

Prevalence of consumption of addictive substances amongst Moroccan fishermen

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ABSTRACT

Background: The prevalence of toxic habits is constantly increasing in developing countries and all professional sectors are concerned. Seafarers are a particular target because of the dangerousness and complexity of their work. However, few studies have investigated toxic habits in this population. The aim of the study was to determine the prevalence of the use and misuse of addictive substances in seafarers and to appreciate poly-consumptions according to socio-demographic and occupational characteristics.

Materials and methods: This cross-sectional study was conducted amongst 1,219 fishermen. Subjects filled a questionnaire during their medical examination. The questionnaire covered socio-demographic and occupational characteristics, toxic habits (tobacco, alcohol, cannabis and others psychotropic substances). The misuse was assessed by specific tests: dependence on smoking tobacco (Fagerstrom), Cannabis Abuse Screening Test (CAST) and Alcohol Use Disorders Identification Test (AUDIT).

Results: The prevalence of consumption was 58.5% for smoking tobacco, 36.2% for cannabis, and 36.5% for alcohol. Amongst consumers, the prevalence of dependence or misuse was 49% for smoking tobacco, 61.2% for cannabis and 86% for alcohol. Only 115 (9.4%) people had no toxic habit. 56.4% had one toxic habit, 20.4% had two toxic habits, 11.9% had three toxic habits and 1.9% had four toxic habits. The most frequent associations were tobacco-cannabis (10.5%) and tobacco-alcohol (6.1%).

Conclusions: In this sector, occupational health physicians have to play a key role in raising awareness and fighting against toxic habits.

(Int Marit Health 2017; 68, 1: 19–25)

Key words: fishermen, addictive substances, Morocco

INTRODUCTION

The prevalence of toxic habits is constantly increasing in developing countries and all occupational sectors are affected [1, 2]. Seafarers are a particular target because of the dangerousness and complexity of their work [3–5]. However, few studies have partially investigated the toxic habits amongst fishermen in Morocco [6–10]. They respectively showed high prevalence for smoking tobacco (79%, 59.9%, 68.1%, 52.3% and 44.1%), for cannabis use (37.9%, 23.9%, 41%, 38.9% and 37.8%) and alcohol consumption (64%, 40.4%, 10%, 31.7% and 58.3%). The prevalence of these three toxics was significantly more important than in

the Moroccan general male population aged over 20 years (34.5%, 9% and 14%) [11].

All psychoactive substances act on the brain in the same way. They cause a disorder of alertness, a change in the perception of risk and/or an increased risk-taking with consequences in term of public health, prevention and occupational safety [3, 4, 12, 13].

The aim of this study is to determine the prevalence of addictive substances consumption, use and misuse amongst fishermen and appreciate the poly-consumption according to socio-demographic and occupational characteristics.

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MATERIALS AND METHODS

SUBJECTS

This epidemiological, observational and cross-sectional study was conducted in three ports of the northern Morocco (Tangiers, Larache and Jebha) in 2014 and concerned 1219 traditional male fishermen older than 20 years with length of employment above 1 year, randomly selected from a complete list of 4213 (29%) fishermen.

QUESTIONNAIRE

We used an individual and anonymised questionnaire including: sociodemographic and professional characteristics (age, family status, educational level, socio-professional category, and daily working time) and toxic habits: tobacco, cannabis, alcohol and others psychoactive substances.

For smoking tobacco, we have individualised current smokers, former smokers and non-smokers. Subjects were classified as current smokers if they smoked at the time of the survey or if they had stopped less than 3 months before the study and had smoked more than 100 cigarettes throughout their lives. Former smokers were those who had stopped more than 3 months before the study and smoked more than 100 cigarettes throughout their lives. Non-smokers are those who have never smoked or smoked less than 100 cigarettes throughout their lives [14]. We quantified the consumption of tobacco in pack-years (number of packs smoked per day multiplied by the number of years of smoking). For the smoking tobacco dependence assessment, the Fagerström test was used [15, 16]. The items are summed to yield a total score of 0 to 10. The classification of dependence is: very low (0 to 2); low (3 to 4); moderate (5); high (6 to 7); very high (8 to 10).

