



# Knowledge of Risk Factors of Health Professionals towards Colorectal Cancer at the Mohammed VI Center of Casablanca for the Treatment of Cancers

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## Abstract

**Introduction:** Colorectal cancer (CRC) is a major public health problem in Morocco. Knowledge of risk factors is the first step in raising awareness. The objective of this work was to evaluate the knowledge of health professionals working at the Mohammed VI center for the treatment of cancers on risk factors of colorectal cancer. **Patients and methods:** We conducted a cross-sectional, descriptive, exhaustive study of the hospital personal present (N = 100) stratified according to the activity pole in three groups: G1: Doctors, G2: Nurses and physicits and G3: reception personnel. **Results:** The participation rate was (90.91%). The average age of the health professionals was  $31.77 \pm 9.8$ . These included doctors (38%), nurses (16%) and support personal (46%). There was a female predominance. Doctors (79.5%) are significantly more aware than nurses (45.9%) and reception staff (31.6%) that age over 40 is a risk factor with  $p = 0.0001$ . We report a low awareness of nurses and hospital personal compared to physicians about the role of genetic history such as family history of colorectal cancer, familial adenomatous polyposis, and hereditary non-polyposis colorectal cancer, IBD and polyps in preventing CRC with  $p = 0.0001$ . Regarding toxic habits, tobacco and alcohol are considered a risk factor for most of medical staff. Obesity is also considered a significant risk factor for 70.5% of Group 1 and 32.4% of Group 2 and 36.8% of Group 3 with  $p = 0.001$ . The most common preventative factors reported by doctors and health professionals were a diet rich in vegetables and fruits, and regular physical activity. **Conclusion:** In the light of these results,

it appears that the knowledge of the health personal is limited and that it will have to be strengthened by promotion of initial and continuous training on risk factors for colorectal cancer.

## Subject Areas

Epidemiology, Oncology, Public Health

## Keywords

Colorectal Cancer, Knowledge, Risk Factors, Doctors, Nurses, Health Professionals

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## 1. Introduction

Colorectal cancer (CRC) is, by its frequency and gravity, a major public health problem in developed countries. In Morocco, it is the third most common cancer with an incidence of 9.6 cases/1,000,000 inhabitants per year for both sexes combined [1].

Nearly one million colorectal cancers are diagnosed, and almost half a million people die each year [2]. This cancer ranks third among the most commonly diagnosed cancers in the world, with a wide geographic variation in incidence and mortality worldwide.

This increasing incidence reflects changes in lifestyle behaviors and their consequences related to Westernization, such as obesity, physical inactivity, high alcohol consumption, high consumption of red meat and smoking. Advancing age, family history, inflammatory bowel disease (IBD), familial adenomatous polyposis (FAP) and Lynch syndrome are also among the risk factors for colorectal cancer [3].

However, the CRC usually develops in a pre-existing lesion. This makes this cancer accessible to a prevention strategy, hence, the need for a good knowledge of its risk factors. Medical personnel are the key actor, beyond their place in the healthcare system and because of the impact of their interactions with patients, they constitute an important lever of information within their social networks and have an important role to play in health promotion and early detection.

The objective of this work was to evaluate the knowledge of colorectal cancer risk factors among health professionals in Mohammed VI center for cancers treatment in Casablanca.

## 2. Patients and Methods

This work was established from a cross-sectional study conducted in the Mohammed VI centre for cancers treatment at CHU IbnRochd in Casablanca. This study took place from March 2017 until August 2017 with hospital staff (N = 100). Individual interviews were conducted with all medical and paramedical personnel present at the hospital. We filled in the service an anonymous ques-

tionnaire.

After approval of the local ethics committee and informed consent signed by the health professional after receiving the necessary information for decision-making.

The survey includes a preamble explaining the interest of the study to sensitize the health personnel to answer carefully all questions. The data collected related to socio-professional characteristics, knowledge about the different risk factors (Age over 40 years; Family history; Crohn's disease; toxic habits; physical activity; high fibre foods; too salty foods; vegetables and fruits; red meat; processed and cooked at high temperatures). Then, we stratified the health personnel of the centre by the activity pole, in three groups:

G1: Resident and Internal Doctors, Specialist Doctors, Palliative Care, Epidemiologists.

