

Prevalence Of Alcohol In Patients Admitted To The Emergency Department Of The Yaounde Emergency Center

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Abstract

Background We evaluated the prevalence of alcoholism among patients admitted to the emergency department of the Yaoundé Emergency Center. We took into account the sociodemographic data and the blood alcohol levels of all patients admitted, without distinction of the reason for admission.

Methods This descriptive study took place in the emergency unit of the Yaoundé Emergency Centre, the largest in the city. The patients who were admitted, conscious and voluntary, were subjected to a brief questionnaire establishing sex, age, marital status and profession; then they blew each one in the ethyl meter (Alco meter CA 3000), through a single-use mouthpiece. The BAC value displayed on the meter was immediately recorded.

Results 157 male and female patients, with an average age of 40.37 ± 16.32 , took part in the study; the average BAC was around 0.169 ± 0.136 (~0.46g/L), and the prevalence of alcoholism was 69.43%; young men, mostly truck drivers, in the 26 to 35 age group had the highest BAC, contributing strongly to the prevalence of acute alcohol intoxication.

Conclusion: 69.43% of the patients in the CURY are victims of conditions related to alcohol abuse, and the most concerned are vehicle drivers. We have worked on conscious people, but the effects of alcohol go beyond these people, as cases of death unfortunately occur very often.

1. Introduction

Within a health care facility, emergency departments are one of the most heavily used entry points. In France, for example, more than 18.5 million patients a year are seen in emergency departments [1], and one out of five patients visiting the emergency department is hospitalized [2]. The reasons for admission are very varied, as the patient may go there himself because he feels ill; but very often, we see addresses from the police, the fire department or from goodwill souls, who bring back to the site people in immediate need of care [3].

In addition to the medical, surgical, psychiatric and other complications that lead to an admission to the emergency room, studies show that 30% of patients admitted to the emergency room are admitted because of a direct (15-20%) or indirect link to alcohol consumption [4]. Although alcoholism is very often encountered in cases of injury [5] or trauma and accidents (50% of cases) [6], it is also linked to psychiatric manifestations, in particular suicidal (60% of suicide attempts) and somatic [7].

This observation should lead us to systematically look for problems related to the use of alcohol in emergency services and to set up appropriate responses. This is the reason why we proposed to address prospectively the issue of possible admission cases identified in the emergency

department of the Centre des Urgences de Yaoundé (CURY), and related to alcohol misuse, by assessing the frequency of blood alcohol levels in patients within this unit.

2. Methodology

This descriptive study took place in the emergency unit of the Yaoundé Emergency Centre, the largest in the city. The conscious and voluntary patients who were received were subjected to a brief questionnaire establishing sex, age, marital status and profession; then they blew into the breathalyzer (Alco meter CA 3000), through a single-use mouthpiece. The BAC value displayed on the meter was immediately recorded.

The collected data were coded, inserted on Microsoft Excel 2010, exported and analyzed on Epi info 7.3.1.0 and SPSS 20. Chi-square and Fisher's t tests were used for comparisons and to measure associations. The threshold for statistical significance was set at $p < 0.05$.

3. Results

The recruitment of the participants was done, while respecting the criteria of selection for the study, as well as the recruitment period, after which we obtained 157 participants for the study.

