

Knowledge, Attitudes and Perceptions of Colorectal Cancer Screening in Brazzaville

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Abstract

Objective: assess the knowledge, attitudes, and perceptions of Brazzaville residents on colorectal cancer and its screening. **Population and Methods:** a CAP-type cross-sectional study was conducted from June 1 to October 31, 2022, with 803 workers approached at their place of service. Information was collected using a questionnaire administered to participants. The variables studied concerned knowledge, attitudes, and perceptions about colorectal cancer. SPSS software, along with Chi-square and Fisher tests, was used for data entry and analysis. Odds ratios were calculated to determine the strength of the association between variables. **Results:** The average age of the participants was 33.5 ± 10 years, with a sex ratio of 0.9. There were 231 health workers. The main sources of information were health personnel (78.2%) and the internet (52.6%). The site of the pathology was known to 87% of participants. About 40% identified age, genetic predispositions, and a diet rich in animal fats as risk factors. No signs of the disease were known by 50% of the participants. Colonoscopy was known as a screening method by 40% of participants. Seventy-five percent were willing to participate in a CRC awareness campaign, but only 5% agreed to a screening colonoscopy, although 96% recognized its usefulness. Overall, the level of knowledge was insufficient in 70.4% of cases; attitudes were adapted in 55.7% of cases, and perceptions were adapted in 97.3% of cases. Factors influencing knowledge included young age ($p = 0.006$), a good level of education, being a healthcare worker, and high socio-economic level. **Conclusion:** colorectal cancer and its screening are poorly understood by the population. Awareness activities must be organized to improve knowledge and promote screening and early diagnosis of CRC.

Keywords

Colorectal Cancer, Screening, Knowledge, Attitudes, Perceptions, Brazzaville

1. Context and Justification

Colorectal cancer is the third leading cause of cancer death worldwide, responsible for approximately 935,173 deaths in 2020, accounting for 9.4% of all cancer-related deaths. It also ranks third among the most common cancers, with 1.9 million new cases in 2020 worldwide [1].

In Africa, data on the prevalence of CRC are patchy. Ouattara *et al.* in Burkina Faso reported a hospital frequency of 2.2% [2]. According to Globocan 2022 data, CRC in Congo represents the third incident cancer in men after that of the prostate and liver; in women, it is the third most common cancer after breast and cervical cancer, with an incidence of 6.4% and 5% respectively. Hospital studies show almost similar frequencies, oscillating between 2 and 6% of hospitalizations, 40% of all cancers of the digestive tract, and above all, an increase in frequency over time, particularly in young subjects [1] [3]-[5].

In Congo, hospital studies show frequencies varying between 2% and 6% of hospitalizations, accounting for 40% of all digestive tract cancers, with an increasing frequency, particularly among young people [1] [3]-[5].

In almost 90% of cases, it is a tumor developed from a polyp. The evolution of the polyp into a malignant tumor averages five years, highlighting the possibility of early diagnosis [6]. Age, habits and lifestyle, diet, and genetic factors are the main risk factors [7]. However, in 10% of cases, CRCs occur in a family context [8]. Colonoscopy is the reference examination for diagnosing and treating early forms [9]. Despite significant therapeutic progress, the five-year relative survival rate remains low, with most diagnoses made at an advanced stage [1] [10] [11]. However, it has been shown that five-year survival is significantly better when the diagnosis is early [12]. On the other hand, knowledge of medium, high, and very high-risk groups enables better organization of screening [13]. CRC screening has proven beneficial in reducing incidence and mortality in randomized controlled trials. Currently, some countries, like France, have regular organized screening [14]. The organization of regular screening, whether individual or mass, requires a good understanding of the pathology within the population. With this approach, we conducted this work to assess the overall level of knowledge about colorectal cancer and to raise awareness among the Congolese population about the benefits of CRC screening.

2. Patients and Methods

This cross-sectional descriptive study of the KAP type (knowledge, attitudes, perceptions) was conducted in Brazzaville from June 1 to October 31, 2022. All volunteers present on the day of the survey were included in the study.

But we excluded specialist doctors involved in the management of CRC (gastroenterologists, digestive surgeons, oncologists, radiologists, and anatomico-pathologists).

The general study population was the population of Brazzaville. The chosen target population was made up of workers in the city of Brazzaville.