G2: Nurses, physicists, psychologists, caregivers, radiotherapy technicians.

G3: reception personnel, volunteers, others.

The data entry was carried out by Microsoft Office Excel (2007) and the analysis of the variables by the Epi Info software. The link study by crossing the variables between the different groups was evaluated by the chi-square test. The test is considered significant when  $p < 0.05$ .

### 3. Results

The Mohammed VI Center for cancers treatment in Casablanca has 110 health professionals, of which 100 (90.91%) participated in the study by answering the questionnaire. These included doctors (38%) nurses (16%) and support personnel (46%). There was a female predominance; 81% are women. The average age was  $31.77 \pm 9.8$  years old with a minimum age of 19 years and a maximum age of 64 years, with professional seniority of 55 months (**Table 1**).

Regarding the knowledge of health professionals about colorectal cancer risk factors, 58% of doctors believed that age older than 40 as a risk factor. The presence of a family history of cancer was considered as risk factors by 75%. More than two-thirds of health professionals thought that IBD, polyps, and PAF are colorectal cancer risk factors while 50% of survey participants considered Lynch syndrome to be one of the risk factors of colorectal cancer.

Almost half of the health professionals believed that obesity is a risk factor for colorectal cancer, but a small minority (15%) thought that diabetes can be a risk factor.

Most health professionals considered that diet rich in vegetables (94%) and fruit and regular physical activity (85%) are protective factors while red or processed meat is a risk factor in 85%.

For taking toxic habits (tobacco and alcohol), 77% indicated that it is a risk factor for colorectal cancer (**Table 2**).

Regarding the knowledge of health professionals on the risk factors for colorectal cancer according to the activity pole (**Table 3**).

**Table 1.** Socioprofessional characteristics of personal.

Characteristics	Number of cases (%)
Total sample of participants (N = 100)	
Mean age(years)	31.77 ± 9.8
Sex	
Men	19
Women	81
Professional seniority	55 mois
Activity pole	
Resident doctor	28
Specialist doctor	7
Doctor of palliative care	7
Internal doctor	2
Nurse	16
Volunteer	10
Psychologist	1
Care assistant	4
Attached to clinical research	2
Reception personal	4
Physicist	3
Radiotherapy technician	11
Other	5

**Table 2.** Knowledge of risk factors among health professionals.

	correct answers %	False answers %
Age more 40 years	58	42
Family history of cancer	75	25
Crohn's disease or RCH	67	33
Diabete	15	85
Lynch syndrome	50	50
Polyp at the colon	66	34
FAP	62	38
Tabacco	78	22
Alcohol	77	23
Red meat	85	15
Processed meats	77	23
Meat cooked at high temperature	32	68
Diet low in fiber	66	34
Too salty food	26	74
Obesity	50	50
Regular physical activity	85	15
Diets high in vegetables and fruits	94	6

**Table 3.** State of knowledge of risk factors among health professionals according to the activity pole.

Qualification	Group 1	Group 2	Group 3
	Correct answers %	Correct answers %	Correct answers %
Age more 40 years	79.5	45.9	31.6
Family history of cancer	86.4	70.3	57.9
Crohn's disease or RCH	84.1	59.5	42.1
Diabete	15.9	16.21	10.5
Lynch syndrome	79.5	29.7	21.1
Polyp at the colon	86.4	59.5	31.6
FAP	86.4	48.6	31.6
Tabacco	79.5	70.3	89.5
Alcohol	72.7	75.7	89.5
Red meat	86.4	83.8	84.2
Processed meats	84.1	75.7	63.2
Meat cooked at high temperature	25	37.8	36.8
Diet low in fiber	81.8	56.8	47.4
Too salty food	27.3	29.7	15.8
Obesity	70.5	32.4	36.8
Regular physical activity	77.3	91.9	89.5
Diets high in vegetables and fruits	93.2	97.3	89.5

Group 1 (79.5%) are significantly more aware than group 2 (45.9%) and group 3 (31.6%) than age over 40 is a risk factor with  $p = 0.0001$ .

