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ECCENTRICITY OF ALCOHOLISM, RELATED HARMS AND ITS TREATMENT: A REVIEW

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ABSTRACT

Alcoholism, also known as alcohol dependence, is a disabling addictive disorder, characterized by compulsive and uncontrolled consumption of alcohol despite its negative effects on the drinker's health, relationships and social standing. It is not only a causal factor in many diseases, but also a precursor to injury and violence. Alcohol misuse can cause serious harm to a person's health. Young people's drinking is a major cause for concern for policymakers, communities, parents and many young people themselves. Many interventions have been attempted to try to prevent this excessive use of alcohol including Alcohol prevention programmes, family based interventions, enhancing young people's social and refusal skills, psycho-educational strategies, motivational interviewing, advertising the media, culture, and social/cultural norms etc.

Key words: Alcoholism, health, harms, prevention programme, treatment etc.

INTRODUCTION:^{1,2}

Alcoholism, also known as alcohol dependence, is a disabling addictive disorder, characterized by compulsive and uncontrolled consumption of alcohol despite its negative effects on the drinker's health, relationships, and social standing. Like other drug addictions, alcoholism is medically defined as a treatable disease. The term

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"alcoholism" is a widely used term first coined in 1849 by Magnus Huss, but in medicine the term was replaced by "alcohol abuse" and "alcohol dependence" in the 1980s. In 1647, a Greek monk was the first to document that chronic alcohol misuse was associated with toxicity to the nervous system and body which resulted in a range of medical disorders such as seizures, paralysis and internal bleeding. In 1920, the effects of alcohol abuse and chronic drunkenness led to the failed

prohibition of alcohol being considered and eventually enforced briefly in America. Alcohol use is a key determinant of physical and mental health and is strongly related to harm among young people. Teenage drinking is a particularly important policy issue for a number of reasons. The age at which people start regular drinking is predictive of consumption and alcohol-related problems in subsequent years (Grant, 1997, Swandi, 1998, Fergusson et al., 1996, Cass well and Zhang, 1997, Chou and Pickering, 1992, Fillmore et al., 1991, Hanson et al., 2009). Drinking by younger people results in higher levels of harm relative to the same amounts consumed by older people (Jernigan, 2001, NHMRC, 2009) and there is also evidence of brain impairment associated with intoxication in the teenage years (Hart, 2007); including areas associated with making judgments, learning and memory (Draw the Line, no date, NHMRC, 2009).

Epidemiological Pattern, gender and age differences in alcohol consumption:

Few general population studies of alcohol consumption patterns have been conducted in India, and those that do exist were conducted primarily in the late 1970s, shortly after prohibition policies by the federal government and individual states were reversed. Furthermore, although various epidemiological studies have been conducted in specific regions of India, their generalizability to the entire country is questionable, at least in part because of methodological problems (Isaac 1998). The most consistent finding in all of the studies was that men are the primary consumers of alcoholic beverages. However, the percentage of men who had consumed an alcoholic beverage in the previous year varied widely among different regions, ranging from 16.7 percent in Madras City in southern India to 49.6 percent in a Punjab village in northwest India (Isaac 1998). Conversely, the alcohol consumption rates among women were consistently low (i.e., less than 5 percent) (Isaac 1998). In Bangalore the following three types of alcoholic beverages are consumed most often:

- *Arrack*, a traditional drink produced (both legally and illegally) by distilling fermented molasses, raw brown sugar, palm wine, rice, or palm sugar; it has an alcohol content ranging from 20 to 40 percent
- Palm wine, another traditional beverage produced from either the coconut tree or other palm trees, which has an alcohol content ranging from 20 to 40 percent
- Imported liquors, such as whiskey, brandy, and rum. Beer is also consumed in the Bangalore region, although less commonly than the three types of beverages listed above. Of these alcoholic beverages, palm wine and beer are considered “cool” or “soft” drinks, whereas hard liquors and *arrack* are considered “hot” or “hard” drinks. Studies among the Rajputs of northwestern India identified three preferred types of alcoholic beverages¹ (Dorschner 1983):
- *Daru*, a drink distilled from the flowers of the Mahwah tree and which ranges in alcohol content from 20 to 40 percent. At the time of the study, *daru* was considered inexpensive and was the most popular beverage in the Khaalapur community.
- Spirit produced from solvents, which greatly varies in alcohol content and, at the time of the study, was drunk only by “untouchables” and members of other lower castes.
- “English alcohol,” a distilled liquor—usually whiskey or gin—associated with British rule. At the time of the study, which coincided with a period of prohibition, English alcohol was extremely difficult to obtain.