3.1. Sociodemographic characteristics

3.1.1 Gender

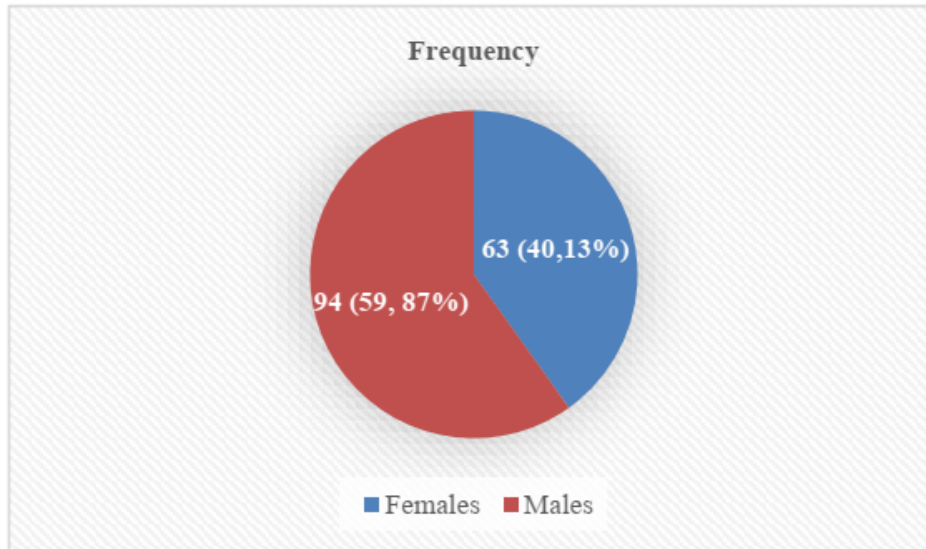


Figure 1: Distribution of participants by gender

From the pie chart above, it appears that amongst the 157 participants, 94 (59.87%) consisted of males and 63 (40.13%) of females, for a sex ratio of 2:3 in favor of the males.

3.1.2 Age

- Average age
- **Table 1:** Frequency distribution according to age

	Minimum	Maximum	SD	Mean	Mode
Age	19,00	79,00	16,33	40,37	26,00
(Années)					

The average age (mean) observed is 40.38 ± 16.33 years; with a minimum of 19 years for the youngest and a maximum of 79 years for the eldest, as shown in the table above.

Age class distribution

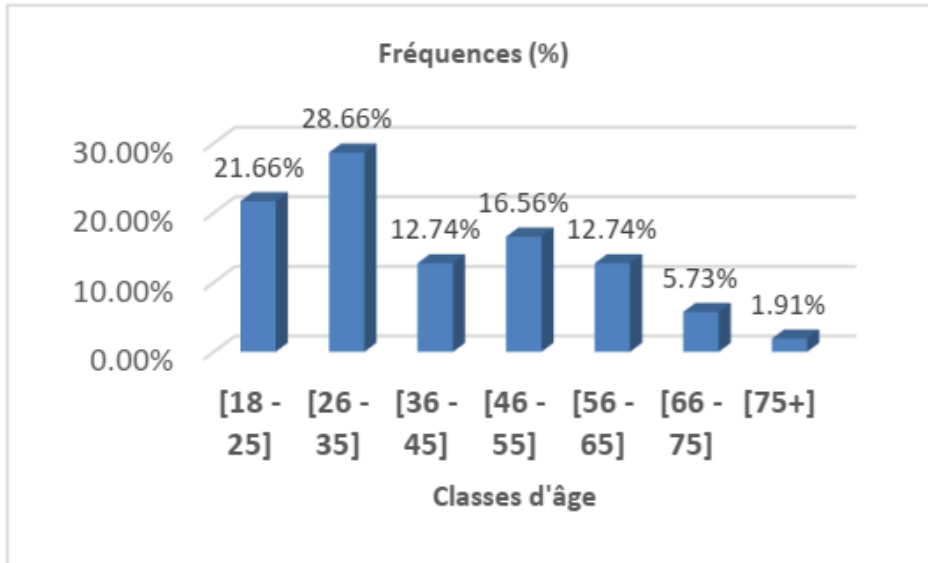


Figure 2: Distribution of participants by age group.

The above histogram shows that individuals aged between 26 and 35 years are the most represented, with proportion of 28.66%.

From table 2 below, we observe that out of the 157 emergency cases, 60 (38.22%) were internal medicine cases, 49(31.21%) were due to road traffic accident and 35(22.29%) were due to aggressions.

