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# Colorectal Cancer screening Knowledge Attitude and Practices study in Mafraq, Ajloun and Tafilah

Jordan, December 2024



The study has been implemented by the **Jordanian Ministry of Health** (Anas Al Muhtaseb, Abdullah Matouq), in collaboration with the **Instituto de Salud Carlos III** (María Romay-Barja (CIBERINFEC), María Falcon (UM), João Forjaz, Carmen Rodríguez (CIBERNED), Beatriz Pérez (CIBERESP) y Adela Castelló (CIBERESP)) and the **CSAI Foundation** (Raquel Sánchez (CIBERINFEC), Gabriel Díez, Saif Hussein, Hala Alkhawaldeh, Victoria Gerbaudo). We would like to highlight the excellent work of the interviewers: Yahya Hajawi, Abeer Al Ahmad, Yousef Shabaan, Raneem Al shrideh, Alaa alkolani, Olaa shrayde, Aroob dwekat, Yazan shalaan, Rawan Abu Kaled, Leena Talal, Jameea sarawi, Awatef Al Salem, Salam Alzoubi, Rahaf Al junaidi, Shahed Rahahlah, Rajaa Alsalem, Lana Smadi, Abeer Al shareef, Reem shaqnobi, Abla Kararbeh, Sara najem, Hala Kriesat, Salsabeel zyadat, Alaa swati, Yaqeen alhesa, Islam Qatameen, Menas Alaween.

We would like to thank the Jordanian people for their welcome and their patience, we hope that through this work it will be possible to design preventive public health strategies that will improve their access to healthcare.

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## 1. Introduction

The Jordanian Ministry of Health (MoH) requested, through the REAYAH project, support from the Instituto de Salud Carlos III (ISCIII) to strengthen its capacity to design, implement and analyze a Knowledge, Attitude and Practice (KAP) survey on colorectal cancer (CRC) with the aim to design a colorectal screening campaign based on the scientific evidence. Since January 2024, a cross-sectional study was designed in collaboration between the ISCIII and the Jordan MoH, which was carried out in May 2024, with the aim of determining the knowledge, attitudes and practices of the Jordanian population in relation to colorectal cancer screening. The study was conducted by the Jordanian Ministry of Health with the collaboration of the Instituto de Salud Carlos III (Madrid, Spain), Fundación CSAI (Madrid, Spain) and funded by the European Union (EU) in collaboration with the Agencia Española de Cooperación y Desarrollo (AECID).

This report first presents a general analysis about the knowledge, attitude and practices regarding CRC and associated factors. It then provides an extensive bivariate analysis between those who are willing to be screened and those who are not, in order to identify the factors that influence the willingness to be screened for CRC in Jordan. Finally, this report also includes an analysis of the survey by refugee status.

## 2. Background

CRC is the third most common form of cancer in the world, with nearly 2 million new cases reported annually, and the second leading cause of cancer-related deaths (Sung et al., 2021). According to GLOBOCAN 2020 (International Agency for Research on Cancer, WHO), CRC is the second most prevalent cancer in Jordan, accounting for 10.9% of all new cancer cases annually. The majority of cases (85%) occur in individuals aged 45 years and above. CRC is also the third leading cancer in terms of deaths in the country. Furthermore, Jordan has the third-highest incidence and mortality rate for CRC in the Middle East (17.7 and 9.6 per 10,000, respectively), and the mortality rate for females is the highest in the region, with 9.6 per 10,000 cases.

Survival rates are highly dependent on the stage of diagnosis. It can range from a survival rate of 90% for early-stage diagnosis to 10% for metastatic stage diagnosis. Therefore, it is crucial to establish a prevention program to detect CRC at an early stage. In Jordan, only 26.5% of all diagnosed cases are in the early stage, and the survival rate varies between 51% and 58% (Sharkas et al, 2017). Treating late-stage cancer incurs a higher economic burden in cancer-related national costs. Therefore, increasing the number of early-stage CRC diagnoses would not only improve the survival rate in the country but also reduce the national expenditure (Alefan et al., 2017).

There is enough scientific evidence that CRC screening can reduce up to 85% the CRC mortality by providing early diagnosis (Fitzpatrick-Lewis et al., 2016 and Zhang et al., 2017). However, adherence and participation among the at-risk group is generally low and varies widely around the world (IARC, 2017). Participation in CRC screening is influenced by various determinants at different levels. At the policy level, the cost of the test is the primary determinant, resulting in low participation rates among low socioeconomic groups. At the organizational level, the invitation to attend, the time required for the patient and the screening technique seem to be the main factors. At the provider level, the motivation and involvement of the health worker are the primary participation screening drivers. At the patient level, the main determinants influencing participation in CRC screening are knowledge of CRC, perception of susceptibility to CRC, and cultural or religious beliefs (IARC, 2017).

The specific behavior to seek CRC screening is driven by associated individual skills and knowledge (capability), access, affordability, convenience and social acceptance (opportunity) of CRC screening, and population attitudes, perceptions and confidence (motivation) (Michie et al., 2011). This holistic approach is particularly important when addressing a society with diverse cultural backgrounds and realities such as Jordanian society and a KAP survey is the best methodological tool to address it.

### **3. Objective**

The aim of this study was to identify the knowledge, attitudes and practices towards CRC in the Jordanian population in Mafraq, Ajloun and Tafilah, as well as the main barriers and facilitators associated with the participation of the general Jordanian population and refugees in CRC screening programs. The results of this study would support the design of an evidence-based colorectal cancer screening campaign.

### **4. Methodology**

A cross-sectional survey was conducted in the three governorates where the REAYAH project is located (Mafraq, Ajloun and Tafilah) from May to July 2024. Interviews were conducted face-to-face by trained interviewers. A total of 2715 individuals over the age of 50 years and without previous diagnosis of colorectal cancer participated in the study.

#### **Sample size and selection**

The sample of this study was determined by the Jordanian Department of Statistics (DoS). The sample was calculated using the Jordan 2015 census (source: DoS), stratified by governorate, with a confidence level of 95% and a power of 80%, assuming a knowledge level of 50%, and a response rate of 80%.

The sampling strategy was household-based, with a sample size of 4130 households to be selected on the basis of the percentage of persons aged 50 years and over representative of this population by sex, area of residence and refugee status. Samples were selected independently in each governorate, by a three stages selection according to the sample allocation. By using a probability proportional to size selection at the first stage's sampling, implicit stratification and proportional allocation at each of the lower administrative levels was achieved. In the first stage, 208 clusters were selected with probability proportional to cluster size, with the cluster size being the number of residential households registered in the 2015 population and housing census. In the second stage, a fixed number of 20 households per cluster were selected with an equal probability systematic selection. In the third stage, one member of the household aged 50 years or over was selected according to the quotas established by sex.

## **Questionnaire**

An ad-hoc questionnaire (Annex I) was designed to assess the knowledge, attitudes and practices towards CRC and CRC screening. The questionnaire included information about (a) demographic data (b) knowledge about CRC and CRC screening, (c) attitudes regarding CRC and CRC screening, including perceived barriers, identified facilitators and general motivations (d) practices regarding CRC risk and prevention factors and health-seeking behavior, (e) health literacy and (f) household characteristics and socio-economic issues.

The questionnaire was translated from English into Arabic and was administered by trained Jordanian interviewers in Arabic. The questionnaire was first pilot tested to assess its acceptability and feasibility, in order to identify issues that needed to be addressed before the survey could be carried out.

## **Interviewers**

A total of 27 interviewers, selected by the University of Jordan were trained by the Instituto de Salud Carlos III and the CSAI Foundation to standardize the administration of the questionnaire in order to avoid interviewer bias. The aim of this training was to ensure that interviewers were familiar with the questionnaire, understood the purpose of each question, understood the ethical issues and practiced the interview procedure. A standard operating protocol was provided to each interviewer.

## **Statistical analysis**

A descriptive analysis was conducted on all variables. The data were summarized using frequencies and percentages for categorical variables and median and inter-quartile range for continuous variables. For comparisons by intention to undergo CRC screening, the Chi-squared Pearson and exact Fisher tests were employed for categorical variables,

while the t-student or Kruskal-Wallis test was used for continuous variables. The descriptive tables of all results are presented in Annex II.

Knowledge, attitudes and practices indexes were calculated based on the pertinent questions from the survey, by adding one point for each correct answer as explained in Annex III. The obtained scores were then categorized into high and low knowledge, attitudes or practices using the respective medians as cut-off point.

Different Poisson regressions models with robust variance were performed to calculate prevalence ratios (PR) and 95% confidence intervals (95% CI), to avoid odds ratio overestimations for prevalence rates above 10%. Forward stepwise procedure was applied for the models' selection. The dependent variables were dichotomous knowledge, attitudes and practices indexes in the first models and the willingness or not to undergo CRC screening in the other model. Models were adjusted by demographic variables.

## **5. Results**

A total of 2,715 individuals were interviewed with a median age of 58.5 (IQR: 7.16), of whom 51% were female and 99% identified as Muslim. The majority of respondents resided in urban areas (70.2%) and identified themselves as Jordanians (88%). The sample included 11% Syrian refugees. The most prevalent level of education was primary (41%), while the primary occupation was housewife (42%) followed by retirement (27%). Regarding health insurance, the most frequent was Royal Militar Medical Service (52%).

### **Individuals refusing to be interviewed**

The refusal rate was found to be 8.3%, representing a total of 247 individuals. Most of the subjects were male (65.5%) and with a median age of 58 years. They were predominantly urban residents (69.2%) and Jordanian nationals (91.9%).

### **5.1 General knowledge, attitude and practices**

Regarding general knowledge, attitudes and practices about CRC, 57% of the respondents had a general high knowledge about CRC and CRC screening; 63% showed a good attitude regarding the CRC screening and 64% showed good health seeking behavior practices and healthy habits related with CRC (see Annex III). According to the Poisson regression, the people living in Ajloun and Tafilah had better knowledge, attitudes and practices than those living in Mafraq. Other factors associated with high knowledge were being a refugee and having a higher educational level. The factors associated with good attitudes towards the CRC screening were living in Ajloun or Tafilah and a higher educational level. Finally, the factors associated with good practices

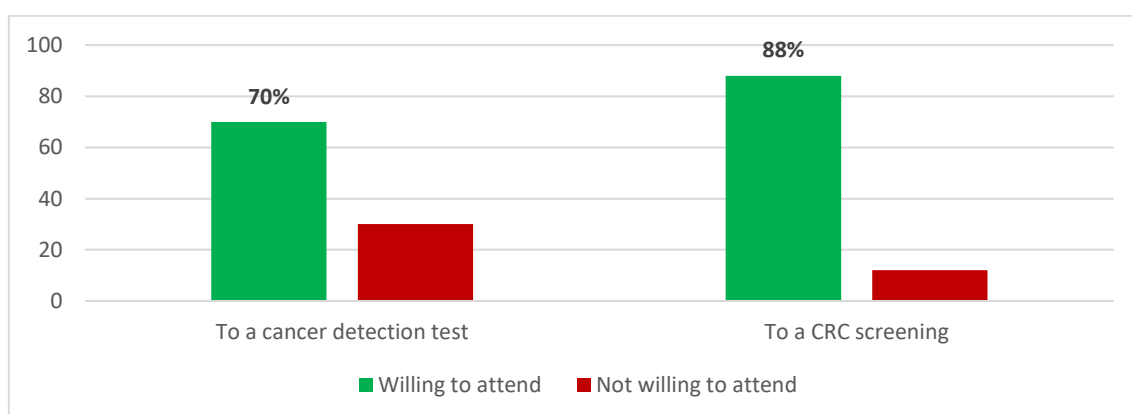
regarding health seeking behavior and healthy habits were age, being female and also the governorate of residence.

