

Assessment of alcohol use and dependence using the WHO alcohol use disorder identification test tool in a fishermen community of Tamil Nadu-a cross-sectional study



Chinnaian Sivagurunathan¹, Ramesh Anshul², Sankar Karthik³, Deepak Avinash KR⁴, Mani Ezhilvanan⁵, Ashokkumar Vikram⁶

¹Professor and Head, ³Assistant Professor, ⁶Associate Professor, Department of Community Medicine, Annai Medical College and Hospital, Rajalakshmi Health City, Pennalur, ²Assistant Professor, Department of Psychiatry, ⁴Assistant Professor, Department of Community Medicine, Sri Muthukumaran Medical College Hospital and Research Institute, ⁵Associate Professor (Statistics), Department of Community Medicine, Tagore Medical College and Hospital, Chennai, Tamil Nadu, India

Submission: 06-01-2025

Revision: 25-01-2025

Publication: 01-03-2025

ABSTRACT

Background: Alcohol use disorder is a condition where drinking causes harm to an individual's health and they cannot stop drinking even if it harms them. Previous research has shown that alcohol use and illnesses related to alcohol consumption are high among fishermen compared to any other profession. **Aims and Objectives:** The aim of the study was to estimate the proportion of harmful alcohol use and probable dependence to alcohol among selected fishermen community in Tamil Nadu and find out the associated sociodemographic factors. **Materials and Methods:** A community-based cross-sectional study was conducted among fishermen in a coastal village in Chengalpattu district of Tamil Nadu from May to July 2024 using the World Health Organization alcohol use disorder identification test. A house-to-house survey was conducted in the study area to identify and include 200 eligible participants. Data were analyzed using SPSS Version 21.0. **Results:** Out of 200 fishermen, majority (64%) were between 40 and 59 years and 64% were married. Around 49.5% had been in fishing occupation for more than 21 years. About 72.5% of study participants go to sea daily. About 55% of fishermen spent 6–24 h in sea. About 80.5% reported absenteeism due to alcoholism. Majority (62.5%) engaged in harmful use, and 20.5% were likely to be dependent on alcohol. Age group, marital status, education status, duration of occupation, and time spent in sea had statistically significant association with the pattern of alcohol use among the study participants. **Conclusion:** Alcohol use and dependence is a significantly higher among fishermen in the present study. Community-level awareness campaigns highlighting the detrimental effects of alcohol consumption are crucial to address this problem.

Key words: Alcoholism; Fishermen; Alcohol use disorder identification test

INTRODUCTION

Alcohol use disorder (AUD) is a condition where drinking causes harm to an individual's health and they cannot stop drinking even if it harms them.¹ As per the World Health Organization (WHO), the harmful use of alcohol

contributed to 2.6 million deaths every year in the world. Death related to alcohol consumption was high among male and about 25% of the deaths happens in the productive years (20–39 years) of life.^{2,3} Majority of the deaths due to alcohol occur in developing countries. In India, about 32% of men aged 15–54 years consume alcohol with 9.4%

Access this article online

Website:

<https://ajmsjournal.info/index.php/AJMS/index>

DOI: 10.71152/ajms.v16i3.4398

E-ISSN: 2091-0576

P-ISSN: 2467-9100

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Address for Correspondence:

Dr. Ashokkumar Vikram, Associate Professor, Department of Community Medicine, Annai Medical College and Hospital, Rajalakshmi Health City, Pennalur, Kanchipuram District - 602117, Tamil Nadu, India. **Mobile:** +91-8220468193. **E-mail:** vkrmashokkumar90@gmail.com

of them being alcohol dependent.⁴ Previous research has shown that alcohol use and illnesses related to alcohol consumption are high among fishermen compared to any other profession,⁵⁻⁷ making this occupation a crucial target for screening and intervention efforts. To address this public health crisis, it is imperative to focus on early identification and intervention for individuals with harmful alcohol use and dependence among fisherman community. Hence this study was conducted among fishermen community in Tamil Nadu.

