



Knowledge, Attitudes and Perception of the Hospital Staff towards Smoking at Sahloul Hospital - Sousse-Tunisia

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Authors' contributions

This work was carried out in collaboration between all authors. Authors SKA and HSL designed the study and wrote the protocol. Author HG performed the statistical analysis, and wrote the first draft of the manuscript. Authors HG, LM, SBF and MBR managed the analyses of the study. Authors SKA and RBO managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

Background: In Tunisia, smoking remains prevalent among the health professionals. In order to combat this epidemic, it is necessary to start a tobacco control strategy.

Objectives: Our work aims to study the knowledge and the attitude of the hospital staff toward smoking, and the perception of their role in tobacco control.

Methods: It is a cross-sectional descriptive study conducted during 15 months. Data were collected using a self-administered and anonymous questionnaire. A pre-study was made in April 2013 in three departments of the hospital of Sahloul in order to test the questionnaire. The statistical analysis was performed using the SPSS software.

Results: 768 questionnaires were retained. Our population was mainly female (51%) and the average age was 37.8 (± 11.3) years. 21% were smokers. The majority of respondents was for the regulatory measures against tobacco. Almost $\frac{3}{4}$ of the respondents were aware of the existence of a Tunisian law prohibiting smoking in workplace. Non-smokers thought they had more influence on

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the smokers to make them quit ($p < 10^{-3}$). Health professionals have recognized the role of tobacco in the genesis of cardiovascular disease, lung disease and lung cancer. In addition, 27% of the respondents were unaware of the existence of the anti tobacco consultation in the hospital.
Conclusion: Smoking remains a public health problem among health professionals. A holistic approach, including a strengthening of laws against smoking, and provision of resources of tobacco cessation, is necessary to promote smoking cessation among the hospital staff.

Keywords: Smoking; health personnel; knowledge; attitude.

1. INTRODUCTION

According to the World Health Organization (WHO), the consumption of tobacco, main preventable cause of mortality and second cause of death in the world, reaches approximately 1.1 billion people. Eight hundred – million live in developing countries where 47% of men smoke [1]. However, half of the children in the world are exposed to smoking of the others and known as passive smokers.

In addition, smoking, which is the primary risk factor of non-communicable diseases, kills more than 5 million people per year across the world, either by cancers, cardiovascular accidents, chronic bronchitis or child bronchitis exposed to passive smoking. The number of deaths would increase to 10 million in 2030 of which 70% in developing countries, [1]. This inevitable mortality would increase if nothing is done to combat this scourge. Multiple studies have shown that the tobacco epidemic is for real, [2,3]. In order to combat this epidemic, it is necessary to implement an overall constant tobacco control strategy which should be sustainable and adequately funded. Furthermore, tobacco control should be organized on different levels such as to prevent the initiation to tobacco, to promote the withdrawal, to protect non-smokers against passive smoking and to regulate tobacco products. The hospital, in addition to its missions of care, must include the fight against smoking as an integral part of its activities. Indeed, health professionals occupy a perfect position to engage in prior actions to control tobacco. Respected by governments and their own communities, they, individually and through their associations, can have a considerable influence on the fight to reduce the use of tobacco, and therefore its negative effects on health and on economy [4]. Furthermore, the code of good practice, adopted by the WHO in 2004, encourages health professionals to show the example by not smoking and to participate actively in the fight against smoking, [5].

We proposed through this study to assess the level of knowledge of Sahloul Hospital Staff about smoking, their role and methods to fight tobacco smoking and their attitudes towards smoking.

2. METHODS

2.1 Type and Population of the Study

It is a cross-sectional descriptive study conducted during 15 months, from September 2013 to November 2014. The investigation has included the health staff of all the departments and the laboratories of Sahloul Hospital-Sousse and has concerned the medical staff (including interns and residents), Pharmacists biologists and the paramedical staff which included the nursing care and the technicians (of the surgical blocks, radiology, hygienists, laboratory and physiotherapy). For this we used an exhaustive list of the staff provided by the administration of the hospital. The administrative staff and laborers of the departments have been excluded from this study.