Variable (Reference)	High Knowledge		Good Attitudes		Good Practices	
	aPR	(95%CI)	aPR	(95%CI)	aPR	(95%CI)
<b>Age</b>					1.01	(1.00 - 1.01)
<b>Sex (Male)</b>						
Female					1.34	(1.26 - 1.42)
<b>Governorate (Mafraq)</b>						
Ajloun	1.17	(1.06 - 1.27)	1.08	(1.01 - 1.16)	1.03	(0.96 - 1.11)
Tafilah	1.19	(1.09 - 1.31)	1.11	(1.03 - 1.19)	1.12	(1.05 - 1.20)
<b>Refugee (not refugees)</b>						
Yes	1.26	(1.11 - 1.44)				
<b>Education level</b>						
Primary	1.32	(1.16 - 1.51)	1.22	(1.09 - 1.34)		
Secondary	1.54	(1.34 - 1.76)	1.26	(1.13 - 1.39)		
Professional Training	1.59	(1.09 - 2.31)	0.55	(0.26 - 1.14)		
Diploma	1.61	(1.37 - 1.87)	1.22	(1.07 - 1.40)		
University	1.78	(1.52 - 2.04)	1.22	(1.06 - 1.39)		
Postgraduate	2.05	(1.75 - 2.40)	1.43	(1.21 - 1.69)		

\*Only variables statistically significant are shown. aPR: adjusted Prevalence Rate, IC: Interval Confidence (multivariable analysis)

## 5.2 Willingness to attend a CRC screening

The questionnaire included two questions regarding the willingness to undergo a cancer screening. A first question asked about the willingness to undergo any cancer test for free, which was answered positively by 70% of the participants. The interviewers then provided participants with detailed information about the CRC screening process and available techniques and subsequently asked if they were willing to undergo a CRC-specific test, to which 18% more of the respondents answered positively.



The main reasons for refusal to undergo a CRC screening were:

Cited reasons	n=308
I prefer not to know the result	143 (46%)
I feel ashamed	45 (15%)
I don't have time	39 (13%)
It is disgusting	38 (12%)
I don't know what they will do with the feces	23 (7%)
I don't know how to collect the sample	16 (5%)

## 6. Results by willingness to attend the CRC screening

### 6.1 Demographic information

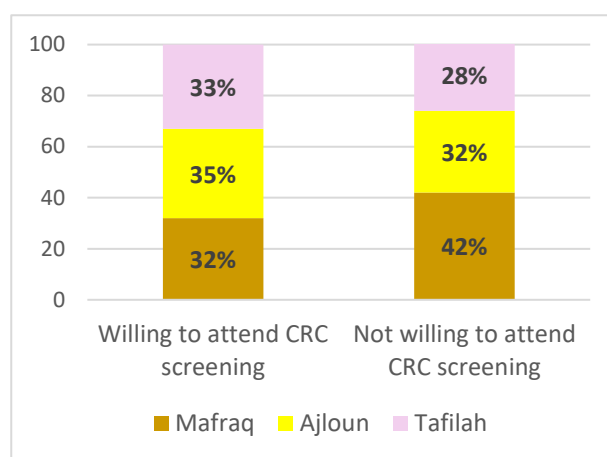
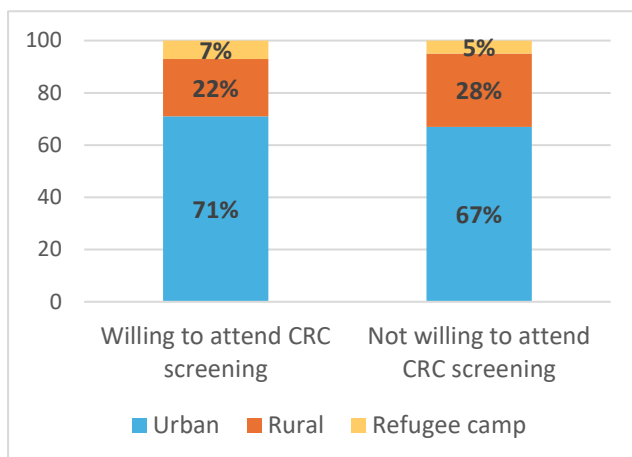
#### 6.1.1 Sex, age, marital status, religion, nationality and refugee status

	Willing to attend CRC screening n(%)=2407 (88%)	Not willing to attend CRC screening n(%)=308(11%)	p-value
	n (%)	n (%)	
<b>Sex</b>			
Male	1206 (50%)	124 (40%)	0.001*
Female	1201 (50%)	184 (60%)	
<b>Age</b>			
Median	57.00	58.50	0.034***
IQR	10.00	13.00	
<b>Marital status</b>			
Single	68 (3%)	13 (4%)	0.004*
Married	1928 (80%)	219 (71%)	
Divorced	40 (2%)	8 (3%)	
Widowed	371 (15%)	68 (22%)	
<b>Religion</b>			
Muslim	2379 (99%)	305 (99%)	0.999**
Christian	28 (1%)	3 (1%)	
<b>Nationality</b>			
Jordan	2108 (88%)	271 (88%)	0.964**
Syria	272 (11%)	34 (11%)	
Other	27 (1%)	3 (1%)	
<b>Refugee status</b>			
Refugee	267 (11%)	33 (11%)	0.842**
Not refugee	2140 (89%)	275 (89%)	
<b>Level of education</b>			
Illiterate	334 (14%)	66 (21%)	<0.001*
Primary studies	988 (41%)	133 (43%)	
Secondary studies	604 (25%)	70 (23%)	
Higher studies	481 (20%)	39 (13%)	
<b>Main occupation</b>			
Public employee	179 (7%)	15 (5%)	<0.001**
Private employee	158 (7%)	12 (4%)	
Unemployed	123 (5%)	16 (5%)	
Housewife	970 (40%)	164 (53%)	
Self-employed	320 (13%)	23 (7%)	

Retired	657 (27%)	78 (25%)	
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\* Chi-square Pearson test, \*\*Fisher exact test, \*\*\*Student's t-test

### 6.1.2 Area of residence and governorate



Those unwilling to undergo screening were more often older, female, illiterate, housewives and residents of Mafraq governorate (Chi-square Pearson test, p-value 0.002) than those who were willing to undergo screening.

### 6.1.3 Access to health services

	Willing to attend CRC screening n(%)=2407 (88%)	Not willing to attend CRC screening n(%)=308(11%)	p-value
	n (%)	n (%)	
<b>Type of health insurance</b>			
Private	83 (3%)	10 (3%)	0.285*
Civil insurance (MoH)	630 (26%)	80 (26%)	
University Hospitals	53 (2%)	0 (0%)	
RMS	1239 (51%)	166 (54%)	
UNHCR/ UNRWA	222 (9%)	29 (9%)	
No health insurance	150 (6%)	19 (6%)	
Other	30 (1%)	34(1%)	
<b>Transportation used to reach the nearest health center</b>			
Walking	783 (33%)	96 (31%)	0.045**
Bus	152 (6%)	26 (8%)	
Taxi	251 (10%)	47 (15%)	
Private car	1178 (49%)	133 (43%)	
Other	43 (2%)	6 (2%)	
<b>Time for reaching the nearest health center from their house</b>			
Median (min)	10.00	10.00	0.138***
IQR	10.00	10.00	

\*Fisher exact test, \*\* Chi-square Pearson test, \*\*\* Kruskal-Wallis

The type of insurance and closeness to the health center did not show association with the willingness to attend CRC screening.

## 6.2 Knowledge regarding CRC and CRC screening

### 6.2.1 Have you ever heard about colorectal cancer (CRC)?

	Willing to attend CRC screening n(%)=2407 (88%)	Not willing to attend CRC screening n(%)=308(11%)	p-value
	n (%)	n (%)	
Yes	1707 (71%)	187 (61%)	<0.001*
No	700 (29%)	121 (39%)	
<b>If yes, where have you heard about CRC?</b>			
	<b>(n=1707)</b>	<b>(n=187)</b>	
Family/friends	1216 (71%)	145 (77%)	0.015*
Health care workers	307 (18%)	18 (10%)	0.004*
Television	398 (23%)	38 (20%)	0.860*
Social media/internet	398 (23%)	45 (24%)	0.308*
Other	63 (4%)	4 (2%)	0.276*

\* Chi-square Pearson test

The majority of respondents indicated that they have heard about CRC, with being family and friends the primary source of information. Those willing to attend screening were significantly less frequently informed by family and friends and more frequently informed by health workers than those who were unwilling to attend screening

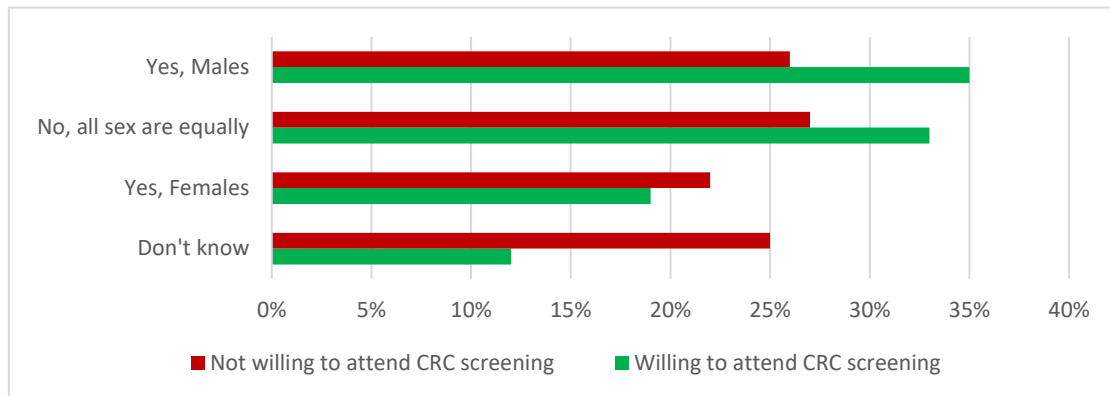
### 6.2.2 What do you think is the age group most affected by CRC? (multiple choice)

	Willing to attend CRC screening n(%)=2407 (88%)	Not willing to attend CRC screening n(%)=308(11%)	p-value
	n (%)	n (%)	
All ages equally	536 (22%)	86 (28%)	0.024*
Children	18 (1%)	3 (1%)	0.725*
15-30 years	127 (5%)	16 (5%)	0.928*
30-50 years	842 (35%)	66 (21%)	0.928*
50-65 years	1284 (53%)	96 (31%)	<0.001*

\* Chi-square Pearson test

Although the majority of respondents correctly identified the main age group at risk of having CRC as being 50 years and older, it is significantly less mentioned among those who were unwilling to undergo screened.

### 6.2.3 Do you know if one sex is more affected than the other of CRC? If yes, which one?



While the majority of respondents indicated incorrectly that males are the sex at a higher risk to have CRC, those who were unwilling to be screened were more likely to answer "I don't know" to this question. (Chi-square Pearson test,  $p < 0.001$ ).

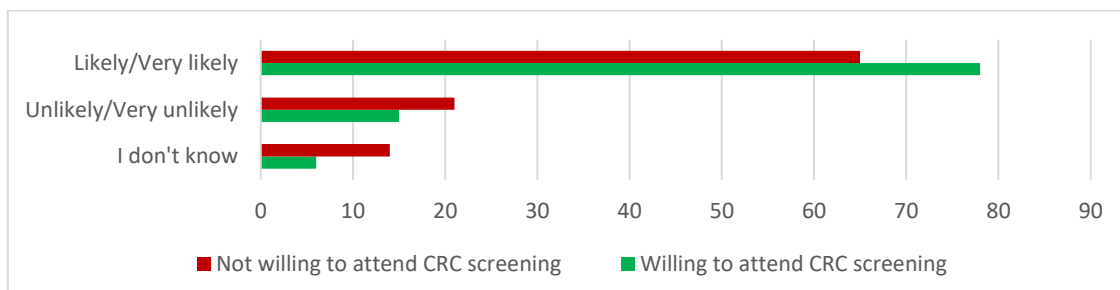
### 6.2.4 Do you think CRC is a fatal disease?

