol intake.

3. Withdrawal features:

   As the individual continues drinking regularly, he tends to develop dependence. Hence, during the abstinence periods, he develops both physical and psychological withdrawal symptoms. Consequently, in order to avoid withdrawal symptoms which are distressing, he continues drinking. This becomes a vicious cycle and the individual continues drinking to avoid withdrawal and drinks more and more.

4. Inadequate reinforcement from significant others:

   Often, the significant others (e.g., alcoholic's family members) develop a behavior in which the reinforcement patterns are inadequate. They do not reinforce the alcoholic's positive behavior. Moreover, they always tend to use improper reinforcement patterns in dealing with an alcoholic individual. This may also act as a maintaining factor for problem drinking.
IV. BEHAVIORAL FORMULATION:

In a behavioral perspective, problem drinking is conceived as follows:

It is a maladaptive behavior pattern
1. acquired through vicarious learning;
2. mediated by heightened drive state i.e., biopsychosocial in nature or consequent upon their interaction;
3. maintained by objective/anticipatory positive or negative affects/experiences engendered due to alcohol consumption.

V. TOWARDS A TREATMENT PROGRAM:

From behavioral point of view, the treatment program should concentrate on the antecedent cues and maintaining factors in order to deal with alcoholism successfully and to have a stable outcome. As alcoholism is viewed as a condition with various physical, psychological and social factors influencing it, the treatment program should also contain various techniques to deal with all these three aspects effectively. Hence a multimodal, broadspectrum treatment program has to be evolved in the intervention program. Due to the heterogeneity and complexity of the problem of alcoholism, dealing with a single dimension could be ineffective and/or inadequate, in the management of this condition. Hence based on this multidimensional model, a
broad spectrum multimodal treatment program with suitable techniques is formulated.

1. Physical: In order to reduce the attraction towards alcohol, an aversive technique which reduces the attraction towards physical cues of alcohol and alcohol related stimuli is essential. Thus, aversive conditioning method is used with electric shock as a noxious stimulus associated with visual and olfactory modalities.

2. Psychological: Providing adequate knowledge about various aspects of alcohol and alcoholism would bring about a change in the individual's psychological plane and make him ready for treatment. Hence imparting such information through alcohol education program is essential in a multimodal treatment program. Moreover, the individual needs to be taught 'selfcontrol' method in order to reduce the attraction towards drinks. Hence a technique which creates aversion at the cognitive level is useful in order to reduce the attraction towards drinks. This would help the individual by inducing a cue control for dealing with his own urges towards alcohol effectively.

3. Social: As the drinking behavior has social antecedents it is also essential to deal with these aspects in order to tackle the problem effectively and completely. Hence various
techniques have been suggested to deal with the social aspects. These may include: social skills training, assertiveness training and communication skills training. As described in the literature, the problem drinking behavior may also be maintained due to the inadequate and/or improper reinforcement patterns in the immediate environment. Hence it is essential to modify these reinforcement patterns to provide adequate positive reinforcement of the sober behavior. Hence behavioral counseling to the significant others is also essential.

In view of the above, in the present study a multimodal broadspectrum treatment program has been envisaged to deal with the physical, psychological and social aspects adequately. This program consists of the following techniques:

1. Alcohol education;
2. Faradic aversion therapy;
3. Covert sensitization;
4. Social skills training; and
5. Behavioral counseling to significant others.