2.2 Collection of Data

Data were collected using a self-administered and anonymous questionnaire, composed of 41 questions. The questionnaire was designed based on a review of the literature and on the information from the folder of the consultation of tobacco cessation of our department. A pre-study was made in April 2013 in three departments of the hospital of Sahloul in order to test the questionnaire. The questionnaire included general information about participants (age, gender, marital status, profession, department), their knowledge related to the effects of smoking on health (we interviewed the care staff on the role of tobacco in the genesis of certain diseases), the attitude of the professionals in the service towards smoking behavior of their patients (respondents were asked about the role of the health care staff in

front of patients who smoke), the perception of health professionals of their role in the fight against smoking and finally the judgment about some measures proposed against smoking (respondents were invited to express their opinion on certain laws and regulatory measures designed to reduce smoking).

2.3 Conduct of the Study

After the agreement of the chiefs of departments, the questionnaire was distributed either individually or through the intermediary of supervisors in the various services. Every one contacted was briefly made aware of the objectives of the study while insisting on the anonymity of the questionnaire. The completed questionnaires were collected immediately or recovered at a later time according to the availability of the staff.

2.4 Analysis of the Data

The statistical analysis was performed using the SPSS software 20. It included a calculation of simple and relative frequencies (percentages) for each of the qualitative variables, and a calculation of the averages and of the medians and standard deviations for quantitative variables. In order to test statistically crosses made between certain variables, we used the test of χ^2 or Fisher when the number of sample was insufficient and the t test of Student or ANOVA or U of Mann-Whitney for the comparison of the averages.

3. RESULTS

3.1 Sample Characteristics

Out of 1081 questionnaires distributed, 768 were retained. The rate of participation was 71%. The population was made up of 51% of women and 49% of men (sex-ratio of 0.96). The average age was 37.86 ± 11.34 years, 21 was the minimum age and 61 the maximum. The most represented age group was that of 20 to 30 years (42.1%). 62.5% of the cases were married. The distribution, according to the professional activity, showed that the nurses and help caregivers were the main professional category (36%). The doctors and pharmacists accounted for 23.5% of the workforce among which 10% were interne trainees and residents. Almost half of the staff (47%) worked in the morning shift and 17% worked at night and the rest (36%) in

alternation. Forty percent of caregivers had more than 10 year experience.

3.2 Smoking Behavior

The prevalence of smoking was 21% (164/768) (17% of permanent smokers and 4.3% of occasional smokers). The proportion of ex-smokers was 17.7% (n=136) and that of non-smokers was 61% (n=468).

The prevalence was significantly higher among men (38.8%) than among women (4.6%) ($p < 10^{-3}$). The doctors and pharmacists had the highest prevalence of smokers (29.5%) followed by the nurses and senior technicians (20%) then caregivers (6%) ($p = 10^{-3}$).

The prevalence of smoking differs significantly ($p = 0.01$), depending on whether the staff works in the morning shift or always in the night shift or in alternation, with respectively 25%, 16% and 20% (Table 1).

3.3 Perception of Health Staff of Their Role in the Fight against Smoking

In our series, 80.5% of participants advise the sick smokers to stop smoking. This advice was given by the medical staff as well as the paramedical staff. However, frequencies were significantly different ($p < 10^{-3}$).

The smokers were more advised to quit compared to non smokers.

More than half of the studied population, 57% of medical staff and 65% of the paramedical staff thought they had an influence on the smokers to convince them to stop. According to smoking status, non-smokers think they had more influence on smokers to bring them to quit ($p < 10^{-3}$) (Table 2).

The majority of the participants agreed with the following proposals "the health staff must stop smoking to give the example" (91% of the cases).

3.4 Positions of the Health Staff towards the Legislative Measures against Smoking

The majority of respondents were in favor of the following regulatory measures: the mandatory prohibition of smoking in the health institutions

Table 1. Epidemiological characteristics according to the smoking behavior

		Smokers (%)	Ex-smokers (%)	Non-smokers (%)	Total	P
Gender	Men	146 (38.8%)	129 (16.8%)	101(13,14%)	376 (49%)	< 10 ⁻³
	Women	18 (4.6%)	7 (0.9%)	367(47.75%)	392 (51%)	
Occupational Category	Physicians / pharmacists	53 (29.1%)	23 (12.6%)	106 (58.3%)	182	10 ⁻³
	Nurses	90 (19.7%)	96 (21%)	270 (59.3%)	456	
	Senior Technicians	19 (19.8%)	6 (6.2%)	71 (74%)	96	
	Caregivers	2 (5.8%)	11 (32.3%)	21 (61.7%)	34	
Workstation	Work of the day	90 (25%)	50 (14%)	220 (61%)	360	0.01
	Night work	21 (16%)	74 (57%)	35 (27%)	130	
	Working alternately	53 (20%)	12 (4%)	213 (76%)	278	
Total		164 (21.4%)	136 (17.7%)	468 (60.9%)	768	