We conducted convenience, non-probability cluster sampling. The minimum sample size was calculated from the Schwartz formula, taking the theoretical proportion 59.9% reported by a similar study conducted in Malaysia, in the absence of local data. This percentage corresponds to the proportion of people with good knowledge of CRC and risk factors in this study. The sample size thus calculated was 382 participants. With a forecast refusal to participate rate of 10%, the minimum final sample size was set at 420 participants.

Among the city's public and private companies, we chose 21 structures located within a 3 km radius of the Brazzaville University Hospital. These were companies specializing in the fields of health, communication, education, aviation, insurance and finance (banks).

We sent letters to the 21 structures selected to request that the survey be carried out in their companies. The final choice of companies was dictated by the favorable response from those responsible. We have therefore included the 11 structures that responded favorably, and established a timetable for passing through the different structures, taking into account the availability of the different administrations.

The work consisted of carrying out an assessment of participants' knowledge of the CCR, their perceptions and their practices. To do this, we developed a questionnaire that we evaluated through a pilot survey at the Brazzaville University Hospital. The questionnaire was submitted to volunteers chosen at random from visitors, patients and passers-by. The comments made by the participants allowed us to amend the questionnaire to make it more understandable and clear.

The investigation itself took place in two stages at the different sites. We first assessed the participants through the questionnaire, then a 20-minute conference was presented to the participants on CRC, explaining the signs of the disease, risk factors, treatments, screening, etc.

No remuneration was expected from either party.

The variables studied were socio-demographic (sex, age, profession, level of education, place of residence, socio-economic level, lifestyle, including consumption of tobacco, alcohol, fruits, vegetables, and meat), sources of information on CRC, knowledge of colonoscopy, means of screening for the disease, attitudes (consulting a health professional in the event of symptoms, attitude towards a diagnosed person, participation in awareness-raising, participation in screening, reasons for refusing screening), and perception-related variables (target population of CRC, such as the poor, the rich, or everyone; possibility of disease transmission through direct human contact; severity of the disease; possibility of recovery; usefulness of screening).

Variables such as religion and level of education were included because belonging to a religion sometimes leads to the adoption of certain lifestyles or attitudes which can influence the treatment of certain illnesses. In the case of CRC, for example, denial of risk factors can make a patient reluctant to undergo screening. For the level of education we wanted to see if this could contribute to facilitating awareness, or

if other factors could interfere. Certain diets being known to promote CRC, we included this variable in order to observe whether knowledge of this information influenced the eating habits of informed people.

In order to evaluate the knowledge, attitudes and perceptions of participants on colorectal cancer and its screening, we used a rating grid, in which the rating of the variables was done as follows: for each correct answer to a question, one point was awarded and no points for each wrong answer. When the next answer was wrong, one point was deducted. This is to avoid random answers. This rating system allowed us to define two levels of evaluation:

- The participants' knowledge was considered sufficient when the total points were ≥ 9 and insufficient when < 9 ;
- Participants' attitudes and practices were deemed appropriate when the total points were ≥ 3 and unsuitable when < 3 ;
- Participants' perceptions were deemed appropriate when the total points were ≥ 3 and unsuitable when < 3 .

The data for this study were entered into the Kobo Collect software. A database was generated to process and codify the variables. Statistical analyses were conducted using SPSS version 23 software. A flat sorting of the database was initially carried out, then the responses were grouped according to the three groups of items in question (knowledge, attitudes, perceptions).

Quantitative variables were expressed as means with standard deviations, while qualitative variables were expressed as percentages or numbers.

A univariate analysis was conducted to study the correlation, crossing the variables of interest with the explanatory sociodemographic variables.

The odds ratio (OR) with 95% confidence intervals was estimated to assess the strength of the association between the variable of interest and the explanatory variable. Pearson's chi-square test was used for comparing proportions. When the expected number was less than 5, the Fisher Exact test was used. The significance threshold was set at 5%. Approval from the health science research ethics committee (CERSSA) was obtained before conducting this study under number N°0042/MRSIT/IRSSA/CERSSA.