3.2. Frequencies of emergency cases

Table 2: Distribution of emergency cases

Emergency cases	Frequency	Percentage (%)
Agression	35	22,29%
Gynaecology	2	1,27%
Internal medicine	60	38,22%
Other accidents	11	7,01%
Road traffic accident	49	31,21%
Total	157	100,00%

3.3 Distribution of emergency cases according to alcohol consumption

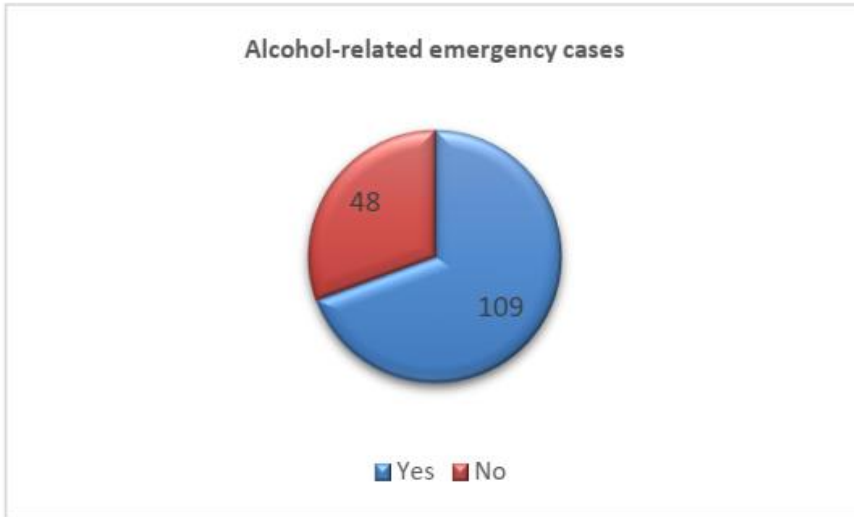


Figure 3: Distribution of emergency patients according to alcohol consumption

From the pie chart above, we can observe that out of the 157 patients who came for emergency, 109 (69.43%) consumed alcohol and 48 (30.57%) did not consume alcohol.

3.2 Frequency of blood-alcohol concentration (BAC)

3.2.1 Average blood-alcohol concentration (BAC)

Table 3: average blood alcohol level of participants.

	Minimum	Maximum	SD	Mean	Mode
Alcohol value (g/L)	0,01	0,53	0,1365	0,1696	0,01

The average alcohol level among participants is 0.169 ± 0.136 (~0.46 g/L) as noted above.

3.2.2 Levels of BAC

Table 4: Distributions of blood-alcohol concentration (BAC) rates by level of blood-alcohol concentrations (BAC).

Range of alcohol value (g/L)	Frequency	Percentage
[0,00 - 0,15]	69	43,95%
[0,16 - 0,30]	58	36,94%
[0,31 - 0,50]	24	15,29%
[0,51 - 0,99]	6	3,82%
Total	157	100%

It can be observed that 88 individuals, that is the majority of the participants, had a blood-alcohol level (BAC) ≥ 0.15 BAC ($\sim 0.50\text{g/L}$); what gives us a prevalence of alcohol intoxication of the order of 56.05%.

3.2.3 Blood alcohol concentration according to gender

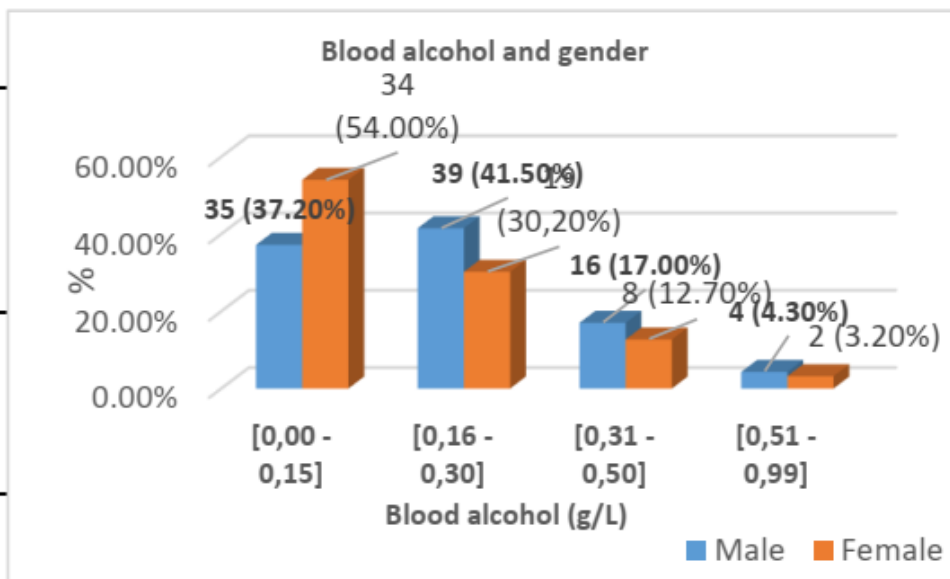


Figure 5: Distribution of blood-alcohol level according to gender.

