

Review Article**Alcohol misuse and oral health: An overview**

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Abstract: Alcohol is the easiest, the most accessible drug available throughout the world. Consumption of alcohol varies extensively in every part of the world, and it is difficult to get the accurate data about the consumption of alcohol in different parts of the world. In India there are some states where alcohol is banned likewise in Gujarat and Manipur but the majority of the states, alcohol is legally consumed. Alcohol not only affects the general health but oral health as well. Excessive use may lead to periodontitis, xerostomia, dental caries etc. It is believed that around 62.5 million people are occasional drinkers in India. However, India has been considered as the one of the largest producers of alcohol. The misuse of alcohol can predispose to many problems, which may affect the social-economic groups. People get addicted to alcohol or alcohol related problems because of the environment of their family, their experiences in life, their culture and the most important is the price of the alcohol. Presently, a lot of scope is there to make improvements in the various strategies and interventions regarding alcohol related problems.

Key words: Alcohol misuse, Periodontitis, Xerostomia, Dental caries, Dependent drinking, Hazardous drinking

INTRODUCTION

Alcohol is the easiest, the most accessible drug available throughout the world. Consumption of alcohol varies extensively in every part of the world, and it is difficult to get the accurate data about the consumption of alcohol in different parts of the world. Alcohol is produced both domestically as well as it is exported from different countries and is sometimes smuggled. Alcohol consumption has decreased in developed countries while it has increased in the developing countries over a time span of 20 years.¹

The data which was gathered by the general household survey in the UK estimates that around 38% men and 40% women lie in the low consumption category (as per the US dietary guidelines).¹ In the category of moderate consumption, men were the maximum when compared with the women. For the higher consumption category, 28% were men while only 11% women were there. The general household survey indicated the consumption of alcohol in women to be higher in the non-manual groups rather than in the manual groups. 14% women who belonged to the professional group generally consumed about 14 units a week than the women (6%) who belonged to the unskilled group.²

The trend of consuming alcohol was been seen in some cultures, social-economic groups and some geographical areas. The misuse of alcohol is related to 60% para suicides and 20% of child abuse reports. It

was revealed that people who drank heavily were more susceptible to violent acts, abuse and crime associated with women.³

In India, many regional variations regarding alcohol misuse have been there in various parts of India. However, there are some states in India where alcohol is banned likewise in Gujarat and Manipur but the majority of the states, alcohol is legally consumed. It is believed that around 62.5 million people are occasional drinkers in India. Unlike, other Western countries, India are also witnessing a dramatic rise in the per capita consumption (106.7% increase) of alcohol. However, India has been considered as the one of the largest producers of alcohol.^{4,5}

Alcohol can also have a detrimental effect on our general and oral health. However, when alcohol is consumed in excess, it can potentially lead to serious health and oral health risks. Heavy use of alcohol is also a risk factor for oral and throat cancers. When used alone, alcohol and tobacco are risk factors for oral cancers, but when used in combination (synergistically) the effects of alcohol and tobacco are even greater. Heavy drinkers are at a greater risk of developing oral cancer, cancer of the throat and oesophagus. In addition, other effects on the oral health include dental caries, periodontitis, xerostomia, gingivitis etc.⁶ Therefore, this review aims at elaborating the various effects which alcohol consumption has on the oral and general

health including the various interventions that can help in the reduction of its consumption and misuse.

Misuse of alcohol- A Public Health Issue:

Huge problems caused by alcohol misuse are expected to increase because of increasing consumption of alcohol and these problems are having serious impact on families and communities.

Problems: At the level of societies, endless problems are created due to alcohol abuse. Some of these problems are

- a. Families are suffering various problems from alcohol abuse like violence, financial problems, problems in relationship and family dynamics.
- b. Societies suffering from alcohol abuse faces problems like crime, disturbance and violence related to alcohol.
- c. Individual face problems related to health, employment, social life, financial constrains etc.⁷

Effects of alcohol on children: Especially children face a real tough time in their family if someone is suffering from problems related to alcohol. Children in such families affect their education and peer relations because they start considering themselves old enough because of the responsibilities which are present on them. Even in such cases children may feel ashamed of bringing their friends and batch mates to their home because of the environment at their homes. Depending on the age and gender problems faced by such children varies. Effects on children vary according to their parent's life style it can either be physical or emotional abuse. These effects last for whole life and the because the child develops a negative feeling towards their childhood.⁷

Growing Problems: India is facing many problems in regards to alcohol misuse which is also effecting the general and oral health as well.⁸ Some of the problems includes: higher dependency of people on alcohol which makes them difficult to function normally within the society, sexual and domestic abuse, oral health related problems, damaging behaviours to the communities,

financial drains on the families of the alcoholics, economy and business downfall and road accidents.

