THE MARITIME MEDICINE IN MOROCCO: REALITY AND FUTURE PROSPECTS

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INTRODUCTION: The maritime sector in Morocco constitutes an important economic and social lever of the country, in particular with the two maritime facades of the country. If the fishing sector is classically the dominant part of this system, the change experienced by the Moroccan economy over the past two decades and the development of the port infrastructure of the merchant marine have allowed the latter to regain its importance. This development of the marine sector has repercussions on seamen and calls into question the importance of the social issue in this area, particularly in relation to the medical care of this population.

OBJECTIVES: To research the scope of medical care issues related to merchant marine workers.

MATERIALS AND METHODS: This study was based on the collection of data: legislative texts on occupational health and safety; statistical data from administrations (the Ministry of Health and the Ministry of Marine Fisheries), the General Medical Council of Morocco, scientific societies and associations for occupational health and marine medicine. The analysis included socio-demographic and professional characteristics, training, evaluation of activities, limitations in its implementation and priority recommendations for improving the situation.

RESULTS AND DISCUSSION: Morocco’s health system includes two areas: the commercial and fishing sectors. The study showed that there are no specialized medical centers in any of the sectors, and medical care for this population is at a low level. There is no Moroccan telemedicine system. Currently, Morocco has already defined a legal framework for this practice.

CONCLUSION: This article sheds light on the health system of seamen in Morocco while highlighting its strengths and weaknesses as well as avenues for reflection for the improvement of existing anomalies.

KEYWORDS: marine medicine, seafarers, fishermen, health, Morocco

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Introduction. Morocco has an important maritime coast with two facades: on the Mediterranean Sea and the Atlantic Ocean, the length of the coastline is over 3500 km.

The marine sector provides more than 140,000 direct jobs especially in the fishing sector: 120,000 and only 10,000 in the merchant marine. Moroccan regulation for seafarers' health is old, it goes back to the year 1919 with the Law of Maritime trade. This law stipulates in its article 167 bis that “The entry of a seafarer in the crew register of a ship of more than 50 gross tonnage barrels, usually making sea trips of more than seventy-two hours, is subject to a medical examination, which is at the expense of the shipowner, by the ship’s doctor, or, in the absence of a doctor on board, by a doctor approved by the maritime authority, and establishing that boarding the seafarer does not present any danger to his health or that of the crew”.

The 1996 was a crucial year for the health of seafarers in Morocco, there was a split in the ministry responsible for seafarers with a separation to two sectors: the maritime fishing sector (Ministry of Fisheries and Agriculture) and the merchant marine (Ministry of transport). The result was a maritime medicine attendance with two speeds.

Organization of maritime medicine in Morocco:
— In the merchant marine
It contributes 1% to 1.5% of GDP without ancillary activities and it employs 10,000 seafarers.

The trade is a strategic sector of the Moroccan economy. 98% of Morocco’s foreign trade uses the sea route. The Moroccan freight transport fleet consists on vessels belonging to seven principal shipping companies.

The passenger shipping is well developed especially in the Strait of Gibraltar between Morocco and Spain, but also to France and Italy. More than 5 million passengers and 1.5 million vehicles transit annually.

The medical care for seafarers is regulated by the Law of Maritime Trade (1919) and since 2013 to the MLC 2006 that depending on the case, it provides for a doctor on board or qualified medical officer. The medical fitness for seafarers is ensured by general practitioners in the private sector whom must receive a training course according to STCW and MLC requirements and ILO standards. They must receive an agreement of the ministry of transport for this task.

— In the fishing sector
Morocco is one of the most fish-rich areas in the world, it ranks first among fish producers in Africa and 25th in the world. It is also the world’s largest exporter of sardines. The fleet is around 18,000 boats (310 for deep sea fishing, 1,750 for costal fishing and 15,940 for artisanal fishing). It employs 109,000 fishermen (7,100 in the deep-sea, 60,000 in the costal fishing and 41,900 in artisanal fishing) and contributes 2% to 3% of the gross domestic product (GDP).

The medical care for fishermen is regulated by the convention of 1996 between the Ministry of Health and the Ministry of Marine Fisheries related to the organisation of the fishermen’s health prevention. It provides the establishment of fishermen’s health centres at the main ports (22 centres) with physicians from public health sector. Even if the ILO convention number 188 was ratified since 2013 and in force presently in morocco, there is some delay in the harmonization of internal regulation accordingly.