	Willing to attend CRC screening n(%)=2407 (88%)	Not willing to attend CRC screening n(%)=308(11%)	p-value
	n (%)	n (%)	
Yes	1885 (78%)	206 (67%)	<0.001*
No	372 (15%)	56 (18%)	
Don't know	150 (6%)	46 (15%)	

\* Chi-square Pearson test

Most of the respondents answered that the CRC is a fatal disease, being significantly more frequent among those who were willing to be screened.

### 6.2.5 How likely is someone to die when having CRC?



Majority of respondents answered that it is likely or very likely to die if you have CRC, but a greater proportion of those who were unwilling to be screened answered "I don't know" (Chi-square Pearson test,  $p < 0.001$ ).

### 6.2.6 Do you know what could increase the chances of having CRC?

	Willing to attend CRC screening n(%)=2407 (88%)	Not willing to attend CRC screening n(%)=308(11%)	p-value
	n (%)	n (%)	
Smoking	579 (24%)	57 (19%)	0.030*
Alcohol	145 (6%)	9 (3%)	0.027*
Lack of exercise	181 (8%)	14 (5%)	0.057*
Obesity	250 (10%)	21 (7%)	0.049*
Family history of cancer	538(21%)	41 (13%)	<0.001*
Unhealthy diet	1630 (68%)	158 (51%)	0.002*
I don't know	479 (20%)	99 (32%)	<0.001*

\* Chi-square Pearson test

The majority of the respondents mentioned an unhealthy diet as a risk factor for CRC. However, those unwilling to be screened reported less frequently unhealthy diet, smoking, alcohol, family history of cancer and reported “I don’t know” more frequently than those willing to be screened.

### 6.2.7 Do you know what could reduce the chances of developing CRC?

	Willing to attend CRC screening n(%)=2407 (88%)	Not willing to attend CRC screening n(%)=308(11%)	p-value
	n (%)	n (%)	
Not smoking	479 (20%)	39 (13%)	0.002*
Not drinking alcohol	118 (5%)	6 (2%)	0.019*
A healthy diet	1378 (57%)	132 (43%)	<0.001*
Medical check-ups	643 (27%)	47 (15%)	<0.001*
CRC screening	147 (6%)	6 (2%)	0.003*
Nothing	122 (5%)	23 (7%)	0.078*
I don't know	391 (16%)	90 (29%)	<0.001*

\* Chi-square Pearson test

The majority of respondents mentioned a healthy diet as a preventive factor but it was significantly less frequently by those unwilling to be screened, who also mentioned “I don’t know” more frequently than those who were willing to be screened.

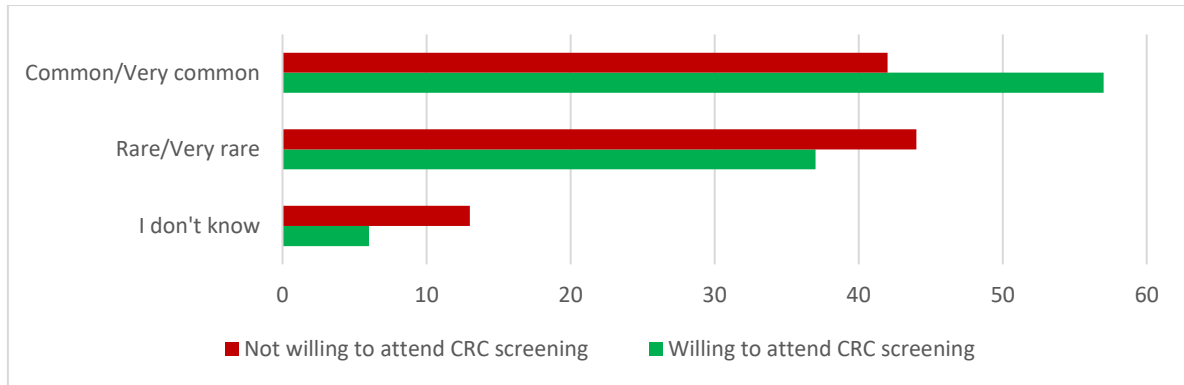
### 6.2.8 Do you know what are the CRC symptoms? (multiple choice)

	Willing to attend CRC screening n(%)=2407 (88%)	Not willing to attend CRC screening n(%)=308(11%)	p-value
	n (%)	n (%)	
Blood in stool	358 (15%)	25 (8%)	0.001*
Diarrhea	307 (13%)	26 (8%)	0.030*
Constipation	528 (22%)	37 (12%)	<0.001*
Stomachache	1010 (42%)	92 (30%)	<0.001*
Weight loss	360 (15%)	27 (9%)	0.003*
I don't know	768 (32%)	157 (51%)	<0.001*

\* Chi-square Pearson test

The most mentioned symptom for CRC was stomachache. Although 34% of the respondents did not know any symptoms, this answer was more frequently mentioned among those who were unwilling to be screened for CRC.

### 6.2.9 How common do you think CRC in Jordan?



The majority of the respondents answered that CRC was common or very common in Jordan, but those unwilling to be screened were more likely to answer “I don’t know”. (Chi-square Pearson test,  $p < 0.001$ ).

### 6.2.10 How frequently does CRC occur in Jordan compared to other types of cancer?

	Willing to attend CRC screening n(%)=2407 (88%)	Not willing to attend CRC screening n(%)=308(11%)	p-value
	n (%)	n (%)	
More than other cancers	265 (11%)	41 (13%)	<0.001*
As frequent as other cancers	748 (31%)	50 (16%)	
Less than other cancers	1247 (52%)	170 (55%)	
Don't know	147 (6%)	47 (15%)	

\*Chi-square Pearson test

The most frequent response regarding CRC prevalence in Jordan was that CRC is less prevalent than other cancers. However, those who were unwilling to undergo CRC screening were again more likely to answer “I don’t know”.

### 6.2.11 Have you ever heard about medical tests for the early detection of CRC?

	Willing to attend CRC screening n(%)=2407 (88%)	Not willing to attend CRC screening n(%)=308(11%)	p-value
	n (%)	n (%)	
Yes	531 (22%)	44 (14%)	0.002*
No	1876 (78%)	264 (86%)	
<b>If yes, do you know which techniques are used for early detection of CRC?</b>			
	<b>(n=531)</b>	<b>(n=44)</b>	
Stool-based techniques	251 (47%)	13 (29%)	0.020*
Endoscopy techniques	171 (32%)	13 (29%)	0.716*
I don't know	139 (26%)	18 (41%)	0.035*

\*Chi-square Pearson test

Most of the respondents were unaware about the CRC early detection test. Among those who had heard about a CRC test, the stool-based technique was the most frequent mentioned method; however, those who were unwilling to undergo screening were more likely to answered “I don’t know” regarding the techniques used.

### 6.2.12 Do you know what a positive result in a CRC early detection test means?

	Willing to attend CRC screening n(%)=2407 (88%)	Not willing to attend CRC screening n(%)=308(11%)	p-value
	n (%)	n (%)	
I have cancer	1332 (55%)	149 (48%)	<0.001*
I may have cancer	350 (15%)	17 (6%)	
I am going to die	31 (1%)	4 (1%)	
I need to undergo more tests	164 (7%)	8 (3%)	
I don't have cancer	336 (14%)	72 (23%)	
I don't know	194 (8%)	58 (19%)	

\*Fisher exact test

Respondent who would undergo to a CRC screening had a better knowledge about the significance of a positive CRC detection tests result than those who were unwilling to undergo a CRC screening.

### 6.2.13 Would you like to receive more information about CRC and its early detection?

	Willing to attend CRC screening n(%)=2407 (88%)	Not willing to attend CRC screening n(%)=308(11%)	p-value
	N (%)	N (%)	
Yes	1844 (77%)	144 (47%)	<0.001*
No	551 (23%)	154 (50%)	
I don't know	12 (0%)	10 (3%)	
<b>If yes, through which means would you like to receive it?</b>			
	<b>(n=1844)</b>	<b>(n=144)</b>	
Social media/ Internet	555 (30%)	43 (28%)	0.02**

Healthcare workers	636 (34%)	38 (25%)	
TV	413 (22%)	43 (28%)	
Family and friends	96 (5%)	7 (5%)	
Newspaper/ magazines	44 (2%)	3 (1%)	
Other	32 (2%)	5 (3%)	

\*Fisher exact test, \*\* Chi-square Pearson test

People willing to be screened showed more interest in receiving information about CRC screening, with health workers, social media and television being the preferred channels to receive such information.

#### 6.2.14 What is your level of agreement with the following statements?

	Willing to attend CRC screening n(%)=2407 (88%)	Not willing to attend CRC screening n(%)=308(11%)	p-value
	n (%)	n (%)	
<b>“Even if a person is healthy, performing early detection CRC tests is always advised”</b>			
Strongly agree	879 (37%)	52 (17%)	<0.001*
Agree	1031 (43%)	102 (33%)	
Disagree	316 (13%)	75 (24%)	
Strongly disagree	165 (7%)	70 (23%)	
I don't know	16 (1%)	9 (3%)	
<b>“An early diagnosis of CRC can reduce the chances of dying”</b>			
Strongly agree	979 (41%)	108 (35%)	<0.001**
Agree	1250 (52%)	126 (41%)	
Disagree	112 (5%)	35 (11%)	
Strongly disagree	32 (1%)	19 (6%)	
I don't know	34 (1%)	20 (6%)	
<b>“CRC screening is recommended only for people above 50 years old”</b>			
Strongly agree	499 (21%)	40 (13%)	<0.001**
Agree	850 (35%)	80 (26%)	
Disagree	612 (25%)	102 (33%)	
Strongly disagree	381 (16%)	61 (20%)	
I don't know	65 (3%)	25 (8%)	
<b>“CRC always shows symptoms”</b>			
Strongly agree	322 (13%)	39 (13%)	<0.001**
Agree	1068 (44%)	97 (31%)	
Disagree	555 (23%)	52 (17%)	
Strongly disagree	139 (6%)	20 (6%)	
I don't know	323 (13%)	100 (32%)	
<b>“Having cancer is a matter of chance, and it cannot be prevented”</b>			
Strongly agree	350 (15%)	73 (24%)	<0.001**
Agree	886 (37%)	104 (34%)	
Disagree	799 (33%)	72 (23%)	
Strongly disagree	252 (10%)	29 (9%)	
I don't know	120 (5%)	30 (10%)	
<b>“Carrying out general check-ups is enough for detecting CRC”</b>			
Strongly agree	342 (14%)	48 (16%)	<0.001**
Agree	1058 (44%)	105 (34%)	
Disagree	616 (26%)	67 (22%)	

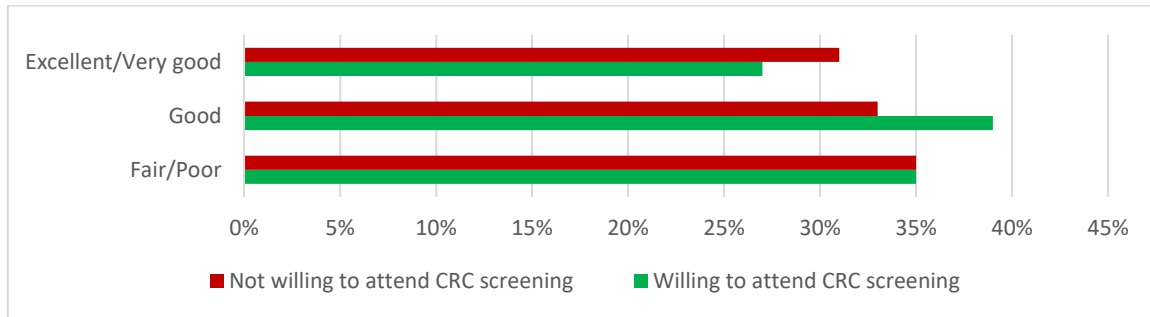
Strongly disagree	266 (11%)	48 (16%)	
I don't know	125 (5%)	40 (13%)	
<b>“There should be campaigns in Jordan for people to raise awareness about early detection cancer tests”</b>			
Strongly agree	1455 (60%)	175 (57%)	<0.001*
Agree	915 (38%)	106 (34%)	
Disagree	23 (1%)	12 (4%)	
Strongly disagree	8 (0%)	6 (2%)	
I don't know	6 (0%)	9 (3%)	

\*Fisher exact test \*\*Chi-square Pearson test

Those who were willing to be screened for CRC showed a higher level of agreement with the following statements: screening is advised even if a person is healthy; early diagnosis can reduce the chance of dying; CRC screening is only advised for people over 50 years old and there should be awareness campaigns in Jordan about early detection cancer tests. Despite being erroneous, those willing to be screened also showed a higher level of agreement with: CRC always shows symptoms; cancer cannot be prevented, and general check-ups are sufficient to detect CRC.