Aims and objectives

Among fishermen belonging to a selected fishermen community in Tamil Nadu

1. To estimate the proportion of harmful alcohol use and probable dependence to alcohol among alcohol users.
2. To find out the associated socio-demographic factors with AUD among alcohol users.

MATERIALS AND METHODS

Study design and study setting

After obtaining Institute Ethics Committee approval, the present community-based cross-sectional study was conducted among fishermen in a coastal village (Kovalam) in Chengalpattu district of Tamil Nadu from May to July 2024. The village of Kovalam, located approximately 40 km south of Chennai along the East Coast Road towards Mahabalipuram, has an estimated population of 11,400, with 2,799 engaged in work-related activities, including 2,225 males and 574 females. Fishing and its associated industries constitute the primary occupation in this setting.⁸

Study population

Fishermen were residing in the colonies of Kovalam village of Chengalpattu district of Tamil Nadu.

Inclusion criteria

All fishermen above 18 years of age with a history of alcohol consumption in the past 1 year and who went out to sea for catching fish at least once in the past 3 months were included in the study.

Exclusion criteria

Those who were not willing to participate in the study refused to provide informed consent.

Sample size

The estimated prevalence of alcohol dependence in Kumar et al., was 12.4%.⁷ Considering a prevalence of 12.4% and 5% absolute precision, the sample size was calculated using the formula $n = 4pq/d^2$. The calculated sample size was 173. Adding 10% non-response rate, the final sample size was 190 which was then rounded off to 200.

Sampling technique and procedure

A house-to-house survey was conducted in the study area to identify the eligible participants. The participants who fulfilled the inclusion criteria were interviewed using a semi-structured questionnaire till the required sample size for the study was achieved. A written informed consent was obtained from all the study participants by explaining the study procedure. Adequate privacy was ensured during the conduct of interview and the confidentiality of the collected data was maintained.

Study tool

A semi-structured interview schedule consists of two sections.

Section A – Sociodemographic details of study participants such as age, marital status, education, monthly income, duration in fishing occupation, owning a boat or wayer, frequency of fishing per month/week, and number of hours spent in sea.

Section B – WHO AUDIT Tool.⁹

The WHO AUD identification test (AUDIT) is a widely recognized screening tool that can be effectively utilized in primary healthcare settings and at the community level by peripheral health workers. The AUDIT questionnaire is designed to identify individuals who are engaging in harmful alcohol use or are at risk of developing alcohol dependence.

The tool consists of ten questions across three domains: Hazardous alcohol use, dependence symptoms, and harmful use of alcohol. Each question has a four-point Likert scale response, with scores ranging from 0 to 4. Out of a total possible score of 40, a score of 8 or higher indicates harmful or hazardous drinking, a score of 16 or above suggests the individual has a severe alcohol-related problem and requires counseling and monitoring, and a score of 20 or more indicates probable alcohol dependence, which warrants a referral to a specialist. The WHO recommends using these categories to report alcohol use in primary care settings.

Scoring:

- Less Risk: AUDIT score cut off of 1–7 was considered as low-risk consumption.
- Harmful use of alcohol: AUDIT score cut off of 8–14 was considered as harmful use of alcohol.
- Probable dependence: AUDIT score cut off of 15 or more was considered as probable dependence on alcohol.

Data analysis

The collected data were entered in MS Excel and coded appropriately. Data were analyzed using SPSS Software (version 21). Harmful use of alcohol and probable dependence were expressed as proportions with 95% confidence intervals. Possible association of sociodemographic and occupational characteristics with harmful use of alcohol and probable dependence was assessed using the Chi-square test. A $P < 0.05$ was considered as statistically significant.

RESULTS

Out of 200 fishermen, majority (64%) were between 40 and 59 years and 30% between the ages of 18 and 39. Around 10% of fishermen were illiterate, 40% have attended primary school and only 6.5% are graduates. Majority (64%) of the study participants were married. About 29.5% belonged to a lower class. Around 49.5% had been in fishing occupation for more than 21 years. Around three-fourths (72.5%) of study participants go to sea daily, while 27.5% go occasionally. More than 75% had to rent boats whereas 23% of the study participants had own boats. Around half (55%) of fishermen spent 6–24 h and 26% spent 0–5 h in the sea. Due to alcohol consumption, about 80.5% reported absenteeism, while 19.5% did not (Table 1).

