

## Assessment of Addictions among Fishermen in Southern-East Costal Area of Mumbai, India

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**Abstract: Objective:** Assessment of addictions and variables associated with them among fishermen in Southern-East Costal area of Mumbai.

**Material and Methodology:** Present descriptive epidemiological study which had adopted exploratory survey design was carried out during Jan 2011 to June 2011. Total 500 fishermen were interviewed using preformed, pretested, semi-structured interview schedule.

**Results:** The average age of fisherman was  $34.9 \pm SD 14.9$  years. Majority (81.6%) of fishermen had some kind of addictions. Alcohol and tobacco consumption was seen in 63.4% and 73.4% fishermen respectively. Job stress was seen in 67.8% of fishermen. Alcohol and Tobacco consumption were significantly associated with age, type of job, job stress, job satisfaction and depth of fishing. Misbelief of 'tobacco and alcohol consumption increases work efficiency' was prevalent among them.

**Conclusion and Recommendations:** Rate of smoking and alcohol consumption was very high among fishermen. Fishermen may benefit from periodical health promotion and education in the area of smoking, alcohol consumption to raise their awareness about the dangers of smoking and alcohol consumption.

**Key words:** addictions, fishermen, job satisfaction, job stress.

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### I. Introduction

Fishing appears to select for and fulfil a number of psychic needs above and beyond an income. It takes one into a completely different environment, away from shore-based activities and allows the participant to become involved in the thrill of the hunt, pitting ones' luck and skill against others as well as against an elusive prey that is hidden beneath the water. It has been observed that fishers resist changing to alternative sources of income even when their catches fall to the point where it would make economic sense to do so.<sup>1</sup>

The spectrum of industries in India extends from the organized large and medium industries to modern small scale industries and unorganized traditional industries. The last two (i.e. modern small scale industries and unorganized traditional industries) are known as village and small industries (VSI). Both of them constitute a vital segment of our country's economy. Fishery is one of the important unorganised sectors in India. It provides employment to millions of people and contributes to food security of the country. With a coastline over 8000 km, an exclusive economic zone (EEZ) of 2.2 million square km. with ranking 7<sup>th</sup> all over world, and with extensive freshwater resources, fisheries play a vital role.<sup>2</sup>

Though, fishing is one of the main occupations in the coastal India and also in some of main interior lakes of India which occupies a large population, still there hasn't been enough research on people employed in this occupation. Underemployment, low income, and dangerous job conditions, mental stress among fishermen, harsh weather and working conditions, major threat to self esteem, psychological sense of mastery, self-reported stress levels (loss of temper, back pain, forgetfulness) all of which are associated with individual inability to maintain economic control of fishing operations. Fishermen are subject to strong vibrations, noxious diesel fumes, and the noise from the engines and generators. Fishermen often work wet and are in frequent threat of developing hypothermia. Even when things are going right, mental and physical fatigue are unavoidable and frequently lead to injury. Safety is always a concern for fishermen who deal with a product that bites pinches and stings, while working hard, long and rapidly on a platform that is wet, slippery, and in constant motion. There also has been scarce data elaborating the health profile or occupational morbidity among fishermen in India.<sup>2</sup>

A number of measures have been taken on improving safety of fishermen. However there are no occupational health services for fishermen, and there is no mandatory health screening for fishermen as in for other sea workers. This may be due to self employed status of many workers. But there have been no strict rules about timing of fishing as well. Previous international literature review of the fishing industry revealed that there have been limited studies conducted among fishermen.<sup>3</sup> It has been long known that fishing is one of the most dangerous occupation. Despite dangerous nature of the occupation, very little research has been conducted on

fishermen health and safety. Few studies that have been conducted and spread widely around the globe and tend to focus on mortality rates and accidents. Few studies considered fishermen's lifestyle behaviour and addictions to various harmful substances. Excessive mental and physical stress predisposes them for addictions of tobacco and alcohol consumption. Lawrie et al.<sup>4</sup> reported high rates of smoking in Scottish fishermen. Passive smoking was a considerable problem among them. They also reported that few fishermen were drinking alcohol without having knowledge of safe level of alcohol consumption.

A combined qualitative /quantitative needs assessment was conducted to address the issue of addictions among fishermen. This paper will focus on various harmful substance addictions among fishermen along with variables associated with it.