The proportion of females (54.0%) is greater than that of males (37.2%), for blood alcohol values contained in the range of sobriety;

beyond this interval, the proportions are reversed. In addition, the ratio of the blood-alcohol level of females to males $\geq 0.50\text{g/l}$ is 4:3 and 3:4 for values $\leq 0.50\text{g/l}$. which means that females certainly have lower blood-alcohol levels than males, but also quite high.

3.2.4 Blood-alcohol level according to age

Table 5: Cross-tabulation of alcohol levels by age group

	[0,00 - 0,15]	[0,16 - 0,30]	[0,31 - 0,50]	[0,51 - 0,99]	Total
Age (years)					
[18 - 25]	11 (15.90)	13 (22.40)	6 (25.00)	4 (66.70)	34 (21.70)
[26 - 35]	21 (30.40)	18 (31.00)	6 (25.00)	0 (0.00)	45 (28.70)
[36 - 45]	7 (10.10)	8 (13.80)	5 (20.80)	0 (0.00)	20 (12.70)
[46 - 55]	14 (20.30)	9 (15.50)	3 (12.50)	0 (0.00)	26 (16.60)
[56 - 65]	7 (10.10)	8 (13.80)	3 (12.50)	2 (33.30)	20 (12.70)
[66 - 75]	6 (8.70)	2 (3.40)	1 (4.20)	0 (0.00)	9 (5.70)
[75+]	3 (4.30)	0 (0.00)	0 (0.00)	0 (0.00)	3 (1.90)
Total	69 (100.00)	58 (100.00)	24 (100.00)	6 (100.00)	157 (100.00)

Total	69	58	24	6	157
	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)

P = 0,262

Note: Alcohol level (g/L), 0.15 BAC = 0.50g/L. (% of individuals)

The age group ranging from 26 to 35 years, is the most affected by highest alcohol level at 18% for values between 0.16 to 0.30 BAC, to 6% for values ≥ 0.31 BAC. Moreover, this same group has the highest sobriety levels of about 30.4%; the

second most affected group by high blood-alcohol levels is the age group ranging from 18 to 25 years.

3.2.5 Blood alcohol level according to occupation

Table 6: Cross-tabulation of alcohol level by occupation

Range of alcohol value (g/L)
(% of individuals)



	[0,00 - 0,15]	[0,16 - 0,30]	[0,31 - 0,50]	[0,51 - 0,99]	Total
Occupation					
Army	5	10	5	0	20
	(7.20)	(17.20)	(20.80)	(0.00)	(12.70)
Clergy	2	0	0	0	2
	(2.90)	(0.00)	(0.00)	(0.00)	(1.30)
Driver	9	13	4	0	26
	(13.00)	(22.40)	(16.70)	(0.00)	(16.60)
Farmer	3	2	1	1	7
	(4.30)	(3.40)	(4.20)	(16.70)	(4.50)
Hospital worker	3	1	0	0	4
	(4.30)	(1.70)	(0.00)	(0.00)	(2.50)
Housewife	3	1	0	0	4
	(4.30)	(1.70)	(0.00)	(0.00)	(2.50)
Night worker	7	7	4	1	19
	(10.10)	(12.1)	(16.70)	(16.70)	(12.10)
Office worker	7	3	1	0	11
	(10.10)	(5.20)	(4.20)	(0.00)	(7.00)
Retire worker	5	1	0	0	6
	(7.20)	(1.70)	(0.00)	(0.00)	(3.80)
Sudent	7	7	3	4	21
	(10.10)	(12.1)	(12.50)	(66.70)	(13.4)