Alcohol-related problems, approaches to prevention and treatment^{3,4}

Although alcohol consumption is not an integral part of Indian social life, alcohol-related problems can occur. For example, in one study conducted in Rajasthan, 24.7 percent of all people age 15 and older (36.1 percent of men and 13.4 percent of women) consumed alcohol. Furthermore, 3 percent of people in that age group (5.6 percent of men and 0.5 percent of women) were considered

alcohol dependent (Sundaram et al. 1984). Alcohol-related problems do not affect all population subgroups equally, however, because in the same study, Hindus were more likely to drink than were Jains and Muslims. Overall, a growing number of health, social, and economic problems attributable to rising alcohol consumption have been documented

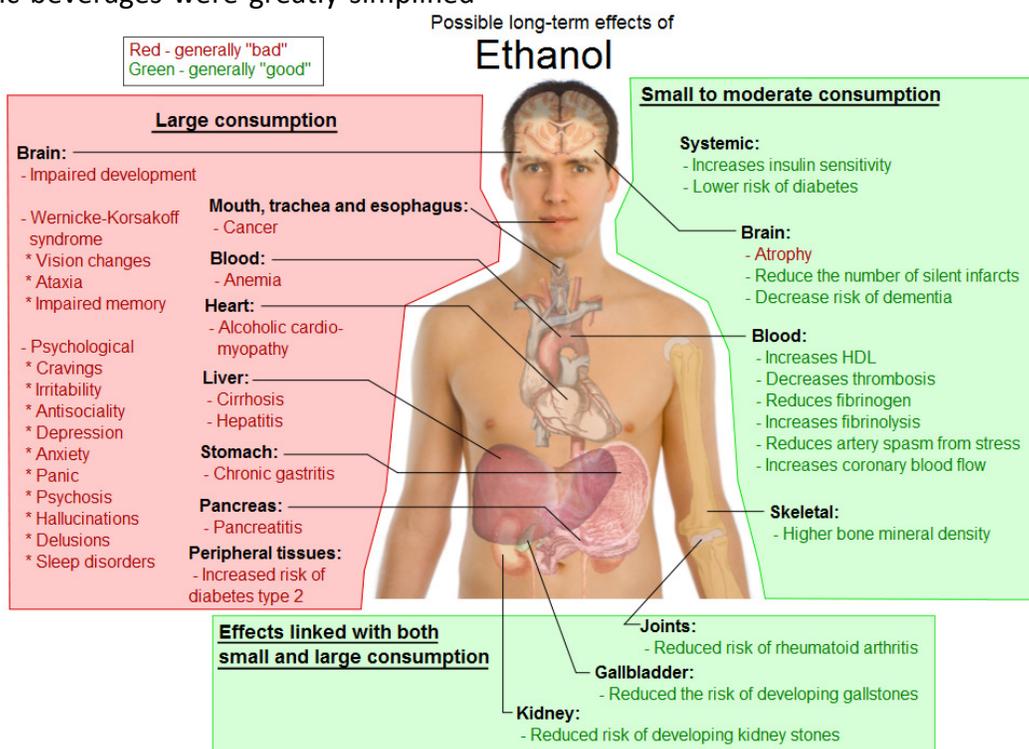
throughout India (Isaac 1998). Treatment facilities for these problems are organized by governmental or nongovernmental (both private and public) organizations. Policies to control alcohol production and consumption in India were initiated after the country's independence in 1947. For example, article 47 in the Indian constitution states that "[t]he state shall endeavor to bring about prohibition of the consumption except for medicinal purposes of intoxicating drinks and drugs which are injurious to health" (Isaac 1998, p. 148). Between the mid-1960s and 1976, however, the national government's commitment to total prohibition ceased. As a result, the production and sale of alcoholic beverages were greatly simplified

during the 1980s and 1990s, and shops, bars, and restaurants now can easily obtain a license to sell alcoholic beverages. In fact, national policies regarding alcoholic beverages have "swung from total prohibition to unrestricted sale with no controls" (Isaac 1998, p. 151). Most Indian state governments also are ambivalent about prohibition (Isaac 1998). Although many states have established temperance boards for educating Indian people about the potentially harmful effects of drinking, these boards primarily sponsor newspaper advertisements.

Alcohol and Medical Problems:

Harms:^{3,4,5,6,7}

Alcohol misuse can cause serious harm to a person's health. The harmful use of alcohol is a worldwide problem resulting in millions of deaths, including hundreds of thousands of young lives lost. It is not only a causal factor in many diseases, but also a precursor to injury and violence.



