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Effects of liquor on public and its management

Sheetanshu Gupta

Abstract
Liquor or alcohol is a very important risk factor, which is the root of all serious problems that comes in life. It is the major cause of all chronic diseases that is spreading globally day by day. The most important, hazardous diseases that are mainly caused due to consumption of liquor are as follows- Cancer, Diabetes, Infectious diseases, cardiovascular diseases, diseases related to liver and pancreas, Neuropsychiatric diseases, AIDS, etc. Drinking excessively is harmful to one's health. Alcoholism is a condition in which a person develops an addiction to alcohol. Alcoholism interferes with the individual's personal and professional life as well as their day-to-day activities. Alcoholism is detrimental to an individual's health. The most damaged organs include the brain, liver, heart, kidneys, and stomach. Along with, liquor can also cause intentional and non-intentional injury. Not only this, the liquor is the main cause for divorce, family problems, cornering in the society. Hence, in this paper, we have analyzed the risks factor that comes from the uses of alcohol.

Keywords: Liquor, alcohol, health, risks, AIDS, cancer, addiction, disease

1. Introduction
Alcohol is an intoxicant that affects a wide variety of structures and processes in the central nervous system. These impacts are the root causes of both purposeful and inadvertent harm to the drinker and others, together with personality characteristics, behavioural patterns, and sociocultural expectations. Alcohol is an intoxicant that affects the central nervous system. These injuries and damages include the fatalities brought on by violent behaviour, suicide, homicide, and drunk driving. Its neurotoxic effects on the growing brain cause the hippocampus to undergo structural alterations through adolescence and a decline in brain size around middle age. Alcohol, like many other substances that are subject to international control and monitoring, is a chemical that can lead to dependence. Dependence occurs because of the drug's reinforcing properties and the neuroadaptation they cause. In addition to this, it is an immunosuppressant, which means that it increases the possibility of contracting contagious illnesses like TB. International Agency for Cancer Research (WHO Regional Office for Europe, 2009; Rehm *et al*., 2010) [21, 26] illustrate that both alcoholic drinks and the ethanol they contain are cancer-causing.

2. Risk invovled with liquor
The uses of liquor creates number of risks involved in using as explored in figure 1 given below:

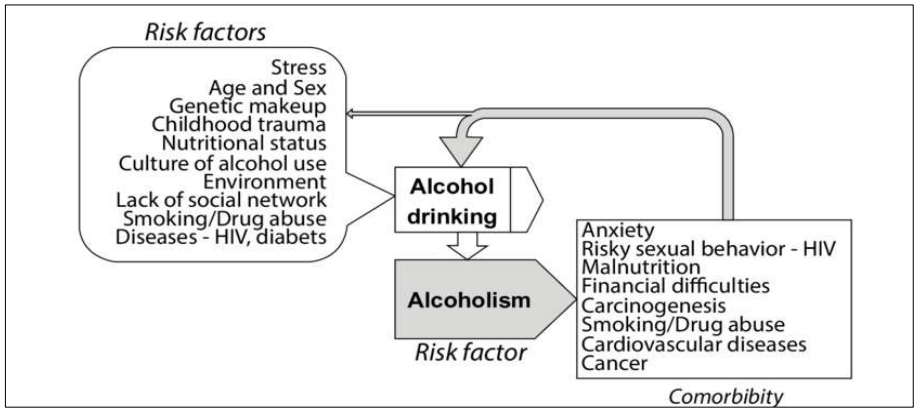

Fig 1: Risk factors of the alcohol drinking

Risk factors such as illness, disability, mortality is the moral cause of liquor (Rehm *et al*. 2009b) [2]. The main causes of alcohol usage also include numerous risk factors like high blood pressure, hypertension, high cholesterol, and quick vomiting. The majority of alcohol-dependent people habitually consume more than 40 grammes of pure alcohol per day for men and 20 grammes daily for women (Patra *et al*. 2009; Rehm *et al*. 2004) [28, 3]. There is a wide range of degrees of correlation between regular alcohol consumption and a number of various cancers. For example, a daily increase of 10 g of pure alcohol is linked to a 7% rise in the risk level of breast cancer in women. In contrast hand, ingesting 50 g of pure alcohol on a regular basis raises the relative colorectal cancer risk by 10% to 20%. This may indicate that there is a higher relationship with female breast cancer. The link between typical consumption and colorectal and breast cancer is much weaker than the link between typical consumption and cancer of the larynx, pharynx, and oesophagus (an increase of greater than 100percent for a daily intake of 50 grammes of pure alcohol on average). On the other hand, there is a far larger association between typical consumption and cancers of the larynx, pharynx, and oesophagus. It has been suggested that one of the key contributors to the development of certain cancers is acetaldehyde, as it is a byproduct of alcohol metabolism. Alcohol consumption has been shown to have a disproportionately negative association with a number of cardiovascular events, that includes hypertensive disease (Taylor *et al*., 2009) [5], hemorrhagic stroke (Patra *et al*., 2010) [6], and atrial fibrillation (Samokhvalov, Irving & Rehm, 2010) [7]. The connection between strokes and ischemic heart disease caused by a lack of blood flow is a more complicated one. Chronically consuming significant amounts of alcohol has been connected, time and again, to adverse effects on the cardiovascular system (Rehm & Roerecke, 2011) [8].