## **II. Materials and Methodology**

The present community based descriptive epidemiological study which had adopted exploratory survey design was conducted on fishermen during January 2011 to June 2011, after taking prior approval from higher authorities in Trombay Village Area, which is situated in the M- East Ward of Municipal Corporation of Greater Mumbai (MCGM). It is the field practice area of P.S.M department of TN Medical College, Mumbai, India. The necessary approvals to carry out the present study were obtained from the Dean, Ethics committee and Head of Department (PSM), TN Medical College, Mumbai and in-charge of Urban Health Center, Cheeta Camp, Mumbai.

The survey of study area was carried out with the help of Medical Social Worker, Volunteers of Turbhe Goan Koli Sanghtana and members of CBOs like Macchimar Seva Sangh, Agrisena to identify the number of catamarans, launches, and trawlers engaged in fishing, their distribution and average number of workers in one Launch or trawler etc. It was observed that there were approximately 300 boats (catamarans, launches, and trawlers), owned by the population under the study area. About 1-3 workers were employed on one boat depending on the size, modernization and average amount of the catch on the boat.

A questionnaire survey was developed after extensive content-setting interviews with fishermen, Medical Social worker, an Occupational Physician and a Health Promotion specialist. The questionnaire explored a range of health and safety issues, smoking, alcohol consumption, illicit drug use, medical emergencies and injuries at sea. Demographic details such as age, religion, socio-economic status, marital status, education and type of house. Information on type of job, total years of occupation, number of hours in the sea, frequency of going into the sea, number of big/small launches, number of nets and depth of sea fishing was collected.

There were total 557 fishermen working, out of which 30 were randomly selected for pilot study. Based on the findings of pilot study, appropriate corrections were made in final interview questionnaires. Out of remaining 527 fishermen 27 fishermen were excluded (based on inclusion and exclusion criteria) and 500 fishermen were enrolled for main study. The workers were approached at their respective boats anchored at shore of the creek before or after working hours. Each worker was interviewed using preformed, pretested, semi-structured interview schedule. The individuals were also assessed for anthropometric measurements which were undertaken using a measuring tape and weighing scale. Body mass index (BMI) of all the fishermen was calculated using Quetlet's Index (BMI- Weight in kilograms / Height<sup>2</sup> in metres).<sup>5</sup> Blood Pressure was measured twice after advising the fisherman to take rest for 10 minutes before and between two readings using sphygmomanometer. In addition to these, the work environment at the seashore was observed and several factors like menagerie, noise etc. were noted. Besides these, camp was conducted four times in the area on Sundays with the help of a trust of Cheeta Camp, which included detailed medical check-up. Also, a workshop was conducted with the help of an occupational therapist for the benefits of fishermen to make them self capable for getting rid from musculoskeletal pains with ergonomic posturing and other tips. Job stress was assessed using 'John D. and Catherine T. Macarthur Research Network on Socioeconomic Status and Health; Perceived stress scale'.<sup>6</sup>

Collected data was entered in Microsoft excel 2007 and analyzed using SPSS 16.0 version. Confidence limit for significance was fixed at 95% level with p value less than 0.05.

## **III. Results**

Total 500 hundred fishermen were included in the study. Table 1 reveals, 62 % fishermen were in the age group of 15 to 42 years. The minimum age was 12 years; whereas maximum age was 92 years. The average age was  $34.9 \pm SD 14.9$  years. The bulk of the workforce (52.8%) belonged to upper lower socio-economic class according to Kuppuswamy Socioeconomic status scale. Out of 500 fishermen, 70.4% were married and 45% workers were either illiterate or had only primary education. On housing front, majority of fishermen 86.4% had pucca houses, but 4.2% of the fishermen were living on beaches without any houses, mostly from category of labourers and that too migrants. Table 2 describes, majority of the fishermen (67.4%) had fishing as a main occupation, with some working as supervisors (22%) and labourers (10.6%). In terms of years of service

in the fishing, only 20.6% of the fishermen had job experience between 11 to 20 years, while 4.6% had job experience of more than 40 years. Majority of the fishermen (81%) were daily visitors to the sea. With respect to number of hours spent in the sea most fishermen ( 57.6%) were spending more than 10 hours in the sea. Pertaining to fishing depth, 40.8% fishermen fished at both the depths. In terms of the launches, 8.4% fishermen had 2 big launches, 23% had 1 big launch. Pertaining to possession of small launch, 88.6% fishermen had small launches and 11.4% fishermen had no launches at all. In terms of fishing-nets, majority (46.8%) of the fishermen had 5 to 8 fishing-nets.