[Fig.1]

Alcohol is a toxic substance that can affect each and every organ in the body. The major health problems associated with excessive alcohol intake are listed below.

Stomach the entry point

- § Slows down functioning and interferes with digestion
- § Irritates the lining of the food pipe and stomach
- § Causes gastritis and ulcer
- § Increases incidence of cancer

Liver metabolizes food to facilitate absorption

- Can lead to fatty liver (sluggishness due to accumulation of fat cells) and alcoholic hepatitis (jaundice- like symptoms)
- Permanent damage - cirrhosis

Brain the control centre

- Slows down the functioning
- Causes loss of inhibitions and affects judgment and coordination leads to depression, poor memory and concentration
- Triggers psychiatric problems
- Damages brain cells permanently

Heart the life line

- § Interferes with normal heart rhythm
- § Excessive alcohol use can
 - damage blood vessels
 - weaken heart muscles
 - cause enlargement

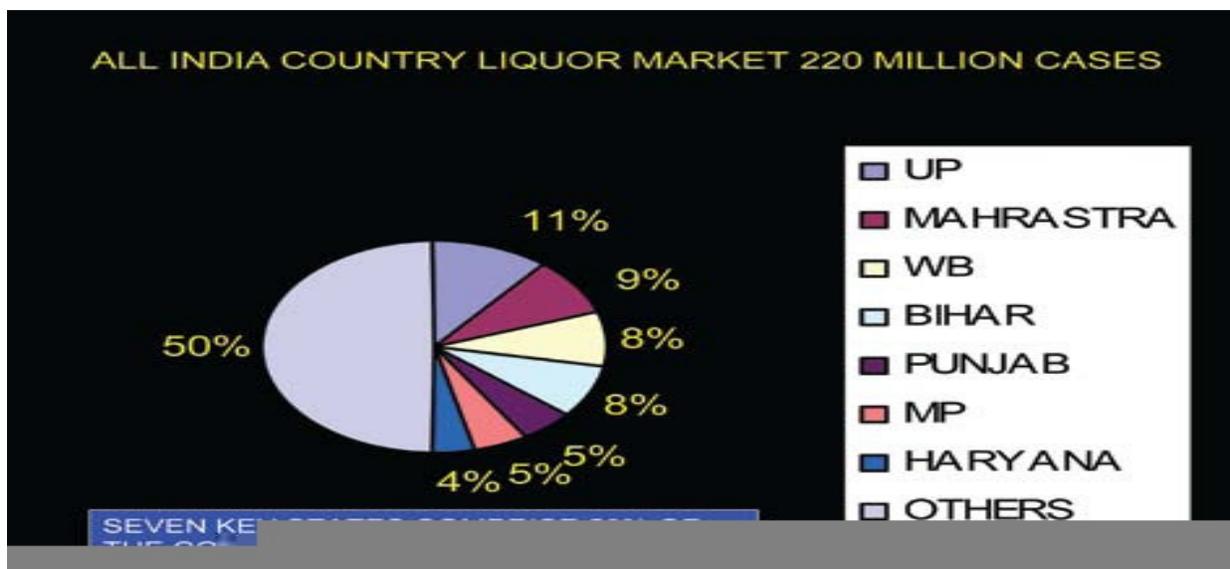
Other effects

- ✓ Neuritis tingling sensation, tremors in hands and feet
- ✓ Pancreatitis painful inflammation of the pancreas
- ✓ Degeneration of muscles due to protein loss
- ✓ Malnutrition leading to many problems ranging from tiredness onto poor memory
- ✓ Sexual problems

Alcohol Consumption in India^{5,8,9}

Alcohol consumption has been steadily increasing in developing countries like India and decreasing in developed countries since the 1980s. The pattern of drinking to intoxication is more prevalent in developing countries indicating higher levels of risk due to drinking. 62.5