On the other hand, research has shown that light to moderate drinking can protect against ischemic diseases (Roerecke & Rehm, in press). It has been demonstrated that this impact is the similar for people who just consume wine and beer (Di Castelnuovo *et al*., 2002) [11]. However, it's becoming evident that other factors account for a significant portion of this benefit (Roerecke & Rehm, 2010) [10], with minimal to moderate alcohol usage serving as a stand-in for greater social capital and health (Hansel *et al*., 2010) [13]. For younger individuals, there is no protective factor because alcohol consumption at any level increases the likelihood of ischaemic events in these individuals (Juonala *et al*., 2009) [14], and for older individuals, physical activity and a healthy diet have a greater impact on ischaemic heart disease mortality than alcohol consumption. In any case, when drinkers describe at least one excessive drinking event each month, the protective benefit totally disappears (Roerecke & Rehm, 2010) [10]. People who suffer from conditions like ischemia should avoid drinking to excess for this reason. Alcoholism is one of the major causes of death among people in their middle years, especially among men (Jones *et al*., 2009; Rehm, Zatonski & Taylor, 2011) [17, 18]. The adolescent brain is much more vulnerable to the effects of alcohol when considering the entirety of a person's life, and the longer alcohol usage is delayed, the lower the likelihood that alcohol-related illnesses and alcohol dependency will emerge in adults (Norberg, Bierut & Grucza, 2009) [19]. Beyond a certain amount of alcohol use, the absolute probability of passing away from an alcohol-related illness increases linearly. The amount of alcohol that can be drank without risk is unlimited (Rehm, Zatonski & Taylor, 2011) [18]. The National Health and Medical Research Council found in 2009 that an adult in Australia who regularly drinks 6 drinks (60 g of alcohol) every day has a one out of ten chance of dying because of their drinking. All societies with large parts of heavy drinking occurrences, which is true of the majority of societies of the world, experience negative effects from alcohol use on cardiovascular disease when considered as a whole (Rehm *et al*. 2003) [54]. Additionally, it is backed by ecological research or testing done in the nature. For instance, research conducted in Lithuania by Chenet *et al*. in 2001 [44] discovered that the frequency of heavy drinking on weekends prompted a rise in the number of deaths from cardiovascular disease. Also, the former Soviet Union, a nation with a high percentage of excessive drinking occasions in between these years, saw a decline in the mortality rate from cardiovascular disease between 1984 and 1994. This study suggests that drinking alcohol had a negative impact on this disease category (Leon *et al*. 1997) [63].

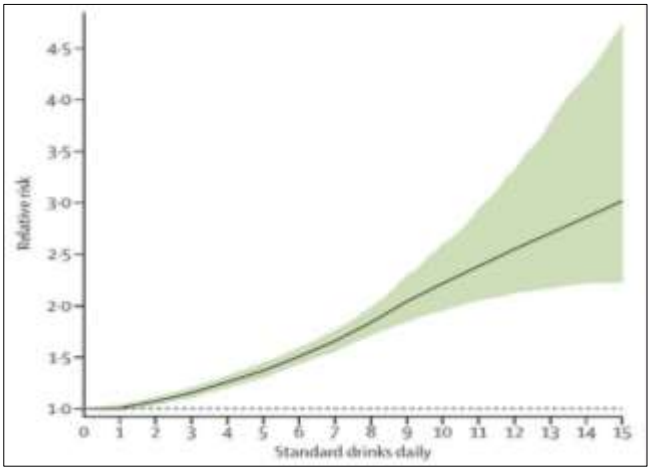

Fig 2: Weighted relative rate for attributable events based on daily standard drinks drank

The probability of developing one of the 23 liquor health issues was specifically 0.5% higher when compared to not drinking at all. This means that while 914 out of every 100,000, the 15 to 95 year old would if they didn't drink, they would in a year get a condition, only 918 out of every 100,000 individuals who consumed 1 alcoholic drink per day would do so (Spiegelhalter *et al*, 2018) [51]. This jumped to 7 percentage in those who drank 2 drinks per day (977 persons in 100,000 who did so would experience an alcohol-related health issue over the course of a year), 1252 persons in 100,000 who consumed 5 alcoholic beverages a day would experience an alcohol-related health issue, which increased to 37% in those who did so for a year. Regular consumption of alcohol could less the human lifespan that not only leads to the present generation but also the upcoming future generation. Regular liquor consumption may lead to the hazardous diseases like-tuberculosis, liver cirrhosis, diabetes mellitus, pneumonia, psychiatric morbidity, malignancies, and pancreatitis, injury, cancer. Acute poisoning from methanol in alcohol-based hand lotion, following inhalation, ingestion, skin exposures, etc. methylated spirits-induced acute methanol intoxication (denatured alcohol) (Willmott *et al*, 2016) [22].

Table 1: Reports of acute methanol poisoning brought on by alcohol-based hand sanitizer

Country (year)	Details
Canada (2013)	Two people have died after consuming a hand sanitizer that contained Methanol (an unlisted ingredient), despite the fact that alcohol was indeed the active ingredient that was listed.
USA (2014)	After consuming a hand sanitizer that contained methanol and ethanol, M/42 passed away.
Hong Kong (2016)	After using a hand sanitizer comprising Meyhanol (undeclared) 22%, Isopropanol (36%), and 3.5%, M/29 needed heamodialysis and IV ethanol infusion.