For smoking cannabis, in the same way, we have classified our population to current consumers, older consumers and not consumers. We quantified the consumption in calumet-years. Among cannabis smokers, we used the Cannabis Abuse Screening Test (CAST) [17, 18]. To calculate a score, the responses are coded on a scale of 0 to 4. The total score obtained (which can range from 0 to 24) indicates whether or not the questioned users are at risk. A score of less than 3 indicates no addiction risk, a score of 3 or less than 7 indicates low addiction risk, and a score of 7 or above indicates high addiction risk.

Alcohol consumption is quantified in number of standard drinks per day. A standard drink contains a fixed amount of pure alcohol, i.e. 10 g. A standard drink equivalents approximate number of standard drinks: drink of 10 cl of table wine at 12° = drink of 25 cl of beer at 5° = drink of 3 cl of whisky at 40° = drink of 7 cl of aperitif at 18°. Among drinkers, the Alcohol Use Disorders Identification Test

(AUDIT) is a 10-item screening tool developed by the World Health Organisation (WHO) to assess alcohol consumption, drinking behaviours, and alcohol-related problems. A score of 8 or more is considered to indicate hazardous or harmful alcohol use [19, 20].

We defined the use as a moderate or occasional consumption with a low risk to health. The misuse is a consumption that may cause physical, social and/or psychological troubles. The misuse includes hazardous or spot abuse, harmful or repeated abuse and addiction. We considered as having a misuse: dependent cigarette smokers with a Fagerström test score greater than or equal to 5, addiction cannabis smokers with a CAST score greater than 7, hazardous or harmful alcohol consumers with an AUDIT test score of 8 or more.

PROCEDURE OF THE STUDY

We previously contacted the presidents of the associations of fishermen and the occupational physicians to explain the purpose of the study and obtain their support. The interview lasted between 15 and 20 min for each person, respecting the confidentiality. The questions were formulated orally, if necessary translated into Arabic dialect. The fishermen answered to the questionnaire without difficulty and with enthusiasm.

STATISTICAL ANALYSIS

The statistical analysis was performed using the SPSS version 11.5 software package. The differences between groups were compared using t tests for continuous variables and χ^2 tests for categorical ones. The statistical level of significance was established at 5%. For a proportion, we calculate the lower and upper limits of the 95% confidence intervals (CI).

RESULTS

DEMOGRAPHIC AND OCCUPATIONAL CHARACTERISTICS OF FISHERMEN

The average age of total population was 37.9 ± 9.1 years (range 20–82 years). Thirty-two point six per cent were living alone and 67.4% in couple. Thirteen point eight per cent were illiterate, 59.5% had attended primary school, 24.2% secondary school, and 2.5% university. The occupational categories were fishermen (69.2%), mechanics (11.9%) and pilots and co-pilots (18.9%). The average length of employment was 14.9 ± 4.9 years.

PREVALENCE OF TOXIC HABITS (TABLE 1)

The prevalence of harmful habits was as follows: smoking tobacco: 58.5%, 95% CI 55–60; snuff tobacco: 12.3%, 95% CI 10–14; smoking hookah: 6.2%, 95% CI 4.7–7.3; smoking cannabis: 36.2%, 95% CI 33–38; alcohol con-

Table 1. Prevalence of toxic habits

Toxic habits (n = 1219)	No smokers	Former smokers	Current smokers
Smoking tobacco	285 (23.4%)	221 (18.1%)	713 (58.5%)
Snuff tobacco	993 (81.5%)	76 (6.2%)	150 (12.3%)
Smoking hookah	1105 (90.7%)	38 (3.1%)	76 (6.2%)
Smoking cannabis	567 (46.5%)	211 (17.3%)	441 (36.2%)
Consumption of alcohol	443 (36.3%)	331 (27.2%)	445 (36.5%)
Other psychotropic substances	1074 (88.1%)	32 (2.6%)	113 (9.3%)