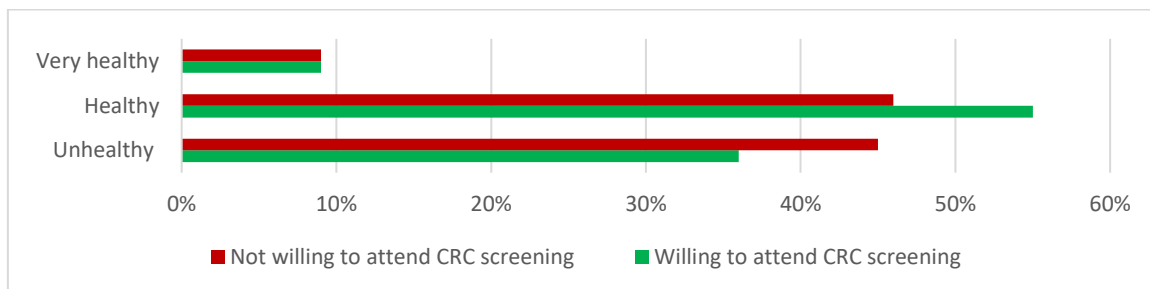
## 6.3 Attitudes towards CRC screening

### 6.3.1 Over the last year, how would you rate your health?



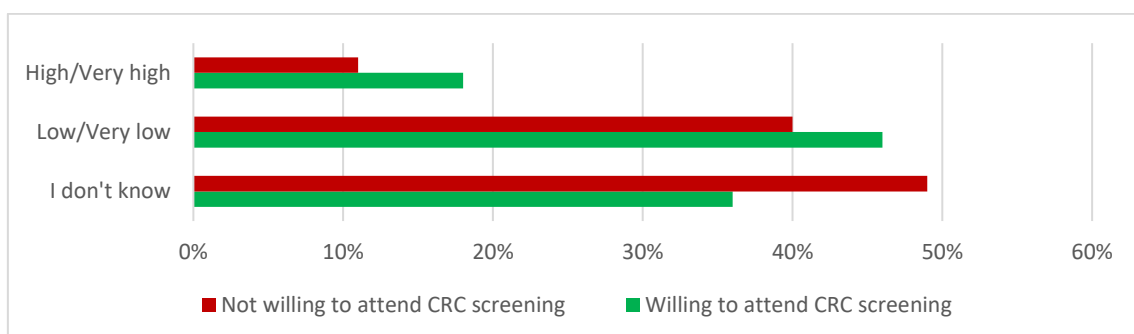
The majority of respondents rated their health as good, with those who do not want to undergo screening rating their health more frequently as excellent than those who do want to be screened (Chi-square Pearson test,  $p$ -value 0.005).

### 6.3.2 How healthy would you say is your lifestyle?



The majority of people reported to have a healthy lifestyle, with those unwilling to undergo CRC screening more often reporting an unhealthy lifestyle than those willing to undergo screening (Chi-square Pearson test,  $p$ -value 0.003).

### 6.3.3 How would you rate your personal risk of having CRC during your lifetime?



The majority of respondents reported to perceive a low or very low risk of having CRC, being more frequent among those willing who were willing to be screened, while don't know was the most frequently mentioned answer among those unwilling to be screened.

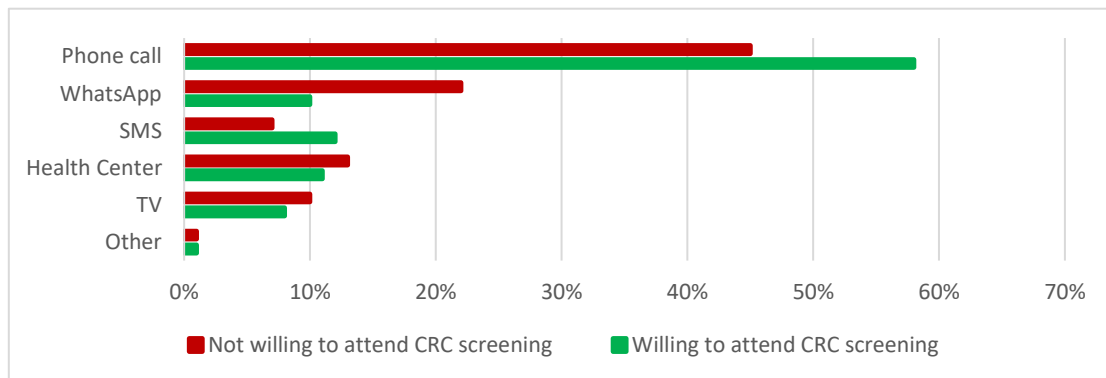
### 6.3.4 Would you attend to an invitation of the health authorities to undergo any detection cancer test for free?

	Willing to attend CRC screening n(%)=2407 (88%)	Not willing to attend CRC screening n(%)=308(11%)	p-value
	n (%)	n (%)	
Yes	1838 (76%)	67 (22%)	<0.001*
No	418 (17%)	212 (69%)	
Unsure	151 (6%)	29 (9%)	

\*Chi-square Pearson test

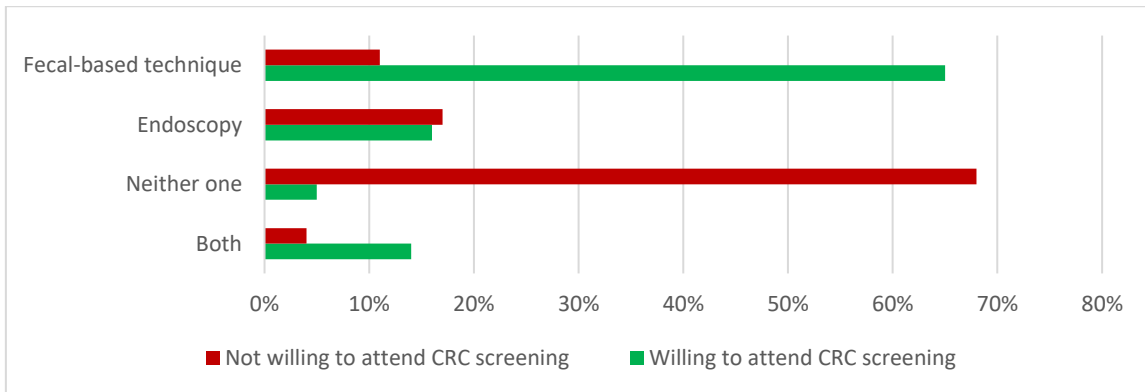
Those willing to be screened for CRC were more likely to undergo any detection cancer test.

### 6.3.5 How would you like to be contacted by the health authorities to take the test?



Among those who said they would attend and invite to undergo cancer screening; the majority of the respondents preferred the phone call to be contacted. However, those who were not willing to undergo CRC screened preferred WhatsApp, the health center and television more frequently than those who were willing to undergo CRC screening (Fisher exact test, p-value 0.033)

### 6.3.6 If you were invited to undergo a CRC prevention test, which type of technique would you prefer?



Those willing to be screened preferred a stool-based technique, while those who were unwilling to be screened rejected any of the techniques explained (Chi-square Pearson test, p-value <0.001).

### 6.3.7 Would you recommend a family member or a close friend to undergo CRC early detection test?

	Willing to attend CRC screening n(%)=2407 (88%)	Not willing to attend CRC screening n(%)=308(11%)	p-value
	n (%)	n (%)	
Yes	2201 (91%)	147 (48%)	<0.001*
No	168 (7%)	133 (43%)	
I don't know	38 (2%)	28 (9%)	

\*Chi-square Pearson test

To recommend the CRC screening to family members or friends was more likely among those who were willing to be screened.

### 6.3.8 When deciding to undergo a screening, how important is for you to.....

	Willing to attend CRC screening n(%)=2407 (88%)	Not willing to attend CRC screening n(%)=308(11%)	p-value
	n (%)	n (%)	
<b>To receive information about the benefits of performing the test</b>			
Very important	1744 (72%)	136 (44%)	<0.001*
Somewhat important	563 (23%)	88 (29%)	
Not important at all	100 (4%)	84 (27%)	
<b>A healthcare worker personally recommends it to you</b>			
Very important	1707 (71%)	128 (42%)	<0.001*
Somewhat important	542 (23%)	93 (30%)	
Not important at all	158 (7%)	87 (28%)	
<b>To receive an invitation from the MoH</b>			
Very important	1569 (65%)	97 (31%)	<0.001*
Somewhat important	636 (26%)	88 (29%)	
Not important at all	202 (8%)	123 (40%)	
<b>To receive an invitation with a scheduled appointment</b>			
Very important	1431 (59%)	95 (31%)	<0.001*
Somewhat important	620 (26%)	83 (27%)	
Not important at all	356 (15%)	130 (42%)	
<b>Not needing to schedule the visit to the health center</b>			
Very important	922 (38%)	74 (24%)	<0.001*
Somewhat important	834 (35%)	89 (29%)	
Not important at all	651 (27%)	145 (47%)	
<b>To have a work permit to attend CRC screening during working hours</b>			
Very important	1008 (42%)	74 (24%)	<0.001*
Somewhat important	532 (22%)	51 (17%)	
Not important at all	867 (36%)	183 (59%)	
<b>To be scheduled to a healthcare center close to your house</b>			
Very important	1766 (73%)	150 (49%)	<0.001*
Somewhat important	497 (21%)	68 (22%)	
Not important at all	144 (6%)	90 (29%)	
<b>No waiting time at the health center</b>			
Very important	1773 (74%)	179 (58%)	<0.001*
Somewhat important	480 (20%)	56 (18%)	
Not important at all	154 (6%)	73 (24%)	
<b>Facilities to attend the screening with your children</b>			
Very important	1238 (51%)	123 (40%)	<0.001*
Somewhat important	655 (27%)	66 (21%)	
Not important at all	514 (21%)	119 (39%)	
<b>Free treatment if the results are positive</b>			
Very important	2138 (89%)	247 (80%)	<0.001*
Somewhat important	235 (10%)	20 (6%)	
Not important at all	34 (1%)	41 (13%)	

\*Chi-square Pearson test

When deciding whether to attend a screening, for those willing to be screened, it is important to receive information about the benefits; a recommendation from a healthcare worker; an invitation from the MoH; to receive an invitation with a scheduled

appointment; not needing to schedule a visit; to have a work permit to attend the screening; to be scheduled to a healthcare center close to their hours; not having to wait at the health center; facilities to attend with their children and having a free treatment if there is a positive result.