The presence of family history of colorectal cancer is considered a risk factor by 86.4% of group 1 vs 70.3% of group 2 and 57.9% of group 3.

As for the presence of polyps and Lynch syndrome and FAP were considered risk factors for most doctors (86.4%, 79.5% and 86.4%) respectively, compared with the nurse (59.5%, 29.7, and 48.6%) and (31.6%, 21.1 and 31.6) of the reception personal respectively.

Regarding toxic habits; smoking and alcoholism are considered risk factors in group 1 (79.5%, 72.7%) respectively; (70.3%, 75.7%) of group 2 and (89.5%, 89.5%) of group 3.

The red meat was a risk factor for the majority of staff of the 3 groups, but a small minority (4.3%) thought that it plays no role.

Meat cooked at high temperature is a risk factor; 25% of G1; 37.8% of G2 vs. 36.8% of G3 indicated it is a risk factor for colorectal cancer.

Obesity is also considered an important risk factor for 70.5% of group 1, 32.4% of group 2 and 36.8% of group 3.

The analysis showed that 77.3% of group 1, 91.9% of group 2 and 89.5% of group 3 indicate that regular physical activity is a protective factor.

The diet rich in vegetables and fruits is considered a risk factor by most health professionals in the 3 groups (Table 3).

Tables 4-6 show the fair responses of participants in the 3 status groups to questions on risk factors for colorectal cancer.

Specialist doctors had excellent knowledge of risk factors followed by resident doctors and palliative care doctors, in contrast, nurses are generally better informed about colorectal cancer risk factors as the reception personnel.

The main source of information for health professionals on risk factors for colorectal cancer was initial medical education (38% in G1 vs. 18% of G2 and 5% of G3,  $p = 0.001$ ), followed by scientific articles (30% % in G1, 16% in G2 and 7% of G3).

The other sources of information were TV, radio reported by 4% in G1, 6% of G2 and 10% of G3 with  $p = 0.001$  for TV, and 1% in G2, 2% in G2 vs. 3% in G3 with  $p = 0.001$  for radio (Table 7).

**Table 4.** State of knowledge of risk factors in group 2 according to the status doctors.

	Doctors of palliative care (%)	Internal doctors (%)	Resident Doctors (%)	Specialist doctors (%)
Age more 40 years	42.9	50	89.3	100
Family history of cancer	100	50	85.7	83.3
Crohn's disease or RCH	100	0	89.3	66.7
Diabete	14.3	0	17.9	16.7
Lynch syndrome	28.6	50	96.4	83.3
Polyp at the colon	85.7	0	92.9	83.3
FAP	57.1	50	96.4	83.3
Tabacco	100	83.3	71.4	100
Alcohol	100	66.7	64.3	100
Red meat	57.1	83.3	92.9	100
Processed meats	83.3	50	85.7	85.7
Meat cooked at high temperature	14.3	50	21.4	50
Diet low in fiber	50	50	85.7	100
Too salty food	42.9	0	21.4	33.3
Obesity	66.7	0	71.4	85.7
Regular physical activity	83.3	50.0	71.4	100
Diets high in vegetables and fruits	83.3	50.0	96.4	100

**Table 5.** State of knowledge of risk factors in group 2 according to the status.

	Care assistant (%)	Nurse (%)	Physicist (%)	Psychologist (%)	Radiotherapy technician (%)
Age more 40 years	0	62.5	33.3	0	36.4
Family history of cancer	0	81.2	66.7	100	72.7
Crohn's disease or RCH	50	62.5	66.7	100	45.5
Diabete	0	25	0	0	0
Lynch syndrome	0	50	0	0	9.1
Polyp at the colon	25	68.8	33.3	100	54.5
FAP	25	75	0	0	27.3
Tabacco	50	68.8	66.7	100	72.7
Alcohol	50	81.2	66.7	100	72.7
Red meat	50	100	66.7	100	72.7
Processed meats	50	87.5	100	100	54.5
Meat cooked at high temperature	25	50	33.3	100	9.1
Diet low in fiber	50	50	66.7	100	54.5
Too salty food	0	31.2	66.7	0	18.2
Obesity	0	50	0	100	9.1
Regular physical activity	70	93.8	100	100	81.8
Diets high in vegetables and fruits	80	93.8	100	100	100