Operational definitions

- Knowledge: it is a set of facts, information or intellectual abilities accumulated over time and which is used as a skill in several areas of life. Knowledge is acquired, understood and retained through study or practice.
- Attitude: it is a way of conducting oneself or behaving in a given situation.
- Perception: this word comes from "percipere", which means "to grasp by the senses". It therefore falls within the cognitive domain in which an event or an object present in the immediate environment of an individual is represented to him in his internal psychological activity, in principle in a conscious manner. It is an intuition, an idea or a more or less clear way of understanding a phenomenon.
- Socio-economic level: different items are used by the National Council of Statistics, the Economy and the Environment to evaluate it, in particular, the type

of housing, monthly income. We used items relating to the type of housing, ownership of certain real estate, type of profession, and monthly income, and we adopted the one based on monthly household income. These items were assigned a rating, allowing a score to be obtained from which participants were classified into three categories: low socio-economic level (between 10 and 14), medium (15 and 19) or high (20 and 23).

3. Results

To carry out this work, we sent requests to 21 public and private organizations involved in health and other areas. Of these, 11 responded favorably, including eight health organizations, resulting in a participation rate of about 50%. A total of 829 people were present during the survey, but only 803 completed the questionnaire, thus forming our study population.

Population characteristics

The study population consisted of 386 men (48%) and 417 women (52%), i.e. a sex ratio of 0.9. The average age of participants was 33.5 ± 10 years, ranging from 18 to 67 years. The most represented age group was 18 to 39 years old ($n = 326$, 40.6%). There were 231 (28.8%) health personnel and 572 (71.2%) from other fields. Among these groups, seven (0.9%) participants had never attended school. Of those who attended school, the majority had a high level of education (university $n = 534$, 66.5%; secondary $n = 207$, 25.8%). The socio-economic level was low in 34% of cases, average in 52%, and high in 14%. Ninety-eight participants (12.2%) did not practice any religion. Among the religious participants, 689 (86%) were Christians. All participants lived in Brazzaville, with an uneven distribution across the city's districts. Regarding lifestyle, risk factors for CRC were identified, such as alcohol consumption (44.5%), tobacco use (9.2%), and regular consumption of red meat (42.2%). However, protective habits against CRC were also observed, though in lower proportions, including regular consumption of fruits (17.2%) and vegetables (27.6%), and regular physical activity (44.7%). **Table 1** shows the population distribution across different sites.

Table 1. Distribution of participants according to the selected structures.

Health facilities Public/private		Number of participants
Brazzaville University Hospital Center	Public institution	278
National Blood Transfusion Center	Public institution	29
Talanga referral hospital	Public institution	84
Central Hospital of the Armed Forces Pierre Mobengo	Public institution	69
Blanche Gomes Mother and Child Hospital	Public institution	84
TRIOS medical analysis laboratory	Private institution	38
COGEMO medical clinic	Private institution	32
National Public Health Laboratory	Public institution	60

Continued

Non-sanitary structures Public/private		Number of participants
AERCO	Public institution	65
Congo Telecom	Public institution	33
Pensioners and Civil Servants Fund	Public institution	31

Knowledge, attitudes and perception of the CCR

All patients had already heard of CRC. The main sources of information were health personnel (78.2%) and the internet (52.6%). Other, less common sources were television, radio, word of mouth, or brochures. The site of the disease was known by 87% of participants. Among the known protective factors, 2.7% (n = 22) of participants cited a diet rich in vegetables and 12% (n = 96) the daily practice of physical exercise. Age was the best known risk factor (43%). The main signs of the disease, anal bleeding and transit disorders, were known by 7% and 21% of participants respectively. Approximately 48% of participants cited colonoscopy as a means of diagnosing CRC. However, 66% (530/803) of participants did not know any screening method. The main responses to the questionnaire are shown in **Tables 2-8**.

Table 2. Distribution of participants according to knowledge of the origin and headquarters of the CCR.

Variables	n	%
Causes or origins of colorectal cancer		
Natural disease	742	92.4
Spell	82	10.2
Divine Punishment	83	10.3
Don't know	22	2.7
CCR headquarters		
Bowel disease	705	87.8
Cervical disease	47	5.8
Heart disease	28	3.4
Prostate disease	16	2
Bladder disease	7	1

Table 3. Distribution of participants according to knowledge of the signs of CRC.