Table 3 reveals, 418 (81.6%) of the fishermen had some kind of addiction. On being more specific, a vast majority of the fishermen 317 (63.4%) were consuming alcohol at present, while 24 (4.8%) were past alcoholics, 133 (26.6%) were addicted to smoking, either in cigarette or bidi form. Tobacco addiction was seen in 40% fishermen, while 28.2% fishermen were gutkha chewers and 15.2% ate pan with or without tobacco. Oddly 1.2% subjects had a malpractice of sniffing whitener thinner (non tabulated data). On asking whether addiction has any favourable/unfavourable effect on work hours, 20.8% fishermen responded that alcohol increases work efficiency whereas 17.8% opined that tobacco increases work efficiency. A scorching number of fishermen (31.8%) held stress at their workplace, responsible for such addictions.

Table 4 reveals the association of alcohol consumption with variables like job satisfaction, job stress, age, tobacco consumption and type of job. Table 5 shows the results of the binary logistic regression analysis with ‘Alcoholic at present’ as dependent variable. The probability of consuming “alcohol at present” increased with age, marital status (married) and literacy status (less education) of the respondent. The odds of consuming ‘alcohol at present’ increased very significantly with tobacco consumption in any form. The probability of respondent being ‘an alcoholic at present’ had positive association with the type of job. This probability decreased with being a supervisor and a fisher. Fishermen who were satisfied with their jobs showed a positive association with “No alcoholic at present” i.e. fisherman satisfied with their jobs was less likely to be an alcoholic. Alcohol intake was more among fishermen having more Job stress.

Table 6 shows the association of tobacco consumption with other variables like Job stress, hours at sea and present alcoholic status. Table 7 reveals the results of the binary logistic regression analysis with ‘Tobacco consumption in any form’ as dependent variable. The probability of consuming ‘Tobacco in any form’ increased with age of the respondent and being alcoholic at present. The probability of respondent consuming ‘Tobacco in any form’ showed positive association with the type of job. The probability decreased with being a supervisor and a fisher. The probability of consumption of tobacco in any form increased significantly with affirmative response by fishermen to question “do you think tobacco increases work efficiency?”

**Table 1: Socio-demographic profile of Fishermen (n=500)**

Variables	Frequency	
Age (years)	<15	21 (4.2%)
	15-28	174 (34.8%)
	29-42	136 (27.2%)
	43-56	138 (27.6%)
	> 56	31 (6.2%)
Religion	Hindu	483 (96.6%)
	Muslim	14 (2.8%)
	Christian	3 (0.6%)
Socioeconomic Class	Class I	2 (0.4%)
	Class II	16 (3.2%)
	Class III	171 (34.2%)
	Class IV	264 (52.8%)
	Class V	12(2.4%)
Married	Married	352 (70.4%)
	Unmarried	145 (29%)
	Separated	1 (0.2%)

	Widowed	2 (0.4%)
Education	Illiterate	105 (21%)
	Primary	121 (24.2%)
	Secondary	92 (18.4%)
	Higher Secondary	70 (14%)
	Graduate	112 (22.4%)
Type of House	Kutchha	47 (9.4%)
	Pucca	432 (86.4%)
	Living on beach (no house)	21 (4.2%)

**Table 2: Distribution of fishermen according to job variables, various materials and tools used (n=500)**

Variables		Frequency
Type Of Job	Fishing	337 (67.4%)
	Labour	53 (10.6%)
	Supervision	110 (22%)
Total years of occupation	<10	216 (43.2%)
	11 to 20	103 (20.6%)
	21 to 30	95 (19%)
	31 to 40	63 (12.6%)
	>40	23 (4.6%)
Number of hours in the sea	1 to 5	30 (6.0%)
	6 to 10	182 (36.4%)
	>10	288 (57.6%)
Frequency of going into the Sea	Daily	405 (81%)
	Weekly	44 (8.8%)
	Thrice A Week	49 (9.8%)
	Month	2 (0.4%)
Number of Big Launches	0	343 (68.6%)
	1	115 (23.0%)
	2	42 (8.4%)
Number of Small Launches	0	57 (11.4%)
	1	158 (31.6%)
	2	123 (24.6%)
	3	92 (18.4%)
	4	22 (4.4%)
	5	41 (8.2%)
	6	7 (1.4%)
Nets	0-4	185 (37%)
	5 to 8	234 (46.8%)
	>8	81 (16.2%)
Depth	Shallow	194 (38.8%)
	Deep	104 (20.8%)
	Both	202 (40.4%)