Table 2. Perceptions of personal caregivers for their role in the fight against smoking

		Yes	Non	Total (N=768)	P
Give advice					
Occupational Category	Medical	124 (68.1)	58 (31.9%)	182 (23.7%)	NS
	Paramedics	494 (84.3%)	92 (15.7%)	586 (73.9%)	
Smoking status	Smokers	133 (81.1%)	31 (18.9%)	164 (21.3%)	NS
	Non-smokers	485 (78.5%)	119 (79.3%)	604 (78.6%)	
Influence on smokers					
Occupational Category	Medical	104 (57%)	78 (43%)	182	NS
	Paramedics	385 (65.5%)	201(34.5%)	586	
Smoking status	Smokers	90 (55%)	74 (45%)	164	P <10 ⁻³
	Non-smokers	399 (66.1%)	205 (33.9%)	604	

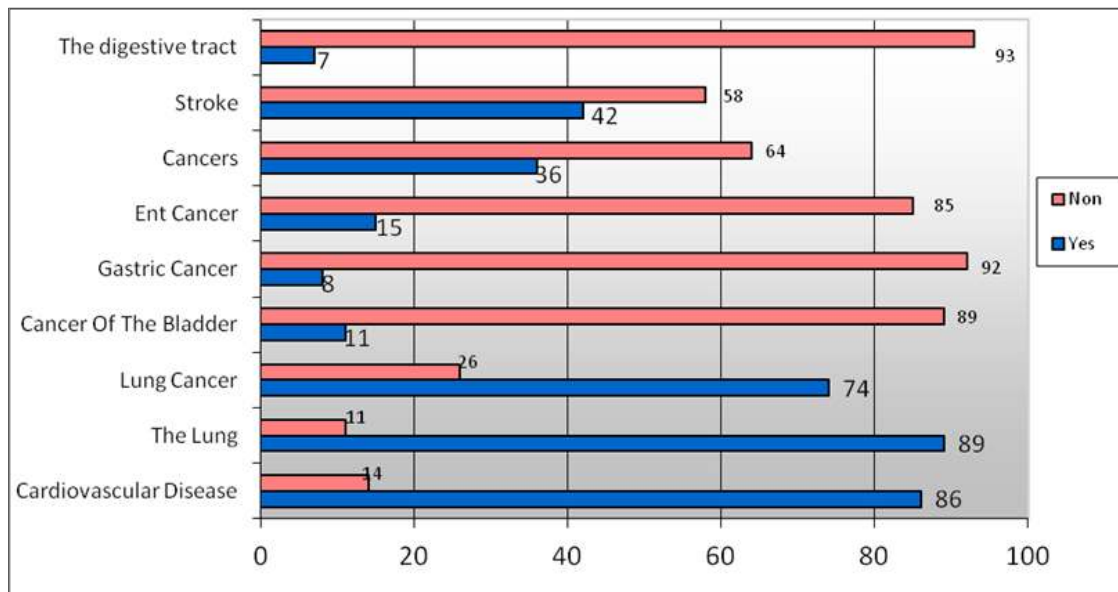


Fig. 1. Frequency of positive responses about the pathologies related to tobacco

(94%) the prohibition of the sale to less than 18-years-old people and the ban of tobacco advertising. The last two measures have been mentioned by 89.5% of participants. The increase in the price of cigarettes was mentioned by 84% of the health staff and the use of warnings on cigarette packets by 81% of the participants. (Table 3)

3.5 Knowledge and Opinions towards Smoking

3.5.1 Knowledge of diseases induced by tobacco

Health professionals have recognized the role of tobacco in the genesis of cardiovascular diseases, lung diseases and cancer of the lungs. Nevertheless, the relationship of tobacco in the onset of bladder cancer, cancers of the ORL sphere and digestive diseases has been cited respectively by 8.5%, 15% and 7.5% of participants.

For all professional categories and smoking status, the relationship between tobacco and bladder cancer, cancers and digestive diseases and ORL cancers was not well known. (Table 4)

3.5.2 Knowledge of tobacco components

The most cited components of the tobacco are the nicotine (94%) and the tar (68.1%).