Table 2. Association between sociodemographic characteristics and toxic habits

	N = 1219	ST – 713 (58.5%)	S – 150 (12.3%)	H – 76 (6.2%)	C – 441 (36.2%)	A – 445 (36.5%)	OPS – 113 (9.3%)
Age [years]:							
< 40	755 (61.9%)	426 (56.4%)	66 (8.7%)	60 (7.9%)	253 (33.5%)	289 (38.3%)	65 (8.6%)
≥ 40	464 (38.1%)	287 (61.9%)	84 (18.1%)	16 (3.4%)	188 (40.5%)	156 (33.6%)	48 (10.3%)
P	–	0.0741	0.0001	0.002	0.016	0.114	0.361
Family status:							
Lives alone	397(32.6%)	246(61.9%)	36 (9%)	63 (15.9%)	168 (42.3%)	195 (49.1%)	46 (11.6%)
Lives in a couple	822 (67.4%)	467 (56.8%)	114 (13.9%)	13 (1.6%)	273 (33.2%)	250 (30.4%)	67 (8.2%)
P	–	0.099	0.022	0.0001	0.002	0.0001	0.067
Educational level:							
Illiterate	168 (13.8%)	97(57.8%)	31(18.4%)	0 (0%)	55 (32.7%)	60(35.7%)	6 (3.6%)
Primary	725 (59.5%)	445(61.4%)	47 (6.5%)	24 (3.3%)	246 (33.9%)	233 (32.1%)	78 (10.8%)
Secondary	295 (24.2%)	159 (53.9%)	70 (23.7%)	24 (8.1%)	140 (47.4%)	152 (51.5%)	26 (8.8%)
Superior	31 (2.5%)	12 (38.7%)	2 (6.4%)	0 (0%)	0 (0%)	0 (0%)	3 (9.7%)

ST – smoking tobacco; S – snuff; H – hookah; C – cannabis; A – alcohol; OPS – other psychotropic substances

sumption: 36.5%, 95% CI 33–39 and other psychotropic substances: 9.3%, 95% CI 7.4–10.6.

The average age of onset of smoking tobacco was 16.2 ± 3.8 years, smoking cannabis 17.5 ± 3.7 years, consumption of alcohol 21.3 ± 3.9 years, sniffing tobacco 22.7 ± 4.5 years, smoking hookah 24.7 ± 4.6 years, and using other psychotropic substances 27.1 ± 2.9 years.

The average daily amount of smoked tobacco was 18 ± 6.5 cigarettes, of smoked shisha 0.6 ± 0.2 , of sniffed tobacco 15 ± 5.1 snuffs, of smoked cannabis 13 ± 2.1 calumets, and of alcohol 3.5 ± 1.2 drinks.

The harmfulness of tobacco smoking to health was known by 96% of fishermen, alcohol by 92%, cannabis by 67%, tobacco by 35% and hookah by only 27%. Ninety-three per cent of tobacco sniffers were former tobacco smokers. The hookah is considered safer for health by 75% of consumers who consider that dangerous substances smoked are filtered by water.

Attempts of weaning more than 2 days of abstinence were made by 52.6% of tobacco smokers, 68% of alcohol

drinkers, 35.5% of cannabis smokers, 22% of hookah smokers and 18% of tobacco sniffers.

THE ASSOCIATION BETWEEN SOCIODEMOGRAPHIC CHARACTERISTICS AND TOXIC HABITS (TABLE 2)

The prevalence of smoking tobacco (56.4% vs. 61.9%; $p = 0.071$), snuff tobacco (18.1% vs. 8.7%; $p = 0.0001$), smoking cannabis (40.5% vs. 33.5%; $p = 0.016$) and using psychotropic substances (10.3% vs. 8.6%; $p = 0.361$) was higher among fishermen over 40 years. The prevalence of smoking hookah (7.9% vs. 3.4%; $p = 0.002$) and alcohol consumption (38.3% vs. 33.6%; $p = 0.114$) was higher in subjects under 40 years. The prevalence of toxic habits was higher among people living alone, except for snuff tobacco. The prevalence of toxic habits (smoking tobacco, snuff tobacco, smoking hookah, smoking cannabis and consuming alcohol) was lower among those with a superior educational level except for psychotropic substances.