Variables	n	%
Physical asthenia	4	0.5
Anemia	40	4.9
Bleeding	53	6.6
Vomiting	9	1.1
Transit disorders*	170	21.2

Continued

Abdominal pain	108	13.4
Weight loss	76	9.5
Anal pain	42	5.2
I don't know	406	50.6

*: constipation (n = 90), diarrhea (n = 18), alternating diarrhea-constipation (n = 13).

Table 4. Distribution of participants according to knowledge of the CCR FDRs.

Variables	n	%
Age	346	43.1
Smoking	317	39.5
Genetic predispositions	308	38.4
Diet rich in animal fat	245	30.5
Alcoholism	230	28.6
Diet rich in red meat	157	19.6
Ultraviolet exposure	154	19.2
Physical/chemical pollutants	126	15.7
Overweight/Obesity	116	14.4

Table 5. Distribution of participants according to knowledge of CRC diagnosis by colonoscopy.

Variables	n	%
Knowledge of colonoscopy		
Yes	384	47.8
No	419	52.2
Performing a colonoscopy at home (n = 384)		
Yes	16	4.2
No	368	95.8
Carrying out the colonoscopy in the surrounding (n = 384)		
Yes	65	16.9
No	319	83.1
Reason for carrying out in the surrounding (n = 81)		
Diagnosis	76	92.3
Screening	1	1.5
I don't know (in the surrounding)	4	6.2
Number of CRCs diagnosed in the family (n = 803)		
Yes	39	4.9
No	764	95.1
Relationship (n = 39)		
1 st degree	20	51.3
Others	19	48.7

Table 6. Distribution of participants according to knowledge of CRC screening tools.

Variables	n	%
Knowledge of colorectal cancer screening methods		
Yes	174	21.7
No	99	12.3
I don't know	530	66
Cited screening methods (n = 174)		
Colonoscopy	125	71
Testing for blood in stools	7	4
Others	45	25

Table 7. Distribution of participants according to attitude towards CRC and its screening.

Variables	n	%
Consult a health professional in case of signs		
Yes	708	88.2
No	95	11.8
Attitude towards a person diagnosed with CRC		
Empathy	599	74.6
Avoidance or abandonment	51	6.4
Fear	165	20.5
Guilt	8	1
None	22	2.7
Participation in awareness raising through communication		
Yes	603	75.1
No	200	24.9
Participation in colonoscopy screening		
Yes	47	5.8
No	698	86.9
Reasons for refusing screening		
Fear	52	5.2
Unpleasant	25	3.1
Embarrassed	13	1.7
No knowledge of screening colonoscopy	678	84.4

Table 8. Distribution of participants according to perception of CRC and its screening.

Variables	n	%
Category of people at risk		
Poor	40	5
Rich	25	3.1
Common people	738	91.9
Risk of getting the disease after direct contact		

Continued

Yes	4	5.7
No	757	94.3
Severity of the disease and possibility of recovery		
Malignant disease, curable if detected early	733	91.3
Malignant disease, without possibility of cure	30	3.7
Mild illness	3	0.4
Don't know	37	4.6
Perception of the usefulness of screening		
Useful	773	96.3
Without interest	30	3.7

Overall knowledge of CRC and its screening was insufficient in 70.4% (n = 565) of the study population. Attitudes were sufficiently adapted in 55.7% of cases (n = 448). Overall perceptions were sufficiently adapted in 97.3% of cases (n = 781). Sufficient overall knowledge was correlated with sufficiently adapted attitudes and perceptions. Factors associated with knowledge of CRC included young age, higher education level, high socio-economic level, and health professions. **Tables 9-12** show the correlations between knowledge and attitudes, and perceptions.

Table 9. Correlation between sociodemographic aspects and overall knowledge of CRC.

