

ALCOHOL USE AND ADDICTION AMONG COLLEGE STUDENTS IN CHENNAI

Type of study: Original study

Running title: Alcohol use and addiction among College Students

Srigopika T

Graduate student Department of Public Health Dentistry
Saveetha Dental College, Saveetha Institute of Medical and Technical Sciences
Saveetha University, Chennai – 600077, India.
Email ID- 152001029.sdc@saveetha.com

Pradeep Kumar R

Professor Department of Public Health Dentistry
Saveetha Dental College, Saveetha Institute of Medical and Technical Sciences,
Saveetha University, Chennai – 600077, India.

Corresponding author

Pradeep Kumar R

Professor Department of Public Health Dentistry
Saveetha Dental College, Saveetha Institute of Medical and Technical Sciences,
Saveetha University
No. 162, Poonamallee High Road, Chennai – 600077, Tamil Nadu, India.
E-mail: pradeepkumarr.sdc@gmail.com

Abstract

Introduction Alcohol is a depressant, which in low doses causes euphoria, reduces anxiety, and increases sociability. In higher doses, it causes drunkenness, stupor, unconsciousness or death. Long-term use can lead to an alcohol use disorder, an increased risk of developing several types of cancer, and physical dependence. Due to its high alcohol content, drinking a large amount of undiluted liquor within a short period of time can cause serious and acute health problems.

Aim The aim of the study is to check for alcohol use and consumption among college students in Chennai.

Materials and methods A total sample of 150 college students were included in this study. This cross sectional study was conducted in Chennai by convenient sampling in February 2021. A pretested online questionnaire with 10 questions was distributed across online platforms. The statistics were computed with the SPSS version 23 software. Descriptive statistics (frequencies

and percentages) were used for checking the alcohol use and consumption among college students. Association analysis was also done to arrive at the results.

Results 62.67% of the study population have easy access to beer, 73.33% of them to wine and 69.33% to spirits. 76.67% of the participants started drinking beer from the age group 17-19, 82.67% of them started drinking wine from the range of 20-22 and 75.33% of the population started drinking spirits from the age group of 23-25. 8% of the study population in the age group 17-19, 12% in the age group 20-22 and 5% in the age group 23-25 have faced problems in their life due to alcohol consumption. Pearson chi square test was done and the p-value is 0.02. and hence it is statistically significant.

Conclusion: Majority of the population are alcohol dependent or at least consume a small amount of alcohol on a regular basis.

KEYWORDS

Alcohol, Addiction, Novel tool, Prevalence, Students

INTRODUCTION

Alcoholism is commonly defined as drinking of alcohol that results in mental or physical health problems [1]. Women are generally more sensitive than men mainly due to their smaller body weight, lower capacity to metabolize alcohol, and higher proportion of body fat [2]. The physical dependency caused by alcohol can lead to an affected individual having a very strong urge to drink alcohol, which is not advisable. These characteristics play a huge role in decreasing an alcoholic's ability to stop drinking [3]. The age at which adolescents begin using alcohol is an important predictor as it helps in understanding their alcohol-related behaviours, later in life. Empirical research has associated early onset of alcohol with increased risk for alcohol use and dependence [4].

Although wine and other alcoholic drinks form an integral component of the culture and are a form of entertainment in others, [5] when consumed in large amounts has its own disadvantages. The main active ingredient of wine is alcohol, and therefore, the health effects of alcohol also apply to wine. A systematic analysis of data from the Global Burden of Disease study found that consumption of ethanol increases the risk of cancer and increases the risk of all-cause mortality, and that the level of ethanol consumption that minimizes disease is zero consumption [6].

Having more than one drink a day for women or two drinks for men increases the risk of heart disease, high blood pressure, atrial fibrillation, and stroke. Alcoholism reduces a person's life expectancy by around ten years and alcohol use is the third leading cause of early death in

the United States [6]. Excessive alcohol use causes damage to brain function, and psychological health can be increasingly affected over time [7].