The fishermen’s health centres ensure several missions such as medical fitness for fishermen (occupational medicine), prevention of occupational accidents and diseases, improvement of the working conditions of fishermen and other preventive activities (vaccination, hygienic inspection of the vessel, the port...). They also provide medical attendance for fishermen (medical care) with consultations and emergency first aid (table) [1, pp. 110–117].
The tables below show respectively the activity statistics of Moroccan fishermen medical centres and diseases statistics of Moroccan fishermen in the medical centres during the year 2017 (fugure)1.

<table>
<thead>
<tr>
<th>Type of activity</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical care consultations</td>
<td>9,243</td>
</tr>
<tr>
<td>Paramedical care attendance</td>
<td>11,003</td>
</tr>
<tr>
<td>Emergency attendance</td>
<td>653</td>
</tr>
<tr>
<td>Medical fitness visits</td>
<td>44,267</td>
</tr>
<tr>
<td>Hiring visits</td>
<td>16,015</td>
</tr>
<tr>
<td>Periodic visits</td>
<td>28,252</td>
</tr>
</tbody>
</table>

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**Epidemiologic profile of the Moroccan seaman**

During last decade there were many studies that were undertaken among seamen, these studies interested especially the fishing sector with a great contribution of the physicians of the medical centres and the Moroccan Society for Maritime Medicine.

The biggest problem for seafarers in Morocco remains musculoskeletal disorders (MSD): 61.9% among artisanal fishermen in the north of Morocco [2, pp. 22–27], this problem is very accentuated given that the work in the artisanal fishing sector is mainly manual. Indeed, these MSD in the artisanal fishing related to manual activity are found on-board but also ashore, especially during fishing net repair operations. A study in the north of morocco found a rate of 8.4% Carpal Tunnel Syndrome among artisanal fishermen [3, p. 710].

Skin diseases are dominated by palmar hyperkeratosis (67.1%) and fungal infections (44.4%) [4, pp. 22–27], they reflect the work atmosphere in the marine field. Sexually transmitted infections classically widespread among fishermen are no exception among Moroccan ones, they are due to risky behaviour. Il a study in the north of Morocco we found that 32% of fishermen had at least two sexual partners and 26% have had sex with sex workers [5, pp. 26–30].

Respiratory diseases are pathologies reflecting tobacco relating sickness: Chronic bronchitis among 5.6% fishermen and chronic obstructive pulmonary disease (COPD) in 3.8% during a study to evaluate the prevalence of chronic obstructive respiratory diseases amongst fishermen [6, pp. 13–21]. Asthma was found in 6.8%. Added to tobacco, other respiratory diseases including lung cancer are caused by the multiple source of occupational exposure on board. Also, obstructive sleep apnea-hypopnea syndrome (OSAHS) is not uncommon, a study for screening performed among a population of fishermen in Tangier using the Berlin questionnaire found a rate of


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**Figure.** Diseases statistics of Moroccan fishermen in the medical centres during 2017

**Рисунок.** Статистика заболеваний марокканских рыбаков в медицинских центрах за 2017 год
4.1% [7, pp. 11–21]. The same study tried to detect sleep disorders among fishermen, especially those who carry out shift work, especially in the costal fishing like sardine boats and longliners using the scale of Epworth, it confirmed an insomnia rate of 55.8% and a daytime sleepiness in 68.1%.

Also, psychological disorders of seafarers are well present among fishermen with an occupational stress in 53.9% of cases [8, p. 657], another study for occupational stress among women who practice artisanal fishing using the Job Content Questionnaire of Karasek found a rate of Isostrain estimated at 62.3% [9, pp. 710–711]. Also, a study performed for screening psychosocial risks among fishermen using the Maslow Burnout Inventor (MBI) of Maslach found a rate of burnout syndrome estimated at 16.1% [10].

In addition, behavior’s fishermen also shows some anomalies, a study performed in northern Morocco showed a prevalence of the ordalic behaviour (Risk-taking behaviour) estimated at 66.4% [11, pp. 83–89]. This behaviour may explain some fatal maritime accident in the country. In the coastal fishery sector in Morocco, fatal occupational accidents accounted for 14.2% of occupational accidents between 2007 and 2008 [12].

Addictions are a serious problem among fishermen, as study performed in northern Morocco to screen cannabism and other addictions among fishermen found estimated rates of 78.2% for smoking tobacco, 23.5% for alcoholism and 42.3% cannabism [13, p. 499]. These rates make this category of workers vulnerable to chronic diseases, especially cardiac and cancerological diseases, the problem is further accentuated with a bad lifestyle. A simultaneous study performed in the north of Morocco and Catalan region in Spain showed that 80.2% don’t practice sports, 38.4% consummate fast food, 70.2% nibble between meals [14, pp. 557–558].

