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BECOMING OF THE MOROCCAN OCCUPATIONAL HEALTH PHYSICIANS

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Abstract

Background

The occupational health physician is a central player in workplace prevention. It represents the interface between worker health and the professional environment. However, he may encounter several obstacles hindering the exercise of his functions. The objective of this survey is to study the becoming of Moroccan occupational physicians in order to take stock of the situation and to know the issues.

Methods

This is a descriptive cross-sectional observational study which was conducted among Moroccan occupational physicians using an online self-questionnaire.

Results

64 responses obtained. 67.2% of physicians were satisfied with the training. 56.3% judged that the initial training did not allow them to carry out their missions well at the start of their career. 81.3% of physicians practiced occupational medicine; 62.5% practiced it part-time and 57.8% practiced it alongside healthcare medicine. Job dissatisfaction was noted in 61.2% and pay dissatisfaction in 62%.

85.9% of physicians judged that discipline is not well practiced in Morocco, 74.2% considered that there is hindrance to the exercise of their missions and 98.4% noticed in their practice that there is confusion between "occupational medicine" and "care medicine".

Conclusion

Moroccan occupational physicians face several challenges and obstacles in the exercise of their functions for several reasons, mainly a weak culture and an insufficiency of the legal system in this area. A reform of the occupational health and safety system, improvement of training and reorganization of occupational medicine in Morocco are now more than necessary.

Keywords: *occupational health physician; occupational health; training; becoming; satisfaction; issues*

INTRODUCTION

The occupational health (OH) is a source of efficiency and performance at work. It is a fundamental element for social justice.

Occupational health and safety (OHS) can play a key role in sustainable development and investing in this area can contribute to achieving the 2030 Agenda for Sustainable Development **(1)**.

The occupational health physician (OP) therefore represents an important player in prevention in the workplace. Occupational health is a science that studies the relationships and interactions between work and the man who performs this work.

The term health, in relation to work, does not only mean the absence of disease or infirmity; it also includes the physical and mental elements affecting health directly linked to safety and hygiene at work **(2)**.

OPs represent the interface between worker health and the professional environment. Therefore, they contribute to promoting and maintaining the highest degree of physical, mental and social well-being in all professions by achieving a relationship of harmony between work and health, and preventing occupational diseases and work accidents **(3,4)**; a

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goal that can only be achieved with the support and participation of all those involved in prevention.

Unlike other medical-surgical specialties, the roles and missions of the OP are defined by the Moroccan legislator.

Despite their important role and the nobility of the discipline's objectives, OPs may encounter several obstacles hindering the exercise of their functions and therefore the accomplishment of their missions.

Accordingly, we wondered about the becoming of OPs after obtaining their occupational health diplomas or degrees, especially since to our knowledge, no study in this area has been previously carried out in Morocco.

Consequently, it seemed judicious to us to study their becoming since initial training with the aim of making a state of play and to understand the issues and challenges they face (training, professional practice, difficulties, satisfaction, etc.) to serve as a basis for reflection for improving the status of Moroccan OPs and therefore the quality of occupational health in Morocco.

Methods

Study population and design

This is a descriptive cross-sectional observational study which was conducted among Moroccan OPs who were trained in Morocco.

The study population was recruited based on an email list of Moroccan OPs.

Data collection:

Survey data was collected using an online self-administered questionnaire.

This collection was spread over a period of approximately 4 months (from October 2021).

A letter announcing the survey explaining the purposes of the study was attached to the questionnaire.

The data was collected while respecting the rules of anonymity.

Questionnaire:

The questionnaire collected data on sociodemographic characteristics, professional data and OH practice, OH training, satisfaction with OH practice, problems faced by OPs.

Informed consent was obtained in the form on the Web site.

Data analysis:

Population description:

Qualitative variables: number / proportion (frequency in %)

Quantitative variables: number, position measurements (mean, median) and dispersion (standard deviation, minimum, maximum). The description being numerical and graphic.

Association measure

The Chi-square test of independence was used to test whether two categorical variables are statistically associated or not (*p*-values were considered statistically significant if lower than 0.05)

Software:

SPSS version 26 and Microsoft Excel were used for data analysis and graph development.

Results

Sociodemographic characteristics

64 OPs responded to the questionnaire, including 41 men (64.1%) and 23 women (35.9%), giving a W/M sex ratio of 0.56.

84.4% of participants were married. The mean age was 51.84 years with a standard deviation of 9.78, a median of 52 years, and extremes ranging from 33 to 75 years.