3. Body gets affected by alcohol

Consuming alcohol on a regular basis can also have a detrimental effect on a person's overall mental health and well-being. This is in part due to the fact that alcohol can exacerbate the symptoms of some mental health illnesses, such as depression, bipolar disorder and anxiety. Drinking alcohol has an effect on the body, particularly on the eyes, breasts, nervous system and brain, bones and muscles, and immune system (in women), heart and blood pressure, lungs, liver, mental health, stomach and gastrointestinal tract, and other organs and systems. Chronic alcohol consumption can raise the chance of death either immediately, as in the case of acute alcohol intoxication, or indirectly, as in the case of alcohol triggering a lethal disease such as cancer (Baan, R., *et al*., 2007) [27]. The drinking alcohol can lead to many unintended injuries, the most common of which are falls, burns, car accidents, assaults, and drowning. When drunk often over a period of time and/or as part of a pattern of excessive drinking episodes in isolation, alcohol can lead to a variety of negative health effects (Rehm, J., *et al*., 2010) [26]. These conditions include cancers as well as other diseases, such as alcoholic liver disease, which can cause reversible or irreparable damage to the liver. Alcohol can act as a stimulant when used in moderation, leading to feelings of exhilaration and increased talkativeness (Roehrs, T., & Roth, T., 2001) [23]. On the other hand, consuming an excessive amount of alcohol in a single sitting can cause respiratory depression and sleepiness (This happens when breathing slows down, becomes shallow, or ceases altogether), coma, and even death (Vonghia, L., *et al*., 2008) [24]. Alcohol consumption makes the people's body affected in many ways as given in figure 3.

Fig 3: Effects of alcohol on body organs

Every organ in the body is affected by alcohol, and the consequences vary over time depending on the blood alcohol content (BAC). Alcohol affects every organ of the body, in addition to its rapid and potentially fatal hypnotic effect at high dosages (Zakhari, S., 2006) [25]. The effects of alcohol are felt within five to ten minutes after drinking because it enters the bloodstream quickly (20% through the stomach and 80% through the small intestine). At thirty to ninety minutes, it reaches its maximum concentration in the bloodstream, at which point it is delivered to all of the organs in the body. Severe alcohol poisoning or the fact that alcohol causes a lethal illness like cancer are examples of direct causes of death (Rehm, J., *et al*., 2010) [26]. A considerable disease burden in society is caused by alcohol, and this burden can be assessed by the number of years that people are incapacitated or in poor health as a result of illnesses or injuries caused by alcohol (Rehm, J., *et al*., 2009) [28]. The chances of developing cancer and other health problems as a result of alcohol consumption are highest in alcoholics and heavy drinkers, and these chances rise along with the amount of alcohol that is drunk on average (Baan, R., *et al*., 2007) [27]. A tolerance to alcohol can gradually develop in some people who partake in alcohol consumption. As a consequence of this, individuals will eventually require more alcohol in order to experience the same effects that they did in the past. Consuming alcohol on a consistent basis can also result in dependence, which indicates that your brain and body have become accustomed to the effects of alcohol. When body develops a dependency on alcohol, it is said to have alcohol use disorder, which was formerly known as alcoholism. This mental health disease is characterized by tolerance as well as dependence to alcohol, both of which can occur as symptoms of alcohol use disorder. According on the amount of symptoms experiencing, the severity of this ailment might range from mild to moderate to severe.

4. Diseases associated with alcohol consumption

It is complicated to link drinking alcohol to conditions including diabetes, cancer, malignancies, and abrupt loss of sensation, paralysis, or inability to speak owing to a disruption in the brain's blood flow. Additionally, it raises the risk of hemorrhagic stroke, which would be brought on by brain hemorrhage. However, consuming one to two drinks daily reduces the chance of ischemic stroke, which would be brought on by clogged arteries in the brain, whereas consuming more alcohol increases this risk (Rehm, J., *et al*., 2010) [26].

4.1 Aids

Relationship of AIDS or HIV is very different from other chronic diseases, heavy drinking and the HIV effects heavily to the immune system. It shows many other harmful effects such as psychiatric disorders, sensation seeking, sexual compulsivity etc. A person One can compare those who consume just under 40 g of alcohol each day to abstainers (Baliunas *et al* 2010 and George WH *et al* 2009) [29, 30].

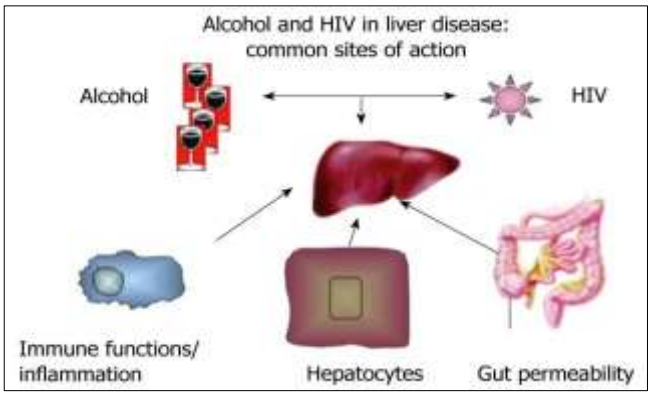

Fig 4: Aids and alcohol in liver diseases

4.2 Cancers

Through liquor consumption there is high tendency of cancer to the pharynx, larynx, oesophagus, liver, colorectum, and in female in breasts. The Monograph Working Group of the International Agency for Research on Cancer concluded that there was sufficient evidences of the Carcinogenecity of alcohol in animals and classified alcoholic beverages as Carcinogenic to human (Rumgay, H., *et al*., 2021) [32]. Chronic consumption of liquor defects the target organs and include variations such as polymorphism. Ethanol metabolism is the main cause for this gene encoding such as alcohol dehydrogenase, cytochrome P450 2E1), an increase of Estrogen, and also effects the DNA repair process (Lachenmeier *et al*. 2009; Seitz and Becker 2007) [31, 33].