	Knowledge		OR [IC 95%]	p-value
	≥9	<9		
Sex				
Male	125 (32.4)	261 (67.6)	1.29 [0.95 - 1.75]	0.101
Female	113 (27.1)	304 (72.9)		
Age (years)				
18 - 29	117 (35.2)	215 (64.8)	1	0.004
30 - 39	72 (25)	216 (75.0)	0.61 [0.43 - 0.87]	
40 - 49	23 (20.4)	90 (79.6)	0.47 [0.28 - 0.78]	
50 - 59	21 (35.6)	38 (64.4)	1.02 [0.57 - 1.81]	
60 - 69	5 (45.5)	6 (64.5)	1.53 [0.46 - 5.13]	
Occupation				
Healthcare staff	120 (51.9)	111 (48.1)	4.16 [3.00 - 5.78]	0.000
Non-healthcare staff	118 (20.6)	454 (79.4)		
Level of education				
Unschooler	-	7 (100)	-	0.055
Schooled*	238 (29.9)	558 (70.1)	0.15 [0.09 - 0.24]	0.002
Socioeconomic level				
Low	75 (27.6)	197 (72.4)	1	0.000
Average	95 (22.8)	321 (77.2)	0.78 [0.55 - 1.10]	
High	68 (59.1)	47 (40.9)	3.80 [2.41 - 6.00]	

Table 10. Correlation between sociodemographic aspects and overall attitude towards CRC and its screening.

	Attitudes		OR [IC 95%]	p-value
	≥3	<3		
Sex				
Male	215 (55.7)	171 (44.3)	0.99 [0.75 - 1.31]	0.960
Female	233 (55.9)	184 (44.1)		
Age (years)				
18 - 29	190 (57.2)	142 (42.8)	1	0.893
30 - 39	156 (54.2)	132 (45.8)	0.88 [0.64 - 1.21]	
40 - 49	64 (56.6)	49 (43.4)	0.98 [0.63 - 1.50]	
50 - 59	33 (55.9)	26 (44.1)	0.95 [0.54 - 1.66]	
60 - 69	5 (45.5)	6 (54.5)	-	
			-	
Occupation				
Healthcare staff	170 (73.6)	61 (26.4)	2.95 [2.11 - 4.12]	0.000
Non-healthcare staff	278 (48.6)	294 (51.4)		
Level of education				
Unschooling	5 (71.4)	2 (28.6)	1.62 [0.31 - 8.43]	0.710
Schooled*	443 (55.7)	353(44.3)	0.47 [0.27 - 0.82]	0.000
Socioeconomic level				
Low	132 (48.5)	140 (51.5)	1	0.000
Average	235 (56.5)	181 (43.5)	1.38 [1.01 - 1.87]	
High	81 (70.4)	34 (29.6)	2.53 [1.59 - 4.03]	

Table 11. Distribution of participants according to sociodemographic aspects and overall perception of CRC and its screening.

	Perceptions		OR [IC 95%]	p-value
	≥3	<3		
Sex				
Male	377 (97.7)	9 (2.3)	1.35 [0.57 - 3.19]	0.495
Female	404 (96.9)	13 (3.1)		
Age (years)				
18 - 29	322 (97.0)	10 (3.0)	1	0.942
30 - 39	281 (97.6)	7 (2.4)	1.25 [0.47 - 3.32]	0.658
40 - 49	110 (97.3)	3 (2.7)	1.14 [0.31 - 4.21]	1.000
50 - 59	57 (96.6)	2 (3.4)	0.89 [0.19 - 4.15]	0.699
60 - 69	11 (100.0)	0 (0.0)	-	-
Occupation				
Healthcare staff	226 (97.8)	5 (2.2)	1.38 [0.51 - 3.80]	0.526
Non-healthcare staff	555 (97.0)	17 (3.0)		

Continued

Level of education				
Unschooler	6 (85.7)	1 (14.3)	0.11 [0.01 - 1.04]	0.135
Schooled*	775 (97.3)	21 (2.7)	0.51 [0.11 - 2.37]	0.311
Socioeconomic level				
Low	263 (96.7)	9 (3.3)	1	0.727
Middle	405 (97.4)	11 (2.6)	1.26 [0.52 - 3.08]	0.662
High	113 (98.3)	2 (1.7)	1.93 [0.41 - 9.09]	0.518

*: primary ($\geq 3 = 52$; $< 3 = 2$), secondary ($\geq 3 = 198$; $< 3 = 9$), upper ($\geq 3 = 524$; $< 3 = 10$).

Table 12. Distribution of participants according to the analysis of the correlation of knowledge, attitudes and perceptions.