Alcohol has long been known as a risk factor for disease. The 1990 Global Burden of Disease study identified alcohol as one of the major global risk factors, accounting for 1.5% of global deaths, 2.1% of years of healthy life lost owing to premature mortality, 6.0% of years lost owing to disability and 3.5% of disability-adjusted life years [4].

The alcohol use disorders consist of alcohol dependence, alcohol abuse and dependence or harmful use. These are common and potentially lethal disorders that mimic and exacerbate a wide range of additional medical and psychiatric conditions [8]. More than 30% of the students reported one or more symptoms of abuse and more than 40% reported one or more symptoms of either abuse or dependence [9].

Similar research conducted shows that 72% of the 12th graders drank alcohol to have a good time with their friends, 52% of the students wanted to experiment and know how it feels while 46% of the students wanted to feel good, get high and because they prefer the taste of alcohol [10].

There are multiple reasons as to why this research is conducted out of which the two most significant ones are to assess alcohol use among the general population and thus raise awareness and to assess ways to prevent alcohol use. Awareness of alcohol use and misuse is not new. Alcohol consumption is a major health problem in most parts of the world, responsible for 3.2% of deaths [11]. Our team has extensive knowledge and research experience that has translated into high quality publications [12–20],[21],[22],[23,24],[25],[26],[27–31]. Thus, the aim of the study is to determine the prevalence of alcohol use and addiction among the college students in Chennai.

MATERIALS AND METHODS

Study design is a cross sectional questionnaire study. It is common knowledge that more the population, more the youngsters and there are chances of increased alcohol consumption too. Inclusion criteria are people who are alcohol users for more than 1 year, people who are present during the time of study and willing to participate, people among the age group of 17-25. Exclusion criteria includes people who were not willing to participate in the study and those who were unavailable at the time of schedule data collection.

Prior to the start of the study, ethical clearance was obtained from the Institutional ethical committee. The anonymity of the participants was maintained. Data collection was scheduled in the month February, 2021. The study population was informed about the aim of the study. The

study has been conducted in full accordance with N. Estevez et al. *Epidemiology and psychiatric Science*, 2016. The sample was manually calculated and was approximated to 150. The study was conducted among the college students by a convenient sampling.

A closed ended pretested online questionnaire was adopted from N Estevez et al 2016 to obtain more information about the alcohol use and its addictions among college students. The questionnaire takes approximately five minutes to complete. It was analysed that most of the participants found the questionnaire to be easy. The questionnaire consists of four sections in which section A comprises demographic details of the study participants. Section B comprised questions related to accessibility of beer, wine and spirits. Section C consists of frequency and age of initiation of beer, wine and spirits. Section D consisted of questions based on the effects of beer, wine and spirit on the general health and lifestyle. The participants' responses for section B, C and D were recorded. Data was entered in Microsoft excel spreadsheet and analysed using SPSS software (version 23). Descriptive analysis (frequencies and percentages) was used to assess the data obtained. Pearson chi square test was done to assess the association between age groups and people faced problems in their life due to alcohol consumption

RESULTS

In the present study , there were 150 participants present in the study in which 58% males and 42% females were present in the study. According to the age-wise distribution 39.3 % , 37.33% and 23.34 % were present in 17-19, 20-22 and 23-25 age groups respectively (Table 1).

Results revealed that in the accessibility of alcohol, 72.67% , 73.33%, 69.33% had very easy accessibility for beer, wine and spirit respectively (Figure 1).

On the question about the last time they consumed alcohol, 89.33% had consumed it before less than 3 months, 8.67% had consumed 3-6 months before and 2% had consumed it before 6 months (Figure 2).

Results revealed that among study participants, at the age of 17-19, 76.67% started consuming beer, 82.67% started consuming wine and 75.33% started consuming spirit. At the age of 20-22, 11.33% started consuming beer, 8.67% started consuming wine and 15.33% started consuming spirit (Figure 3).