Table 3. Association between socio-professional characteristics and toxic habits

	N = 1219	ST – 713 (58.5%)	S – 150 (12.3%)	H – 76 (6.2%)	C – 441 (36.2%)	A – 445 (36.5%)	OPS – 113 (9.3%)
Length of employment [years]:							
< 5	150 (12.3%)	65 (43.3%)	25 (16.7%)	14 (9.3%)	41 (27.3%)	51 (34%)	9 (6%)
5–15	404 (33.1%)	226 (55.9%)	37 (9.2%)	50 (12.4%)	210 (52%)	223 (55.2%)	41 (10.1%)
> 15	665 (54.6%)	422 (63.4%)	88 (13.2%)	12 (1.8%)	190 (28.6%)	171 (25.7%)	63 (9.5%)
P	–	0.0001	0.032	0.0001	0.0001	0.0001	0.315
Professional categories:							
Pilots/co-pilots	230 (18.9%)	127(55.2%)	14(6%)	17 (7.4%)	34 (14.8%)	78 (33.9%)	38 (16.5%)
Mechanics	145 (11.9%)	66(45.5%)	17(11.7%)	22 (15.2%)	45 (31%)	41 (28.3%)	12 (8.3%)
Fishermen	844 (69.2%)	520(61.6%)	119(14.1%)	37 (4.4%)	362 (42.9%)	326 (38.6%)	63 (7.5%)
P	–	0.0001	0.005	0.0001	0.0001	0.038	0.0001
Daily working [h]:							
≤ 8	337 (27.7%)	189 (56%)	38 (11.3%)	15 (4.4%)	121 (35.9%)	92 (27.3%)	35 (10.4%)
> 8	882 (72.3%)	524 (59.4%)	112 (12.7%)	61 (6.9%)	320 (36.3%)	353 (40%)	78 (8.8%)
P	–	0.322	0.563	0.144	0.956	0.0001	0.472

ST – smoking tobacco; S – snuff; H – hookah; C – cannabis; A – alcohol; OPS – other psychotropic substances

Table 4. Association between sociodemographic characteristics and misuse (dependence)

	ST – 353/713 (49.5%)	C – 270/441 (61.2%)	A – 232/445 (52.1%)
Age [years]:			
< 40	222/426 (52.1%)	171/253 (67.6%)	149/289 (51.6%)
≥ 40	131/287 (45.6%)	99/188 (52.7%)	83/156 (53.2%)
P	0.106	0.002	0.816
Family status:			
Lives alone	150/246 (60.9%)	123/168 (72.2%)	111/195 (56.9%)
Lives in a couple	203/467 (43.5%)	147/273 (53.9%)	121/250 (48.4%)
P	0.0001	0.0001	0.091
Educational level:			
Illiterate	62/97 (63.9%)	34/55 (61.8%)	43/60 (71.7%)
Primary	207/445 (46.5%)	155/246 (63%)	110/233 (47.2%)
Secondary	78/159 (49.1%)	81/140 (57.8%)	79/152 (52%)
Superior	6/12(50%)	–	–
P	0.028	0.605	0,003

ST – smoking tobacco; C – cannabis; A – alcohol

The average age of tobacco smokers was 37.5 ± 8.9 years, hookah smokers 32.5 ± 7.1 years, tobacco sniffers 42.3 ± 5.2 years, cannabis smokers 38.3 ± 9.3 years, alcohol consumers 36 ± 8.1 years and other psychotropic substances users 39.4 ± 3.4 years.

The prevalence of tobacco smoking (61.9% vs. 56.4%, $p = 0.071$) and cannabis smoking (40.5% vs. 33.5%, $p = 0.016$) was higher in subjects above 40 years old. The prevalence of alcohol consumption (38.3% vs. 33.6%; $p = 0.114$) and smoking hookah (7.9% vs. 3.4%; $p = 0.002$) was higher in subjects under 40 years old.

The prevalence of toxic habits among people living alone was higher than among those living in pairs except for sniffing tobacco.

ASSOCIATION BETWEEN SOCIO-PROFESSIONAL CHARACTERISTICS AND TOXIC HABITS (TABLE 3)

The average length of employment for the total population was 14.9 ± 4.9 years, for cigarette smokers 15.5 ± 4.2 years, for hookah smokers 10.7 ± 2.8 years, for tobacco sniffers 15 ± 4.3 years, for cannabis smokers 13.8 ± 3.5 years, for alcohol consumers of 13.3 ± 3.7 years and for other psychotropic substances consumers 15.2 ± 4.6 years.

ASSOCIATION BETWEEN SOCIODEMOGRAPHIC CHARACTERISTICS AND MISUSE (TABLE 4)

The average age of people who misuse was 37.2 ± 7.9 years for tobacco smokers, 37.5 ± 6.1 years for cannabis smokers and 36.1 ± 7.2 years for alcohol consumers.