**Table 6.** State of knowledge of risk factors in group 3 according to the status.

	Volunteer (%)	Reception personal (%)
Age more 40 years	30	25
Family history of cancer	30	80
Crohn's disease or RCH	20	50
Diabete	0	0
Lynch syndrome	10	0
Polyp at the colon	10	50
FAP	10	50
Tabacco	90	100
Alcohol	90	100
Red meat	80	75
Processed meats	50	75
Meat cooked at high temperature	30	50
Diet low in fiber	20	75
Too salty food	0	0
Obesity	30	25
Regular physical activity	90	75
Diets high in vegetables and fruits	80	80

**Table 7.** Source of information of health professionals.

Source of information	Group 1 (%)	Group 2 (%)	Group 3 (%)	P value
Academic curriculum	38	18	5	0.001
Reading scientific articles	30	16	7	0.02
Television	4	6	10	0.001
Internet	21	22	9	0.5
Discussion with friends	16	12	10	0.3
Radio	1	2	3	0.1
Other	3	3	3	0.5

#### 4. Discussion

This study was conducted to assess the knowledge of health professionals, working at the center of cancer of Casablanca, on the risk of risk factors for colorectal cancer.

Despite a growing promotion of this type of cancer in the medical press and the media, more than one in two people are dissatisfied with the information received. Confronted with a growing demand for information from patients about environmental health risks, doctors in turn deplore the lack of reliable and easily accessible information on this topic.

Lack of knowledge about risk factors for CRC could have an impact on the incidence of colorectal cancer in the long term. An earlier study from Malaysia reported that only 4.1% had a good knowledge of CRC and its screening [4].

However, other Hong Kong studies [5] data from Australia [6] [7] and United States [8] also reported low levels of knowledge of the CCR.

Participation rates (90.91%) are high, compared to Western studies; the doctors were the only professional group that had a satisfactory knowledge of risk factors while nurses and reception personnel need ongoing training and awareness.

The age of over 40 years was cited as a risk factor by 79.5% of doctors *vs* 45.9% of nurses and 31.6% of reception personnel, our results support a study in Asia, which found that about 43% of health personnel were aware that age over 40 is a risk factor for colorectal cancer. 57.9% of participants, being misinformed was the barrier to screening [9].

Our study reports low awareness among nurses and hospital staff compared to physicians about the role of family history, such as Lynch syndrome, FAP, IBD and polyps in preventing CRC. This result is similar to other studies that found that very few health professionals were aware of the risk factors; only 25.9% could identify the genetic background as risk factors for CRC [10].

The most common factors reported by physicians and health professionals were red meat, a diet rich in vegetables and fruits, and regular physical activity.

In addition, our results disagree with previous results a study conducted in the United States where the reception personnel was less aware of the role of physi-



cal activity in the prevention of colorectal cancer [11].

It is important to note here that health professionals should seize this opportunity, play an active role in communicating messages for cancer prevention through lifestyle modification [12].

Appropriate continuing education programs and other interventions are needed to improve the knowledge of health professionals.

## 5. Conclusion

The results of this study showed that health professionals' knowledge of risk factors for colorectal cancer was not satisfactory enough, which could be a cause of the increased incidence of colorectal cancer cases diagnosed at advanced stages. It is necessary to introduce colorectal cancer education in nursing schools, especially in the public sector. Continuing education in the workplace can be advantageous. It is necessary to promote the medical training of health personnel who are in the front line of contact with patients, in the field of risk factors in order to raise awareness and improve prevention against this cancer.

## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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