

Addictive behaviour: aetiology and treatment

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Abstract

Addictive behaviours represent confusing and complex patterns of human activity. These behaviours include drug and alcohol abuse, some eating disorders, compulsive or pathological gambling, excessive sexual behaviours, and other intemperate behaviour patterns. These behaviours have defied explanation throughout history. We made an attempt to clarify the nature of addiction and provide an introduction to the field of addictive behaviours.

The field of addictions rests upon a variety of disciplines. Medicine, psychology, psychiatry, chemistry, physiology, law, political science, sociology, biology and witchcraft have all influenced our understanding of addictive behaviour. Most recently, biological explanations of addiction has gained importance. These approaches seek to understand alcoholism, e.g., by identifying the genetic and neurochemical causes of this problem. It is interesting to recognise that as we understand more about the biology of addiction, social and cultural influences also plays an important role. Not everyone who is predisposed genetically to alcoholism develops the disorder. Some people who are not prone bio-genetically to alcoholism or other addictions will acquire the condition. Therefore, social and psychological forces also play an important role in determining addictive behaviours.

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Any activity, substance, object, or behaviour that has become the major focus of a person's life to the exclusion of other activities, or that has begun to harm the individual or others physically, mentally, or socially is considered as an addictive behaviour. A person can become addicted, dependent, or compulsively obsessed with anything. Some researchers implied that there are similarities between physical addiction to various chemicals, such as alcohol and heroin, and psychological dependence to activities such as compulsive gambling, sex, work, running, shopping, or eating disorders. It is thought that these behaviour activities may produce beta-endorphins in the brain, which makes the person feel "high." Some experts suggest that if a person continues to engage in the activity to achieve this feeling of well-being and euphoria, these people may get into an addictive cycle. In so doing, they become physically addicted to their brain chemicals, thus leading to continuation of the behaviour even though it may have negative health or social consequences. Others felt that these are just bad habits.[1]

Most physical addictions to substances such as alcohol, heroin, or barbiturates also have a psychological component. For example, an alcoholic who has not used alcohol for years may still crave for a drink. Thus some researchers feel that we need to look at both physical and psychological dependencies upon a variety of substances, activities, and behaviours as an addictive process. They suggested that all of these behaviours have a host of commonalities that make them more similar to that of separate diseases, categories, or problems.[1]

Addictive behaviour increases the risk of disease and/or associated personal and social problems. They often experience subjectively as "loss of control", i.e., the behaviour continues to occur despite their volitional attempts to abstain or moderate use.[2] Addiction implies psychological dependence, physical dependence, and a withdrawal symptom if the substance (e.g., the drug) is unavailable or the behaviour (e.g., gambling) is interrupted.[3]

Aetiology of addictive behaviours

Genetic factors

The addictive behaviour has been best studied in the context of alcoholism. It is a complex, multifaceted disorder, which has long been recognised to run in families. There is substantial evidence from twin and adoption studies that a major genetic component is operative in the development of alcoholism. It has been estimated that there is a sevenfold risk of alcoholism in first-degree relatives of alcohol dependent individuals.[4]

Twin studies identified the liability for alcoholism with regard to its three components- 1. Addictive genetic effects, 2. Common environment effect shared by twins. 3. Specific non-shared environmental experiences.[5] Identical twin pair who shares all of their genes showed higher concordance rate for gene-transmitted disorder than the fraternal twin who, like ordinary sibling, generally shares only half of their genes. In a review of population based twin studies of alcoholism, heritability estimates (i.e., the proportion of

risk attributable to genetic factors) ranged between 0.52 and 0.64, with no substantial sex difference.[6] Another study revealed at least threefold higher risk for alcohol abuse or dependence in the children of alcoholics.[7] Several major twin studies have directly addressed the concordance rates for alcoholism in identical versus fraternal twins. In Sweden, researcher[8] found that the concordance rate for alcoholism in male monozygotic pair was greater than that for dizygotic twin (approximately 60% versus 39%).

Linkage studies tried to identify chromosomal regions that contain genes which modifies the risk for alcohol dependence. Two large studies have been carried out so far. The Collaborative Study on the Genetics of Alcoholism (COGA), includes more than 9,000 adult and 1,500 children and adolescents.[9] A genomic scan of the COGA samples showed that chromosomes 1 and 7 each had a region containing one or more genes that increases the risk of alcohol dependence.