Table 5. Association between sociodemographic characteristics and misuse or dependence

	ST – 353/713 (49.5%)	C – 270/441 (61.2%)	A – 232/445 (52.1%)
Length of employment [years]:			
< 5	35/65(53.8%)	24/41(58.5%)	23/51 (45.1%)
5–15	115/226 (50.9%)	141/210 (67.1%)	115/223 (51.6%)
> 15	203/422 (48.1%)	105/190 (55.2%)	94/171 (55%)
P	0.609	0.048	0.451
Professional categories:			
Pilots/co-pilots	58/120 (48.3%)	13/34 (38.2%)	34/78 (43.6%)
Mechanics	28 /63 (44.4%)	26/45 (57.8%)	21/41 (51.2%)
Fishermen	267/513 (52%)	231/362 (63.8%)	177/326 (54.3%)
P	0.443	0.012	0.234
Daily working [h]:			
≤ 8	85/189 (45%)	52/121 (42.9%)	34/92 (37%)
> 8	268/524 (51.1%)	218/320 (68.1%)	198/353 (56.1%)
P	0.171	0.0001	0.137

ST – smoking tobacco; C – cannabis; A – alcohol

The misuse was significantly more frequent in people under 40 years old for cannabis (67.6 % vs. 52.7%; $p = 0.002$), but for tobacco (52.1% vs. 45.6%; $p = 0.106$) and for alcohol (51.6% vs. 53.2%; $p = 0.816$) the difference was not significant.

For smoked tobacco (60.9% vs. 43.5%; $p = 0.0001$) and cannabis (72.2% vs. 53.9%; $p = 0.0001$), misuse was significantly more frequent in people living alone, but for alcohol, the difference was not significant (56.9% vs. 48.4%; $p = 0.091$).

For smoked tobacco (63.9% vs. 47.2%; $p = 0.0001$) and alcohol (71.7% vs. 49.1%; $p = 0.0001$), misuse was significantly more common among illiterate than literate people.

ASSOCIATION BETWEEN SOCIO-PROFESSIONAL CHARACTERISTICS AND MISUSE (TABLE 5)

The average length of employment of people with misuse was 15.3 ± 4.1 years for cigarette smokers, 13.4 ± 3.7 years for cannabis smokers and 13.2 ± 3.9 for alcohol consumers.

For the cannabis smokers, misuse was significantly more common among fishermen than other occupational categories (63.8% vs. 49.4%; $p = 0.024$). For tobacco smokers (52% vs. 47%; $p = 0.282$) and alcohol consumers (54.3% vs. 46.2%; $p = 0.159$), the difference was not significant.

The prevalence of misuse was significantly higher among those working more than 8 h for cannabis smokers (68.1% vs. 42.9%; $p = 0.0001$) and alcohol consumers (56.1% vs. 37%; $p = 0.002$). For tobacco smokers (51.1% vs. 45%; $p = 0.176$), the difference was not significant.

PREVALENCE OF TOXIC HABITS ASSOCIATIONS (TABLE 6)

Only 115 (9.4%) people had no toxic habit, 56.4% had one toxic habit, 20.4% had two toxic habits, 11.9% had

Table 6. Prevalence of toxic habits associations

	Toxics	N (%)
0 toxic habits n = 115 (9.4%)	–	115 (9.4%)
1 toxic habit n = 687 (56.4%)	T	349 (28.6%)
	C	141 (11.6%)
	A	197 (16.2%)
	OPS	0 (0%)
2 toxic habits n = 249 (20.4%)	T + C	128 (10.5%)
	T + A	75 (6.1%)
	A + C	46 (3.8%)
3 toxic habits n = 145 (11.9%)	T + C + A	55 (4.5%)
	T + A + OPS	42 (3.4%)
	T + C + OPS	41 (3.4%)
	C + A + OPS	7 (0.6%)
4 toxic habits n = 23 (1.9%)	T + C + A + OPS	23 (1.9%)
Total population		1219 (100%)

T – tobacco; C – cannabis; A – alcohol; OPS – others psychotropic substances

three toxic habits and 1.9% had four toxic habits. The most frequent associations were tobacco-cannabis (10.5%) and tobacco-alcohol (6.1%).

DISCUSSION

In our study, the interview with fishermen could create a bias and some consumption could be undeclared; therefore, prevalence might to be underestimated.