million Alcohol users estimated in India Per capita consumption of alcohol increased by 106.7% over the 15-year period from 1970 to 1996. Due to its large population, India has been identified as the potentially third largest market for alcoholic beverages in the world which has attracted the attention of multinational liquor companies. Sale of alcohol has been growing steadily at 6% and is estimated to grow at the rate of 8% per year. About 80% of alcohol consumption is in the form of hard liquor or distilled spirits showing that the majority drink beverages with a high concentration of alcohol. Branded liquor accounts for about 40% of alcohol consumption while the rest is in the form of country liquor. People drink at an earlier age than previously . The mean age of initiation of alcohol use has decreased from 23.36 years in 1950 to 1960 to 19.45 years in 1980 to 1990. India has a large proportion of lifetime abstainers (89.6%). The female population is largely abstinent with 98.4% as lifetime abstainers. This makes India an attractive business proposition for the liquor industry. Changing social norms, urbanization, increased availability, high intensity mass marketing and relaxation of overseas trade rules along with poor level of awareness related to alcohol has contributed to increased alcohol use. Taxes generated from alcohol production and sale is the major source of revenue in most states (Rs.25,000 crores) and has been cited as a reason for permitting alcohol sale. Four states - Gujarat, Mizoram, Manipur and Nagaland - have enforced prohibition. Profile of clients in addiction treatment centers in 23 states (including states with prohibition)



How alcohol causes disease and injury

10,11,12,13,14,15,16,17

Alcohol is linked both to the incidence of disease and the course of disease. The impact of alcohol consumption on disease and injury is associated with two separate but related dimensions of drinking by individuals: the volume of alcohol consumed and the pattern of drinking. More than 30 International Classification of Diseases (ICD)-10 codes include alcohol in their name or definition, indicating that alcohol consumption is a necessary cause. Of these, alcohol use disorders (AUDs) are the most significant. (see Box 8). In addition, alcohol has been identified as a component cause for over 200 ICD-10 disease codes (see Box 9). A component cause may be one among a number of components, none of which alone is sufficient to cause the disease. When a number of the components are present, the sufficient cause is formed. Apart from the volume of consumption, the pattern of drinking has been linked to two main categories of disease outcome: injuries (both unintentional and intentional) and cardiovascular diseases (mainly ischemic heart disease). One of the key characteristics of the pattern of drinking is the presence of heavy drinking events.

Alcohol use disorders

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Alcohol use disorders: For the purposes of the WHO Global Burden of Disease (GBD) Study the group of “alcohol use disorders” comprises not only diagnostic categories of the harmful use of alcohol and alcohol dependence, but also of alcohol psychoses.

Harmful use of alcohol (Also often referred to as “alcohol abuse”) is defined as “a pattern of alcohol use that is causing damage to health” (ICD-10).

Alcohol dependence (Also known as alcoholism or alcohol dependence syndrome) is defined as “a cluster of behavioral, cognitive, and physiological phenomena that develop after repeated alcohol use and that typically include a strong desire to consume, difficulties in controlling its use, persisting in its use despite harmful consequences, a higher priority given to alcohol use than to other activities and obligations, increased tolerance, and sometimes a physical withdrawal state” (ICD-10).

Alcohol psychosis is defined as a cluster of psychotic phenomena that occur during or following alcohol use but that are not explained on the basis of acute intoxication alone and do not form part of a withdrawal state (ICD-10).

Estimating prevalence of AUDs: The present figure describes the prevalence of AUDs in the 15–64 age groups during 2004. An indirect method for prevalence estimations of AUDs is used, based on survey results incorporating questions addressing diagnostic criteria for AUDs.

Major disease and injury categories causally linked to alcohol

Neuropsychiatric disorders: AUDs are the most important disorders caused by alcohol consumption in this category. Epilepsy is another disease causally impacted by alcohol, over and above withdrawal-induced seizures (Samokhvalov et al., 2010). Many other neuropsychiatric disorders are associated with alcohol, but whether they are caused or the extent to which they are caused by alcohol consumption is not clear.

Gastrointestinal diseases: liver cirrhosis and pancreatitis (both acute and chronic) can be caused by alcohol consumption. Higher levels of alcohol consumption create an exponential risk increase. The impact of alcohol is so large for both disease categories that there are subcategories that are labeled as “alcoholic” or “alcohol-induced”. Alcohol use increases the risk of chronic gastritis (stomach inflammation) it is one cause of cirrhosis, hepatitis, and pancreatitis in both its chronic and acute forms.

Cancer: Alcohol consumption has been identified as carcinogenic for the following cancer categories (Baan et al., 2007): cancers of the colorectum, female breast, larynx, liver esophagus, oral cavity and pharynx. The higher the consumption of alcohol, the greater the risk for these cancers: even the consumption of two drinks per day causes an increased risk for some cancers, such as breast cancer (Hamajima et al., 2002).

Intentional injuries: Alcohol consumption, especially heavy drinking, has been linked to suicide and violence. In this report, intentional injuries include violence and self-inflicted injuries.