According to AUDIT classification for alcohol use, 62.5% engaged in harmful use, 20.5% were likely to be dependent on alcohol and 17% had a low risk of alcohol use (Figure 1).

Age group, marital status, education status, duration of occupation, and time spent in sea had statistically significant association with the pattern of alcohol use among the study participants while socioeconomic class, frequency of going to sea, and boat ownership did not have significant associations (Table 2).

Table 3 illustrates a statistically significant association between the pattern of alcohol use and absenteeism due to alcohol consumption. Among those with harmful use of alcohol, 92% reported absenteeism.

DISCUSSION

The present study assessed the patterns of alcohol use and dependence among fishermen in Kovalam village using the WHO AUDIT tool. Similar to previous research work, majority (64%) of the participants were in the age group of 40–59 years.^{7,10} Most of the participants were educated up to primary school (40%) echoing the results of Kumar et al., and Asaduzzaman et al.^{7,11} Around 55%

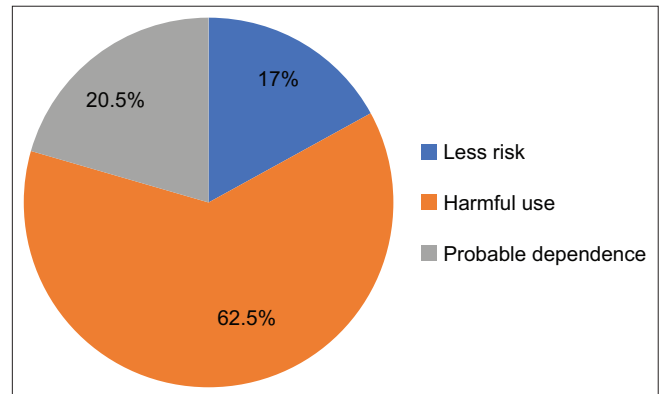


Figure 1: Alcohol use among study participants

Table 1: Sociodemographic characteristics of the study population

Characteristics	Frequency	Percentage
Age group		
18–39	60	30.0
40–59	128	64.0
60 and above	12	6.0
Education		
Illiterate	22	11.0
Primary school	80	40.0
Secondary school	57	28.5
High secondary school	28	14.0
Graduate	13	6.5
Marital status		
Married	128	64.0
Unmarried	60	30.0
Divorce/Widow	12	6.0
Social economic class		
Upper class	21	10.5
Upper middle class	27	13.5
Middle class	41	20.5
Lower middle	52	26.0
Lower class	59	29.5
Duration of occupation		
<10 year	26	13.0
11–20 years	75	37.5
More than 21 years	99	49.5
Frequency of going to sea		
Daily	145	72.5
Occasionally	55	27.5
Boat ownership		
Own	46	23.0
Rent	154	77.0
Time spent in sea		
0–5 h	52	26.0
6–24 h	110	55.0
>24 h	38	19.0
Absenteeism due to alcohol		
Yes	161	80.5
No	39	19.5
AUDIT classification for alcohol use		
Less risk	34	17.0
Harmful use	125	62.5
Probable dependence	41	20.5

AUDIT: Alcohol use disorder identification test

of the study participants were in lower socioeconomic status which is similar to the results of Emaldarani and

Table 2: Association between sociodemographic characteristics and pattern of alcohol use