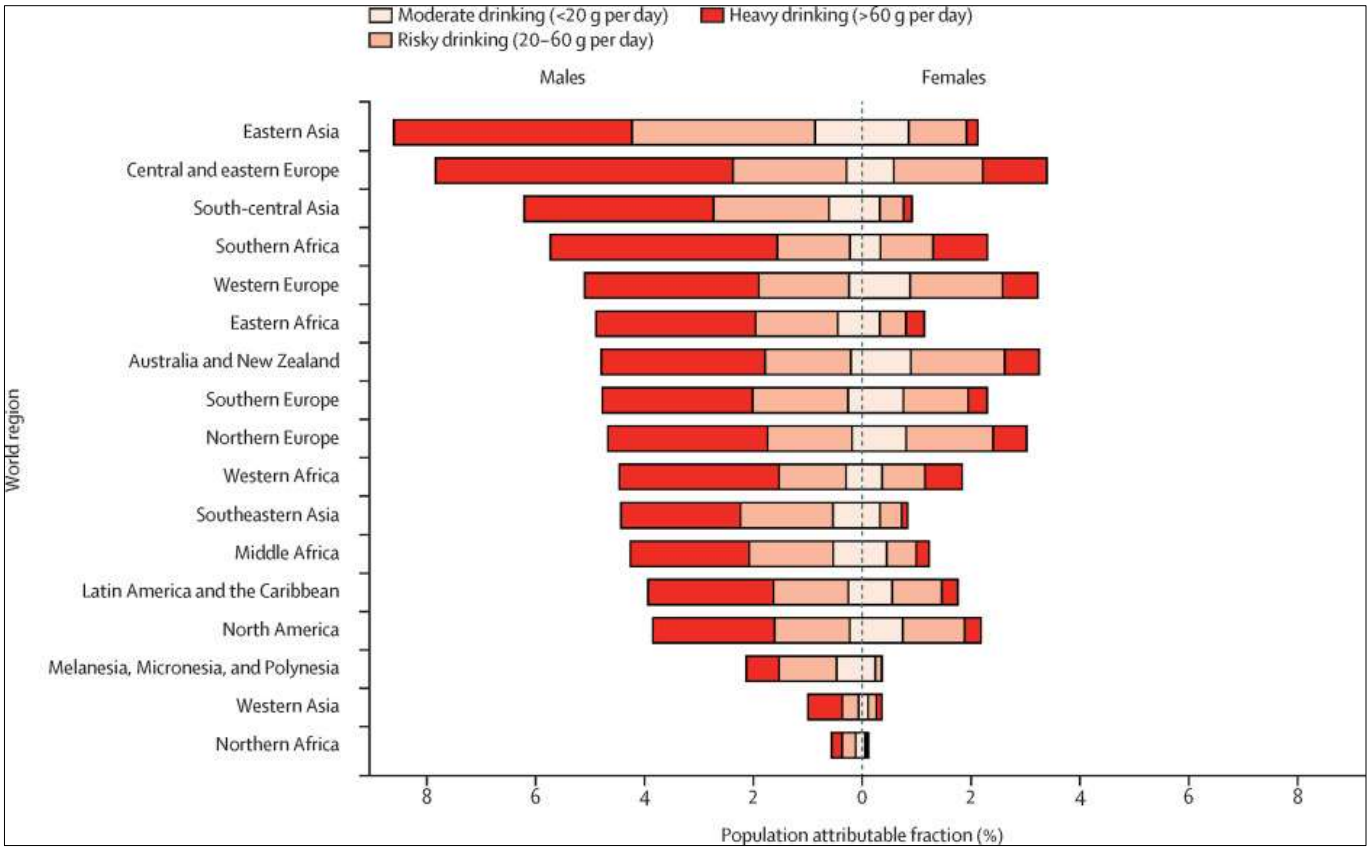

Fig 5: Cancer incidence rates by alcohol intake category, sex, and geographic region

4.3 Diabetes

The relationship of diabetes and consumption of liquor plots a curvilinear graph. It is a direct relationship that is lower consumption of liquor leads to the less risk factor whereas the higher the amount if consumption of liquor leads to the higher risk factor. Lower risk factor – 28 grams of pure alcohol whereas the higher risk factor is of -50 to 60 grams of pure alcohol. ADH1C increased cholesterol levels and decreased the risk of myocardial infarction in moderate drinkers (Baliunas *et al*. 2009) [34].

4.5 Neuropsyhiatric Disorders

Consumption of liquor has the greatest and direct impact on brain. The AUD or alcohol use causes mental disorders. The relationship between Epilepsy and alcohol has a complex relationship (Grant *et al*.2009; Samokhvalov *et al* 2010 and Eckardt *et al*, 1998) [35, 7, 37].