Dependence of Alcohol and its

Withdrawal: The obsession of alcohol involves physical and psychological dependence. The difficulty arises as when we are unable to differentiate between the psychological and physical dependence in the clinics as both are co-related. Still, the physical dependence is seen where the consumption of alcohol is ceased by the drinker abruptly or when there is decrease in the alcohol consumption. The withdrawal symptoms of alcohol occur when the amount of alcohol in the individual's body or the blood of the drinker falls below a level which is important for the individual to function.⁷

Types of Alcohol Misuse: The 3 major types of alcohol misuse are as follows: 1. Hazardous drinking, 2. Harmful drinking, 3. Dependent drinking

Hazardous Drinking: Hazardous drinking is when a person drinks up to the approved limit of about 21 units for men and about 14 units for women. Drinking hazardingly can also be achieved by binge drinking, even if an individual remains on its weekly limit. Basically, binge drinking refers to when an individual drinks excessively in a small period of time; likewise 8 units a day for men and about 6 units a day for women.

Hazardous drinking may not always lead to the health problem which relates to alcohol but also increases the risks in the future. The risks associated with binge drinking may lead to getting involved in an accident or an argument

Harmful Drinking: Drinking over 50 units of alcohol over a week by men and about 35 units by the females is referred to as harmful drinking. Harmful drinking may lead to problems like:

1. Inflammation of pancreas
2. Raise in the blood pressure
3. Liver cirrhosis
4. Cancer like breast, liver and bowel
5. Cardiac diseases

Some social problems are also associated with harmful drinking like:

- a. Problems with partner or spouse
- b. Difficulty at work
- c. Problems with family and friends

Dependent Drinking: Alcohol is generally addictive physically as well as psychologically. Dependence basically means that an individual cannot function until he consumes alcohol because it has become an integral part of their life. Many withdrawal symptoms are noticed. The physical withdrawal symptoms are: shakes, nausea, fits, hallucinations, sweats and anxiety. Generally, moderate drinkers do not encounter these symptoms but people who consume alcohol heavily encounter the symptoms which tend to be very severe.

Health effects of Alcohol: Alcohol has many adverse influences which can either be acute or chronic. Among so many influences, few of them are specifically related to the consumption of alcohol. A higher level of monitoring and attention is required for earlier therapeutic interference from alcohol.⁸ Likewise, if someone feels sick in the morning or feels as if they are gaining weight so in such conditions a doctor must be consulted for these kinds of minor symptoms. These problems may be linked with heavy drinking and hence are required to be reduced by the patient.

Since, if these problems are not treated it may lead to some harmful conditions like oesophagitis, gastritis, hypertension, cardiac arrhythmias, cardiomyopathy and cerebrovascular accidents, myopathy and neuropathy, neurological damage and most commonly liver disorder. In many cases there are physical signs which are symbolic of alcohol misuse like spider naevi, tel angeictasia, facial mooning, parotid enlargement, palmar erythema, Dupuytren's contracture and gynaecomastia.³ The most common harmful effects related to excessive alcohol consumption are: Damage of Liver, Neurological Syndrome, Wernicke-Korsakoff Syndrome, Fetal Alcohol Syndrome and alcohol Poisoning.⁷

Oral health problems: Alcohol consumption leads to various oral health problems. Various studies, which have been,

conducted reveals that due to consumption of alcohol severe tooth attrition, trauma, oral mucosal lesions like carcinomas, keratotic lesions can occur.^{9,10} Oral mucosal health has been considered as a major concern as it can lead to deleterious circumstances. Apart from these factors, dental caries have been reported to be largely associated with the consumption of alcohol, according to the literature findings.¹¹ Some of the oral health related problems are explained below which include:

Drug effectiveness: There are some drugs, which have been commonly used in dentistry, are metabolised in the liver including amides, local anaesthetics and benzodiazepines. Such drugs have a reduced effect in cases of alcoholics. Local anaesthesia does not work well in case of an alcohol abuser⁹

Periodontal diseases: Alcohol has its deleterious effects on the periodontium. Alcohol also impairs the neutrophils functioning leading to bacterial overgrowths, which finally causes inflammation of the periodontium.^{10,11,12} Alcohol also increases the production of monocytes of the inflammatory cytokines in the gingival crevice which is directly associated with periodontitis.

Alcohol may affect periodontal tissues through various mechanisms, which are: There is evidence that alcohol has an adverse effect on host defence. It is associated with complement deficiency, deficient functioning of the neutrophils (decreased adherence, motility and phagocytotic activity), and increased infection frequency. Alcohol has a toxic effect on the liver. Prothrombin production, activity of vitamin K, and clotting mechanism may be interrupted and haemorrhage may take place. Exaggerated gingival inflammation, bluish-red discoloration, and bleeding on probing are commonly seen in alcoholics. Alcohol may interfere with the metabolism of the protein and healing of tissues. There are studies, which suggest that ethanol stimulates bone resorption and blocks the stimulation of bone formation.^{13,14} Therefore, alcohol possesses direct toxicity

effects on the periodontium and its associated structures.