According to the Health Barometer 2010 of the National Institute of Prevention and Education for Health (INPES, France), the fishery sector was ranked at the first place of consumption of toxic substances: 63.1% were tobacco

smokers, 14.5% were hazardous drinkers and 3.4% had used cannabis in the previous month [20]. In our study, the prevalence of toxic habits was 58.5% for smoking tobacco, 36.5% for alcohol, 36.2% for cannabis, 12.3% for snuff tobacco, 9.3% for psychotropic substances and 6.2% for hookah. Five studies amongst fishermen in Morocco [6–10] respectively showed high prevalence for smoking tobacco (79%, 59.9%, 68.1%, 52.3% and 44.1%), for cannabis use (37.9%, 23.9%, 41%, 38.9% and 37.8%) and alcohol consumption (64%, 40.4%, 10%, 31.7% and 58.3%). The prevalence of these three toxic habits was respectively and significantly higher than that of the Moroccan general male population aged over 20 years (34.5%, 9% and 14%) [11].

In our study, 34.2% of fishermen had more than one toxic habit, 20.4% had two toxic habits, 11.9% had three and 1.9% had four toxic habits. The most frequent associations were tobacco-cannabis (10.5%) and tobacco-alcohol (6.1%). According to the health barometer of the INPES, regular poly-consumption concerns 8.3% of the adult population. The most common combinations were alcohol-tobacco (5.9%), tobacco-cannabis (1.6%) and alcohol-tobacco-cannabis (0.7%) [21]. In our study, 49.5% of the fishermen had an addiction to smoking tobacco, 61.2% were cannabis smokers and 52.1% had risky alcohol-drinking habit. These prevalences were higher than in the general population, according to figures reported by the Moroccan National Observatory for Drugs and Addictions (Observatoire national marocain des drogues et des addictions) with 2% of alcohol abuse, 3.3% of toxic substances abuse and 2.8% of misuse of toxic substances [11].

In Morocco, the prevalence of smoking differs by sector with an average of 52% in urban areas [11]. In a meta-analysis among fishermen [4], the respective prevalences of smoking tobacco in Turkey (81%), Scotland (38%), Greece (40%) and Spain (60%) were as important as in our study (58.5%). Seafarers would smoke more than the general population for several reasons related to poor working conditions, rough and very stressful. Tobacco would be used as a stimulant or anxiolytic [21]. Our fishermen consumed on average 18 ± 6.5 cigarettes per day against 20 cigarettes per day in the Turkish ports and 30 in the Spanish ports [4]. The harmfulness of tobacco smoking to health was known by 96% of our fishermen. In a Scottish series, 88% of smoker sailors thought their current level of smoking was harmful [4]. Snuff tobacco was considered by sailors as less harmful to health than smoking tobacco. It was used for weaning off smoked tobacco.

According to the National Institute for Research and Safety of France (Institut national de recherche et de sécurité [INRS]), the fishing sector is at high-risk of alcohol consumption with 16.6% against 7.7% for general population amongst people between 16 and 64 years of age [22]. In

our study, the prevalence of alcoholism (36.5%) was lower than reported in the literature: 68% for Turkish sailors, 80% for Scottish harbourmen and 78% for Greek sailors [4]. This could be explained by an underestimation due to religious beliefs, cultural habits, regulations and laws because alcohol consumption is forbidden by Islam. Consequently, alcohol issues are taboo. The average daily consumption in our series was high, of the order of 3.5 glasses per day. Fifteen per cent of Greek sailors had a daily intake greater than a bottle of wine a day and 12% of Scottish harbourmen exceeded the weekly safety threshold of 21 lenses [4]. The harmfulness of alcohol was known by 92% of our fishermen. Only 7% of Scottish harbourmen considered their level of consumption as harmful to their health [4].

Cannabis is the illicit drug most used in the world [12, 18]. Factors socio-geographical, economic and cultural play an important role in its consumption. Cannabis is grown and consumed massively in northern Morocco because it is cheaper than manufactured tobacco [1]. The prevalence of its consumption in our study was similar than in the literature (36.2% against 40.5%) [20]. The average age of onset of smoking cannabis is 17 years and in the literature, its experimentation is 15 years old in average [22].

The recent craze for hookah is due to the mental representation of the mode of use as being healthier and friendlier than cigarettes [23]. Seventy-five per cent of our fishermen considered that the hookah is safer for health. In Morocco, the prevalence of its use in the general population in 2010 was 4.9%, which was lower than in Tunisia (5.8%) and in Syria (19.7%) [23].

The use of other toxic substances (drugs) by the fishermen is more difficult to assess. In a study of stress among fishermen in Tangier conducted in 2010 [8], the prevalence of psychotropic substances consumption was 4.6%. In our study it was larger, with a rate of 9.3%. In the series described by Novalbos et al. [24], 9% of harbourmen consumed psychotropic drugs during their sea voyages.