Occupational health training

Table 1 summarizes the data relating to occupational health training.

51.6% have a foreign university diploma in OH compared to 48.4% who have a national diploma (among them 75.9% have a national university diploma in OH and 13.8% had a specialty degree by residency). In other words, 93.75% hold a university diploma and 6.25% hold a medical specialty degree via residency.

The average duration of training was 2.58 years with a standard deviation of 0.72 (min=2; max=4); 54.7% completed 2 years of training. 67.2% were satisfied with the training compared to 25% who were not.

For the shortcomings that need to be filled in terms of training, 61% suggested doing practical courses to improve training, 23.7% thought that the theoretical side must also be improved by strengthening the modules taught, particularly legislation and adding certain modules such as IT, occupational health and safety management and communication. 17% suggested continuing training.

56.3% judged that the initial training of POs does not allow them to carry out their missions well at the very beginning of their career; for 71.87%, this is due to the insufficiency of the practical component in the training and for 18.75% this is due to the insufficiency of the training as a whole.

Concerning the priority continuing training needs of Moroccan POs, 34.69% thought that it should relate to occupational health legislation, 20.4% to the practical aspects of the specialty and 18.36% to scientific news (congresses and scientific events).

Variables	Effective	Percentage (%)
Diploma in occupational medicine		
National diploma	31	48,4
Foreign diploma	33	51,6
National Diploma (distribution)		

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NSD	1	3,4
Residency	4	13,8
UCOH	2	6,9
UDOH	22	75,9
Duration of training (year)		
2	35	54,7
2,5	1	1,6
3	19	29,7
4	9	14,1
Satisfaction- training		
No	16	25
Yes	43	67,2
Efficiency - training		
No	36	56,3
Yes	24	37,5

Table 1: *summary of data relating to occupational medicine training*
NSD: national specialty diploma
UCOH: university certificate in occupational health
UDOH: university diploma in occupational health

Professional data, occupational health practice and job satisfaction

Table 2 presents professional data relating to the OH practice. Most physicians interviewed practiced OH (n=52; 81.3%). The delay between obtaining diploma/degree and starting practice as an OP was more than 3 years for 26.6%. 32.8% of OPs had professional seniority between 10 and 20 years. 57.8% of physicians practiced both OH and healthcare medicine (93.1% with general medicine). 63.8% have adopted exclusive part-time work as a mode of practicing OH. 77.27% specified that part-time work was the mode of work most suited to their situation. 62.5% currently practice OH part-time (at the time of the survey). 90.6% of physicians were registered with the Order of Physicians as OP. 45.3% was working in the private sector compared to 35.9% who was working in the public sector.

For part-time work, the average hours worked per week was 13.19 hours (min = 1; max = 35) with a standard deviation of 10.54 and a median of 8 hours. 62% were not satisfied with their remuneration.

Variables	**Effective**	**Valid percentage (%)**
Occupational medicine practice		
No	11	17,2
Yes	52	81,3
Professional seniority		
< 1 year	4	6,3
1-5 years	16	25
5-10 years	12	18,8
10 - 20 years	21	32,8
> 20 years	7	10,9
I don't exercise it	4	6,3
Time between graduation and start of practice		
Immediately	15	23,4
Less than 1 year	9	14,1
Between 1 and 2 years	14	21,9
Between 2 and 3 years	9	14,1
More than 3 years	17	26,6
Exercise's nature		
Exclusively	16	25
Alongside healthcare medicine	37	57,8
I don't exercise it	11	17,2
Nature of the parallel exercise		
General practitioner	31	93,9
Other specialty	2	6,1
Modes of exercise		
Exclusive full time	10	17,2
Exclusive part-time	37	63,8
Full/part time	8	13,8
The most suitable exercise's mode		
Partial	34	77,27
Full	8	18,18
Full/partial	2	7,04

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Current exercise		
Full-time	11	17,2
Part-time	40	62,5
I don't exercise it	13	20,3
Quality of registration in the table of the order		
Occupational physician	58	90,6
General practitioner	5	7,8
Other	1	1,6
Working sector		
Private	29	45,3
Public	23	35,9
Both sectors	11	17,2
Compensation satisfaction		
No	31	62
Yes	19	38
Is this discipline well practiced in Morocco?		
No	55	85,9
I don't know	9	14,1

Table 2: *summary of professional data relating to the occupational medicine practice*

Concerning job satisfaction; 55.1% were somewhat dissatisfied, 6.1% very dissatisfied, 32.7% somewhat satisfied and 6.1% very satisfied.