3.5.3 Knowledge about the passive smoking

The majority of the personnel questioned (89%) has recognized that the passive smoking increases the risk of lung and heart diseases among non-smoking adults and 70% of participants has confirmed the relationship between passive smoking and neonatal mortality.

3.5.4 Knowledge of the anti-tobacco legislation and prevention campaigns

Almost 3/4 (72%) of respondents are aware of the existence of a Tunisian law which prohibits smoking in the workplace.

The knowledge of the prevention campaigns against the use of tobacco has been affirmed by 48% of the staff questioned. The ignorance of the date of the celebration of the World No Tobacco Day was noted among 77% of the respondents.

Almost half of the hospital staff (55%) confirmed that the hospital celebrates the World No Tobacco Day.

3.5.5 Knowledge of the anti tobacco consultation

The tobacco consultation in the hospital was known by 64% of the personal questioned against 27% who don't.

4. DISCUSSION

Smoking is one of the most serious threats to public health in the world. No program of fight against smoking can be conceivable without the involvement of the health structures. However, some studies have shown that the prevalence of smoking is as high among the hospital staff as in the general population.

In Tunisia, the prevalence of smoking varied according to several parameters (age, gender, family situation, profession...).

Health professionals know better the health issues and are expected not to smoke thus proving that tobacco is extremely harmful. In reality, we often become dependent on tobacco before choosing a health profession [4]

In our study, the prevalence of smoking was 21%. This prevalence was lower than that found among the general population which is estimated at 32% in 2011 according to the WHO [6].

Other studies showed that smoking prevalence was different from ours. In Algeria (BATNA) a study made by Chaouki et al. in 2005 found a prevalence of smoking among hospital staff of 70% on a sample of 190 participants[7]. In Morocco the survey conducted in 1999 by Alaoui and al in hospitals of Casablanca has shown a prevalence of smoking of 14.9% [8].

Elsewhere, in Africa, other authors found prevalence inferior to that of our study. In Senegal it was 11.6% in 2005 [9] and 14% according to a study carried out in 1990 in Benin in the Department of the OUEME by Fayoni and al on a sample of 270 agents [10].

In Europe the prevalence of smoking in hospitals differed from one country to another: it was 47.3% in Germany [11], 50% in Greece [12] and 24% in France [13].

Table 3. Opinions of personal on the legislative measures and regulatory framework of anti tobacco

Proposals	Positive responses	Negative responses
Warning on cigarette packages	622 (81%)	146 (19%)
Total ban on tobacco advertising	687 (89.5%)	81 (10.5%)
Mandatory prohibition of smoking in the health institutions	727 (94.5%)	41(5.5%)
Increase in the price of cigarettes	645 (84%)	123 (16%)
Prohibition of the sale to the less than 18 years	687 (89.5%)	81(10.5%)

Table 4. Knowledge of pathologies induced by tobacco

	Occupational category		Smoking status		Total (n= 768)
	Medical (n= 182)	Paramedics (n= 456)	Smokers (n= 164)	Non-smokers (n= 604)	
Cardiovascular disease	170 (93.5%)	493 (91%)	131 (80%)	532 (88%)	663 (86.5%)
Lung diseases	161(88.5%)	415(91%)	157 (96%)	525 (86.9%)	682 (89%)
Cancer of the lung	138 (76%)	433 (94.9%)	148 (90%)	423 (70%)	571 (74.5%)
Bladder cancer	47 (26.5%)	37 (8%)	33 (20%)	51(8.4%)	84 (11%)
Gastric cancer	34 (19%)	32 (7%)	25 (15%)	36(5.9%)	66 (8.5%)
Digestive Diseases	26 (15%)	32(7%)	23 (14%)	35 (5.7%)	58 (7.5%)
ORL Cancer	53 (29.5%)	64(14%)	34 (21%)	83(13.7%)	117 (15%)
Cancers	87 (48.5%)	189 (41.4%)	74 (45%)	202 (33.4%)	276 (36%)
Stroke	89 (49.5%)	232 (50.8%)	74 (45%)	243 (40.2%)	321 (42%)

We have noticed in our series a higher prevalence of active smokers among physicians and pharmacists which was 29.1%, followed by nurses and senior technicians (20%) then caregivers (6%).

The prevalence of smoking among the physicians in our series (29.1%) was higher than the prevalence found at Mohamed V hospital in Meknes(21.2%) [14], at Hassan II hospital in Fez(13.7%) [15], and Tizi Ouzou hospital in Algeria [16].