Unintentional injuries: Almost all categories of unintentional injury are impacted by alcohol consumption. The effect is strongly linked to the level of alcohol concentration in the blood and the resulting effects on psychomotor abilities. Higher levels of alcohol consumption create an exponential risk increase. In this report unintentional injuries include road traffic accidents, falls, drowning, poisoning and other unintentional injuries.

Cardiovascular diseases: The relationship between alcohol consumption and cardiovascular diseases are complex. Light to moderate drinking can have a beneficial impact on morbidity and mortality for ischaemic heart disease and ischemic stroke. However, the beneficial cardio protective effect of drinking disappears with heavy drinking occasions. Roerecke and Rehm (2010) have shown, based on meta-analyses, that, on average, light to moderate drinkers experienced no protective effect if they reported at least one heavy drinking occasion per month. Moreover, alcohol consumption has detrimental effects on hypertension, cardiac dysrhythmias and hemorrhagic stroke, regardless of the drinking pattern (Rehm et al., 2010).

Fetal alcohol syndrome and pre-term birth complications: Alcohol consumption by an expectant mother may cause these conditions, which are detrimental to the health and development of neonates.

Diabetes mellitus: a dual relationship exists between alcohol consumption and diabetes Mellitus. Light to moderate drinking may be beneficial while heavy drinking is detrimental (Baliunas et al., 2009a). The volume and pattern of alcohol consumption lead to three mechanisms that directly impact disease and injury. These mechanisms are (1) toxic and other effects of alcohol on organs and tissues; (2) intoxication; and (3) dependence (Rehm et al., 2003). In addition, the quality of alcoholic beverages may have an impact on health and mortality, for instance, when

homemade or illegally produced alcoholic beverages are contaminated with methanol or lead.

Cognition and dementia Excessive alcohol intake is associated with impaired prospective memory. This impaired cognitive ability leads to increased failure to carry out an intended task at a later date, for example, forgetting to lock the door or to post a letter on time. The higher the volume of alcohol consumed and the longer consumed, the more severe the impairments. One of the organs most sensitive to the toxic effects of chronic alcohol consumption is the brain. In France approximately 20% of admissions to mental health facilities are related to alcohol related cognitive impairment, most notably alcohol related dementia. Chronic excessive alcohol intake is also associated with serious cognitive decline and a range of neuropsychiatric complications. The elderly are the most sensitive to the toxic effects of alcohol on the brain. There is some inconclusive evidence that small amounts of alcohol taken in earlier adult life are protective in later life against cognitive decline and dementia. However, a study concluded, "Our findings suggest that, despite previous suggestions, moderate alcohol consumption does not protect older people from cognitive decline."

Acetaldehyde is produced by the liver during breakdown of ethanol. People who have a genetic deficiency for the subsequent conversion of acetaldehyde into acetic acid (a trait more prevalent in those of East Asian descent) may have a greater risk of Alzheimer's disease. "These results indicate that the ALDH2 deficiency is a risk factor for LOAD [late-onset Alzheimer's disease] ..."

Wernicke-Korsakoff syndrome is a manifestation of thiamine deficiency, usually as a secondary effect of alcohol abuse. The syndrome is a combined manifestation of two eponymous disorders, Korsakoff's Psychosis and Wernicke's encephalopathy, named after Drs. Sergei Korsakoff and Carl Wernicke. Wernicke's encephalopathy is the acute presentation of the syndrome and is Available online on www.ijprd.com

characterized by a confusional state while Korsakoff's psychosis main symptoms are amnesia and executive dysfunction.

Essential tremor Essential tremors can be temporarily relieved in up to two-thirds of patients by drinking small amounts of alcohol.

Sleep Chronic use of alcohol used to induce sleep can lead to insomnia. Frequent moving between sleep stages occurs, with awakenings due to headaches and diaphoresis. Stopping chronic alcohol abuse can also lead to profound disturbances of sleep with vivid dreams. Chronic alcohol abuse is associated with NREM stage 3 and 4 sleep as well as suppression of REM sleep and REM sleep fragmentation. During withdrawal REM sleep is typically exaggerated as part of a rebound effect.

Metabolic syndrome A study concluded, "Mild to moderate alcohol consumption is associated with a lower prevalence of the metabolic syndrome, with a favorable influence on lipids, waist circumference, and fasting insulin. This association was strongest among whites and among beer and wine drinkers. This is also true for Asians. A J-curve association between alcohol intake and metabolic syndrome was found: The results of the present study suggest that the metabolic syndrome is negatively associated with light alcohol consumption (1–15 g alcohol/d) in Korean adults". However, "odds ratios for the metabolic syndrome and its components tended to increase with increasing alcohol consumption."