The reasons for non-satisfaction that were raised by the OPs in the open responses are:

- Anarchy in the OH practice
- Unsatisfactory remuneration
- Non-application of legal dispositions
- Insufficiency of legal texts
- Very limited legal arsenal in the public service
- Lack of knowledge of OH
- Practical training problem
- Insufficient supply
- The recruitment of OPs is done just because of the legal obligation
- Unclear status of OP
- Illegal practice of OH
- Obstruction of the OH practice

Using the Chi-square test, we have checked whether there is a statistically significant association between job satisfaction and other qualitative variables. There is in fact a statistically significant association between professional satisfaction and:

- satisfaction with remuneration (p= 0.013).
- the mode of exercise (p= 0.002). Those who are rather dissatisfied adopt exclusive part-time work.
- the nature of the exercise (p= 0.006). Those who are rather dissatisfied practice occupational medicine in parallel with healthcare medicine.

85.9% of physicians found that OH is not well practiced in Morocco. For 35% it is because of a disorganization of its exercise.

53.2% of POs thought that the law does not grant more autonomy to the PO. 46% of our participants considered that the labor code (LC) doesn't protect the OP, the reasons for which are summarized in ***Figure 1***. 17.5% thought that it protects them while 36.5% don't know whether it protects them or not.

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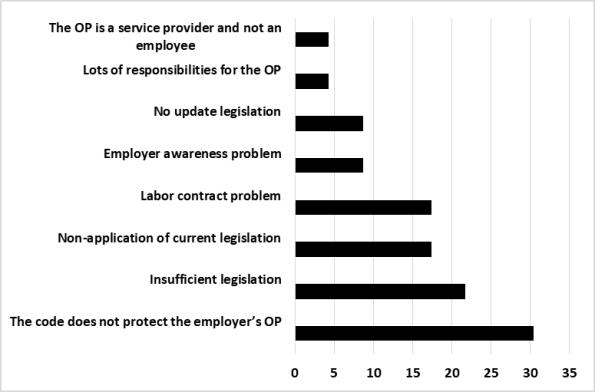

Figure 1: *distribution of reasons explaining why the labor code does not protect the occupational physician (OP)*

During their practice as an OP, 98.4% noticed that there was confusion between "occupational medicine" and "care medicine". For 78% of our participants, this confusion concerns both workers and employers.

74.2% of POs thought that there is an obstacle to the exercise of the OP's missions. The obstacles that hinder the exercise of OH in Morocco which were raised by the POs in the open responses are summarized in three main themes:

- Problems with legal dispositions (77.14%)
- Insufficient political and employer will (37.14%)
- A weak OHS culture (34.28%)

54.8% of POs carried out their missions alone, for the others, the majority were assisted only by a nurse (80.95%) (***Figure 2***).

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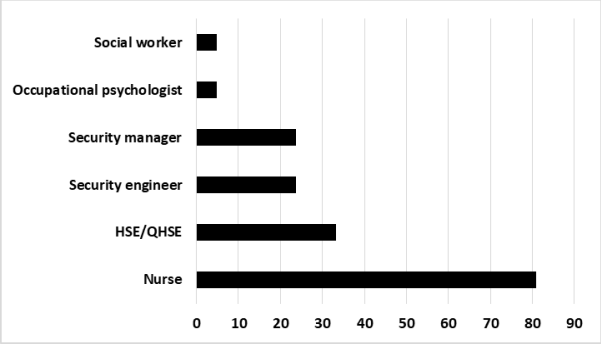

Figure 2: *Professionals constituting the multidisciplinary OHS team in percentage*
HSE : Health Safety Environment
QHSE : Quality Hygiene Safety Environment

Our participants were asked if they have stopped practicing OH or if they are thinking of doing so, 76.7% answered "no" compared to 23.3% who answered "yes".

Discussion

Everyone has the right to employment adapted to their state of health, qualifications and abilities (5). Occupational medicine is therefore more necessary than ever, particularly given the continuous changes and transformations in the world of work. The OP is therefore a main player in workplace prevention.