	Knowledge		OR [IC 95%]	p-value
	≥ 9	< 9		
Perceptions				
≥ 3	238 (100)	543 (96.1)	1	0.002
< 3	-	22 (3.9)		
Attitudes				
≥ 3	168 (70.6)	280 (49.4)	2.44 [1.77 - 3.38]	0.000
< 3	70 (29.4)	285 (50.4)		

4. Discussion

4.1. Analysis of the Methodology

The sample of our study was not representative of the population because the choice of structures to visit was based on accessibility to our exercise center, the Brazzaville Hospital and University Center, rather than probability rules. However, this choice allowed us to evaluate people assumed to be the most informed, particularly health workers and those with a high level of education. On the other hand, the heterogeneous nature of the study population could reflect the general population. The large number of participants is an advantage for the study. This suggests that future awareness activities could achieve similarly high participation rates. The type of questionnaire used (open and closed questions) may have introduced participant reporting bias, with some data recalled and provided not being precise. Although the reliability of the questionnaire is unknown, adjustments based on recommendations and comments from the pre-test give it an acceptable level of validity. Additionally, this type of questionnaire has been used in similar studies, such as those in Italy in 2008 and Saudi Arabia in 2017 [13] [15].

Despite these limitations, our study provided preliminary data on the knowledge, attitudes, and practices regarding CRC in the population of Brazzaville.

4.2. Sources of Information

Healthcare personnel was the main source of information for more than half of the participants, similar to several studies, including Fenetrier in France (52%), Bernstein *et al.* in Canada (55%), and Politi *et al.* (66%) in a multinational CRC survey conducted in 12 European countries [16]-[18]. The second main source of information was the internet, which seems logical in the computer age. It is now very common to use the internet to obtain health information. The first health-related sites appeared in the mid-1990s and, since then, their number has continued to increase. Today, there are several. The internet was the primary source of information for 1165 parents of children attending three public schools in Italy, accounting for 40.8% compared to 15.8% via health personnel [13]. Indeed, the media accounted for 97.5% of the information sources for our study population. In today's society, the media are the most important means of information, communication, and cultural expression. Active participation in society requires the use of modern media. These tools can increase awareness and citizen participation, thereby improving access to knowledge. The advent of the internet is particularly significant as it provides a broader connection to the world. However, while offering immense possibilities, these information tools also present many dangers, especially for young people [19]. Faced with the multiplicity of media channels and the messages they transmit, questions arise about sorting and the quality of information. The data they present can be factual or fictional. For example, several studies have revealed that the quality of information regarding inflammatory bowel diseases on websites varies considerably [20]-[22]. These findings show that information transmitted to the public must be supervised by health professionals. Today, with the proliferation and dissemination of information sources, there is a risk of overinformation and disinformation.

4.3. Knowledge of Colonoscopy

The insufficient knowledge of colonoscopy (47.8%) is likely due to a lack of awareness among the general population and may also be linked to socio-cultural or religious factors, which can reduce the number of consultations, as observed in 4.2% of cases (16/384). The practice of colonoscopy among our participants' acquaintances was 16.9%. Our results are lower than those of Bagny *et al.* in Togo, who reported that 25.1% of their study respondents had requested at least one colonoscopy for colorectal cancer screening. This difference may be explained by the fact that their study involved medical students [23]. On the other hand, 51.3% of our participants have a first-degree family relationship with a parent suffering from colorectal cancer (n = 39). Given the lack of knowledge about risk factors, this should concern health professionals, as it suggests that information is either not being transmitted or is poorly communicated to the parents of the affected individuals, leading to missed screening opportunities. Collecting a family history of cancer helps assess predisposition to certain hereditary cancers. People with a history of colorectal cancer in a first-degree relative have a high risk of developing

the disease. This risk is even higher if the parent was diagnosed before age 50 or if more than one first-degree relative is affected [24]. The reasons for increased risk are not clearly identified; cancers can run in families due to hereditary genes, shared environmental factors, or a combination of both [9] [25]-[27].