Gallbladder effects Research has found that drinking reduces the risk of developing gallstones. Compared with alcohol abstainers, the relative risk of gallstone disease, controlling for age, sex, education, smoking, and body mass index, is 0.83 for occasional and regular moderate drinkers (< 25 ml of ethanol per day), 0.67 for intermediate drinkers (25-50 ml per day), and 0.58 for heavy drinkers. This inverse association was consistent across strata of age, sex, and body mass index.

Frequency of drinking also appears to be a factor. "An increase in frequency of alcohol consumption also was related to decreased risk. Combining the reports of quantity and frequency of alcohol intake, a consumption pattern that reflected frequent intake (5-7 days/week) of any given amount of alcohol was associated with a decreased risk, as compared with nondrinkers. In contrast, infrequent alcohol intake (1-2 days/week) showed no significant association with risk. Consumption of alcohol is unrelated to gallbladder disease. However one study suggested that drinkers who take vitamin C (ascorbic acid) might reduce their risk of gallbladder disease.

Kidney stones Research indicates that drinking alcohol is associated with a lower risk of developing kidney stones. One study concludes, "Since beer seemed to be protective against kidney stones, the physiologic effects of other substances besides ethanol, especially those of hops, should also be examined. Consumption of coffee, alcohol, and vitamin C supplements were negatively associated with stones. After mutually adjusting for the intake of other beverages, the risk of stone formation decreased by the following amount for each 240-ml (8-oz) serving consumed daily: caffeinated coffee, 10%; decaffeinated coffee, 10%; tea, 14%; beer, 21%; and wine, 39%. Stone formation decreased by the following amount for each 240-ml (8-oz) serving consumed daily: 10% for caffeinated coffee, 9% for decaffeinated coffee, 8% for tea, and 59% for wine." data excised from last two quotes.).

Sexual dysfunction Long term excessive intake of alcohol can lead to damage to the central nervous system and the peripheral nervous system resulting in loss of sexual desire and impotence in men.

Hormonal Imbalance Excessive alcohol intake can result in hyperoestrogenisation. It has been speculated that alcohol beverages may contain estrogen like compounds. In men, high levels of estrogen can lead to testicular failure and the

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development of feminine traits including development of male breasts, called gynecomastia. In women, increased levels of estrogen due to excessive alcohol intake have been related to an increased risk of breast cancer.

Rheumatoid arthritis Regular consumption of alcohol is associated with an increased risk of gouty arthritis and a decreased risk of rheumatoid arthritis. Two recent studies report that the more alcohol consumed, the lower the risk of developing rheumatoid arthritis. Among those who drank regularly, the one-quarter who drank the most were up to 50% less likely to develop the disease compared to the half who drank the least.

The researchers noted that moderate alcohol consumption also reduces the risk of other inflammatory processes such as cardiovascular disease. Some of the biological mechanisms by which ethanol reduces the risk of destructive arthritis and prevents the loss of bone mineral density (BMD), which is part of the disease process.

A study concluded, "Alcohol either protects from RA or, subjects with RA curtail their drinking after the manifestation of RA". Another study found, "Postmenopausal women who averaged more than 14 alcoholic drinks per week had a reduced risk of rheumatoid arthritis..."

Osteoporosis Moderate alcohol consumption is associated with higher bone mineral density in postmenopausal women. "...Alcohol consumption significantly decreased the likelihood osteoporosis. Moderate alcohol intake was associated with higher BMD in postmenopausal elderly women. Social drinking is associated with higher bone mineral density in men and women [over 45]. However, alcohol abuse is associated with bone loss.

Skin Chronic excessive alcohol abuse is associated with a wide range of skin disorders including urticaria, porphyria cutanea tarda, flushing,

cutaneous stigmata of cirrhosis, psoriasis, pruritus, seborrheic dermatitis and rosacea.

A 2010 study concluded, "Nonlight beer intake is associated with an increased risk of developing psoriasis among women. Other alcoholic beverages did not increase the risk of psoriasis in this study."

Immune system, bacterial contamination, viral infections

Bacterial infection There is a protective effect of alcohol consumption against active infection with *H. pylori*. In contrast, alcohol intake (comparing those who drink > 30 gm of alcohol per day to nondrinkers) is not associated with higher risk of duodenal ulcer. Excessive alcohol consumption seen in alcoholics is a known risk factor for pneumonia

Common cold A study on the common cold found that "Greater numbers of alcoholic drinks (up to three or four per day) were associated with decreased risk for developing colds because drinking was associated with decreased illness following infection. However, the benefits of drinking occurred only among nonsmokers. [...] Although alcohol consumption did not influence risk of clinical illness for smokers, moderate alcohol consumption was associated with decreased risk for nonsmokers.