4.6 Cardiovascular Diseases

The relationship of liquor and heart or other heart related disorders are severe with the increase of consumption of liquor leads to the Arterial Fibrillations, a detrimental effect of hypertension, excessive stress (Samokhvalov AV *et al* 2010) [7]. The correlation between drinking alcohol and heart-related issues follows a J-shaped curve. There is a growing U-shaped association between alcohol consumption and the risk of sudden death. With similar results for all beverage kinds, the IRR for sudden cardiac death was 0.64 (95% CI = 0.43, 0.95) for consuming 5.0 to 14.9 grams per day, 0.68 (95% CI = 0.38, 1.23) for consuming 15.0 to 29.9 grams per day, and 1.15 (95% CI = 0.70, 1.87) for consuming 30.0 grams or more per day (Corrao G,Rubbiati L *et al* 2000,2004, Rehm *et al* 2003 and Brien *et al* 2011) [38, 39, 54, 40].

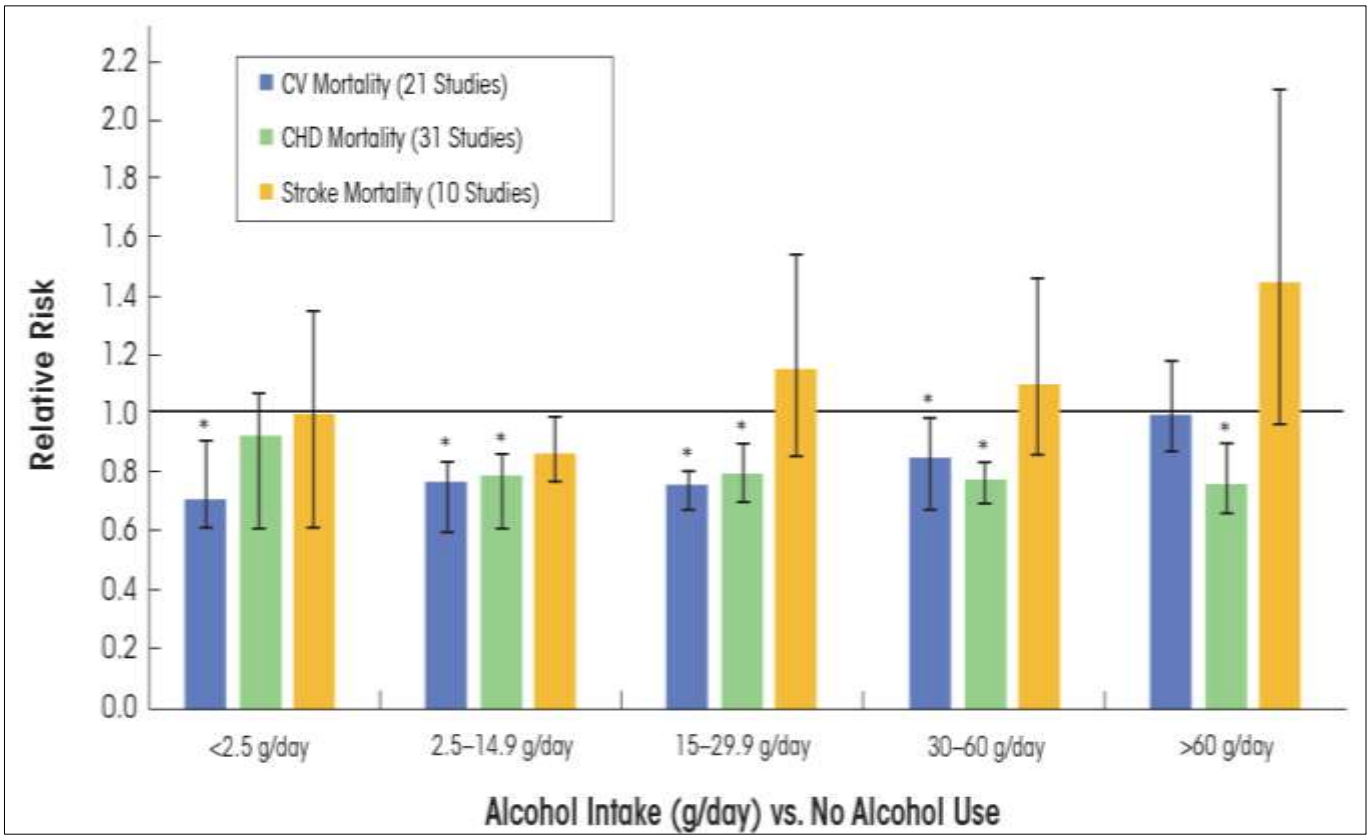

Fig 6: Alcohol effect on Cardiovascular System

4.7 Diseases Related to Liver and Pancreas

Drinking alcohol has been linked to a number of deadly illnesses, including cirrhosis of the liver, liver disorders, and acute or chronic pancreatitis. (Irving HM, Samokhvalov AV *et al* 2009) [41]. Risk associated with drinking 24 grams of pure alcohol per day are related with abstention. Therefore, consumption of heavy amount of liquor could cause chronic diseases. It is important that consumption of liquor everyday in same amount could leads to the higher risk of mortality than morbidity (Rehm J. *et al* 2010b) [42].