Indeed, the exercise of OH in Morocco is governed by the Applicable law; which is the case in different countries (6). The legal texts are different depending on whether it is the private or public sector. Thus, we can distinguish the private sector subject to the labor code (5) and the public-sector subject to the civil service code (7).

Note that there is a significant disparity in the legal arsenal in these two sectors in favor of the private sector. Legal provisions in the public sector are very limited and there is no framework law on OHS at work including both sectors in our context, which explains the difficulties encountered by OPs, particularly those in the public sector.

According to article 318 of the LC "The OP has a preventive role which consists of carrying out the necessary medical examinations on employees, in particular the pre-employment medical examination and avoiding any deterioration in the employees' health due to their work, in particular by monitoring hygiene conditions in workplaces, the risks of contamination and the state of health of employees"(5) .

Concerning occupational medicine training in Morocco:
The occupational medicine module is taught to medical students from the 5th year of medical study in the various faculties of medicine in Morocco, thus introducing students to this discipline.

According to article 310 of the LC "The OPs must hold a degree attesting that they are specialists in occupational medicine. They must be registered with the Order of Physicians and have authorization to practice medicine"(5).

To practice occupational medicine in Morocco, it is therefore mandatory to hold a Medical Specialty Degree (MSD) in occupational medicine. Indeed, after obtaining the doctorate in medicine, it's necessary to pass the residency competition to pursue the specialty of occupational medicine (8,9).

Since we have a colossal shortage of OPs through residency in our context, University Diplomas in OH can be qualified by the order of doctors. This is a 2-year continuing training course in OH. After obtaining their diplomas, doctors can benefit from a procedure called "qualification" to be able to practice occupational medicine. This University Diploma is indeed very attractive for Moroccan doctors (general practitioners, specialists, etc.).

According to the order of Moroccan doctors, 1,604 doctors are registered in the order as OPs, of which only 51 are by residency (2023 data) representing 3.18%, a percentage much lower than that found in our study.

Referring to current Moroccan legislation, occupational medicine is a preventive medical discipline. The OP has a preventive role and can only provide care exceptionally, in the event of an emergency.

According to article 76 of the Code of ethics of the medical profession published in 2022: "the physician specializing in occupational medicine practices, in professional environments, preventive medicine and this, in accordance with the conditions provided for by the legislative and regulatory provisions in force. To this end, it ensures that employees comply with the rules relating to hygiene and safety in order to protect their health in the workplace"(8).

J.F. Gehanno et al show in their study that doctors were overall less satisfied with theoretical teaching than with practical teaching ($p = 0.01$) and the majority judged that theoretical and practical teaching had adequately prepared them for their professional practice for respectively (10) which does not agree with our results.

The study carried out by Reetoo K, Harrington M, Macdonald EB, concerning the skills of UK OPs, showed that training in occupational medicine should be reviewed by developing training programs, which is consistent with our results (11).

It should be noted that training programs for OPs physicians vary internationally (11–13).

The majority of OPs (98.4%) noticed during their practice that there is confusion between "occupational medicine" and "care medicine". This confusion concerns both workers and employers (78%). However, occupational medicine has been institutionalized in Morocco since 1957 (14) and it has been recognized as a medical specialty in Morocco since 1985 (15).

J.F. Gehanno et al note in their study that hiring was immediate upon completion of training for 70% of physicians and it took place within 2 months for 25% of doctors(10) whereas in our study only 14,1% of POs were hired in less than a year.

Most OPs carry out their duties either alone or assisted only by a nurse. Note that we do not have nurses specializing in occupational health in Morocco. In this sense, the report of the

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Economic, Social and Environmental Council (ESEC) on Health and safety at work for 2020 highlights a lack of specialized skills (OPs, engineers and technicians specialized in occupational safety and risk study) (16) , this same report also notes that there is weak application of the provisions of the Labor Code relating to occupational health and safety; which is consistent with the results of our investigation, in particular the obstacle to the exercise of OP's missions.

D. NAFAI, A. SEMID show in their study that POs are often confronted alone with the multiple aspects of working conditions and professional risks, to the point of investing in related disciplines of OH by resorting in certain cases to additional training in ergonomics, toxicology and industrial hygiene in particular (17) which is consistent with the results of our study. However, multidisciplinarity in OH is very important to prevent occupational risks and preserve or even promote the workers' health.