Adoption studies showed a convincing way to separate genetic from environmental effect. This can be done through classical adoption studies or through a half-sibling approach.[10,11] Schuckit et al.[12] evaluated a group of individuals who had been raised apart from their biological parents but who had either a biological parent or a surrogate parent with alcoholism. Subjects who had a biological parent with severe alcohol problems were significantly more likely to have alcoholism themselves than their surrogate parents who were alcoholics. Goodwin[13] found that the sons of alcoholics were about four times more likely to be alcoholics than sons of non-alcoholics and that being raised by either non-alcoholic adoptive parents or by biological parents did not affect the increased risk.

Neurobiological factors

Robins and Everitt[14] suggested that dopaminergic pathways are implicated in reward circuits, and that different drugs may activate or 'switch on' the circuits on different points. From the neurobiological perspective, the hypothesis that dopamine neurotransmission is involved in the mechanism of addiction of probably all drugs of abuse. According to this, the reinforcing effects of all drugs of abuse depend partly on the mesolimbic dopaminergic system in the midbrain. This system originates in the ventral tegmental area of the midbrain, and projects to the nucleus accumbens. The nucleus accumbens is the key zone that mediates the rewarding effects of drug that act directly by increasing the levels of dopamine at this site, and is related to certain forms of memory or learning.

Psychological theories of addiction

Psychoanalytic theories

Classical theories: Early theories stressed regressive behaviour caused by unconscious conflicts about libidinal pleasures, homosexuality and aggression. Freud viewed that masturbation as one major habit, of the 'primary addiction', and the other addictions, to alcohol, morphine, tobacco and the like, is only substitute and replacement for it. This statement reflects that Freud described addictions as substitutions for a regressive infantile autoeroticism, which was first experienced as pleasurable, then unpleasurable, the vicious

cycle of most addictions. In this cycle, the wish for pleasure becomes gratified, with accompanying guilt and loss of self-esteem. These feelings produce unbearable anxieties, which, in turn, lead to repetition of the act in order to find relief. Hence, the cycle begins again.[15] Abraham[16] stressed the role of alcohol in reducing sexual inhibitions in men. He theorised that male alcoholics have intense conflicts about homosexual and that alcohol allows them to express these unconscious feelings in a way that society deems acceptable. Rado[17] emphasised that addicts take drugs in order to find relief from a specific type of depression. The user misconceptualises the ability of the drug raises the self-esteem and alter the depressed mood to "elation". In contrast to the emphasis on libidinal and erotic aspects of addiction, Glover[18] focused primarily on aggression and sadism as the factors most pivotal in addiction.

Contemporary theories

Affect regulation: Difficulties with affect management are the most consistently reported observations made of drug user in treatment. Wurmser[19] characterised addicts as "overwhelmed and flooded with unmanageable affects." He attributed this to pervasive splitting mechanism resulting in highly labile feeling states, and refers to as "sudden flip-flops" which he considered to be the characteristic of all compulsive drug users.

Object relations and narcissism: Wurmser[19] emphasised that the vulnerability that predisposes drug dependence is a categorical feature related to the problems with closeness and narcissistic disturbances. Hendin[20] also noted the special vulnerability of opiate users to disappointment and loss of self-esteem leading to rage in intimate relationship.

Judgement and self-care: The several studies have been documented in the area of judgement, self-care, and defenses (external and internal both). Khantzian and Mack[21] coined the term self-care deficit to describe the repeated patterns of failure among addicts which anticipates harm and avoid danger. They described that the psychological structures relevant to a healthy self-valuation and the ability, literally, to care for and protect oneself, and is acquired as part of the earliest internalisation of the protective and caring parental behaviour and attitudes.

Learning and conditioning

Drug use, whether occasional or compulsive, can be viewed as a behaviour maintained by its consequences. Any event that strengthens an antecedent behaviour pattern can be considered a reinforcer of that behaviour. Certain drugs reinforce drug-taking behaviour. Drugs can also reinforce antecedent behaviours by terminating some noxious or aversive state, such as pain, anxiety, or depression. In some social situations the use of the drug, quite apart from its pharmacological effects, can be reinforcing if it results in special status or the approval of friends. As a precipitating factor, alcohol is expected to enhance social and physical pleasure, enhance sexual performance and responsiveness, and increases power and aggression, social assertiveness and reduce tension.