4.4. Screening Tools

Lack of awareness of colonoscopy as a screening examination (15.6%) was found in the study by Torosien T *et al.* in Armenia and Fakir *et al.* in Morocco, who reported awareness rates of 22% and 14.8%, respectively [28] [29]. However, Sessa *et al.* in Italy and Bulliard *et al.* in Lausanne reported that 62.7% and 68% of survey respondents were aware of colonoscopy as a screening test for colorectal cancer [15] [30]. Indeed, the practice of colonoscopy as a screening examination is rare, especially in developing countries; Okon *et al.* in Ivory Coast estimated it at 0.4% compared to 96.5% for diagnostic colonoscopy in 2014 [31]. This is also true for testing for blood in stools, which is poorly known by our study population (0.9% or 7/803) compared to 55% among Italians [15]. Knowledge of these methods is important because they allow mass or individual screening for CRC. Fecal tests (currently immunological tests) are the first choice for CRC screening. They are quick, simple, and painless, based on stool sample analysis. However, they require a colonoscopy if positive.

4.5. Evaluation of Attitudes and Perceptions on Colorectal Cancer and Its Screening

As colorectal cancer is perceived as a serious condition (91.3%), most participants were willing to consult healthcare professionals if symptoms appeared or persisted (88.2%). This result is similar to findings from a national survey conducted in Quebec [32]. Indeed, the word “cancer” often evokes the idea of death, which may explain the high percentage of volunteers willing to communicate with those around them (75.1%), especially in a community with strong socio-cultural and religious values that advocate empathy, as observed in our study (74.6%).

Indeed, the majority of participants (91.9%) perceive CRC as a serious but potentially curable pathology. They report that CRC is not transmitted by direct contact and is not specific to any social class, affecting both the poor and the rich.

The positive perception of the usefulness of screening in general (96.3%) did not prevent the majority of participants (86.9%) from refusing colonoscopy screening due to a lack of knowledge about the procedure (84.4%). Fear, the main reason for refusal (5.2%), is normal when faced with the unknown. These reasons highlight the importance of effective communication with this under-informed population about screening methods in general and colonoscopy in particular, which is currently the only CRC screening technique available in our country. Colonoscopy is the most reliable test for detecting colon and rectal cancer. It offers a direct view of the colorectal mucosa, allows for the identification of lesions, and enables biopsies to confirm or refute a cancer diagnosis. It has a low rate of

complications, such as perforations, hemorrhages, and anesthesia-related issues, which are medically manageable in most cases [33]. A small percentage of participants (3.7%) saw no benefit in screening because they believed a cancer diagnosis was essentially a death sentence. These feelings of fear and condemnation were also found by Al-Azri *et al.* in the Omani population, in 55.6% and 21.5% of cases [34].

4.6. Overall Assessment of Participants' Knowledge, Attitudes and Perceptions

After assessment, the population's level of knowledge was insufficient (29.6%), while attitudes were sufficiently adapted (55.7%), and perceptions were adapted (97.3%). Knowledge was even lower when responding to open-ended questions compared to checking off answers on the questionnaire. The overall knowledge of our study population was lower than in most studies we referenced. However, this can be attributed to the fact that these studies often focused on health workers (medical students, doctors, etc.) [15] [23] [28] [29].

4.7. Analytical Aspects of the Results

After univariate analysis, the right level of knowledge was associated with:

- At a young age, particularly between 18 and 49 years, likely due to this age group's access to new information technologies;
- Healthcare personnel play a crucial role in raising awareness and educating the population about health. The message delivered by healthcare professionals can positively impact the population's knowledge of CRC risk and influence access to screening colonoscopy;
- Being in school, especially among those with a secondary or higher level of education;
- At a high socio-economic level.

Attitudes were influenced by profession, specifically health care professionals, as well as by secondary and higher education levels and medium and high socio-economic status. This may be due to easier access to modern information techniques in these groups.

The study showed a significant association between good knowledge, attitudes, and perceptions of colorectal cancer and its screening. This finding aligns with Yang *et al.*'s study in China, which demonstrated a positive relationship between these variables in a CRC awareness survey among Guangzhou residents [35]. Good knowledge generally leads to good attitudes and perceptions.

5. Conclusion

Our study was the first in our country to assess the knowledge, attitudes, and perceptions of the general population regarding colorectal cancer. It appears that colorectal cancer is not well known, even among health personnel. Good knowledge, attitudes, and perceptions are closely linked. Therefore, it is necessary

to implement awareness and screening activities to promote early diagnosis of colorectal cancer and improve the prognosis within our population. The impact of these activities can be assessed by subsequent similar studies.

Conflicts of Interest

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

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