Among the study participants, 8% of the study population in the age group 17-19, 12% in the age group 20-22 and 5% in the age group 23-25 have faced problems in their life due to alcohol consumption. Pearson chi square test was done and the p-value is 0.02. and hence it is statistically significant. (Figure 4).

Table 1: Demographic details of the study participants

Age (Years)		Gender		Total
		Male	Female	
17-19	N	36	23	59
	% within age	62.1%	37.9%	100%
20-22	N	33	23	56
	% within age	58.9%	41.1%	100%
23-25	N	18	17	35
	% within age	51.4%	48.6%	100%
Total		87	63	150
		58%	42%	100%

Table 1 shows that there were 58.4% males and 41.6% females were present in the study. According to the age wise distribution 39.3 %, 37.33% and 23.34 % were present in 17-19, 20-22 and 23-25 age groups respectively

Figure 1 : Distribution of accessibility of Students to Various types of alcohol use

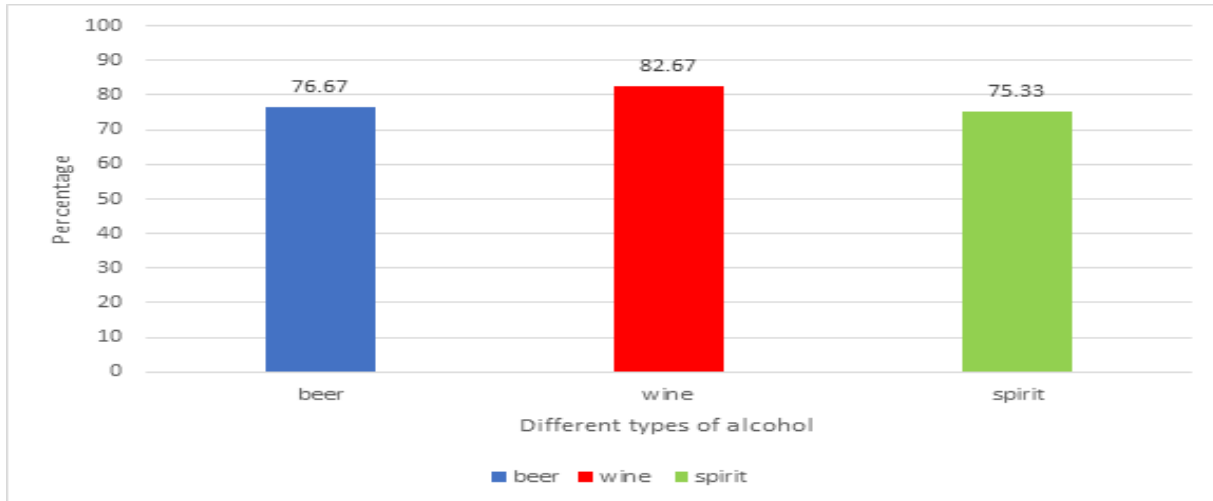


Figure 1 distribution of accessibility of Students to Various types of alcohol use. X axis represents percentage and Y axis represents the different types of alcohol. Blue represents beer, red represents wine and green represents green. It shows that the 76.67%, 82.67 and 75.33% participants had very easy access to beer, wine and spirit respectively.