Variable	AUDIT classification for alcohol use				Chi-square value	P-value
	Less risk n (%)	Harmful use n (%)	Probable dependence n (%)	Total		
Age group						
18–39	25 (41.7)	33 (55.0)	2 (3.3)	60 (100)	48.153	0.001
40–59	8 (6.3)	87 (68.0)	33 (25.8)	128 (100)		
60 and above	1 (8.3)	5 (41.7)	6 (50.0)	12 (100)		
Education					17.343	0.027
Illiterate	7 (31.8)	14 (63.6)	1 (4.5)	22 (100)		
Primary school	9 (11.3)	48 (60.0)	23 (28.8)	80 (100)		
Secondary school	8 (14.0)	35 (61.4)	14 (24.6)	57 (100)		
High secondary school	6 (21.4)	21 (75.0)	1 (3.6)	28 (100)		
Graduate	4 (30.8)	7 (53.8)	2 (15.4)	13 (100)		
Marital status					48.153	0.001
Married	8 (6.3)	87 (68.0)	33 (25.8)	128 (100)		
Unmarried	25 (41.7)	33 (55.0)	2 (3.3)	60 (100)		
Divorce/Widow	1 (8.3)	5 (41.7)	6 (50.0)	12 (100)		
Social economic class					13.086	0.109
Upper class	1 (4.8)	13 (61.9)	7 (33.3)	21 (100)		
Upper middle class	2 (7.4)	20 (74.1)	5 (18.5)	27 (100)		
Middle class	8 (19.5)	24 (58.5)	9 (18.5)	41 (100)		
Lower middle	6 (11.5)	35 (67.3)	11 (21.2)	52 (100)		
Lower class	17 (28.8)	33 (55.9)	9 (15.3)	59 (100)		
Duration of occupation					24.330	0.001
<10 year	11 (42.3)	14 (53.8)	1 (3.8)	26 (100)		
11–20 years	14 (18.7)	51 (68.0)	10 (13.3)	75 (100)		
More than 21 years	9 (9.1)	60 (60.6)	30 (30.3)	99 (100)		
Frequency of going to sea					2.192	0.334
Daily	28 (19.3)	87 (60.0)	30 (20.7)	145 (100)		
Occasionally	6 (10.9)	38 (69.1)	11 (20.0)	55 (100)		
Boat ownership					3.524	0.172
Own	8 (17.4)	33 (71.7)	5 (10.9)	46 (100)		
Rent	26 (16.9)	92 (59.7)	36 (23.4)	154 (100)		
Time spent in sea					31.477	0.001
0–5 h	19 (36.5)	25 (48.1)	8 (15.4)	52 (100)		
6–24 h	12 (10.9)	81 (73.6)	17 (15.5)	110 (100)		
>24 h	3 (7.9)	19 (50.0)	16 (42.1)	38 (100)		

*P<0.05-statistically significant. AUDIT: Alcohol use disorder identification test

Table 3: Relationship between AUDIT classification for alcohol use and absenteeism due to alcohol

AUDIT classification for alcohol use	Absenteeism due to alcohol			Chi-square value	P-value
	Yes n (%)	No n (%)	Total		
Less risk	27 (79.4)	7 (20.6)	34 (100)	41.032	0.001
Harmful use	115 (92.0)	10 (8.0)	125 (100)		
Probable dependence	19 (46.3)	22 (53.7)	41 (100)		
Total	161 (80.5)	39 (19.5)	200 (100)		

*P<0.05-statistically significant. AUDIT: Alcohol use disorder identification test

Joan of Arch and Parashar et al.^{12,13} Consistent with the findings of Neethiselvan et al., majority (49.5%) of the study participants are in fishing occupation for more than 21 years.¹⁴ Similar to the findings of Kumar et al.,⁷ the present study also reports that majority (72.5%) of the study participants go to sea daily and a major proportion (55%) of fishermen spent 6–24 h while going to sea. Majority of the study participants (80.5%) reported absenteeism to work due to alcohol use which is comparable with the results of Kumar et al., and Bacharach et al.^{7,15}

The present study has revealed a concerning rate of “harmful alcohol use” among fishermen, which was 62.5%. Similar to the present study, a high prevalence of harmful alcohol use was reported among fishermen in India.^{7,16} In line with previous finding, the present study found that 20.5% of the alcohol-using fishermen had probable alcohol dependence.⁷ Notably, previous research in the fisherman community finds that the consumption of alcohol is considerably high.^{5,6} This underscores the urgent need for targeted interventions and qualitative research approaches

to better understand the root causes and develop effective strategies to address the alarming prevalence of harmful alcohol use and dependence within this specific community.