Besides, some African countries have found lower rates of doctors who smoke than in our study as in Dakar hospitals (27.6%) [17,18], and in the Department of the Oueme in Benin (16.7%) [10].

Health professionals have a prominent role to play in tobacco control. They may use people's confidence, the media and the leaders and must combat the dependence on tobacco in the framework of their current practice of care. In fact, during any meeting with a patient they must assess its use of tobacco and persuade him to stop smoking Health professionals need less than three minutes to give brief indications [4,18].

It has been shown that the simple advice of a doctor significantly increases the rate of abstinence (+30%), compared to a situation where no advice is giving [19].

However, various studies have revealed that most physicians who smoke do not believe they have to recommend their patients to stop smoking [20,21]. In addition, it has been found in various series that the majority of health workers tackled about the harmful effects of tobacco to patients when they had a disease caused by tobacco [14,15,22,23]. However, when a smoker goes to a doctor for a checkup, the minimum advice must be systematically given by the physician. This always has an impact on the psychology of the patient [24].

The results of our work as well as the one done at the hospital Charles Nicolle [22] showed that almost 80% of health staff is convinced of his responsibility to advise the sick smokers to quit.

Depending on the type of professional activity, the advice of quitting tobacco is given by the medical and paramedical staff of our hospital, contrary to what was noted in the hospital Charles Nicolle [22] where the doctors were the least convinced of this responsibility.

In Morocco, the health agents are more convinced than Tunisian ones of their responsibility to persuade people to quit smoking (88.7%) [8]. In Canada, there are 72.7% of doctors who share this opinion [25].

Most articles that studied the behavior of health staff towards patients who smoke, showed that smoking status of health professional affects his enthusiasm to advise his patients who smoke to stop [26,27].

In fact, health professionals who smoke are less likely to approach the subject of tobacco with patients [28-31].

Smokers were the least confident of this role at Charles Nicolles hospital [22] compared to our study which revealed that smokers were those who were more advising patients to quit compared to non-smokers.

Moreover, our study as well as others showed that health professionals who smoke are less confident in their ability to stop smoking and they are actually the least persuasive [27,32].

According to the results of our work and also of the investigation made at Charles Nicolles hospital [22] and the one made in Casablanca hospitals [8], the majority of health professionals are convinced of the importance of the image they should give as an example when they do not smoke.

In addition to the actions of prevention and warning, health professionals must contribute in the fight against smoking by making the authorities adopt legislative measures. Our study has shown that health agents were very favorable to the adoption of such measures. It is the same for the staff of Mami hospital in Ariana [33] as well that of Charles Nicolles hospital [22].

Most of our staff was for the legislative measures concerning the mandatory prohibition of smoking in health institutions (94.5%), the prohibition of the sale to people aged less than 18 years (89.5%) and a total ban on advertising for tobacco (89.5%).

Similar results were found among the staff of Charles Nicolles hospital [22] where most of them were favorable to the legislative measures about the prohibition of the sale of tobacco to children. They were also for a specialized training of the health staff to help smokers to

quit. In the work done by Fayoni in Benin [10] the suggestions of the personnel were summarized in the increase of the price of cigarettes (20%), and the prohibition of advertising (54%).

The importance of the tobacco price increase in the decline of its consumption has been raised by 84% of the staff in our study, and by 54% of physicians of Fez hospital [15] and by 66% of the health staff of Charles Nicolles hospital [22].

However, according to Gallus et al. tobacco consumption in Europe has declined by 5-7% due to the increase of 10% in prices of tobacco, thus demonstrating an inverse relationship between price of the cigarette and smoking prevalence [34]. Warner considers that the increase in the price of tobacco is one of the most persuasive measures to quit [35].

About the laws prohibiting the sale of tobacco to children, studies remain controversial about the effectiveness of this measure. The work of Gottlieb [36] and Jason and al. [37,38], have found that a strict application of the law could reduce the prevalence of smoking among young people. Whereas studies of Rigotti et al. [39], Fichtenberg [40], and Stead [41] showed that a real implementation of the law resulted in a significant decrease of the illegal sale to minors, but did not interfere with the access of adolescents to tobacco products or their smoking behavior.

In addition, advertising against tobacco have a role of prevention of smoking [42]. In the United States they contribute to the decrease in the prevalence of smoking and the smoking initiation [43].