Oral cancer: Based on the previous literature findings it is seen that alcohol breaks down into acetaldehyde, which binds proteins in the oral cavity, which can further trigger an inflammatory response in the body. In severe conditions, cancer cells develop.¹³ Increasing alcohol consumption increases salivary acetaldehyde (carcinogen) concentrations in a dose-dependent manner. Many drinkers smoke often, and smoking also affects acetaldehyde generation in the saliva after alcohol consumption. It increases the capacity of oral yeasts and bacteria to produce acetaldehyde from ethanol, which increases the risk of oral cancer. Salivary acetaldehyde concentrations can be reduced by 30 to 50 percent by rinsing the mouth with antiseptic mouthwash (which kills bacteria in the mouth) after alcohol consumption.¹⁵

Dental caries: Heavy drinkers may have a complaint of dry mouth and due to which both personal and professional health care is neglected. These people consume higher levels of refined carbohydrates which further can lead to dental caries.¹¹

Xerostomia: As alcohol dehydrates the patient, salivary flow is compromised. Also, there might be enlargement of the parotid glands.⁸

Risks: Alcohol is a dominant chemical with variety of effects. The alcohol readily goes through the walls of the cells and once it reaches the blood stream; it reaches in all the parts of the body. Effects of alcohol can be long term or short term.¹⁶

The *short term effects* are as follows:

1-2 units

- Increase in heart rate
- Expansion of the blood vessels

4-6 units

- Involvement of the brain and the nervous system
- Affects co-ordination

8-9 units

- Slow reaction
- Slurring of speech
- Loss of vision and focus

10-12 units

- Impaired co-ordination
- Risk of accident
- Depressant effect on the mind and the body
- Drowsiness
- Dehydration
- Headache

More than 12 units

- Alcohol poisoning which leads to coma and death

Long Term Effects: The long term effects may have a toxic effect and may also lead to organ damage. Long term misuse of alcohol can hamper the immune system of the body and makes it prone to infection. There is also a risk of bone fractures. There may be social risks which may be associated with alcohol misuse are divorce, family break up, unemployment, financial problems, loneliness.^{16,17,18}

Interventions: The interventions depend upon the type of drinking to be hazardous, harmful or dependent.

Hazardous Drinking: If an individual falls into the category of hazardous drinking then the person is given to attend a small counselling section known as brief intervention. A brief intervention lasts for around 10-15 minutes and it comprises of various steps. Initially, the counsellor will assess the long term and short term risks associated with the drinking pattern of the individual so to minimise the risk. Then, the counsellors will advice some interventions for decreasing the consumption of alcohol. Counsellor will also see if any extra support is required like self help groups. Session will end discussing on the emotional aspects regarding reduction in the consumption of alcohol.⁷

Harmful Drinking: Individuals with harmful drinking decide initially whether they want to quit drinking or they want to decrease the amount of drinking. If the individual choose to decrease the amount of drinking then some planned goals are to be followed and the person is asked to attend various counselling sections. Regular blood tests are also done so to monitor and regulate the state of liver.

Dependent Drinking: The individual chooses between the abstinence or moderation. If the individual chooses moderation then some effective and efficient interventions are followed.

Abstinence: To acquire abstinence there are various interventions available. To see whether a certain treatment is effective or not the individual should consult with the doctor.

Medications: Various medications are being approved by the National Institute of Health and Care Excellence (NICE) to treat from misuse of alcohol. The major medications are: Acamprosate, disulfiram and naltrexone

Extended Brief Intervention: The intervention incorporates a personal session with a health professional like a counsellor or a doctor. Motivational interviewing technique is undertaken. The goal of extended brief intervention is to convince people to change their relative behaviours regarding drinking.^{19,20}

FRAMES- an acronym used for detailing the brief intervention. FRAMES stand for:

F-Feedback, R-Responsibility, A-Advice, M-Menu, E-Empathy, S-Self efficacy, Family Therapy

It not only affects the individual, but also the whole family. The therapy aims the family members to learn about the dependence of alcohol and if any member is addicted to alcohol then the family members should provide proper support in reducing the consumption of alcohol or help in quitting the habit.

Cognitive Behavioural Therapy (CBT): It is therapy which aims at the problem solving approach regarding the dependence of alcohol. The therapy helps in remembering the causes to drink like: Stress, Anxiety.

Twelve Step Facilitation Therapies: This is a therapy, which is being set up in stages in order to help people, who are interested in quitting drinking or to those who wants to reduce the alcohol consumption. It is a personal face to face intervention undertaken rather than a group. It is the most acceptable mode of treatment for those who are not

willing to share their problems in a group.^{21,22,23}

CONCLUSION: Alcohol is an addictive drug of the generation today. The consumption of alcohol in the India is readily rising since the 1950's; the binge drinking, drinking by the youngsters which is a major concern. The misuse of alcohol can predispose to many problems which may affect the social-economic groups. People get addicted to alcohol or alcohol related problems because of the environment of their family, their experiences in life, their culture and the most important is the price of the alcohol. Alcohol misuse has deleterious effects on our oral health as well and therefore it is very important to maintain good oral health. The dental practitioners working in primary care settings to screen their patients for substance misuse and provide, where appropriate, counselling and onward referral. Presently, a lot of scope is there to make improvements in the various strategies and interventions regarding alcohol related problems. Today with the spread of awareness there is a need to supply an efficient strategy having varying degrees and abilities to work with the people who are drinkers or having alcohol related problems and to make them come to a moderate level of drinking should be the primary and the most important goal.

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