While for those who were unwilling to attend screening, it was not important at all to receive an invitation from the MoH; to receive an invitation with a scheduled appointment; also they said to not needing to schedule a visit or to have a work permit to attend the screening.

### 6.3.9 Imagine you get a positive result in the CRC early detection test; what do you think you would do? (multiple choice)

	Willing to attend CRC screening n(%)=2407 (88%)	Not willing to attend CRC screening n(%)=308(11%)	p-value
	n (%)	n (%)	
Visit the doctor	1765 (73%)	176 (57%)	<0.001*
Undergo more tests	1142 (47%)	118 (38%)	0.002*

\*Chi-square Pearson test

Those willing to attend the screening were more likely to visit the doctor and undergone more test if they receive a positive result than those who were unwilling to undergo CRC screening.

### 6.3.10 How do you feel in the following situations?

	Willing to attend CRC screening n(%)=2407 (88%)	Not willing to attend CRC screening n(%)=308(11%)	p-value
	n (%)	n (%)	
<b>When thinking about the possibility of having cancer</b>			
Happy	92 (4%)	18 (6%)	<0.001*
Calmed/Confident	192 (8%)	13 (4%)	
Sad	520 (22%)	65 (21%)	
Afraid/worried	734 (30%)	47 (15%)	
Angry	869 (36%)	165 (54%)	
<b>Before going to a medical check-up</b>			
Happy	87 (4%)	16 (5%)	<0.001*
Calmed/Confident	236 (10%)	23 (7%)	
Sad	610 (25%)	58 (19%)	
Afraid/worried	764 (32%)	65 (21%)	
Angry	710 (29%)	146 (47%)	
<b>During a medical check-up</b>			
Happy	67 (3%)	12 (4%)	<0.001*
Calmed/Confident	206 (9%)	23 (7%)	
Sad	632 (26%)	61 (20%)	
Afraid/worried	717 (30%)	56 (18%)	
Angry	785 (33%)	156 (51%)	
<b>When receiving advice on lifestyle changes</b>			
Happy	267 (11%)	39 (13%)	<0.001*
Calmed/Confident	547 (23%)	47 (15%)	
Sad	841 (35%)	97 (31%)	
Afraid/worried	436 (18%)	36 (12%)	
Angry	316 (13%)	89 (29%)	

\*Chi-square Pearson test

Those unwilling to be screened are more likely to feel angry when thinking about the possibility of having cancer, before going to a medical check-up, during a medical check-up and when receiving advice on lifestyle changes than those willing to undergo CRC screening.

## 6.4 Health seeking behavior practices and healthy habits related with CRC

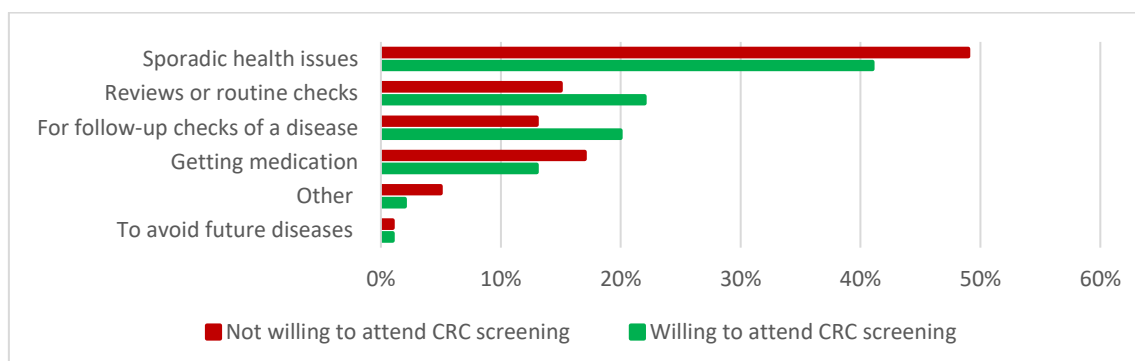
### 6.4.1 How often have you visited the medical doctor during the last year?

	Willing to attend CRC screening n(%)=2407 (88%)	Not willing to attend CRC screening n(%)=308(11%)	p-value
	n (%)	n (%)	
Once or several times a month	796 (33%)	90 (29%)	<0.001*
Every two or three months	837 (35%)	78 (25%)	
Twice over the year	408 (17%)	55 (18%)	
Once over the year	158 (7%)	34 (11%)	
Never	208 (9%)	51 (17%)	

\*Chi-square Pearson test

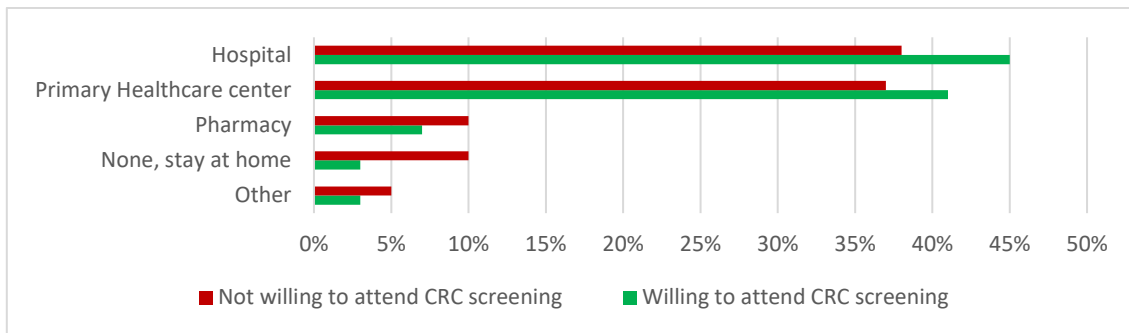
People unwilling to be screened visited less frequently a medical doctor during the last year than those who were willing to undergo CRC screening.

### 6.4.2 What are the main reasons you usually go to the medical doctor for yourself? (multiple choice)



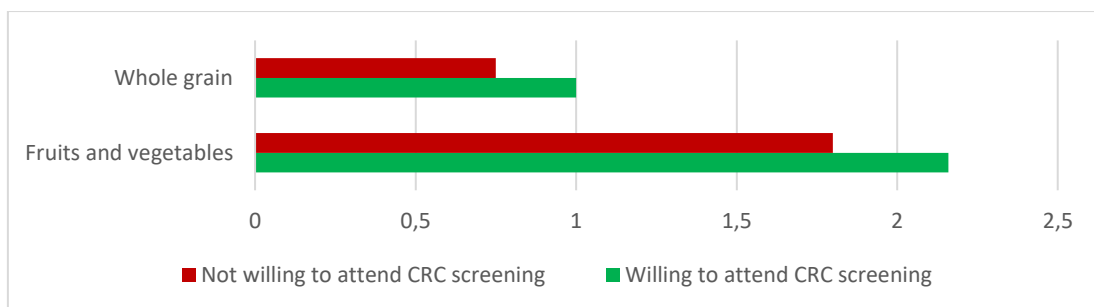
The majority of respondents reported to visit the doctor mainly for sporadic health issues. However, reported sporadic health issues as the main reason was more frequent among those who are unwilling to undergo CRC screened, while routine check-ups were more frequent among those who are willing to attend the screening (Fisher exact test,  $p$ -value <0.001)

### 6.4.3 Where do you usually go first when you feel sick?



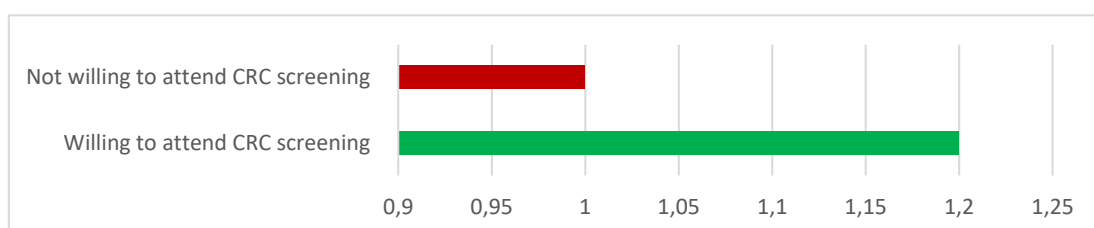
The majority of respondents chose the hospital as the first option when they feel sick. Options that do not require a medical diagnosis, such as going to the pharmacy or remaining at home were more frequent among those who are unwilling to attend the screening (Chi-square Pearson test,  $p < 0.001$ ).

### 6.4.4 In a typical week, how many times do you eat fruit and vegetables or whole grain per day?



Considered a protective factor, those willing to attend the screening showed a healthier consumption of fruits and vegetables (Kruskal-Wallis  $p$ -value 0.001) and whole grain (Kruskal-Wallis  $p$ -value 0.007) than those who were not willing to be screened.

### 6.4.5 In a typical week, how many times do you eat red meat per week?



Those who were willing to undergo screening consume a greater quantity of red meat per week than those unwilling to undergo CRC screening (Kruskal-Wallis  $p$ -value 0.03), which is considered a risk factor.

#### 6.4.6 Has any healthcare worker advised you to improve your diet?

	Willing to attend CRC screening n(%)=2407 (88%)	Not willing to attend CRC screening n(%)=308(11%)	p-value
	n (%)	n (%)	
Yes	799 (76%)	58 (62%)	<0.001*
No	252 (24%)	36 (38%)	

\*Chi-square Pearson test

Those who were willing to be screened receive more advice from healthcare workers on how to improve their diet than those who were unwilling to undergo CRC screening.

#### 6.4.7 Do you usually walk or ride bicycle to get to and from places?

	Willing to attend CRC screening (n=2407)	Not willing to attend CRC screening (n=308)	p-value
	N (%)	N (%)	
Yes	1469 (61%)	140 (45%)	<0.001*
No	580 (24%)	80 (26%)	
Sometimes	358 (15%)	88 (29%)	

\*Chi-square Pearson test

The majority of people walk or ride a bicycle. However, individuals who are willing to be screened are more likely to use active transportation, such as walking or cycling, for their daily life.

## 6.5 Health Literacy

### 6.5.1 How easy or difficult is for you to judge when you need to go to a doctor for a check-up?

	Willing to attend CRC screening n(%)=2407 (88%)	Not willing to attend CRC screening n(%)=308(11%)	p-value
	Mean (SD)**	Mean (SD)**	
To judge when you need to go to a doctor for a check-up	2.99 (0.79)	2.71 (1.00)	<0.001*
To find information about the health screening tests you require	2.89 (0.80)	2.63 (1.01)	<0.001*
To understand why you need health screening tests	2.95 (0.79)	2.66 (1.00)	<0.001*
To find information on how to prevent/manage health condition such as high blood	2.95 (0.79)	2.75 (1.02)	0.017*
To decide how can you protect from illness based on information in the media	3.02 (0.76)	2.78 (0.99)	<0.001*
To complete medical forms by yourself	2.67 (0.96)	2.40 (1.11)	<0.001*
To decide how reliable health warnings are	2.79 (0.91)	2.57 (1.04)	0.002*
To read hospital or clinical recommendations	3.15 (0.74)	2.88 (1.06)	0.003*

\*Fisher exact test \*\*Mean, "very difficult"=1, "difficult"=2, "easy" =3, "very easy" =4 and "don't know" =0

Respondents who were willing to be CRC screened found easier to access, understand, evaluate and use health information than those unwilling to undergo CRC screening, with higher scores in every item ( $p$ - value <0.005).