Figure 2: Frequency of alcohol consumption among study participants

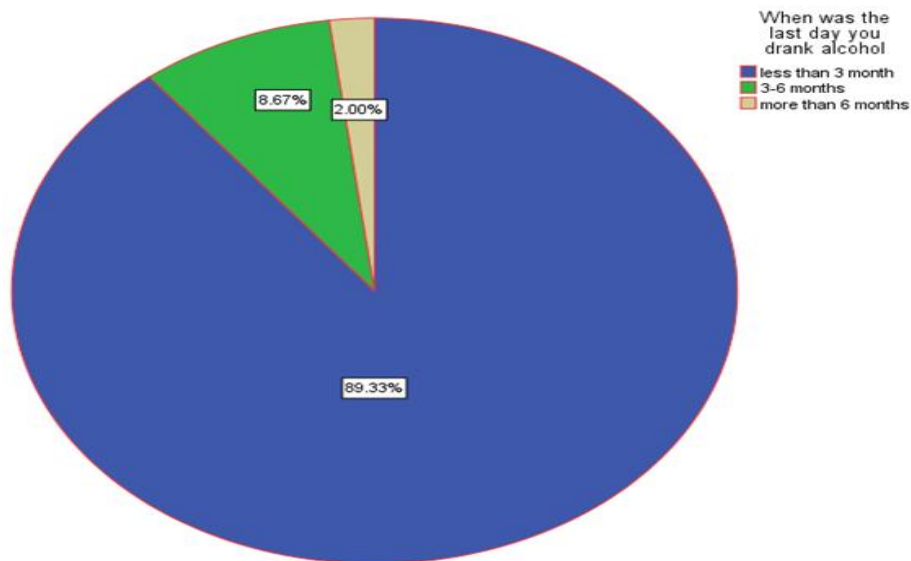


Figure 2 shows the frequency of alcohol consumption among study participants. Blue represents “less than 3 months”, green represents “3-6 months” and mustard represents “more than 6 months”. It was observed that 89.33% had consumed it before less than 3 months, 8.67% had consumed it 3-6 months before and 2% had consumed it before 6 months.