Results and Discussion

Health system in the maritime filed is going with two speeds. The first one for the merchant marine which is well organized and structured under international standards. its target population belongs to middle and high socioeconomic level. However, there is no special medical centres (only private physicians’ office) which explains the lack of epidemiological data with serious problems during COVID-19 pandemic. Also, there is no objective requirement for the agreement delivered by the ministry of transport to the physicians in charge of this mission.

The second one dedicated to the fishing sector which is not enough organized but well-structured even if international standards not completely applied yet. This sector suffers from an insufficient medical coverage, there is only one physician for 5.000 fishermen which is one of the lowest rates among working population [15]. Also, there is a multiplication of missions and tasks what makes physicians overtaken by events, in 2017, only 36.9% of fishermen have benefited from occupational medical visits and only 19% of hygienic inspection of the vessel were performed with an inspection’s committee containing a physician. Also, their participation in activities of health, safety and environment is low: 44%.

For both sectors, there is a lack of Moroccan system for telemedicine what is not in conformity with the dispositions of the MLC 2006 in force in the country and which required all flag states to “provide seafarers with medical care as nearly as possible equivalent to the care they would receive ashore”, and to “ensure […] that medical advice by radio or satellite communication to ships at sea is available at any hour of the day or night”. Currently, the legal framework is now defined already in morocco for this practice. The law 131 — 13 of February 19, 2015 relating to the practice of medicine, introduced in section 4 of its chapter III (Art 99 to 101) telemedicine and its global outlines, and the implementing decree 2–18 — 378 has defined its different types [16]. This topic was well discussed during the congress of the ATLAFCO (Ministerial conference on fisheries cooperation among African states bordering the Atlantic Ocean) this year in tangier (Morocco) and makes the need to this technology makes a key point into final recommendations of this congress.

Another important problem, there is no coordination between both sectors what resonates badly the quality of the care in both sectors in particular with regard to the standardization and unification of procedures.

Finally, there is no specialized maritime medicine diploma required by both sectors. Even if the majority of seamen physicians in Morocco are specialized in occupational medicine but this fact is due to the own desire of practitioners to be
performant and efficient. Some ones are gradu-
ated in maritime medicine (Diploma of university
in maritime medicine of Brest (France) or the
maritime health Master degree of Cadiz (Spain).
To partially remedy this problem, Ministry of
fishing organized some special training courses for
its physicians with the support of the maritime
medicine department of University of Brest1. Also,
The Moroccan Society for Maritime Medicine cre-
ated in 2013 continues making his role to promote
the training of maritime physicians and other
partners in the field of maritime health and safety.
It benefits from the support of the Spanish and
French Societies for Maritime Medicine and of the
International Maritime Health Association (IMHA).
It organized six national congresses for maritime
medicine and one International Hispano Francoph-
one Congress which took place at Assilah (Mo-
rocco) in November 2018.
Future prospects:
Create telemedicine centers as soon as possible
with trained doctors in this medical technology;
Increase the number of fishermen’s doctors
and fishermen’s medical centers;
Institute objective standards for fitness sea-
farer’s agreement delivery;
Establish special training in maritime medicine
in Morocco according recognized maritime med-
icinediploma and recognize this discipline as a
full-fledged medical specialty;
Unify the medical care of seafarers in two sec-
tors, in particular by creating approved maritime
medicine centers for both sectors, as is the case for
the Institut Social de la Marina in Spain;
Set up an efficient data collection system for
seafarer’s health;
Develop scientific research in the field of mar-
time health, in particular with the support of
university centers.
Conclusion
The health of seafarers is marked in Morocco
in particular by this duality of care between the
merchant marine sector and that of sea fishing,
this duality generates marked differences in
terms of the quality of care for seafarers, the
skills of seafarers’ physicians, and the unification
of care procedures.
The COVID-19 pandemic that Morocco is ex-
periencing like other countries on the planet has
further accentuated this difference and opens
the door to reflection on a unification of the two
systems once and forever.
Hope lies in a decisive intervention by deci-
sion-makers to remedy this situation. The estab-
lishment of an efficient telemedicine system is
an urgent need for the country.

REFERENCES/ЛИТЕРАТУРА
1. Laraqui O., Manar N., Laraqui S., Ghailan T., Deschamps F. Occupational safety and health in maritime sector in Mo-
P. 110–117.

wcmm/connect/2a588972-0296-4455-ab6f-a5a6fcea4de23/Rapport-Activit%C3%A9-DPM-2018-VF.pdf?MOD=AJPERES&
CACHEID=2a588972-0296-4455-ab6f-a5a6fcea4de23.