## 6.6 Information channels

### 6.6.1 How often do you check your SMS inbox?

	Willing to attend CRC screening n(%)=2407 (88%)	Not willing to attend CRC screening n(%)=308(11%)	p-value
	n (%)	n (%)	
Everyday	1349 (56%)	142 (46%)	<0.001*
2-6 days/week	394 (16%)	30 (10%)	
Once a week	156 (6%)	26 (8%)	
Less than once a week	88 (4%)	14 (5%)	
Never	420 (17%)	96 (31%)	

\*Chi-square Pearson test

Those who were willing to be screened tend to check their SMS inbox more frequently than those who were not. Indeed, one-third of those who were unwilling to undergo CRC screening never checked their messages.

### 6.6.2 How often do you check your WhatsApp or Telegram?

	Willing to attend CRC screening n(%)=2407 (88%)	Not willing to attend CRC screening n(%)=308(11%)	p-value
	n (%)	n (%)	
Everyday	1679 (70%)	168 (55%)	<0.001*
2-6 days/week	135 (6%)	17 (6%)	
Once a week	33 (1%)	1 (0%)	
Less than once a week	23 (1%)	1 (0%)	
Never	537 (22%)	121 (39%)	

\*Fisher exact test

Those unwilling to be screened never checked their WhatsApp or telegram more frequently than those willing to undergo screening.

### 6.6.3 How often do you watch television?

	Willing to attend CRC screening n(%)=2407 (88%)	Not willing to attend CRC screening n(%)=308(11%)	p-value
	n (%)	n (%)	
Everyday	1558 (65%)	194 (63%)	<0.001*
2-6 days/week	363 (15%)	38 (12%)	
Once a week	172 (7%)	15 (5%)	
Less than once a week	97 (4%)	14 (5%)	
Never	217 (9%)	47 (15%)	

\*Chi-square Pearson test

Television is watched by the majority of the respondents, especially by those who were willing to be screened

#### 6.6.4 Do you have a smartphone?

	Willing to attend CRC screening n(%)=2407 (88%)	Not willing to attend CRC screening n(%)=308(11%)	p- value
	n (%)	n (%)	
Yes	1992 (83%)	220 (71%)	<0.001*
No	415 (17%)	88 (29%)	

\*Chi-square Pearson test

Smartphone ownership is more frequent among those who were willing to be screened.

#### 6.6.5 Do you have a television?

	Willing to attend CRC screening n(%)=2407 (88%)	Not willing to attend CRC screening n(%)=308(11%)	p- value
	n (%)	n (%)	
Yes	2364 (98%)	294 (95%)	<0.001*
No	43 (2%)	14 (5%)	

\*Chi-square Pearson test

Almost every respondent has a television in their household, especially those who were willing to attend the screening.

### 6.7 Monthly household income

	Willing to attend CRC screening n(%)=2407 (88%)	Not willing to attend CRC screening n(%)=308(11%)	p- value
	n (%)	n (%)	
≤250 JD	621 (26%)	97 (31%)	0.006*
251-499 JD	1032 (43%)	134 (44%)	
≥ 500 JD	718 (30%)	68 (22%)	
I don't know	36 (1%)	9 (3%)	

\*Chi-square Pearson test

Those with a low monthly income were more likely to not be willing to attend the CRC screening.

## 6.8 Factors associated with the willingness to be screened for colorectal cancer

Variable (Reference)	aPR (95%CI)
<b>Area (Urban)</b>	
Rural	0.98 (0.95 - 1.02)
Refugee camp	1.07 (1.02 - 1.12)
<b>Governorate (Mafraq)</b>	
Ajloun	1.04 (1.00 - 1.07)
Tafilah	1.04 (1.00 - 1.07)
<b>Knowledge (Low)</b>	
High	1.07 (1.04 - 1.09)
<b>Attitudes (Negative)</b>	
Positive	1.39 (1.33 - 1.44)

\*Only variables statistically significant are shown. aPR: adjusted Prevalence Rate, IC: Interval Confidence

People living in Ajloun and Tafilah showed more willingness to undergo CRC screening than those living in Mafraq. Also, those who live in a refugee were more willingness to undergo CRC screening than those who not. Other factors associated to the willingness to be screened were to have a high general knowledge about CRC and a good attitude towards the CRC screening.

## 7. Results by refugee status

Of the 2,715 respondents, 300 reported to be registered as refugees. The majority of them (98%) were originally from Syria. Of these, 52% were female, and all were Muslim. The majority of refugees are residing in the Mafraq Governorate (91%), with 64% of them residing in refugee camps. In terms of healthcare access, 82% of the respondents are covered by UNCHR or UNRWA health insurance. The majority of the individuals (60%) walked to their nearest health center, with a median time to arrival of 15 minutes.

57% of the refugees have a general high knowledge about CRC and CRC screening; 58% have a high CRC knowledge and 52% have a good screening knowledge, while 48% had a good knowledge of how to prevent the CRC. The majority (62%) of refugees showed a good attitude regarding the CRC screening and 63% showed good health seeking behavior practices and healthy habits related with CRC.

A comprehensive examination of the data, specifically focusing on the comparison between refugees and non-refugees, is presented in Annex IV.

## 8. Limitations and strengths

Several limitations can be disclosed. First, the study used a cross-sectional design, which makes it difficult to draw causal inferences. Data collection was restricted to three governorates, which may limit the representativity of the results. Finally, it is possible that the answers may be influenced by social desirability bias, which is the tendency of participants to answer questions in a way that is perceived as acceptable by the interviewers. This bias may be more pronounced in the responses to questions pertaining to personal issues or healthy lifestyles.

While the study had some limitations, it had also several strengths that could be highlighted. The sample was selected using a three-stage sampling strategy, with quotas by sex and governorate, which improved its representativeness. The questionnaire was designed as an ad-hoc, culturally adapted survey that was implemented by well-trained interviewers, reducing thus the probability of missing data and ensuring its quality.

## 9. Conclusions

This study offered relevant insights about the knowledge, attitudes and practices of the Jordanian population in relation to CRC and CRC screening. First, it is important to point out that there is a positive attitude towards the CRC screening in the majority of the interviewed population, even though a significant proportion of the population lacked general knowledge about CRC and CRC screening. However, respondents with a higher level of knowledge about CRC were more likely to be willing to undergo screening.

A better knowledge about CRC and CRC screening was associated with a higher level of education and being a refugee, while a higher level of education was associated with a positive attitude towards the CRC screening.

The majority of the sample had good health seeking behavior practices and healthy habits related to CRC and being female and being older was associated with better health-seeking behavior practices and healthy habits related with CRC.

Living in Ajloun or in Tafilah was associated with having better knowledge, attitudes and practices regarding CRC and CRC screening compared to those living in Mafraq.

Finally, receiving accurate information regarding the CRC screening procedure increases the willingness to attend the screening.

## 10. Recommendations

It is important to design an awareness-raising campaign to reinforce identified gaps in knowledge about CRC and CRC screening. This campaign should include information on the importance of early detection, even if the person is healthy, the age at which screening should be performed and the CRC screening techniques, considering that the screening technique preferred by the participants was the stool-based screening. The awareness-raising campaign should also address the misconception that there is a difference in risk between sexes and CRC is always symptomatic.

It is also necessary to reinforce the intention to undergo screening of those living in Mafraq, as well as those who are close to 50, are female, have lower levels of education, and are housewives.

Since increasing the knowledge about CRC and CRC screening, increases the willingness to be screened, it is essential to provide accurate information about the CRC and the screening when inviting people to attend. The preferred channels for receiving information about CRC and CRC screening are healthcare workers, social media and television.

To ensure a high level of participation in the CRC screening campaign, it is essential to guarantee that both the screening and the colorectal cancer treatment are free of charge, as well as the fact that there is no waiting period for providing the samples and it can be done in a near health center, and to include such information in promotional materials. In addition, individuals should receive information about the benefits of screening.

An invitation of the MoH to attend the screening is important for those who are already willing to be screened, while an invitation by healthcare workers would enhance the participation of those who are initially unwilling to be screened. The invitation should include a scheduled visit with no waiting time at their nearest health center. In addition, the privacy about the reason of the medical visit should be guaranteed.

To guarantee the participation of the refugees, the UNHCR and UNRWA should be involved as most refugees are covered by their health insurance.





1. Muslim                      2. Christian                      98. Other \_\_\_\_\_

### Knowledge

*Interviewer:* Now, I will ask you some questions about colorectal cancer and its detection. As I mentioned before, there are no right or wrong answers, just answer what you know or what you believe.

#### **K1. What do you think that is the main health problem in Jordan?**

1. Heart attack/CVDs                      2. Cancer                      3. Diabetes  
4. Car accidents                      5. Digestive diseases                      6. Neurological diseases  
7. Respiratory diseases                      8. Mental disorders                      98. Other \_\_\_\_\_

#### **K2. Have you ever heard about colorectal cancer (CRC)?**

1. Yes (go to K3)                      2. No (go to K4)

#### **K3. Where or from whom have you heard about CRC? (multiple choice)**

1. Family or friends                      2. Health care workers                      3. Television  
4. Radio                      5. Social media                      6. Internet browsing  
7. Newspapers/magazines                      8. Advertisements                      9. Textbooks  
10. Work                      98. Other \_\_\_\_\_

#### **K4. What do you think is the age group most affected by CRC? (multiple choice)**

1. All ages equally                      2. Children (under 15)                      3. Between 15 and 30  
4. Between 30 and 50                      5. Between 50 and 65                      6. Above 65  
99. Don't Know

#### **K5. Do you know if one sex is more affected than the other of CRC? If yes, which one?**

1. No, all sex are equally affected                      2. Yes, Females  
3. Yes, Males                      99. Don't know

#### **K6. Do you think CRC is a fatal disease?**

1. Yes                      2. No                      99. Don't know

#### **K7. Please. tell me now how likely is someone to die when having CRC, very likely, likely, unlikely, or very unlikely to die?**

1. Very likely.                      2. Likely                      3. Unlikely  
4. Very unlikely                      99. Don't know

#### **K8. Do you know what could increase the chances of having CRC? (multiple choice)**

1. Smoking                      2. Alcohol                      3. Lack of exercise  
4. Obesity                      5. Family history of any cancer/genetics  
6. Family CRC history/ genetics                      7. Unhealthy diet  
8. Low fruits or vegetables intake                      9. High processed meat intake  
10. Daily red meat intake                      11. Low dairy products intake  
98. Other \_\_\_\_\_                      99. Don't know

**K9. Do you know if there is something that someone can do to reduce the chances of developing CRC? (multiple choice)**

1. Not smoking                      2. Not drinking alcohol                      3. Healthy diet  
4. Exercise                              5. Regular medical check-up                      6. CRC screening  
7. Nothing                              98. Other \_\_\_\_\_                              99. Don't know

**K10. Do you know what are the CRC symptoms? (multiple choice)**

1. Blood in stool                      2. Diarrhea                              3. Constipation  
4. Stomachache                      5. Weight loss                      98. Other \_\_\_\_\_  
99. Don't know

**K11. Do you think CRC in Jordan is very common, common, rare, or very rare?**

1. Very common                      2. Common                      3. Rare                      4. Very rare  
99. Don't know

**K12. How frequently does CRC occur in Jordan compared to other types of cancer?**

1. More frequent than other cancers                      2. As frequent as other cancers  
3. Less frequent than other cancers                      99. Don't know