A statistically significant association between alcohol consumption and age group, marital status, education status, duration of occupation, and time spent in sea among the study participants in the present study which is similar to the findings of Bhondve et al.¹⁷ AUD is also significantly associated with absenteeism to work in the present study. Previous research works report that a higher level of alcohol consumption has an adverse impact on ones' health which might increase the probability of workplace absence.¹⁵ Furthermore, excessive drinking increases the risk of a wide variety of chronic health problems including liver, musculoskeletal, and cardiovascular problems which might contribute to absenteeism to work.^{18,19}

Interestingly, boat ownership and socioeconomic class did not have a significant association with the AUD. This shows that the economic status does not influence the alcohol use among study participants and it signifies the very addictive nature of alcohol when consumed on regular basis. Several factors may contribute to this elevated proportion of harmful alcohol use, including easy access to liquor, a high prevalence of alcohol use within the community, and a lack of regulations on alcohol consumption during fishing activities. The high prevalence of alcohol consumption, hazardous drinking, and the development of alcohol dependence among the fishermen in this study could be a reflection of the highly stressful nature of the fishermen's work. Hence, conducting longitudinal research to find out the predictors of alcohol consumption among the fishermen community to devise preventive strategies and targeted interventions is recommended.

Limitations of the study

Causality between the dependent and independent variables could not be determined due to the cross sectional nature of the present study.

CONCLUSION

Alcohol use and dependence is a significant concern among fishermen, with one in five exhibiting probable dependence on alcohol in the present study. Community-level awareness campaigns highlighting the detrimental effects of alcohol consumption are crucial to address this problem. Regular screening by local healthcare workers using standard tools can help identify individuals with probable alcohol dependence and prompt referral of the identified individuals is highly recommended. Government policies regulating prohibition of alcohol use during fishing

occupation can be developed to ensure a safe working environment.

ACKNOWLEDGMENT

We would like to extend our sincere gratitude to the Panchayat leader and the residents of Kovalam village for their invaluable cooperation and support for this research study. Without their collaboration, this work would not have been possible.

REFERENCES

1. Alcohol Use Disorder (AUD). US. National Library of Medicine. Available from: <https://medlineplus.gov/alcoholusedisorderaud.html> [Last accessed on 2024 Dec 12].
2. Alcohol. World Health Organization. Available from: <https://www.who.int/news-room/factsheets/detail/alcohol#:~:text=Worldwide%2C%202.6%20million%20deaths%20were,people%20decreased%20by%2020.2%25%20globally> [Last accessed on 2024 Dec 12].
3. Harmful Use of Alcohol. World Health Organization. Available from: https://www.who.int/health-topics/alcohol#tab=tab_1 [Last accessed on 2024 Dec 12].
4. National Family Health Survey (NFHS-3). International Institute for Population Sciences and Macro International. Mumbai: International Institute for Population Sciences; 2007.
5. Chinnakali P, Thekkur P, Manoj Kumar A, Ramaswamy G, Bharadwaj B and Roy G. Alarming high level of alcohol use among fishermen: A community based survey from a coastal area of South India. *J Forensic Leg Med.* 2016;42:41-44. <https://doi.org/10.1016/j.jflm.2016.05.006>
6. Vaithiyanathan P, Thekkur P, Kamashvell C and Datta SS. Alcohol use, harmful use of alcohol and probable dependence among residents of a selected fishermen community in South India: A community based cross-sectional analytical study. *Int J Community Med Public Health.* 2018;5(2):520-525. <https://doi.org/10.18203/2394-6040.ijcmph20180041>
7. Kumar AM, Ramaswamy G, Majella MG, Bharadwaj B, Chinnakali P and Roy G. Alcohol, harmful use and dependence: Assessment using the WHO alcohol use disorder identification test tool in a South Indian fishermen community. *Ind Psychiatry J.* 2018;27(2):259-263. https://doi.org/10.4103/ipj.ipj_82_15
8. Kovalam Town Population Census 2011 - 2025. Available from: <https://www.census2011.co.in/data/town/629570-kovalam-tamil-nadu.html> [Last accessed on 2024 Jan 04].
9. Babor TF, Biddle JC, Saunders JB and Monteiro MG. Guidelines for use in primary care. In: *The Alcohol Use Disorders Identification Test.* 2nd ed. Geneva: World Health Organization Publications; 2014.
10. Martino S, Azzopardi E, Fox C, Chiaroni E, Payne E and Kenter J. The importance of local fisheries as a cultural attribute: Insight from a discrete choice experiment of seafood consumers. *Marit Stud.* 2023;22(2):17. <https://doi.org/10.1007/s40152-023-00308-2>
11. Asaduzzaman M, Mitul SS and Jahan K. Socioeconomic status of the fishing households: Insight from some selected coastal area of Bangladesh. *ISR.* 2023;3(3):1-7. <https://doi.org/10.30495/IJSS.2023.74235.1401>