Figure 3: Impact of alcohol use in daily social life style

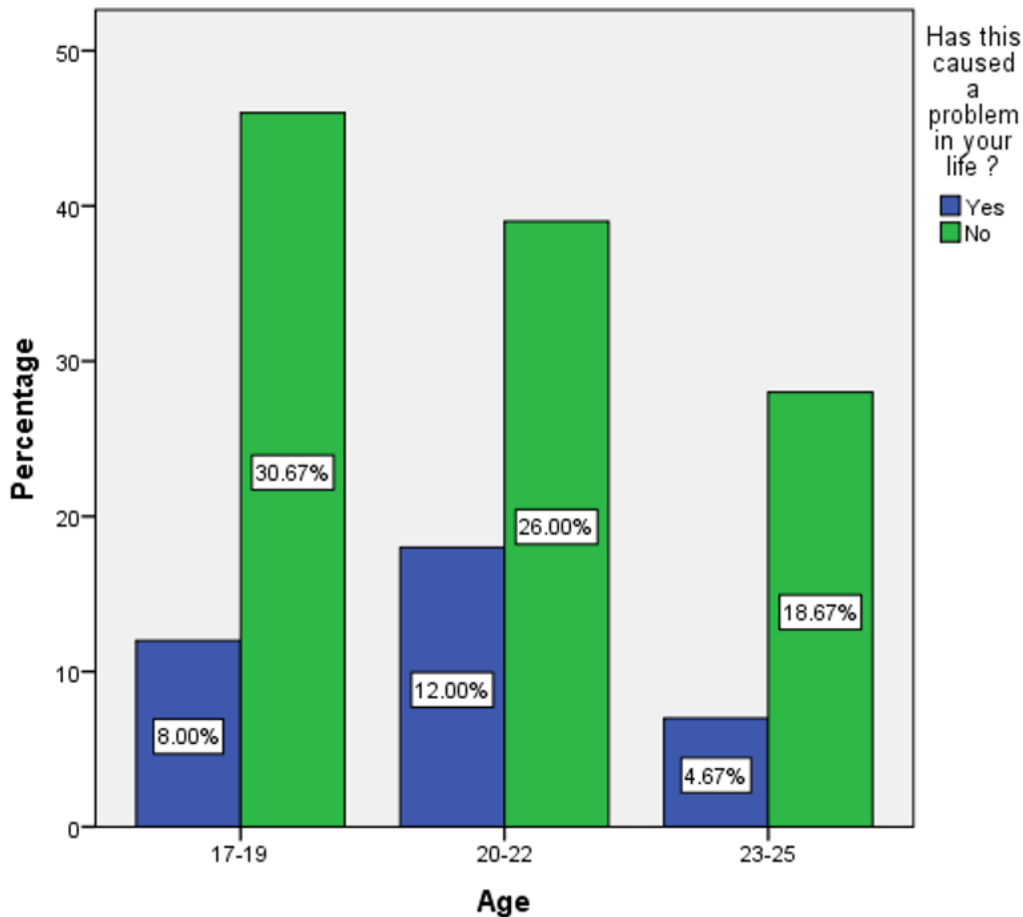


Figure 3: shows the association of Impact of alcohol use in daily social life style among various age groups. X axis represents age and Y axis represents percentage of responses for the question, Has this alcohol addiction caused a problem in your life? (Green represents “no” and blue represents “yes”). 8% of the study population in the age group 17-19, 12% in the age group 20-22 and 5% in the age group 23-25 have faced problems in their life due to alcohol consumption. Pearson chi square test was done and the p-value is 0.02. and hence it is statistically significant.

DISCUSSION

The act of being fascinated with alcoholic beverages and drinking them usually occurs in adolescence, and this period is characterized by intense psychosocial and biological changes. Even though it is not allowed and advisable to sell alcoholic beverages to people aged less than 18 years old, alcohol consumption by teenagers is still a common practice [32]. Studies have shown that the use of alcohol in adolescence is associated with sociocultural and environmental factors, use of psychoactive substances by family members and friends, besides conflicts with parents and negative feelings, such as sadness and loneliness [33].

The damage resulting from the consumption of alcohol among adolescents is different from that observed in adult individuals, due to the psychosocial specificities in this cycle of life, or to specific neurological matters that exist due to brain maturation [34]. Besides, the use of alcohol among adolescents is usually more episodic, being consumed abusively or heavily, which leads to potential risks, including overdose or alcoholic intoxication, and this may affect the development and cause consequences to adulthood [35].

Alcoholic beverage consumption has been established as a human carcinogen for several cancers, including mouth, pharynx, larynx, colon, esophagus and rectum [36]. The risk between alcohol consumption and lung cancer has been speculated for a long time [37]. Though a lot of study has been done on this, epidemiologic studies have not given consistent results on the effect of drinking on lung cancer [38].

Alcohol causes many effects on the central nervous system of adolescents. Brain immaturity in that phase brings great vulnerability. The use of alcohol and other drugs can affect its maturation. As a consequence, adolescents who are addicted to alcohol and drugs may present with reduced hippocampal volume and skills, such as memory and learning [39]. Neurophysiological studies have shown that the frontal lobe is essential for functions such as responses for inhibition, emotional regulation, planning and organization, and its development and maturation continue during adolescence and in young adults. The lateral lobe is associated with language and hearing, and these functions are widely mature in adolescence. With regard to occipital, parietal and temporal lobes, they present small changes in these phases of life and are less affected.

In this study, it is observed that the study population from the age group 17-19 are more involved with alcohol and the majority of these people have easy access to alcohol. On the contrary, in another study, taking the first drink of alcohol at or before age of 13 was unrelated to the odds of alcohol and drug dependency, when the adolescent did not also participate in early drug use [40].

In the present study it was reported that 24.67% of them had troubles in their family due to alcohol use. In a study conducted in Australia, it was found that when compared to those without alcohol problems, people with alcohol problems reported high family independence. Family cohesion was unrelated to alcohol or family problems [41].

The limitation to this study is that the sample size could have been larger which would eventually give more credibility. Majority of the population are alcohol dependent. It is necessary to increase awareness on the ill effects of alcohol use because it not only leads to health problems but also marital and financial problems.