**K13. Have you ever heard about medical tests for the early detection of CRC?**

1. Yes (go to K14)                      2. No (go to K16)

**K14. Where or from who have you heard about early detection of CRC? (multiple choice)**

1. Family or friends                      2. Health care workers                      3. Television  
4. Radio                              5. Social media                      6. Internet browsing  
7. Newspapers/magazines                      8. Advertisements                      9. Textbooks  
10. Work                              98. Other \_\_\_\_\_

**K15. Do you know which techniques are used for early detection of CRC (multiple choice)?**

1. Stool-based techniques                      2. Endoscopy techniques  
98. Other \_\_\_\_\_                      99. Don't know

**K16. Do you know what a positive result in CRC test means?**

1. I have cancer                      2. I may have cancer                      3. I am going to die  
4. I need to undergo more tests                      98. Other \_\_\_\_\_                      99. I don't know

**K17. Would you like to receive more information about CRC and its early detection?**

1. Yes (go to K18)                      2. No (go to K19)                      99. Don't know (go to K18)

**K18. Through which means would you like to receive the information?**

1. Family or friends                      2. Health care workers                      3. Television  
4. Radio                              5. Social media                      6. Internet browsing  
7. Newspapers/magazines                      8. Advertisements                      9. Textbooks  
98. Other \_\_\_\_\_

*Interviewer: Now I will read some statements about the CRC early detection test. Please let me know whether you strongly agree, agree, disagree, or strongly disagree with those statements.*

	Strongly agree	Agree	Disagree	Strongly disagree	Don't know
<b>K19. It is not necessary to perform early detection CRC tests if a person is healthy</b>					
<b>K20. Even if a person is healthy, performing early detection CRC tests is always advised</b>					
<b>K21. CRC always shows symptoms</b>					
<b>K22. Having cancer is a matter of chance, and it cannot be prevented</b>					
<b>K23. An early diagnosis of CRC can reduce the chances of dying</b>					
<b>K24. Carrying out general check-ups is enough for detecting CRC</b>					
<b>K25. CRC screening is recommended only for people above 50 years old</b>					
<b>K26. There should be campaigns in Jordan for people to raise awareness about early detection cancer tests</b>					

### Attitudes

*Interviewer: I will now ask you some questions about your health over the past year and your feelings towards various aspects of your health.*

**A1. Over the last year, would you rate your health as excellent, very good, good, fair, or poor?**

1. Poor                      2. Fair                      3. Good                      4. Very good  
5. Excellent

**A2. Would you say your lifestyle is very healthy, healthy, or not healthy at all?**

1. Very healthy              2. Healthy                      3. Not healthy at all

**A3. How would you rate your personal risk of having CRC during your lifetime? Very high, high, low, or very low?**

1. Very high (go to A4)    2. High (go to A4)              3. Low (go to A5)  
4. Very low (go to A5)              99. Don't know (go to A6)

**A4. Why do you think that? (multiple choice)**

1. Family history of cancer                      2. Family history of CRC  
3. Symptoms of colorectal cancer              4. Unhealthy diet  
5. Sedentary life or little physical exercise    6. I am a smoker  
7. It can happen to anyone                      8. My age  
98. Others \_\_\_\_\_

**A5. Why do you think that? (multiple choice)**

1. No family history of cancer    2. No symptoms of CRC  
3. Healthy diet                      4. Active life or high physical exercise  
5. I am not a smoker                      6. I attend regular check-ups  
7. I am too young                      8. It does not happen to my gender

9. I prefer not to think about it 98. Others \_\_\_\_\_

**A6. Would you attend an invitation of the health authorities to undergo any detection cancer test for free?**

1. Yes (go to A7) 2. No (go to A8) 3. Unsure (go to A8)

**A7. If yes, why yes? (multiple choice)**

1. I trust the health authorities' criteria 2. Detection tests are necessary  
3. I care about my health condition 4. A friend or family member had cancer  
5. Not sure 98. Other \_\_\_\_\_

**A8. If no, why not? (multiple choice)**

1. I am healthy 2. I am too young  
3. I don't have time 4. I don't believe it is useful/ I do not trust it  
5. I am afraid of the test 6. I am afraid of the results  
7. I have no health insurance 8. I believe it is expensive  
9. I prefer not to think about it 10. CRC is not that dangerous  
11. I am not sure 98. Other \_\_\_\_\_

**A9. And how would you like to be contacted by the health authorities to take the test?**

1. Home mailbox 2. SMS 3. WhatsApp 4. TV  
5. By phone call 6. Health awareness from the Health Center 98. Other \_\_\_\_\_

Interviewer: Now I will explain to you how a CRC prevention test works. Usually, it involves *collecting a stool sample to detect blood, which can indicate early signs of CRC. You can do it at home using the appropriate recipient that will be provided for free and send the sample to the HC. Another type of technique is endoscopy, which involves using a flexible tube to examine the inside of the body.*

**A10. Now imagine that you are invited to undergo a CRC prevention test, which type of technique would you prefer, a technique that involves giving a sample of stool, or the technique of using flexible tubes inside your body? Interviewer: (Read the answers)**

1. Fecal-based techniques 2. Endoscopy techniques 3. Neither one  
4. Both

**A11. If you were asked by your doctor or the MoH to bring your feces to the health center in a recipient provided by the MoH for a CRC prevention test, would you do it?**

1. Yes (go to A13) 2. No (go to A12)

**A12. Why not? (multiple choice)**

1. I feel ashamed 2. I don't know how to collect the sample  
3. I prefer not to know the result 4. I don't have time 5. It is disgusting  
6. I don't feel confident about what will they do with the feces  
98. Other \_\_\_\_\_

**A13. Would you recommend a family member or a close friend to undergo CRC early detection test?**

1. Yes

2. No

99. Don't know

*Interviewer: Now I will read different points about CRC early detection tests. Please let me know how important are to you those things for deciding to attend or not to a CRC early detection test. For each point I am going to state, tell me if it is very important, somewhat important or not important at all.*

	Very important	Somewhat important	Not important at all
<b>A14. To receive information about the benefits of performing the test</b>			
<b>A15. A healthcare worker personally recommends it to you</b>			
<b>A16. To receive an invitation from the MoH</b>			
<b>A17. To receive an invitation with a scheduled appointment to attend the screening at your health center</b>			
<b>A18. Not needing to schedule the visit to the health center</b>			
<b>A19. To have a work permit from your employer to attend CRC screening during working hours</b>			
<b>A20. To be scheduled to a healthcare center close to your house</b>			
<b>A21. No waiting time at the health center</b>			
<b>A22. Privacy about the reason for coming to the health center</b>			
<b>A23. Facilities to attend the screening with your children</b>			
<b>A24. Free treatment if the results are positive</b>			

**A25. Imagine you get a positive result in the CRC early detection test; what do you think you would do? (multiple choice)**

1. Visit the doctor

2. Undergo more tests

3. Talk with family or friends

4. Check on internet what to do

98. Other \_\_\_\_\_

99. Don't know

*Interviewer: Now I will present different situations. Tell me how you would feel about it, or how have you felt about it if you have already passed through those situations. For each situation, tell me whether you would feel happy, calmed, sad, afraid or worried, or angry.*

	Happy	Calmed/Confident	Sad	Afraid/worried	Angry
<b>A26. When thinking about the possibility of having cancer</b>					
<b>A27. Before going to a medical check-up</b>					
<b>A28. During a medical check-up</b>					
<b>A29. When receiving advice on lifestyle changes</b>					

### Practices

*Interviewer: Now we are going to talk about some practices of your daily life. Please answer honestly, no one will judge you.*

**P1. How often have you visited the medical doctor during the last year?**

- 1. Once or several times a month
- 2. Every two or three months
- 3. Twice over the year
- 4. Once over the year
- 5. Never

**P2. What are the main reasons you usually go to the medical doctor for yourself?**

- 1. Sporadic health issues
- 2. Reviews or routine checks
- 3. For follow-up checks of a disease
- 4. Getting medication
- 5. To avoid future diseases
- 6. I just do it without thinking about it
- 7. My work company asked me to go
- 98. Other \_\_\_\_\_

**P3. Where do you usually go first when you feel sick?**

- 1. Hospital
- 2. Primary Healthcare center
- 3. Pharmacy
- 4. None, stay at home
- 98. Other \_\_\_\_\_

**P4. Have you ever undergone a cancer detection test?**

- 1. Yes (go to P5)
- 2. No (go to P7)

**P5. For which type of cancer? (multiple choice)**

- 1. CRC
- 2. Breast
- 3. Prostate
- 4. Uterus/cervix
- 98. Other \_\_\_\_\_

**P6. Why did you take the test? (multiple choice)**

- 1. A healthcare worker recommend it and I trust him/her
- 2. I had symptoms
- 3. I am afraid of acquiring CRC
- 4. I think it is important to do check-ups
- 5. My age
- 6. A friend or family member recommended me
- 7. Family history of CRC/cancer
- 8. My work company sent me
- 98. Other \_\_\_\_\_

**P7. Why did you never take a test for the detection of CRC? (multiple choice)**

- 1. Not aware of its existence
- 2. I am healthy
- 3. I never knew I had to
- 4. I am afraid of the test/doctor
- 5. I am afraid of the results
- 6. I have no health insurance
- 7. I believe it is expensive
- 8. I don't have time
- 9. Religious reasons
- 10. My age
- 98. Other \_\_\_\_\_

**P8. Have you ever been diagnosed with cancer?**

- 1. Yes (go to P9)
- 2. No (go to P15)

**P9. Which type or types of cancer did you have? (multiple choice)**

- 1. Bladder
- 2. Breast
- 3. Lung
- 4. Prostate
- 5. Blood
- 6. Uterus/cervix
- 7. Thyroid
- 98. Other \_\_\_\_\_

**P10. Where were you diagnosed?**

1. Jordan University Hospital
2. King Hussein Cancer Foundation and Center
3. Other Hospitals
4. Al Basheer Hospitals
5. King Abdullah University Hospital
6. Jordanian Royal Medical Services
98. Other \_\_\_\_\_

**P11. Have you received treatment for your cancer?**

1. Yes (go to P12)
2. No (go to P14)

**P12. Where were you treated?**

1. Jordan University Hospital
2. King Hussein Cancer Foundation and Center
3. Other Hospitals
4. Al Basheer Hospitals
5. King Abdullah University Hospital
6. Jordanian Royal Medical Services
98. Other \_\_\_\_\_

**P13. Are you now cured of your cancer?**

1. Yes
2. No
9. I still in treatment
98. Other \_\_\_\_\_

**P14. Why haven't you received treatment for your cancer?**

1. I don't have health insurance
2. It is too expensive
3. I am afraid of the treatment
4. I am too old
5. The doctor decided it
98. Other \_\_\_\_\_

**P15. Has anyone in your immediate family (parents, siblings, children) ever had cancer?**

1. Yes (go to P16)
2. No (go to P19)
99. Don't know (go to P17)

**P16. Which type or types of cancer your family members have or have ever had? (multiple choice)**

1. Bladder
2. Breast
3. Lung
4. Prostate
5. Blood
6. Uterus/cervix
7. CRC
8. Thyroid
98. Other \_\_\_\_\_

**P17. Has someone of your immediate or extended family or a close friend died of cancer?**

1. Yes (go to P18)
2. No (go to P19)

**P18. From which type of cancer did he/she die?**

1. Bladder
2. Breast
3. Lung
4. Prostate
5. Blood
6. Uterus/cervix
7. CRC
8. Thyroid
98. Other \_\_\_\_\_

Interviewer: I will make some questions about your habits. Again, *please answer honestly, no one will judge you and any answer is a good answer.*