Our survey found that fishermen living alone consume more toxic substances than fishermen living in couples except for the snuff.

In our study, the prevalence of toxic habits was greater in people with a low education level except for psychotropic substances. The MARTA survey of the Moroccan population [14] showed that the prevalence of smoking was inversely associated with the level of education among men; thus, the risk was higher among illiterate men than those whose level of education was academic.

Some working constraints increase alcohol consumption: outdoor work (more than half of working time), work in painful or tiring posture, exposure to shaking or vibration, carrying heavy loads, long trips or exhausting or fast [25]. Work stress appears as a possible risk factor exposing to

toxic habits. At the seaside, the stress born of high psychological demands, low decision latitude and inadequate professional support, was compounded by difficult and dangerous working conditions [3]. According to the Health Barometer 2010 INPES [21], 36.2% of regular smokers, 9.3% of alcohol users and 13.2% of cannabis users said they had increased their consumption due to problems related to their work over the pasted 12 months. However, these results should not obscure the fact that the professional activity globally remains a protection factor of addictive behaviour, compared to an unemployment situation [26, 27].

CONCLUSIONS

The fishermen are a population at high risk of psychotropic substances use. Collective and individual prevention measures and actions aimed at screening and increasing awareness are needed. The occupational health physicians have to play a key role in the development and implementation of the preventive approach. The support and specialised care facilities must be available to ensure individual attention and early treatment when necessary.