CONCLUSION

Within the limits of the study, it has been found out that the majority of the college students are dependent on alcohol or atleast drink alcohol. It is necessary to create awareness among the general population to reduce the amount of alcohol consumed to prevent health, social, financial and family problems.

AUTHOR CONTRIBUTIONS

Ms. Srigopika T: Literature search, data collection, manuscript writing.

Dr. Pradeep Kumar. R: Study design, data verification, manuscript drafting.

ACKNOWLEDGEMENT

The team extends our sincere gratitude to the Saveetha Dental College and Hospitals for their constant support and successful completion of this work.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

SOURCE OF FUNDING:

The Present project is supported and funded by

- Saveetha institute of Medical and Technical Sciences
- Saveetha Dental College and Hospitals
- Saveetha University
- S and S Impex.

REFERENCES

1. Littrell J. Understanding and Treating Alcoholism: Volume I: An Empirically Based Clinician's Handbook for the Treatment of Alcoholism: volume II: Biological, Psychological, and Social Aspects of Alcohol Consumption and Abuse. Psychology Press; 2014. 408 p.
2. World Health Organization. Global Status Report on Alcohol and Health 2018. World Health Organization; 2019. 469 p.
3. Hoffman PL, Tabakoff B. Alcohol dependence: a commentary on mechanisms. *Alcohol Alcohol*. 1996 Jul;31(4):333–40.
4. Medina-Mora ME, Monteiro M, Room R, Rehm J, Jernigan D, Sánchez-Moreno D, et al. Alcohol Use and Alcohol Use Disorders [Internet]. *Disease Control Priorities, Third Edition (Volume 4): Mental, Neurological, and Substance Use Disorders*. 2016. p. 127–43. Available from: http://dx.doi.org/10.1596/978-1-4648-0426-7_ch7
5. Chellappa LR. Estimation of Fluoride in Different Types of Commercially Available Wine [Internet]. Vol. 13, *Bioscience Biotechnology Research Communications*. 2020. p. 449–56. Available from: <http://dx.doi.org/10.21786/bbrc/13.8/179>
6. O'Keefe JH, Bhatti SK, Bajwa A, DiNicolantonio JJ, Lavie CJ. Alcohol and cardiovascular health: the dose makes the poison...or the remedy. *Mayo Clin Proc*. 2014 Mar;89(3):382–93.
7. Oscar-Berman M, Marinkovic K. Alcoholism and the brain: an overview. *Alcohol Res Health*. 2003;27(2):125–33.
8. Schuckit MA. Alcohol-use disorders. *Lancet*. 2009 Feb 7;373(9662):492–501.
9. Knight JR, Wechsler H, Kuo M, Seibring M, Weitzman ER, Schuckit MA. Alcohol abuse and dependence among U.S. college students. *J Stud Alcohol*. 2002 May;63(3):263–70.
10. O'Malley PM, Johnston LD, Bachman JG. Alcohol use among adolescents. *Alcohol Health Res World*. 1998;22(2):85–93.
11. Ramachandran V. The prevention of alcohol-related problems. *Indian J Psychiatry*. 1991 Jan;33(1):3–10.
12. Mathew MG, Samuel SR, Soni AJ, Roopa KB. Evaluation of adhesion of *Streptococcus*