**Table 3: Distribution of fishermen according to Addiction, Job stress and Job Satisfaction (n=500)**

Variables	Response	Frequency
Any Addiction	Yes	418 (81.6%)
	No	82 (16.4%)
Tobacco	Yes	200 (40%)
	No	300 (60%)
Gutkha	Yes	141 (28.2%)
	No	359 (71.8%)
Cigarette/ Bidi	Yes	133 (26.6%)
	No	367 (73.4%)
Pan/without Tobacco	Yes	76 (15.2%)
	No	424 (84.8%)
Alcohol	Alcoholic	317 (63.4%)
	Past alcoholic	24 (4.8%)
	Non-alcoholic	159 (31.8%)
Job Stress	Yes	339 (67.8%)
	No	161 (32.2%)
Job Satisfaction	Yes	428 (85.6%)
	No	72 (5.4%)
BMI	Underweight	10 (2%)
	Normal BMI	85 (17%)
	Pre-obese	76 (15.2%)
	Obese	317 (63.4%)
	Morbid obese	12 (2.4%)

**Table 4: Association alcoholic status with various variables**

		Alcoholic Status at present		Chi square test
		Alcoholic	Non-alcoholic	
Job satisfaction	Yes (n=428)	258 (60.3%)	170 (39.7%)	p value < 0.01; significant association
	No (n=72)	59 (81.9%)	13 (18.1%)	
Age (in years)	< 15 (n=21)	10 (47.6%)	11(52.4%)	p value < 0.01; significant association
	15-29 (n=182)	86 (47.3%)	96 (52.7%)	
	30-44 (n=148)	115 (77.7%)	33 (22.3%)	
	45-59 (n=122)	95 (77.9%)	27 (22.1%)	
	≥ 60 (n=27)	11(40.7%)	16 (59.3%)	
Type of job	Fishing (n=337)	217 (64.4%)	120 (35.6%)	p value < 0.01; significant association
	Labourer (n=53)	44 (83%)	9 (17%)	
	Supervision (n=110)	56 (50.9%)	54 (49.1%)	
Tobacco in any form	Yes (n=367)	268 (73%)	99 (27%)	p value < 0.01; significant association
	No (n=133)	49 (36.8%)	84 (73.2%)	
Job Stress	Yes (n=339)	250 (73.7%)	89 (26.3%)	p value < 0.01; significant association
	No (n=161)	67 (41.6%)	94 (58.4%)	

**Table 5: Binary logistic regression for alcohol status**

Dependent Variable Encoding	
Alcoholic at Present	Internal Value
Yes	0
No	1

Variables in the Equation	B	S.E.	Wald	df	Sig.	Exp(B)
Age (Yrs)	-0.055	0.024	5.29	1	<b>0.021</b>	0.946
Fishing depth- Deep & shallow	1.096	0.264	17.182	1	<b>3.40E-05</b>	2.991
Hours at sea- >5hours	0.524	0.505	1.079	1	0.299	1.689
Type of Job			20.85	2	<b>2.97E-05</b>	
Type of Job-Fishing	1.825	0.519	12.345	1	<b>0.0004</b>	6.203
Type of Job- Supervision	2.514	0.556	20.467	1	<b>6.07E-06</b>	12.356
Tobacco in any form-Yes	-1.824	0.283	41.519	1	<b>1.17E-10</b>	0.161
Marital Status-Married	-1.368	0.375	13.286	1	<b>0.0002</b>	0.255
Education status-Literate	-0.979	0.372	6.945	1	<b>0.008</b>	0.376
Job Stress-Yes	0.859	0.329	6.796	1	<b>0.009</b>	2.361
Job satisfaction-Satisfied	0.95	0.39	5.929	1	<b>0.014</b>	2.585
Injured while Fishing-Yes	0.033	0.265	0.015	1	0.902	1.033
Time in Occupation (Yrs)	0.003	0.024	0.012	1	0.912	1.003
Constant	0.084	0.868	0.009	1	0.923	1.088