In practice, the OP can find itself at the center of many issues: managers (employers or others) who can hinder their work, workers who are not aware of the importance of the OP in protecting their health or trying to influence the OP's decisions, or attending physicians who do not understand the OPs' roles and the aspects of collaboration with them…

So, a lot of questions arise: can the OP do his job correctly without hindrance? does he manage to accomplish his missions with complete freedom and independence? can he impose himself on the employer without risking being fired? …

Indeed, aware of the central role of the OP in the workplace prevention, and missions' nature of the OP, and in order to enable it to accomplish its missions, the Moroccan legislator granted the OP a special status: he is an employee protected by the law in force.

This is how the LC stipulates in its article 313 “any disciplinary measure envisaged by the employer or the head of the inter-company medical service against the OP, must be pronounced by decision approved by the agent responsible for the labor inspection, after advice from the labor inspector physician”(5).

And according to article 314, “the OP must, in all circumstances, accomplish its mission in complete freedom and independence, whether towards the employer or the employees. He must only take into account the considerations dictated by his profession” (5).

But in practice, the OP can work in poor working conditions and be confronted with several obstacles and difficulties, despite their particular status.

In fact, POs don't feel protected and don't carry out their work freely and independently. This can be explained by the non-application of the legal provisions in force and/or by the insufficiency of these provisions, in particular the clarification OP's status but also by a weak OHS culture. Note that POs who work part-time are considered service providers, what was noted in this study.

In his book “Occupational physician, boss’s physician? », P. Marichalar relates that the OPs' status is special: although physicians, they are employees; from this status arises a relationship of salary subordination around which the perimeter of their independence is fixed, placing the OP at the heart of several economic issues while questioning the room for maneuver of the OPs, whose role is to protect the workers’ health, but who often have to arbitrate between health and production (18).

Marichalar also explains in his article “Occupational medicine without doctors? A long-term employer action (1971-2010) » how the employers' association in France used political and managerial levers to reduce the professional autonomy of OPs in order to decrease the costs of prevention as well as the legal risk for employers(19).

All these issues can be a source of professional dissatisfaction for OPs; a study which was carried out in Tunisia showed an overall satisfaction rate of 46.2% (20) which is higher than that found in our study (figure 1).

By analyzing our results, we realize that there is a weak OHS culture in our context, hence the importance of promoting a culture of prevention and improving measures raising awareness about OSH.

In our context, POs face several challenges and obstacles in the exercise of their functions.

Despite their central role in prevention, POs don't enjoy much freedom and independence in their exercise for several reasons :

- A very weak OHS culture which makes practicing occupational health difficult
- An insufficient legal arsenal
- Non-application of the legislative and regulatory provisions in force

The confusion between occupational medicine and healthcare proves that the discipline is generally not well known in Morocco. We also deduce that we ignore the importance of OP and its contribution in the preservation and promotion of workers' health as well as in the management of work-related injuries.

Therefore, it is strongly recommended to:

- Reform the occupational health and safety system
- Promote the culture of OSH while planning awareness and strengthening information and training in order to obtain the safest possible workplace;
- Create multidisciplinary medical services managed by OPs physicians;
- Review the status of the occupational physician while strengthening their protection in order to enable them to properly carry out their missions, since the status of the OP is currently not very clear on a legal level.
- Establish official minimum pricing
- Improve initial and continuing training: in fact, in order to be able to respond to the various needs in

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terms of OHS, it is imperative to put in place a specific course of basic training and continuing training for the benefit of all prevention actors (POs and workers in occupational risk prevention). It also seems wise to act as early as possible by introducing OSH concepts into the curriculum of professional training and higher education (Universities, institutes, etc.). The student of today is the worker of tomorrow.

The relatively small sample size presents a limitation of our study. This limit may be due to several reasons: email addresses which are no longer functional and perhaps certain boxes are not consulted regularly. It's therefore necessary to carry out larger studies in the future.

We have adhered to the STROBE guidelines when writing this article.

Conclusion

POs are at the center of several legal, economic, sociological and professional issues. However, they represent the keystone in occupational health by protecting and promoting the health and safety of workers, which represents a growing concern in a constantly changing world of work.

The issues that Moroccan POs face and the disorganized exercise of occupational medicine constitute a source of handicap hindering the evolution of this discipline in our context.

Consequently, strengthening the OHS culture, improving training and reorganizing occupational medicine in Morocco is today more than a necessity, particularly by improving the status of the OP while strengthening its protection.

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Conflict of Interest for ALL Authors: NONE DECLARED

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