- mutans, plaque accumulation on zirconia and stainless steel crowns, and surrounding gingival inflammation in primary molars: randomized controlled trial. *Clin Oral Investig.* 2020 Sep;24(9):3275–80.
13. Samuel SR. Can 5-year-olds sensibly self-report the impact of developmental enamel defects on their quality of life? *Int J Paediatr Dent.* 2021 Mar;31(2):285–6.
 14. Samuel SR, Kuduruthullah S, Khair AMB, Al Shayeb M, Elkaseh A, Varma SR, et al. Impact of pain, psychological-distress, SARS-CoV2 fear on adults' OHRQOL during COVID-19 pandemic. *Saudi J Biol Sci.* 2021 Jan;28(1):492–4.
 15. Samuel SR, Kuduruthullah S, Khair AMB, Shayeb MA, Elkaseh A, Varma SR. Dental pain, parental SARS-CoV-2 fear and distress on quality of life of 2 to 6 year-old children during COVID-19. *Int J Paediatr Dent.* 2021 May;31(3):436–41.
 16. Samuel SR, Acharya S, Rao JC. School Interventions-based Prevention of Early-Childhood Caries among 3-5-year-old children from very low socioeconomic status: Two-year randomized trial. *J Public Health Dent.* 2020 Jan;80(1):51–60.
 17. Vikneshan M, Saravanakumar R, Mangaiyarkarasi R, Rajeshkumar S, Samuel SR, Suganya M, et al. Algal biomass as a source for novel oral nano-antimicrobial agent. *Saudi J Biol Sci.* 2020 Dec;27(12):3753–8.
 18. Chellapa LR, Rajeshkumar S, Arumugham MI, Samuel SR. Biogenic Nanoselenium Synthesis and Evaluation of its antimicrobial, Antioxidant Activity and Toxicity. *Bioinspired Biomim Nanobiomaterials.* 2020 Jul 23;1–6.
 19. Samuel SR, Mathew MG, Suresh SG, Varma SR, Elsubeihi ES, Arshad F, et al. Pediatric dental emergency management and parental treatment preferences during COVID-19 pandemic as compared to 2019. *Saudi J Biol Sci.* 2021 Apr;28(4):2591–7.
 20. Barma MD, Muthupandiyan I, Samuel SR, Amaechi BT. Inhibition of Streptococcus mutans, antioxidant property and cytotoxicity of novel nano-zinc oxide varnish. *Arch Oral Biol.* 2021 Jun;126:105132.
 21. Muthukrishnan L. Nanotechnology for cleaner leather production: a review. *Environ Chem Lett.* 2021 Jun 1;19(3):2527–49.
 22. Muthukrishnan L. Multidrug resistant tuberculosis - Diagnostic challenges and its conquering by nanotechnology approach - An overview. *Chem Biol Interact.* 2021 Mar

1;337:109397.

23. Sekar D, Auxzilia PK. Letter to the Editor: H19 Promotes HCC Bone Metastasis by Reducing Osteoprotegerin Expression in a PPP1CA/p38MAPK- Dependent Manner and Sponging miR- 200b- 3p [Internet]. *Hepatology*. 2021. Available from: <http://dx.doi.org/10.1002/hep.31719>
24. GowhariShabgah A, Amir A, Gardanova ZR, OlegovnaZekiy A, Thangavelu L, Ebrahimi Nik M, et al. Interleukin-25: New perspective and state-of-the-art in cancer prognosis and treatment approaches. *Cancer Med*. 2021 Aug;10(15):5191–202.
25. Kamala K, Sivaperumal P, Paray BA, Al-Sadoon MK. Author response for “Identification of haloarchaea during fermentation of *Sardinella longiceps* for being the starter culture to accelerate fish sauce production” [Internet]. Wiley; 2021. Available from: <https://publons.com/publon/47375106>
26. Ezhilarasan D, Lakshmi T, Subha M, Deepak Nallasamy V, Raghunandhakumar S. The ambiguous role of sirtuins in head and neck squamous cell carcinoma. *Oral Dis* [Internet]. 2021 Feb 11; Available from: <http://dx.doi.org/10.1111/odi.13798>
27. Sridharan G, Ramani P, Patankar S, Vijayaraghavan R. Evaluation of salivary metabolomics in oral leukoplakia and oral squamous cell carcinoma. *J Oral Pathol Med*. 2019 Apr;48(4):299–306.
28. R H, Hannah R, Ramani P, Ramanathan A, Jancy MR, Gheena S, et al. CYP2 C9 polymorphism among patients with oral squamous cell carcinoma and its role in altering the metabolism of benzo[a]pyrene [Internet]. Vol. 130, *Oral Surgery, Oral Medicine, Oral Pathology and Oral Radiology*. 2020. p. 306–12. Available from: <http://dx.doi.org/10.1016/j.oooo.2020.06.021>
29. J PC, Pradeep CJ, Marimuthu T, Krithika C, Devadoss P, Kumar SM. Prevalence and measurement of anterior loop of the mandibular canal using CBCT: A cross sectional study [Internet]. Vol. 20, *Clinical Implant Dentistry and Related Research*. 2018. p. 531–4. Available from: <http://dx.doi.org/10.1111/cid.12609>
30. Wahab PUA, Abdul Wahab PU, Madhulaxmi M, Senthilnathan P, Muthusekhar MR, Vohra Y, et al. Scalpel Versus Diathermy in Wound Healing After Mucosal Incisions: A Split-Mouth Study [Internet]. Vol. 76, *Journal of Oral and Maxillofacial Surgery*. 2018. p. 1160–4. Available from: <http://dx.doi.org/10.1016/j.joms.2017.12.020>