**Table 6: Association of tobacco consumption with other variables**

	Tobacco consumption in any form		Chi square test
	Yes	No	
Tobacco increase efficiency?	Yes (n=89)	84 (94.4%)	p value < 0.01; significant association
	No (n=395)	281 (71.1%)	
	Don't Know (n=16)	2 (12.5%)	
Hours at sea	5 hrs (n=30)	7 (23.3%)	p value < 0.01; significant association
	6 -10 hrs (n=182)	124 (68.1%)	
	> 10 hrs (n=288)	236 (81.9%)	
Job stress	Yes (n=339)	259 (76.4%)	p value < 0.02; significant association
	No (n=161)	108 (67.1%)	
Alcoholic Status	Yes (n=317)	268 (84.5%)	p value < 0.01; Significant association
	No (n=183)	99 (54.1%)	

**Table 7: Binary logistic regression for tobacco consumption**

Dependent Variable Encoding	
Tobacco in any form	Internal Value
Yes	0
No	1

Variables in the Equation	B	S.E.	Wald	df	Sig.	Exp (B)
Age (Yrs)	-0.027	0.013	4.664	1	<b>0.0308</b>	0.973
Fishing depth-Deep & shallow	-1.171	0.31	14.251	1	<b>0.0001</b>	0.31
Hours at sea->5hours	-3.038	0.684	19.713	1	<b>9.00E-06</b>	0.048
Type of Job			10.811	2	<b>0.004</b>	
Type of Job-Fishing	2.632	0.806	10.67	1	<b>0.001</b>	13.898
Type of Job-supervision	2.474	0.859	8.286	1	<b>0.004</b>	11.866
Marital Status-Married	0.621	0.38	2.671	1	0.102	1.86
Job satisfaction-Satisfied	0.823	0.45	3.351	1	0.06	2.278
Injured while Fishing-Yes	-0.427	0.289	2.175	1	0.14	0.653
Alcoholic at present-Yes	-2.042	0.302	45.586	1	<b>1.46E-11</b>	0.13
Do you think Tobacco increases work efficiency			22.75	2	<b>1.15E-05</b>	
Do you think Tobacco increases work efficiency-Yes	-5.305	1.123	22.312	1	<b>2.32E-06</b>	0.005
Do you think Tobacco increases work efficiency-No	-4.621	1.04	19.73	1	<b>8.92E-06</b>	0.01
Constant	5.521	1.336	17.082	1	<b>3.58E-05</b>	249.836



#### **IV. Discussion**

The present community based descriptive epidemiological study on fishermen was conducted during January to June 2011 in Trombay Village Area. Total 500 fishermen were interviewed out of which 4.2% were less than 15 years of age. Child labour was seen quite rampantly in the fishing trade in the present study. Children in the age group of 12 to 15 were seen to be involved in the trading as well fishing in large numbers in the Trombay Koliwada area. The reason for this might be as fishing being their familial occupation, parents might want them to learn the job quite early in life. Some of the children visit the sea in the absence of their parents who were not into fishing for different reason like sickness, being an alcoholic, trading of caught fish, etc. Hence children might have to visit the sea to evade the monetary loss. Various studies have shown that young workers are more prone for job related injuries and mental stress compare to elder worker. Study done by Dewa et al. found that more chances of mental stress in young workers.<sup>7</sup>

Religion wise 96.6% were Hindus, 2.8% were Muslims and 0.6% were Christians. In Maharashtra State majority people in fisheries belong to Koli caste; fishing being their familial occupation. This caste comes under Hindu religion, hence Hindu predominance can be seen. The bulk of the workforce belonged to lower socio-economic Class IV and Class V.<sup>8</sup> This indicates fishing is not an economically productive occupation. Literacy wise the figures were concerning, with 45.2% fishermen were either illiterate or had primary education. A large proportion of the community (22.4%) was graduated. Though fishing is not an economically productive occupation, yet attracts large number of people due to unemployment. Dewa et al. described more chances of mental stress in less educated (less than 12<sup>th</sup> standard) and in young workers.<sup>7</sup>

On housing front, majority of fishermen had pucca houses, but 4.2% of the fishermen were living on beaches. Most of homeless fishermen were from the category of labourers. All these labourers were migrants from the different parts of India, and as the area densely populated, and due to expensive places, these migrants prefer to stay at the beach. These subjects are more prone to insect bites and harsh winds, and also to ill effects of poor hygiene and sanitation.