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	(2.90)	(0.00)	(0.00)	(0.00)	(1.30)
Technician	7	3	0	0	10
	(10.10)	(5.20)	(0.00)	(0.00)	(6.40)
Trader	2	3	1	0	6
	(2.90)	(5.20)	(4.20)	(0.00)	(3.80)
Unemployed	7	7	5	0	19
	(10.10)	(12.1)	(20.80)	(0.00)	(12.10)
Total	69	58	24	6	157
	(100,00)	(100.00)	(100.00)	(100.00)	(100.00)

P = 0,043

From our study we see that the drivers are the most affected by highest alcohol level at 22.4% for values between 0.16 to 0.30 BAC, to 4% for values ≥ 0.31 BAC. Moreover, this same group has the highest sobriety levels of about 13%; the second most affected group by high blood-alcohol levels are the army followed by students, night workers and the unemployed.

DISCUSSION

The data collected within the CURY emergency unit, allowed us to extract a certain amount of information, in order to highlight the relationships of the emergency department to alcohol misuse.

The recruitment of the participants was done, while respecting the criteria of selection for the study, as well as the recruitment period, after which we obtained 157 participants for the study, distributed into 94 (59.87%) males and 63 (40.13%) females, for a sex ratio of 2:3 in favor of the males. The average blood alcohol

concentration (BAC) recorded was 0.169 ± 0.136 ($\sim 0.46\text{g/L}$), for a BAC prevalence equal to 69.43%. These results are similar to those of Drummond C et al. and Parkinson, et al. who observed prospectively, and on a non-probabilistic sample, that in England, emergency room admissions ranged from 4% to 60% on weekdays, and could reach a peak of 70% on weekends [8, 9].

In addition, 88 of the 157 subjects in the study had blood alcohol levels above or equal to the limit value for intoxication; we thus found a prevalence of acute alcohol intoxication (AEI) of 56.05%, a prevalence which, although different, is close to that obtained by Verheij C. et al, who in their study of admissions to the emergency departments of Dutch hospitals, presented 62% as the prevalence of acute alcohol intoxication [10]. This slight difference can be explained by the rather large number of patients enrolled in his study (783).

Further on, we have been able to point out that in terms of range of sobriety, women have a more or less predictable preponderance, and

men, on the other hand, present higher values of alcohol levels than women as far as levels of alcohol above 0.5 g/L are concerned. These evidences are corroborated by the works of Lammers et al [11], Mezey et al [12] and Mishra et al [13], who demonstrated that women eliminate alcohol more rapidly, due to a more intense activity of ADH. Vaubourdolle et al [14] also estimated that male hormones tend to reduce ADH activity. However, the ratio of female to male BAC levels for values $\geq 0.5\text{g/l}$ is on average 4:3 and 3:4 for values $\leq 0.5\text{g/l}$. which means that women have lower BACs than men, but also quite high. These results are in agreement with those of White et al, who already signified a 70% increase in the admission of women to emergency departments compared to 58% for men, regarding alcohol-related emergencies [15]. Furthermore, we found no association between age and blood alcohol levels

CONCLUSION

During this study, 109 patients (69, 43%) admitted to the CURY emergency room were admitted for alcohol misuse related reasons. The majority of the cases identified in the emergency

($P = 0.262$); nevertheless, we observed that the 18-25 and 26-35 age groups, in particular, had the highest BAC levels, which sufficiently demonstrates that young men constitute the largest proportion of alcohol-related emergency admissions [9].

Finally, we found that there was a statistically significant relationship between BAC levels and occupation ($P = 0.043$). It was also observed that in our sample, machine operators were those with the highest BAC levels 22.4% for values between 0.16 to 0.30 BAC to 4% for values ≥ 0.31 BAC, followed very closely by soldiers. Studies show that alcohol intake before driving is responsible for 21 to 30% of car accidents in the general population [17, 18, 19]. This may explain the percentage of drivers admitted to the CURY emergency room for alcohol-related cases.

room were traffic accidents, which are a real public health problem in Cameroon, since nearly 10% of traffic accidents are essentially related to drunk driving [20].

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