Classical conditioning: Through the learning process

of an individual is thought to facilitate development of a drinking or drug problems through pairing of conditioned stimuli, i.e., particular sites of use or people and the unconditioning stimuli (alcohol or drugs), the result being a conditioned response, i.e., conditioned craving. Wiklar[22] noticed that heroin addicts exhibited the withdrawal symptoms simply by looking at paraphernalia associated with heroin use. He identified this “conditioned withdrawal” and carried out a series of studies using the heroin as the unconditioned stimulus, resulting in withdrawal symptoms as the unconditioned response.

Operant conditioning: This principle suggests that the positive reinforcing effect of alcohol and drugs as social reinforcers, and the avoidance or cessation of withdrawal symptoms. A strong association was found between anxiety symptoms and alcohol consumption among men with high tension-reduction outcome expectancies, but this was not true amongst women.[23]

Social learning theory: Drinking behaviour is governed by principle of learning, cognition and reinforcement.[24] The social learning theory suggests drinking as a social behaviour which is acquired and maintained by modeling, social reinforcement, and the anticipated effects of alcohol and physical dependence.

Expectancy theory: The importance of cognitive factors in the initiation and maintenance of drinking behaviour is central to expectancy model.[25] Individual’s drinking is determined by alcohol expectancies rather than by its mere pharmacological effects.

Tension reduction hypothesis: This hypothesis suggests that an increased internal tension in an individual leads him to a heightened drive state. Alcohol consumption reduces this tension by lowering the drive-level due to its pharmacological properties. This drive reduction acts as a reinforcer and in turn, strengthens the alcohol consumptions.[26]

Sociocultural models

Familial factors: There are three contemporary models of family influence on the development and maintenance of substance dependence.[27] The family disease model posits that all family members suffer from a “family disease” of either alcoholism or co-dependency and that alcoholism and co-dependency are interrelated in such a way as “to enable” the alcohol problem. Thus, according to this model, the specific aetiology of the alcoholism is biological but a family disease maintains the alcoholism. The family system model assumes that alcohol serves to stabilise family equilibrium and that family organises their interaction and structure around the alcohol to continue “homeostasis”. The degree to which alcoholic families uphold “family rituals” (dinner-time, celebration of holidays, etc.) may protect against development of alcoholism in offspring or at least may serve as a marker or transmission.[28]

Peer influences: Peer group influences have been cited consistently as a risk factor for the initiation of alcohol and other drug among adolescents.[29] The association with deviant friends has been found responsible to promote the acceptance of deviant behaviour[30] increases the risk for alcohol and drug use among adolescents.

Social environment: Segal and Stewart[31] found that recent changes in cultural factors interact with individual factor in the development of substance abuse. They noted that a cultural vacuum, produced by the declining role of family values, lead to glorification of fun and violence, as well as the use of alcohol and drug associated with promiscuous sexual practices, as a means of escape from identity problems, frustration, disappointment, boredom and so on. They also regard the imitation of adult behaviour, curiosity, and a rebellion against age related restrictions and taboo as reasons for adolescent drug use.

Socioeconomic status: A review by Hawkins et al.[32] confirmed a positive correlation between parental education level and marijuana use and drinking among teens. However, the poverty associated with childhood behaviour problem has been found to increase the risk for later alcoholism and drug problems. The relationship of poverty to the development of drug abuse could be explained by the environmental conditions that define poverty, including unemployment and welfare dependency. Ross[33] found that high income was associated with pure alcohol abuse, but low income was associated with alcohol dependence.

Integrative typologies of aetiology

Recently researches have suggested typologies of alcohol problems that attempt to incorporate genetic and developmental perspectives. Cloninger et al.[34] suggested two different types of alcoholism. The most common form occurs in both men and women and appears to interact with environmental factors. A second less common type may be limited to males, independent of environment. Zucker and Noll[35] proposed four types of alcoholism, including antisocial, primary (non-environmental), developmental limited (abusive temporary), and negative affect, each with different aetiological pathways.

Treatment

Mann[36] suggested the treatment process as based on the following principle: (1) Treatment does not “cure” the disease - the expectation is that by instituting an achievable method of abstinence the disease will be put into remission. (2) All therapeutic efforts are directed at helping the patient to reach a level of motivation. (3) An education programme is developed to assist the patient in becoming familiar with their addictive process, insight into compulsive behaviours, medical complications, emotional insight, and maintenance of physical, mental and spiritual health.