31. Mudigonda SK, Murugan S, Velavan K, Thulasiraman S, Krishna Kumar Raja VB. Non-suturing microvascular anastomosis in maxillofacial reconstruction- a comparative study. *Journal of Cranio-Maxillofacial Surgery*. 2020 Jun 1;48(6):599–606.
32. Ricardo CZ, Azeredo CM, Machado de Rezende LF, Levy RB. Co-occurrence and clustering of the four major non-communicable disease risk factors in Brazilian adolescents: Analysis of a national school-based survey. *PLoS One*. 2019 Jul 3;14(7):e0219370.
33. Balogun O, Koyanagi A, Stickley A, Gilmour S, Shibuya K. Alcohol consumption and psychological distress in adolescents: a multi-country study. *J Adolesc Health*. 2014 Feb;54(2):228–34.
34. White A, Hingson R. The burden of alcohol use: excessive alcohol consumption and related consequences among college students. *Alcohol Res*. 2013;35(2):201–18.
35. Davoren MP, Shiely F, Byrne M, Perry IJ. Hazardous alcohol consumption among university students in Ireland: a cross-sectional study. *BMJ Open*. 2015 Jan 29;5(1):e006045.
36. Zakhari S, Vasiliou V, Max Guo Q. *Alcohol and Cancer*. Springer Science & Business Media; 2011. 243 p.
37. Potter JD, McMichael AJ. Alcohol, beer and lung cancer--a meaningful relationship? *Int J Epidemiol*. 1984 Jun;13(2):240–2.
38. Kumar, S. (2022). A quest for sustainium (sustainability Premium): review of sustainable bonds. *Academy of Accounting and Financial Studies Journal*, Vol. 26, no.2, pp. 1-18
39. Nandal, N., &Nandal, N. (2019). BSCQUAL: A Measuring Instrument of Service Quality for the B-Schools . *International Journal of Psychosocial Rehabilitation*, Vol. 23, Issue 04, 1574-1589
40. Chao C. Associations between beer, wine, and liquor consumption and lung cancer risk: a meta-analysis. *Cancer Epidemiol Biomarkers Prev*. 2007 Nov;16(11):2436–47.
41. Spear LP. Author Correction: Effects of adolescent alcohol consumption on the brain and behaviour [Internet]. Vol. 19, *Nature Reviews Neuroscience*. 2018. p. 439–439. Available from: <http://dx.doi.org/10.1038/s41583-018-0007-2>
42. *Contemporary Family Therapy* [Internet]. Available from: <http://dx.doi.org/10.1007/10591.1573-3335>

43. Kelly AB, Kowalyszyn M. The association of alcohol and family problems in a remote indigenous Australian community. *Addict Behav.* 2003 Jun;28(4):761–7.