12. Emaldarani S, Kanmani A. Socio-economic status of fishermen community. JETIR. 2019;6(5):446-449.
13. Parashar V, Bara SK, Damde D, Kumar A and Vyas V. Assessment of the socioeconomic status of fishermen communities: A case study from a selected reach of river Narmada, India. Int J Res Fish Aquac. 2016;6(2):47-59.
14. Neethiselvan R, Gayathri S and Shanmughapriya P. Assessment of health seeking behaviour among fishermen community in Puducherry. Int J Community Med Public Health. 2021;8(2): 732-736.
<https://doi.org/10.18203/2394-6040.ijcmph20210230>
15. Bacharach SB, Bamberger P and Biron M. Alcohol consumption and workplace absenteeism: The moderating effect of social support. J Appl Psychol. 2010;95(2):334-348.
<https://doi.org/10.1037/a0018018>
16. Easwaran M, Bazroy J, Jayaseelan V and Singh Z. Prevalence and determinants of alcohol consumption among adult men in a coastal area of South India. Int J Med Sci Public Health. 2015;4(3):360-364.
<https://doi.org/10.5455/ijmsph.2015.1010201479>
17. Bhondve A, Mahajan H, Sharma B and Kasbe A. Assessment of addictions among fishermen in Southern-East coastal area of Mumbai, India. IOSR-JDMS. 2013;6(6):71-79.
<https://doi.org/10.9790/0853-0667179>
18. Hanebuth D, Meinel M and Fischer JE. Health-related quality of life, psychosocial work conditions, and absenteeism in an industrial sample of blue- and white-collar employees: A comparison of potential predictors. J Occup Environ Med. 2006;48(1):28-37.
<https://doi.org/10.1097/01.jom.0000195319.24750>
19. Jones S, Casswell S and Zhang J. The economic costs of alcohol-related absenteeism and reduced productivity among the working population of New Zealand. Addiction. 1995;90(11):1455-1461.
<https://doi.org/10.1046/j.1360-0443.1995.901114553>

Authors' Contribution:

CS- Concept and design of the study, interpretation of results, preparation of first draft of manuscript; **RA-** Concept of the study, definition of intellectual content, literature review, manuscript preparation; **SK-** Literature review, data analysis, interpretation of results and preparation of manuscript and editing; **DAKR-** Literature review, data collection, data analysis, preparation of manuscript and editing; **ME-** Statistical analysis, preparation of tables and figures; **AV-** Concept of the study, coordination, data collection, manuscript revision and submission of article.

Work attributed to:

Tagore Medical College and Hospital, Chennai, Tamil Nadu, India.

Orcid ID:

Chinnaian Sivagurunathan - <https://orcid.org/0000-0002-4152-8982>

Ramesh Anshul - <https://orcid.org/0009-0008-7469-0979>

Sankar Karthik - <https://orcid.org/0000-0001-5156-8198>

Deepak Avinash KR - <https://orcid.org/0000-0002-7261-6854>

Mani Ezhilvanan - <https://orcid.org/0000-0001-6129-5314>

Ashokkumar Vikram - <https://orcid.org/0000-0001-6181-0945>

Source of Support: Nil, **Conflicts of Interest:** None declared.