In our study, health professionals (regardless of their gender, smoking status or professional category) have recognized the role of tobacco in the genesis of cardiovascular disease, lung disease and cancer of the lungs, but not in the onset of bladder cancer, ENT cancers and digestive diseases.

The staff of Charles Nicolles hospital [22] has recognized the role of tobacco in coronary diseases, cancer of the bronchi and the larynx and in the chronic bronchitis. The relationship between tobacco and arteritis, mouth cancer, the lung emphysema and the bladder cancer, were unknown by many professionals.

In J. Ammar et al. study [33] the role of the tobacco as associated with chronic bronchitis, bronchial cancer, mouth and larynx cancer and coronary disease was considered in more than 95% of cases, unlike the bladder cancers and the arteritis.

According to the study made at Meknes hospital [14], the majority of the staff agreed with the importance of the role of smoking in genesis of cancers, heart and respiratory diseases while the cancer of the bladder was less recognized (26.6%).

This confirms the importance of the need for training health staff on the harmful effects of tobacco.

In the study of Mezghanni S. et al. [44], most of the staff (95.5%) recognized the harmfulness of passive smoking. Boulmakoul [15], in his study on the medical staff of Mohamed V hospital, has found that the majority of participants (89.1%) have stated that the passive smoking increased the risk of lung diseases in non-smokers adults and that 77.5% of respondents said that the passive smoking increased the risk of heart disease among non-smokers.

The knowledge of the existence of a Tunisian law which prohibits smoking in the workplace has been recognized by almost three-quarters (72%) of the respondents in our study and by respectively 82% and 79.5% of smokers and non-smokers of the investigation of Mezghanni S. et al. [44].

The study of Ngahane [45] found that 19.1% of hospital staff were aware of the existence of an anti – tobacco law in Cameroon. Furthermore, in some hospitals in Morocco, the knowledge of the law has been noted by the staff questioned in respectively 55.9% [15], 52.8% [14], and 66.8% [8] of the cases.

These rates remain relatively low for a population which must give the example to stop smoking.

In our study, the knowledge of the prevention campaigns against the use of tobacco has been noticed by 48% of the staff questioned. A rate very close was noted during the survey done by the Ministry of Health with the Tunisian Internet users, [46] where 50% of internet users had knowledge of prevention campaigns against tobacco in Tunisia and among them 46% found them effective but they remain "not convincing"

(49%) and "not repeated enough" (39%) and for 36% of the internet users were not convinced of their effectiveness. In the study of Al-yazidi. A and al, [8], only 9% of respondents had already participated in an anti-smoking campaign.

In our study, only 23% of respondents were aware of the date of the celebration of the world day without tobacco. However, the half of the hospital staff (55.3%) confirmed that the establishment celebrates the "World No Tobacco Day".

In a study on the smoking behaviors of health staff in a regional hospital in Alger, Nafti S. et al. [47] have found that 83% of respondents were unaware of the date of the celebration of the World No Tobacco Day.

The consultation of smoking cessation of the Sahloul hospital was known by 64% of the personal questioned. It is the same according to a French study, where 62% of the physicians surveyed were aware of the consultations of tobacco cessation in their department, [48]. The ignorance of the existence of the anti-tobacco consultation was reported by 27% of our staff questioned. This rate is much higher than the one found by J. Ammar et al. (6.4%) at Ariana hospital of, [33]. According to Nafti et al. [47], 32% of smokers were seeking for consultation of smoking cessation.

5. CONCLUSION

The results of our study have allowed us to better show the knowledge and attitudes of caregivers towards the tobacco. In fact, recommendations can be proposed in order to strengthen the measures for the application of the Tobacco Control Strategy, to involve health professionals in the prevention and the support of smoking patients, to put in place a training plan for the hospital staff about the harms of tobacco and the tools of assistance for smoking cessation. This training will allow a contribution of health professionals among smokers and incorporate aspects of the fight against smoking to the current programs of their training.

HIGHLIGHTS

- 1- Cross-sectional descriptive study conducted during 15 months.
- 2- Self-administered and anonymous questionnaire composed of 41 questions.
- 3- The rate of participation was 71%.

- 4- Knowledge and attitudes of caregivers towards the tobacco.
- 5- Improve the role of health professionals in the fight against smoking.

CONSENT

It is not applicable. Participants answered by themselves to the questionnaire.

ETHICAL APPROVAL

Ethical approval was not required for this study, since it is a cross-sectional descriptive study using a self-administered and anonymous questionnaire.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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