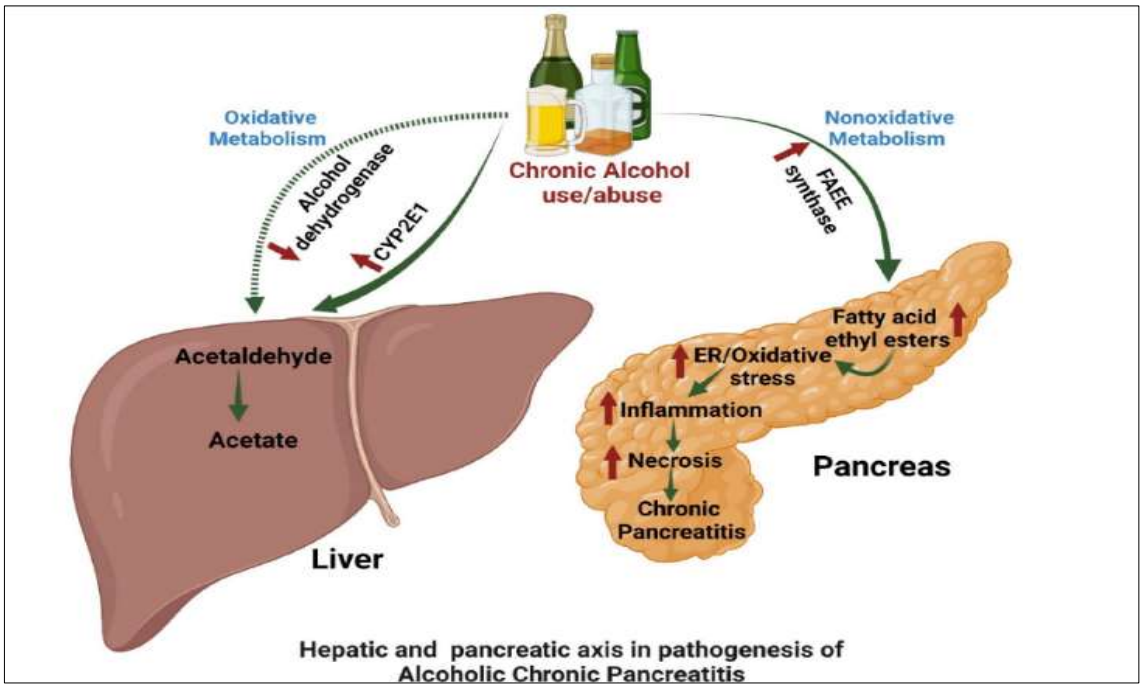

Fig 7: Hepatic and pancreatic axis in pathogenesis of alcoholic chronic pancreatitis

4.8 Fractures and Chronic Bone Diseases

Chronic bone diseases are caused due to excessive drinking liquor. This leads to lower bone density. Thus, in an experiment we found that the ladies who had consumed 10 or more than that of pure alcohol had pure bone density compared to the other who used to consume alcohol at

irregular intervals. Drinking moderate amounts of alcohol impairs balance and increases the chance of falling, and females had body mass indices under 21 kg per m^2 who took more than 15 g of alcohol per day were more likely to have forearm and hip fractures. (IRR =1.73;95% cl = 1.30,2.29).

4.9 Gallstones

It has been observed that alcohol drinking has decreased gallstone development. The incidence of symptomatic gallstones was found to be 40% (95% cl= 0.4, 0.8) lower in people who consumed 5 or more grams of alcohol per day.

4.10 Social Harm

Due to their own drinking, the alcoholics who are hooked suffer from a variety of social ills, such as issues at work, family strife, unemployment, financial difficulties, and criminal convictions (Casswell S, *et al* 2009) [43]. The liquor consumption sometimes causes poverty. Because when aperson is sick or involved in chronic diseases then for the treatment one has to even take loan but does not get fully cured, even for the pressure of debt sometimes they have to do suicides (Leonard KE. *et al* 2005) [45].

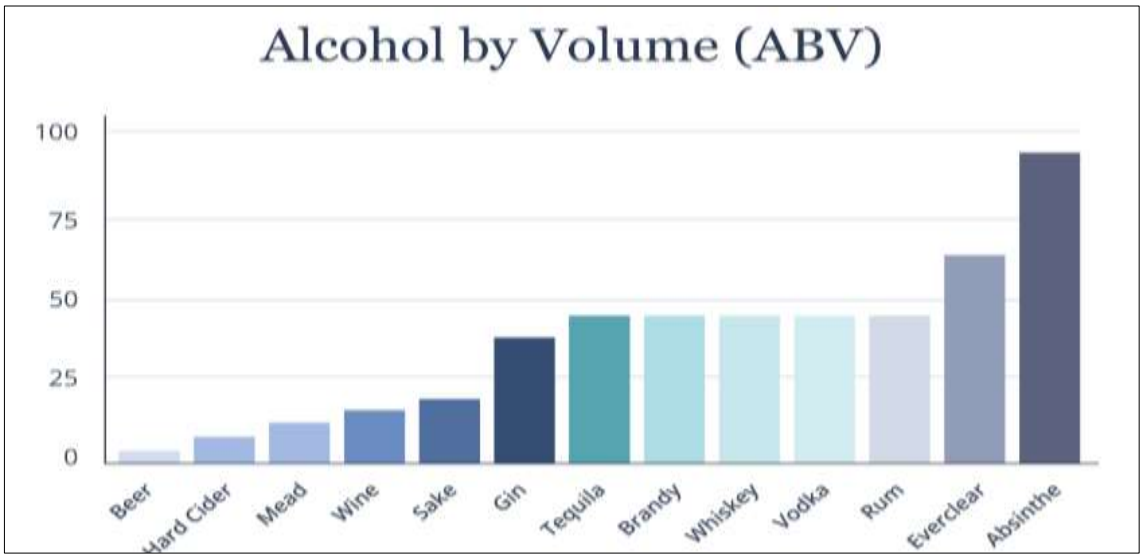

Fig 8: Alcohol by volume (ABV)