In terms of years of service in the fishing, 43.2% fishermen have 10 or less than 10 years of job experience. Dewa et al. described more chances of Job stress in workers with less experience compare to worker with more experience.<sup>7</sup> Fishermen with greater job knowledge and experience in dealing with workplace issues can employ effective strategies to deal with the stressor.<sup>7</sup> With respect to number of hours spent in the sea most fishermen were spending more than 10 hours daily in the sea for last ten years. In terms of launches and number of nets, majority of fishermen were small fishermen working on small launches which were non-machinated, while some of them did not have launches at all, which might be the reason for getting fewer catches and as a result less income (economic loss) ultimately leading to job stress. All the work done by fishermen was manual work because of less mechanization of boats. Thus this illustrates fishermen might experience physical stress during work. Dewa et al. described chronic exposure to high work stress can transform into burnout, mental disorder and disability. Probability of describing a job as highly stressful significantly as their job require additional or variable hours.<sup>7</sup> Also Maria et al. described altered social relations, physically onerous, the lack of control, and the lack of support lead to mental stress.<sup>9</sup> Dembe et al. described more chances of injuries in a job with overtime compared to jobs without overtime. Working at least 12 hours per day was associated with a 37% increased hazard rate and working at least 60 hours per week was associated with a 23% increased hazard rate.<sup>10</sup>

Many studies all over the world have shown that alcohol and tobacco consumption is very prevalent among fishermen. In our study, 317 (63.4%) fishermen were alcoholic at the time of interview. Tobacco consumption in any form (smoking or non-smoking) was seen among 367 (73.4%) fishermen. Gantayat et al. reported high prevalence of alcohol and tobacco consumption among fishing community of Gopalpur. He reported, more than quarter of the fishing community was addicted to alcohol along with more than three fourth of fishermen were addicted to various forms of tobacco.<sup>11</sup> Lawrie et al. found 80.6% alcoholic and 38.4% smokers among Scottish fishermen.<sup>4</sup> Rotti et al. found 61% alcoholic and 71% of smokers among Pondicherry fishermen.<sup>12</sup> Nikita et al. found alcohol dependency among 5% fishermen and 72.9% fishers were smokers.<sup>13</sup>

In our study consumption of alcohol increased with increase in age of the fishermen. This finding is contrary to finding reported by Cooper et al. where he reported, adults age 60 or older are unlikely to be heavy drinkers, simply because the heaviest drinkers tend to succumb at an earlier age to physical complications, accidents or other injuries related to excessive alcohol consumption. Also, the ageing process results in decreased physical tolerance for alcohol's effects during and after drinking episodes, leading to reduced consumption both on a voluntary basis and from advice from significant others.<sup>14</sup> But the researchers at Ohio State University found that adults over age 60 who have alcohol dependence, drink more than 40 alcoholic drinks a week on average, compared to between 25 and 35 drinks a week on average for those in younger age groups with similar problems.<sup>15</sup> Their findings suggested that older problem drinkers may have developed a tolerance for alcohol and need to drink even more than younger abusers to achieve the effects they seek.

In our study more addiction (both alcohol and tobacco consumption) was seen among fishermen who had job stress and who were not satisfied with their occupation. Similar findings were noted by Casson et al.<sup>16</sup>

They reported Fisherman had prolonged hours of continuous work, which were found to be correlated with high cigarette and alcohol consumption. Deep sea fishing is a risky work associated with high mental stress. More alcoholics and smokers because of this job stress.<sup>16</sup> Also, Lawrie et al. reported fishermen smoke significantly more when they go to sea.<sup>4</sup>

In our study tobacco consumption (nicotine dependence) was more among fishermen spending more than 10 hours at sea and fishing at the both the level of sea. This finding is contrary to a study done by Schmidt et al. who reported that heavy employee workload is associated with lower nicotine dependence. One possible explanation for this may be a heavy workload may drive employees to smoke in their spare time only. Another reason may be the growing number of workplace smoking bans in organised sectors leading participants to reduce their consumption, which did not apply to fishermen (unorganised sector).<sup>17</sup>