REFERENCES

- Manoudi F, Boutabia S, Asri F, et al. Approche épidémiologique de la toxicomanie en milieu universitaire à Marrakech (Maroc). *Annales Médico-psychologiques, revue psychiatrique*. 2010; 168(9): 698–701, doi: [10.1016/j.amp.2010.09.003](https://doi.org/10.1016/j.amp.2010.09.003).
- Chemsi M, Rbai M, Echchachoui H, et al. Epidemiology of addictive behaviours among civilian aircrew in Morocco. *Med Aéronautique et Spatiale*. 2009; 187: 25–29.
- Pougnat R, Pougnat L, Loddé B, et al. Consumption of addictive substances in mariners. *Spanish Society of Maritime Medicine (SEMM), Tarragona, Spain*. 2014; 65(4): 199–204.
- Frantzeskou E, Jensen O, Linos A. Prevalence of health risk factors among fishermen: a review. *Occupational Medicine Health Affairs*. 2014; 2(2): 157, doi: [10.4172/2329-6879.1000157](https://doi.org/10.4172/2329-6879.1000157).
- Fort E, Massardier-Pilonchery A, Bergeret A. Alcohol and nicotine dependence in French seafarers. *Int Marit Health*. 2009; 60(1-2): 18–28, indexed in Pubmed: [20205123](https://pubmed.ncbi.nlm.nih.gov/20205123/).
- Ghailan T, Hamdouche I, Bennouna A, et al. Evaluation des troubles du sommeil chez les pêcheurs de Tanger. *Medicina maritima* 2009, vol. 9, no. 2.
- Laraqui O, Manar N, Ghailan T, et al. Dépistage de la bronchopneumopathie chronique obstructive et qualité de vie dans un échantillon de gens de mer à Kénitra. *Medicina maritima* 2014, Vol. 14, no. 1.
- Laraqui O, Laraqui S, Caubet A, et al. Evaluation du stress professionnel chez les gens de mer à Tanger. *Medicina maritima*. 2010; 10(1): 38–58.
- Laraqui O, Manar N, Ghailan T, et al. Prévalence des conduites à risques chez les marins pêcheurs au Maroc à propos d'une étude multicentrique. XVIII jornadas nacionales españolas de medicina marítima. Sotogrande (Cádiz). 2016: novembre).
- Laraqui S, Laraqui O, Manar N, et al. The assessment of seafarer's knowledge, attitudes and practices related to STI/HIV/AIDS in northern Morocco. *Int Marit Health*. 2017; 68(1): 26–30.
- Observatoire National des Drogues et Addictions (ONDA) Rapport officiel. Maroc : Moroccan National Observatory for Drugs and Addictions. www.onda-drogues.com (2013).
- Durand E, Gayet C, Laborde L, et al. Conduites addictives et travail. *INRS. DMT ; N° 115, 3ème trimestre. ; 2008: 339–362*.
- Paille F. Critères diagnostiques, cliniques et biologiques de la dépendance tabagique. In: Reynaud Michel, *Traité d'addictologie*. Paris: Médecine-Sciences Flammarion; 2006: 418–423.
- El Rhazi K, Nejari C, Berraho M, et al. Inequalities in smoking profiles in Morocco: the role of educational level. *Int J Tuberc Lung Dis*. 2008; 12(11): 1327–1332, indexed in Pubmed: [18926045](https://pubmed.ncbi.nlm.nih.gov/18926045/).
- Fagerström KO. Measuring degree of physical dependence to tobacco smoking with reference to individualization of treatment. *Addict Behav*. 1978; 3(3-4): 235–241, indexed in Pubmed: [735910](https://pubmed.ncbi.nlm.nih.gov/735910/).
- Udner M, Houezec JLe, Perriot J, et al. Les tests d'évaluation de la dépendance tabagique. *Revue des Maladies Respiratoires*. 2012; 29(4): 462–474, doi: [10.1016/j.mr.2011.09.051](https://doi.org/10.1016/j.mr.2011.09.051).
- Institut National de Prévention et d'Education pour la Santé (INPES, France) : National Institute of Prevention and Education for Health. *Repérage précoce de l'usage nocif du cannabis*. Juillet; 2006: 4.
- Gyepesi A, Urbán R, Farkas J, et al. Psychometric properties of the Cannabis Abuse Screening Test in Hungarian samples of adolescents and young adults. *Eur Addict Res*. 2014; 20(3): 119–128, doi: [10.1159/000353238](https://doi.org/10.1159/000353238), indexed in Pubmed: [24217457](https://pubmed.ncbi.nlm.nih.gov/24217457/).
- Demortière G, Pessione F, Batel P. Problèmes liés à l'alcool en médecine de travail. Dépistage par l'utilisation d'auto-questionnaires: intérêt, faisabilité, limites. *INRS, DMT, 2ème trimestre*. 2001; 85: 193–200.
- Institut National de la Recherche Scientifique (INRS) : National Institute for Research and Safety of France. *Problèmes liés à l'alcool en médecine de travail. Dépistage par l'utilisation d'auto-questionnaires: Intérêt, faisabilité, limites. Document pour le médecin du travail*. Numéro 86. 2eme trimestre. ; 2011.
- Institut National de Prévention et d'Education pour la Santé (INPES, France) : National Institute of Prevention and Education for Health. *Baromètre santé 2010 des substances psychoactives plus consommées dans certains secteurs de travail*. <http://www.inpes.sante.fr/Barometres/barometre-sante-2010/pdf/resultats-barometres-spa.pdf>.
- Institut National de la Recherche Scientifique (INRS) : National Institute for Research and Safety of France. *Dossier Addictions*. www.inrs.fr/risques/addictions.html (2015).
- Kiter G, Uçan ES, Ceylan E, et al. Water-pipe smoking and pulmonary functions. *Respir Med*. 2000; 94(9): 891–894, doi: [10.1053/rmed.2000.0859](https://doi.org/10.1053/rmed.2000.0859), indexed in Pubmed: [11001082](https://pubmed.ncbi.nlm.nih.gov/11001082/).
- Novalbos J, Nogueroles P, Soriguer M, et al. Occupational health in the Andalusian Fisheries Sector. *Occup Med (Lond)*. 2008; 58(2): 141–143, doi: [10.1093/occmed/kqm156](https://doi.org/10.1093/occmed/kqm156), indexed in Pubmed: [18245787](https://pubmed.ncbi.nlm.nih.gov/18245787/).
- Bibliothèque de l'OMS. *Neurosciences : usage de substance psychoactives et dépendance*. ISBN 92 4 259124 6. Classification NLM:WM 270.
- Orset C, Sarazin M, Cabal C. Les conduites addictives en milieu professionnel. *Archives des Maladies Professionnelles et de l'Environnement*. 2007; 68(1): 5–19, doi: [10.1016/s1775-8785\(07\)88863-1](https://doi.org/10.1016/s1775-8785(07)88863-1).
- Niezborala M, Boeuf-Cazou O, Lapeyre-Mestre M, et al. Profil de consommation de substances psychoactives dans le milieu du travail: résultats de l'enquête Mode de Vie et Travail. *Archives des Maladies Professionnelles et de l'Environnement*. 2012; 73(3): 492, doi: [10.1016/j.admp.2012.03.272](https://doi.org/10.1016/j.admp.2012.03.272).