4.11 Different types of Alcohol and their alcoholic percentages

Alcoholic Beverage Percentage Content

- In Vodka, the percentage of ABV is 40-95%
- In Gin, the percentage of ABV is 36-50%
- In Rum, the percentage of ABV is 36-50%
- In Tequila, the percentage of ABV is 50-51%
- In Liqueurs, the percentage of ABV is 15%
- In Fortified Wine, the percentage of ABV is 16-24%
- In Unfortified Wine, the percentage of ABV is 14-16%
- In Beer, the percentage of ABV is 4-8%
- In Whiskey, the percentage of ABV is 36-50%
- In Malt Beverage, the percentage of ABV is 15%

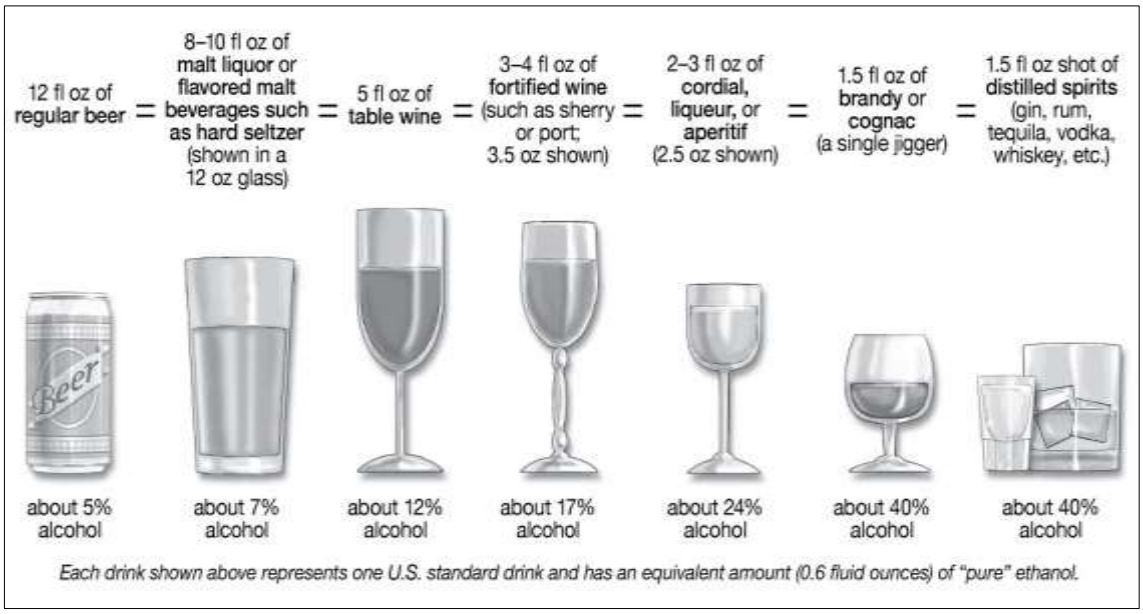

Fig 9: Standard Drink as of National Institute on Alcohol abuse and alcoholism (NIAAA)

Alcohol intake has negative short- and long-term impacts on health, which are detailed below, in addition to this health concern.

4.12 Short-Term Health Risks

Alcohol use that is excessive has immediate effects that raise the possibility of a variety of harmful effects on one's health. These often result from drinking large amounts in rapid succession and include the following:

- Accidents involving motor vehicles, falls, drownings, and burning are the main reasons for fatal accidents (World Health Organization, 2018) [47].
- Violent acts such as murder, attempted suicide, sexual assault, and violence against intimate partners (Mohler-Kuo M, 2004) [49].
- Alcohol poisoning, which a medical emergency is brought on by abnormally high blood alcohol concentrations (Kanny D, *et al*., 2015) [50].
- Sexually dangerous practices, such as having several partners or having sex without protection. These actions may lead to unplanned pregnancies or sexually transmitted diseases like HIV (Naimi TS, *et al*., 2003) [52].
- Fetal alcohol spectrum disorders (FASDs) in pregnant women, including spontaneous abortions and stillbirths (Kesmodel U, *et al*., 2002) [55].
- The inhibitions will be weakened, which will result in speech that is slower or more slurred (A B Hertzman, *et al*., 1938) [62]
- sensations of relaxation or sleepiness may be experienced (J. Zhang, *et al*., 2008) [57]
- a state of extreme happiness or giddiness(L. Kodavali, *et al*., 2006) [53]

4.13 Long-Term Health Risks

When people drink too much alcohol, they can get chronic diseases and have other important problems, such as:

- Hypertension, cardiovascular disease, stroke, liver disease, and gastrointestinal problems (Rehm J. *et al*., 2010) [26].
- Cancers of the breast, pharynx, oesophagus, oral cavity, larynx, colon, liver and rectum (International Agency for Research on Cancer, 2012) [58].
- A decrease in immune system strength, which increases the likelihood of contracting an illness (Rehm J. *et al*., 2010) [26].
- Issues with learning and memory, including dementia and subpar academic performance (Miller JW, 2007) [59].
- Mental health issues, including but not limited to anxiety and depression (Castaneda R, *et al*., 1996) [60].
- It causes trouble sleeping and other sleep-related issues, which in turn can have a negative impact on the immune system. (D. A. Kenny *et al*, 2020) [46].
- Problems relating to society, such as those involving families, workplaces, and jobs, as well as unemployment (Booth BM, and Feng W., 2002) [61].
- Alcohol use disorders or addiction (Esser MB *et al*., 2014) [64].
- It slows down metabolism, which in turn causes adverse effects on the body's organs (J. D. Clapp *et al*., 2009) [56].
- Alterations in one's appetite and weight, in addition to the fact that this will cause problems with one's memory and concentration (J. D. Clapp *et al*., 2008) [48].

4.14 Chronic Diseases

There is a lack of information that can definitively say how drinking alcohol affects one's heart. The risk of developing coronary artery disease and dying from it may be decreased by light to moderate alcohol use in the elderly (for women, up maximum 1 standard drink daily, and for males, a maximum of two standard drinks daily). Coronary artery disease, which can result in angina and heart attacks, is the constriction and blockage of the arteries that carry blood to the heart as a result of the accumulation of fatty acid within the walls of the arteries (atherosclerosis) (Srinivasan, M. P., *et al*., 2022) [15]. This is most likely because moderate alcohol consumption changes the blood's lipids and coagulation components in a way that makes them protective against cardiovascular disease (Bhatt, D. L., *et al*., 2007) [65]. Both irregular excessive drinking and chronic heavy drinking increase the risk of developing coronary heart disease (Kloner, R. A., & Rezkalla, S. H., 2007) [66].

Table 2: Numerous chronic diseases and disorders include alcohol usage as a crucial cause

ICD–10 Code	Disease
F10	Alcohol-related mental and behavioural illnesses
F10.0	Short-term poisoning
F10.1	Malicious application
F10.2	Syndrome of Dependence
F10.3	a condition of withdrawal
F10.4	a condition of withdrawal accompanied with delirium
F10.5	Disorder of the mind (psychotic)
F10.6	a syndrome of amnesia
F10.7	Psychotic disorders that linger or appear in middle age or later
F10.8	Diverse Psychological and Behavioral Disorders
F10.9	Psychiatric and behavioural disease of unknown cause
G31.2	Alcohol is responsible for neurodegeneration.
G62.1	Polyneuropathy caused by alcohol use.
G72.1	Myopathy brought on by alcohol abuse
I42.6	Intoxicated heart muscle
K29.2	Alcohol-induced gastritis
K70	Liver damage from alcohol abuse
K70.0	Constant alcohol consumption leads to a fatty liver.
K70.1	Hepatitis caused by excessive alcohol consumption
K70.2	Hepatic sclerosis and fibrosis cause of alcohol abuse
K70.3	Liver cirrhosis caused by alcohol abuse
K70.4	Liver failure due to alcohol abuse
K70.9	Cirrhosis of the liver cause of alcohol use
K85.2	Chronic pancreatitis brought on by alcohol abuse
K86.0	Chronic pancreatitis brought on by alcohol abuse
P04.3	Alcohol usage during pregnancy harms the developing foetus and baby.
Q86.0	Fetal alcohol syndrome

Table 2 outlines the function of alcohol as a potential cause or protector against some of these chronic illnesses and ailments. If the illness or condition is classified as an alcohol-

attributable damage in the 2005 Global Burden of Disease (GBD) Study, it is described in Table 2 along with the source of the relative risk (RR) values.

5. Conclusion and Suggestions

5.1 Conclusion

The consumption of alcohol can lead us to a fatal health, wealth, as well as mental disturbances. The society could neglect us from a friendly living environment. We should be aware that the children who are recently reached their adolescence period that they must not come in contact to liquors. Also the daily drinkers should be aware of their health because this liquor, one day will costs them high that they cannot imagine, also they have to think of their family because they are the one who are totally depend on that person (drinkers). Abandon of liquor could one give a happy, peaceful life. Alcohol addiction can be removed by proper treatment, movement to the rehabilitation center Alcohol is a known carcinogen that increases the risk of many different types of cancer. Alcohol intake and cardiovascular disease, such as coronary heart disease and stroke, are intricately linked. Consuming alcohol in small to moderate amounts (per day, one to two drinks) is associated with a lower risk of developing coronary artery disease and ischemic stroke (obstructed arteries inside the brain causing stroke). Even in small amounts, alcohol can cause breast cancer, can harm a growing foetus even before a woman is aware that She is expecting, and using it has the potential to make someone dependent and addicted. Thus, drinking alcohol comes with a significant number of potential dangers. The more alcohol someone drinks, the more likely they are to die from an illness or injury caused by alcohol.

5.2 Suggestions

- By not drinking too much, users can reduce the risks of different kinds of health risks, diseases, injuries etc.
- Regular health check-up can also alert users about health risks.

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