Another study concluded, "Findings suggest that wine intake, especially red wine, may have a protective effect against common cold. Beer, spirits, and total alcohol intakes do not seem to affect the incidence of common cold."

Alcohol Prevention Programmes^{3,18,19,20}

An integrated, planned and implemented community prevention system is needed to tackle the excessive alcohol use in young people. Young people's drinking is a major cause for concern for policymakers, communities, parents and many young people themselves. Many interventions have been attempted to try to prevent this excessive use

of alcohol. Most of these interventions aimed specifically at young people are undertaken in schools.

❖ **Parents and family**

Parents should showed:

- Improved communication styles with their children.
- Improved parental rule-setting.
- A more nurturing and supportive parenting style.
- Greater school involvement.
- The development in children of positive goals for the future.
- A far greater incidence of following rules;
- Improved family communication.
- Improved relationships with parents.
- Improved skills for dealing with peer pressure and refusal of alcohol or drug offers.
- Parenting skills, high-quality supervision and the ability to resolve conflicts.

Examples of familybased interventions

- Strengthening Families Programme (SPF) developed by Spoth and Molgaard.
- Family Check-Up, developed by Dishion and colleagues.
- Adolescent Transitions Programme (ATP), developed by Dishion and colleagues.
- STARS (Start Taking Alcohol Risks Seriously) for Families, developed by Werch and colleagues.

❖ **Direct work with young people**

- **Enhancing young people's social and refusal skills**
 - Social skills (e.g. communication, interacting with others, assertiveness) helps to develop self-esteem, self-mastery, and self-confidence.
 - Personal self-management skills (e.g. solving problems, managing emotions) provide the skills to resist social (peer) pressures to smoke, drink and use drugs; enable children to effectively cope with social anxiety; increase

knowledge of the immediate consequences of substance use.

- **Peer interventions**

This term itself suggesting that young people of the same age, sex and interests provide activities to others at school (or in the streets, slums or community). The idea is that these young people, given the right training, can positively influence each other. Peer education is built on the premise that young people have the power to influence and positively change others' attitudes and social values and ultimately the behavior of colleagues their peers once given the necessary knowledge, information and skills. Sumnall *et al.* (2006), in their review of drug prevention, showed that findings are mixed with regard to the effectiveness of peer-led education. They suggest that: It appears that the child or young person delivering the intervention tends to benefit most from the experience. Based on results from one meta-analysis, the use of peer educators was found to be an effective characteristic of multi-component programmes that had 'strong evidence' of effectiveness. Richard Velleman *et al.* (2009), concluded that young people with a peer environment that supports non-use, the programme was effective and reduced substance use. For students with a peer environment that supports substance use, an interactive programme may have deleterious effects.³

- **Interactions with an individual's personality**

The intervention consisted of three main components:

- **Psycho-educational strategies** to educate participants about the target personality variable (depending on which personality risk subscale they were high on) and the associated problematic coping behaviours, such as interpersonal dependence, avoidance, aggression, risky behaviours and substance misuse;
- **Motivational interviewing** guided goal-setting designed to enhance participants motivation to

explore ways of coping with one's personality; guided **cognitive-behavioural** work in analysing a personal experience according to the physical, cognitive and behavioural components of an emotional response.

Advertising, the media, culture, and social/cultural norms

- Advertising and the media
- Culture: intervention programmes and ethnicity and religion
- Intervention programmes and religion
- Social and cultural norms
- School culture and environment
- Intervention programmes and sport and other extra-curricular activities

Multi-component approaches

Researching complex interventions: issues and challenges.

Treatment: -

Medications currently in use:^{21,22,23,24,25,26,27,28}

- **Antabuse (Disulfiram):** - It prevents the elimination of acetaldehyde, a chemical the body produces when breaking down ethanol. Acetaldehyde itself is the cause of many hangover symptoms from alcohol use. The overall effect is severe discomfort when alcohol is ingested: an extremely fast-acting and long-lasting uncomfortable hangover. This discourages an alcoholic from drinking in significant amounts while they take the medicine. A recent 9-year study found that incorporation of supervised disulfiram and the related compound carbamide into a comprehensive treatment program resulted in an abstinence rate of over 50 percent.