In our study investigator found that more than 75% alcohol consuming fishermen were injured while fishing at least once in past one year, while 70% tobacco consuming fishermen were injured while fishing at once during past year. More addiction leads to more injuries leading to physical and mental stress ultimately predisposing them for more addictions. Thus there is a vicious cycle of addiction - injuries - stress (physical and mental) - addiction. In a study on medical emergencies at sea and injuries among Scottish fishermen by Lawrie et al. revealed that there was a statistically significant relationship between smoking and medical emergencies.<sup>18</sup>

In our study alcohol and tobacco consumption in any form was more among labourer compared to fishers and supervisors. The extent to which job stress influences tobacco consumption also depends on the type of stress experienced. Thus, fishermen employed in high-strain jobs (i.e. jobs with high demands and low control) generally had a higher risk of tobacco use. This increase was greater for fishermen in positions with high physical demands like labourers. This might also give rise to increase in the drinking behaviour and development of alcoholism. Job characteristics and drinking practices were studied in the Boston metropolitan area among the men, blue-collar workers and labourers as per drinks per day (semi-skilled-1.3/day, service workers 1.3/day and unskilled workers 1.8/day) had the highest levels of drinking. The differences between labourers and blue-collar workers and the rest of the sample remained even when men under the age 25 years were considered separately.<sup>19</sup>

Misbelief of 'tobacco and alcohol consumption increases work efficiency' was very much prevalent (15% - 20%) among studied fishermen. Almost 268 (84.5%) fishermen who were alcoholics were tobacco consumers as well, whereas 54.09% fishermen who were not alcoholics were consuming tobacco in some form. This finding is supported by many researchers. People who drink alcohol often smoke and vice versa. Several mechanisms may contribute to concurrent alcohol and tobacco use. These mechanisms include genes that are involved in regulating certain brain chemical systems; neurobiological mechanisms, such as cross-tolerance and cross-sensitization to both drugs; conditioning mechanisms, in which cravings for alcohol or nicotine are elicited by certain environmental cues; and psychosocial factors (e.g., personality characteristics and coexisting psychiatric disorders). Treatment outcomes for patients addicted to both alcohol and nicotine are generally worse than for people addicted to only one drug, and many treatment providers do not promote smoking cessation during alcoholism treatment. Recent findings suggest, however, that concurrent treatment for both addictions may improve treatment outcomes.<sup>20</sup>

## **V. Conclusion And Recommendations**

In conclusion we observed that rate of smoking and alcohol consumption was very high among fishermen. Many of fishermen were consuming alcohol without having knowledge of safe level of alcohol consumption. Numbers of factor were associated with smoking and alcohol consumption. Among them are being more engaged with work and high job stress. Thus, more mechanization in fishing work is required to decrease physical work load and ultimately physical stress among fishermen. Fishermen may benefit from periodical health promotion and education in the area of smoking and alcohol consumption to raise their awareness about the dangers of smoking and alcohol consumption. They should be made aware of the existing services that are provided to help to quit smoking and alcohol consumption. Legislation should be considered to ban smoking below deck or to at least develop a code of best practice that would reduce levels of passive smoking. Fishermen should be made aware of safe drinking levels and the dangers of binge drinking, and it should be made illegal to board a boat under the influence of alcohol. Also, periodical health education sessions comprising of psychological training to support personal competence of fishers, so that they can handle mental stress effectively. Regular training of fishermen to increase their job skills in order to decrease the job related injuries is necessary.

## **VI. Limitations of the Study**

The results reported in this paper should be interpreted in light of the data limitations. First, the measure of job satisfaction depended on self-report. Thus, it may be subject to reporting bias. The definition of what is satisfaction may vary by respondent. The variation may also manifest itself if there are differences in



interpretations of what is satisfaction among people who are in seemingly similar contexts (i.e., same sex, occupation, age). Second, we used cross-sectional data and cannot make statements about causality. There may be confounding variables that were not captured and better explain the relationship such as personality, mental disorders or coping styles. It would be important for future research to explore the relationship of these factors to the outcome.

### **Acknowledgement**

Authors gratefully acknowledge all the staff of Department of Preventive and Social Medicine; TN Medical College, Mumbai and Cheetah Camp Urban Health Centre, Mumbai for their constant support and encouragement.

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