When an individual seeks treatment, he appears to have a high level of ambivalence and a tenuous commitment similar to that noted in the initial stages of the self-change process. Kanfer[37] has suggested that one’s initial commitment when seeking treatment is usually based on a desire to change the negative consequences of the addiction rather than the behaviour itself. The primary goals of treatment are awareness-building, consciousness-raising, and developing or reinforcing a state of dissonance between the continued engagement in the addictive behaviour and one’s personal belief, attitudes, values and feelings.[38]

Riley et al.[39] advocated that, “the question of motivation is clearly one of the most important theoretical and

practical problems in the study of drinking behaviour". Forty years later, Cox and Klinger[40] reinforced this view by suggesting that the final, common pathway to alcohol or other drug use is motivation. So a person's level of motivation for change is an important factor in determining the likely success of any intervention. Motivation cycle starts from precontemplation[41] and a phenomenon called "spontaneous remission" had been emphasised. Brief intervention can achieve motivation enhancement in some cases where people are not ready to leave.[42] Miller and Sanchez[43] identified six components frequently present in brief intervention that was found to be effective in altering addictive behaviour, i.e., FRAMES (Feedback, Responsibility, Advice, Menu, Empathy, and Self-efficacy). After this stage treatment plan can be categorised as pharmacological or non-pharmacological.

Pharmacological treatment

Here the treatment is mainly focused on detoxification of psychoactive substances.[44-46] The primary goal of pharmacotherapy is to assist the patient in remaining abstinent during acute withdrawal and is usually instituted in the hospital-based setting. Once medical stabilisation and withdrawal from alcohol, other drug of abuse and detoxification medication is achieved, the alcoholics' progress to a phase of psychological-cognitive-behaviour rehabilitation aimed at strengthening motivation for abstinence.

Non-pharmacological treatment

Current psychoanalytic/psychodynamic approaches: Leeds and Morgenstern[47] identified several reasons for the historical neglect of psychoanalytic approaches in the area of substance abuse. There are three contemporary views based on ego psychology and object relations theory. [48] Wurmser[19] viewed neurotic conflict and the presence of harsh and punitive superego to be at the heart of substance abuse; substances are sought to provide temporary relief from the tyranny of the superego and associated emotional discomfort. He proposed traditional psychoanalytic treatment as part of comprehensive program of care. Khantzian[49] conceptualised substance abuse disorders as stemming from ego-and self-deficit; substance abuse represents an attempt by the abuser to bolster a weak sense of self and compensate for deficient ego functioning, especially in the areas of affect tolerance and object relations. For that Khantzian[48] developed a group based treatment, modified dynamic group therapy. The goals are to help a patient achieve insight and enhance ego functioning.

Behavioural and cognitive behavioural treatment: Rotgers[50] stated that human behaviour is largely learned rather than being determined by genetic factors. The same learning processes that create problem behaviours can be used to change them. Behavioural is largely determined by contextual environmental factors. Covert behaviours such as thought and feelings are subject to change through the application of learning principles. Behavioural therapies include principle of learning derived from classical conditioning, operant conditioning, and social learning theory.

Classical conditioning: Classical conditioning is thought to account for the urges and cravings in response to certain environment cues, i.e., environmental cues became associ-

ated, through repeated pairings, with the use of substance. These cues therefore elicit physiological responses that are experienced as urges for the substance of abuse. There are many treatment procedures based on classical conditioning as cue exposure (i.e., extinction), stimulus control techniques, relaxation training, and covert sensitisation.

Operant conditioning: The principle of operant conditioning relate to the reinforcing qualities of substance abuse. Substances either produce a positive effect or eliminate negative experience, thereby increasing the likelihood of further use of the substance. A key factor in this process is that reinforcers proximate in time to a certain behaviour will have a greater influence on the behaviour than those more distal.

Social learning theory: Social learning theorists address process such as modeling; the concept of self-efficacy as a central feature. The associations with peers or family members who are substance abusers are well-known risk factor. Treatment procedures based on social learning theory include social skills training, refusal skills, anger management and coping self-statement.