Disulfiram implant, which appears to give effective blood levels for twelve weeks on an average. It is usually inserted under local anaesthetic after detoxification is over and 2 – 3 doses of the oral Disulfiram have been given. It is inserted through a 1 cm incision in the lower abdomen or at the back of the upper

arm. The implant is inserted 3-4mm under the skin

- **Temposil (Calcium carbimide):** - It works in the same way as Antabuse; it has an advantage in that the occasional adverse effects of disulfiram, hepatotoxicity and drowsiness, do not occur with calcium carbimide.
- **Nodict (Naltrexone):**- It is a competitive antagonist for opioid receptors, effectively blocking the effects of endorphins and opiates. Naltrexone is used to decrease cravings for alcohol and encourage abstinence. Alcohol causes the body to release endorphins, which in turn release dopamine and activate the reward pathways; hence when naltrexone is in the body there is a reduction in the pleasurable effects from consuming alcohol. Naltrexone is also used in an alcoholism treatment method called the Sinclair Method, which treats patients through a combination of Naltrexone and continued drinking.
- Naltrexone implants appear to give effective blood levels for eight weeks to one year. The implant is usually inserted under local anaesthesia after detoxification is over and 2 – 3 doses of the oral naltrexone have been given. It is inserted through a 1 cm incision in the lower abdomen or at the back of the upper arm. the implant is inserted 3-4mm under the skin.
- **Selincro/Revex/Vivitrol (Nalmefene):**- It is designed for people who are heavy drinkers but not the most severely-dependent alcoholics. It reduces the release of dopamine in the brain, lessening the "buzz" or reward sensation associated with alcohol. It comes in the form of a pill which is designed to be taken before drinking, not necessarily every day. This medication is an opioid receptor antagonist, prescribed for partial reversal of opioid drug effects, alcohol abuse and other addictions. It works by blocking the opiate receptor sites.
- **Campral (Acamprosate):** - It stabilizes the brain chemistry that is altered due to alcohol dependence via antagonising the actions of glutamate, a neurotransmitter which is hyperactive in the post-withdrawal phase.
- **Topamax (Topiramate):** - It is a derivative of the naturally occurring sugar monosaccharide D-fructose, has been found effective in helping alcoholics quit or cut back on the amount they drink. Evidence suggests that topiramate antagonizes excitatory glutamate receptors, inhibits dopamine release, and enhances inhibitory gamma-aminobutyric acid function. A 2008 review of the effectiveness of topiramate.
- concluded that the results of published trials are promising, however as of 2008, data was insufficient to support using topiramate in conjunction with brief weekly compliance counseling as a first-line agent for alcohol dependence. A 2010 review found that topiramate may be superior to existing alcohol pharmacotherapeutic options. Topiramate effectively reduces craving and alcohol withdrawal severity as well as improving quality-of-life-ratings.
- **Zofran (Ondansetron)** Ondansetron has been the most promising of the serotonergic agents studied for the treatment of alcohol dependence. Ondansetron is a selective 5-HT₃ receptor antagonist currently used for treat in refractor nausea and vomiting. As mentioned previously, serotonin receptors exist on the terminals of dopamine-secreting neurons in the nucleus accumbens, where they regulate dopamine release in this region.⁹ 5-HT₃ receptor antagonists reduced alcohol consumption in a variety of animal models.^{9,52} This effect is believed to be due to a reduction in the rewarding subjective effects produced by alcohol and a subsequent decreased desire to drink.

Benzodiazepines, whilst useful in the management of acute alcohol withdrawal, if used long-term cause a worse outcome in alcoholism. Alcoholics on chronic benzodiazepines have a lower rate of achieving abstinence from alcohol than those not taking benzodiazepines. These classes of drugs are commonly prescribed to alcoholics for insomnia or anxiety management. Initiating prescriptions of benzodiazepines or sedative-hypnotics in individuals in recovery has a high rate of relapse with one author reporting more than a quarter of people relapsed after being prescribed sedative-hypnotics. Patients often mistakenly think that they are sober despite continuing to take benzodiazepines. Those who are long-term users of benzodiazepines should not be withdrawn rapidly, as severe anxiety and panic may develop, which are known risk factors for relapse into alcohol abuse. Taper regimes of 6–12 months have been found to be the most successful, with reduced intensity of withdrawal.

CONCLUSION:

Preventing alcoholism, related harm is a critical health priority. It requires a combination of legal and regulatory interventions, enforcement, community based programmes, social services which focus on alcohol, personal behaviour. Treatment shown to be effective for some patients under some conditions.

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