Contingency management: Contingency management is based on operant learning principle. Simple, contingency management is a procedure of encouraging certain desired behaviour by positive reinforcement and discouraging undesirable behaviour by the removal of positive reinforcement. Kadden and Mauriello[51] demonstrated the ability of this approach enhances the patient compliance in an inpatient substance abuse treatment programme.

Aversion therapies: Two common forms of aversive therapy of substance abusers are covert sensitisation and, specifically (for alcohol abusers), the use of the pharmacological agent, like disulfiram. Covert sensitisation is a cognitive-behavioural technique in which personally unpleasant images are incorporated in to thought and fantasies of the substance user.

Community reinforcing approach (CRA): CRA is a dimensional approach combining the treatment elements such as marital-family counselling, relapse prevention, employment counselling, and social-recreational counseling. [52,53] The goal of CRA is to make abuser's life more rewarding (by improving marital-family life, social life and vocational functioning) so that a natural barrier to relapse is erected. The relapse results in the loss of the more gratifying lifestyle of an individual. In addition, operant conditioning principle enhances programme participation and compliance by rewarding the desired behaviour.

Additional psychological therapies

Therapeutic community model: The therapeutic community (TC) is a drug-free modality that utilises a social psychological approach to the treatment of drug abuse. TC programme can be implemented in a variety of settings, viz., residential and nonresidential (hospitals, jails, schools, halfway, houses, day treatment clinic). Mann[36] noted that the therapy is based on specific basic therapeutic goals—to help patients to gain insight into the extent and consequences in their lives of their alcohol and drug use; to become aware of the defense mechanism employed to facilitate their con-

tinued alcohol and drug use; to recognise the extent of their emotional and spiritual impairment; to develop strategies that will prevent them from returning to the use of alcohol and drugs in the future.

The 12 steps programme such as Alcoholics Anonymous (AA) that is a “mutual association of persons on equal and friendly terms; a mutual sharing, as an experience, activity or interest”.[54] AA is open to all men and women who want to do something about their drinking problems.

Network therapy: Network therapy is a relatively new approach in the treatment of substance abuse. The clinician explicitly attempts to engage the social network (primarily family and friends) of the abuser to help in maintaining abstinence.[55] The network provides support to the patient’s abstinence reinforcing treatment goals.

Supportive expressive psychotherapy is a time limited, focused psychotherapy that has been adapted for heroin and cocaine addicted individuals. The main components of this therapy are supportive technique to help the patient to feel comfortable in discussing their personal experiences and express them. This technique helps patients to identify and work through their interpersonal relationship issues. Special attention is paid to the role of drugs in relation to problem feelings and behaviours, and how problems may be solved without the recourse to drugs.

Multidimensional family therapy (MDFT, for adolescents and outpatient family-based drug abuse treatment for teenagers): MDFT views adolescent drug use in terms of a network of influences (i.e., individual, family, peer, community) and suggests that reducing unwanted behaviour and increasing desirable behaviour occur in multiple ways in different settings. Treatment includes individual and family sessions held in the clinic, home, or with family members. During individual sessions, the therapist and adolescent work on important developmental tasks, such as developing decision-making, negotiation and problem solving skills. Teenagers acquire skills in communicating their thoughts and feelings to deal better with life stressors, and vocational skills.[56]

Relapse prevention: Addictive behaviour is seen as learned or habitual behaviour that can be altered by changing factors known to affect behaviour, such as antecedent conditions, belief, expectations and consequences.[57] Common elements of relapse prevention programs are:[58,59] Psychoeducation, identification of high-risk situation and warning signs of relapse, development of skills to cope with high-risk situations, change in life style to positive behaviours, enhancing self-efficacy.

Conclusion

The study of addictive behaviour and its treatment was dominated, until recently, by contribution from disciplines other than psychology particularly medicine and neurosciences. But modern psychological approach and its applied behavioural disciplines have contributed significantly in understanding addiction and its treatment. Various psychological models demonstrated that the inner experiences and psychological structure (personality style and psychopathological conditions) of the individual plays a significant role

in the development of addictive behaviour. The same is true when we consider the sociocultural and political factors closely linked to addiction. There is compelling evidence to recognise behaviours other than the use of psychoactive substances, like sexual addiction and internet addiction, under the same rubric. Thus, research has much more to reveal on the changing patterns of addictive behaviours and their treatment.

Further reading

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