**P19. Have you ever smoked any tobacco or electronic nicotine product (including waterpipe)?**

1. I currently smoke (go to P21)
2. Former smoker (go to P20)
3. Never smoked (go to P25)

**P20. When did you stop smoking?**

1. \_\_\_\_\_ months ago
2. \_\_\_\_\_ years ago

**P21. Do you smoke daily, or did you smoke daily?**

1. Yes
2. No

**P22. How long have you been smoking?**

1. \_\_\_\_\_ years

**P23. Has any healthcare worker advised you to stop smoking?**

1. Yes (go to P24)
2. No (go to P25)

**P24. Did his/her advice make you quit or reduce tobacco smoking?**

1. Yes
2. No

**P25. Have you ever drunk alcohol?**

1. Yes (go to P26)
2. No (go to P28)

**P26. Has any healthcare worker advised you to stop or to reduce your alcohol consumption?**

1. Yes (go to P27)
2. No (go to P28)

**P27. Did his/her advice make you quit or reduce your alcohol consumption?**

1. Yes
2. No

**P28. In a typical week, how many times do you eat fruit and vegetables per day?**

1. \_\_\_\_\_ portions per day

**P29. In a typical week, how many times do you eat whole grains per day?**

1. \_\_\_\_\_ portions per day

**P30. In a typical week, how many times do you eat red meat? Red meat includes beef, goat, lamb, and pork.**

1. \_\_\_\_\_ portions per week

**P31. In a typical week, on how many times do you eat processed meat?**

1. \_\_\_\_\_ times per week

**P32. In a typical week, on how many times do you eat fast-food?**

1. \_\_\_\_\_ times per week

**P33. In a typical week, on how many times do you eat legumes?**

1. \_\_\_\_\_ times per week

**P34. In a typical week, on how many times do you eat sweets, pastries, and sugary drinks?**

1. \_\_\_\_\_ times per week

**P35. Has any healthcare worker advised you to improve your diet?**

1. Yes (go to P36)                      2. No (go to P37)

**P36. Did his/her advice make you improve your diet?**

1. Yes                                      2. No

**P37. In a normal day, how many hours per day do you spend sitting?**

1. \_\_\_\_\_

**P38. Do you usually walk or ride bicycle to get to and from places?**

1. Yes                                      2. No                                      3. Sometimes

**P39. Do you usually practice exercise such a walking, dancing, or a sport?**

1. Yes (go to P36)                      2. No (go to next section)

**P40. How often do you practice moderate physical activity (walking, dancing, soft cycling, golfing, or slow swimming), including moderately active jobs such as gardening, cleaning, etc.**

1. \_\_\_\_\_ days                      \_\_\_\_\_ min/day

**P41. How often do you practice vigorous physical activity (running, cycling, swimming, aerobics, fitness), including highly active jobs that involve weightlifting of intense activity.**

1. \_\_\_\_\_ days                      \_\_\_\_\_ min/day

### Health literacy and household

*Interviewer: It is not always easy to get understandable, reliable, and useful information on health-related topics. With the following questions we would like to find out which tasks related to handling health information are easy or difficult for you. So, please tell me how easy or difficult (very easy, easy difficult, or very difficult) it might be for you....*

	Very Easy	Easy	Difficult	Very difficult	Don't know
<b>H1. To judge when you need to go to a doctor for a check-up</b>					
<b>H2. To find information about the health screening tests you require.</b>					
<b>H3. To understand why you need health screening tests</b>					
<b>H4. To find information on how to prevent or manage conditions like being overweight or, having high blood pressure or high cholesterol</b>					
<b>H5. To understand health warnings about behaviors such as smoking or low physical activity</b>					
<b>H6. To decide how can you protect from illness based on information in the media. [Instructions: e.g. Newspapers, TV, or Internet]</b>					
<b>H7. To complete medical forms by yourself</b>					
<b>H8. To decide how reliable health warnings are, such as smoking or low physical activity</b>					
<b>H9. To read hospital or clinical recommendations</b>					



## Annex II: Descriptive tables by intention to attend the screening

**Table A1.1:** Description of demographics for the whole sample and by intention to attend CRC screening

	Total	Willing to attend CRC screening	Not willing to attend CRC screening	Test
N (%)	2,715 (100.0%)	2,407 (88.7%)	308 (11.3%)	
<b>D1. Area of residence n(%)</b>				
Urban	1905 (70%)	1699 (71%)	206 (67%)	0.019
Rural	615 (23%)	528 (22%)	87 (28%)	
Refugee camp	195 (7%)	180 (7%)	15 (5%)	
<b>D2. Governorate n(%)</b>				
Mafrq	899 (33%)	770 (32%)	129 (42%)	0.002
Ajloun	939 (35%)	845 (35%)	94 (31%)	
Tafilah	877 (32%)	792 (33%)	85 (28%)	
<b>D3. Age (median, IQR)</b>				
	58.56 (7.16)	57.0 (10.00)	59.37 (8.14)	0.034
<b>D4. Sex n(%)</b>				
Male	1330 (49%)	1206 (50%)	124 (40%)	0.001
Female	1385 (51%)	1201 (50%)	184 (60%)	
<b>D5. Nationality n(%)</b>				
Jordanian	2379 (88%)	2108 (88%)	271 (88%)	0.964
Syrian	306 (11%)	272 (11%)	34 (11%)	
Other	30 (1%)	27 (1%)	3 (1%)	
<b>D6. Refugee n(%)</b>				
Yes	308 (11%)	267 (11%)	33 (11%)	0.842
No	2047 (88%)	2140 (89%)	275 (89%)	
<b>D7. Marital status n(%)</b>				
Single	81 (3%)	68 (3%)	13 (4%)	0.004
Married/Coupled	2147 (79%)	1928 (80%)	219 (71%)	
Divorced/Separated	48 (2%)	40 (2%)	8 (3%)	
Widowed	439 (16%)	371 (15%)	68 (22%)	
<b>D8. Children n(%)</b>				
Yes	2567 (95%)	2279 (95%)	288 (94%)	0.392
No	148 (5%)	128 (5%)	20 (6%)	
<b>D9. Highest level of education n(%)</b>				
Illiterate	400 (15%)	334 (14%)	66 (21%)	<0.001
Primary studies	1121 (41%)	988 (41%)	133 (43%)	
Secondary studies	674 (25%)	604 (25%)	70 (23%)	
Higher studies	520 (19%)	481 (20%)	39 (13%)	
<b>D10. Current main occupation n(%)</b>				
Public employee	194 (7%)	179 (7%)	15 (5%)	<0.001
Private employee	170 (6%)	158 (7%)	12 (4%)	
Unemployed	139 (5%)	123 (5%)	16 (5%)	
Housewife	1134 (42%)	970 (40%)	164 (53%)	

Self-employed	343 (13%)	320 (13%)	23 (7%)	
Retired	735 (27%)	657 (27%)	78 (25%)	
<b>D11. Type of health insurance n(%)</b>				
Private	93 (3%)	83 (3%)	10 (3%)	0.285
Civil insurance (MoH)	710 (26%)	630 (26%)	80 (26%)	
University hospitals	53 (2%)	53 (2%)	0 (0%)	
RMS	1405 (52%)	1239 (51%)	166 (54%)	
UNHCR/ UNRWA	251 (9%)	222 (9%)	29 (9%)	
No health insurance	169 (6%)	150 (6%)	19 (6%)	
From another country	2 (0%)	1 (0%)	1 (0%)	
Other	32 (1%)	29 (1%)	3 (1%)	
<b>D12. Time from home to the nearest health center (median, IQR)</b>				
	10.00 (10.00)	10.00 (10.00)	10.00 (10.00)	0.138
<b>D13. Transportation to the nearest health center n(%)</b>				
Walking	879 (32%)	783 (33%)	96 (31%)	0.045
Bus	178 (7%)	152 (6%)	26 (8%)	
Taxi	298 (11%)	251 (10%)	47 (15%)	
Private car	1311 (48%)	1178 (49%)	133 (43%)	
Other	49 (2%)	43 (2%)	6 (2%)	
<b>D14. Religion n(%)</b>				
Muslim	2684 (99%)	2379 (99%)	305 (99%)	1.000
Christian	31 (1%)	28 (1%)	3 (1%)	

**Table A1.2:** Knowledge about CRC for the whole sample and by intention to attend CRC screening

	Total	Willing to attend CRC screening	Not willing to attend CRC screening	Test
N (%)	2,715 (100.0%)	2,407 (88.7%)	308 (11.3%)	
<b>K1. Think is the main health problem in Jordan n(%)</b>				
Heart attack/CVDs	404 (15%)	351 (15%)	53 (17%)	0.446
Cancer	823 (30%)	736 (31%)	87 (28%)	
Diabetes	1085 (40%)	961 (40%)	124 (40%)	
Car accidents	28 (1%)	27 (1%)	1 (0%)	
Digestive diseases	69 (3%)	62 (3%)	7 (2%)	
Neurological diseases	63 (2%)	60 (2%)	3 (1%)	
Respiratory diseases	114 (4%)	100 (4%)	14 (5%)	
Mental disorders	25 (1%)	21 (1%)	4 (1%)	
Other	104 (4%)	89 (4%)	15 (5%)	
<b>K2. Ever heard about CRC n(%)</b>				
Yes	1894 (70%)	1707 (71%)	187 (61%)	<0.001
No	821 (30%)	700 (29%)	121 (39%)	
<b>K3. Where have you heard about CCR (multiple choice) n(%)</b>				
Family/friends	1361 (50%)	1216 (51%)	145 (47%)	0.015
Health care workers	325 (12%)	307 (13%)	18 (6%)	0.004
Television	436 (16%)	398 (17%)	38 (12%)	0.860
Social media/internet	434 (16%)	398 (16%)	45 (15%)	0.308
Radio/ Newspapers/ Advertisements	46 (2%)	44 (2%)	2 (0%)	1.000
Textbooks	1 (0%)	0 (0%)	1 (0%)	0.113
At work	20 (1%)	19 (1%)	1 (0%)	0.719
<b>K4. Age group most affected by CRC (multiple choice) n(%)</b>				
All ages equally	620 (23%)	536 (22%)	86 (28%)	0.024
Children	21 (1%)	18 (1%)	3 (1%)	0.725
15-30 years	144 (5%)	127 (5%)	16 (5%)	0.928
30-50 years	144 (5%)	842 (35%)	66 (21%)	0.928
50-65 years	479 (18%)	1284 (53%)	96 (31%)	<0.001
<b>K5. one sex is more affected than the other of CRC n(%)</b>				
No, all sex are equally	883 (33%)	799 (33%)	84 (27%)	<0.001
Yes, Females	532 (20%)	465 (19%)	67 (22%)	
Yes, Males	925 (34%)	844 (35%)	81 (26%)	
Don't know	375 (14%)	299 (12%)	76 (25%)	
<b>K6. Think CRC is a fatal disease n(%)</b>				
Yes	2091 (77%)	1885 (78%)	206 (67%)	<0.001
No	428 (16%)	372 (15%)	56 (18%)	
Don't know	196 (7%)	150 (6%)	46 (15%)	
<b>K7. Likelihood to die with CRC n(%)</b>				
Very likely	695 (26%)	613 (25%)	82 (27%)	<0.001
Likely	1398 (51%)	1281 (53%)	117 (38%)	
Unlikely	370 (14%)	320 (13%)	50 (16%)	
Very unlikely	74 (3%)	59 (2%)	15 (5%)	
Don't know	178 (7%)	134 (6%)	44 (14%)	

<b>K8. Risk factors of CRC (multiple choice) n(%)</b>				
Smoking	636 (23%)	579 (24%)	57 (19%)	0.030
Alcohol	154 (6%)	145 (6%)	9 (3%)	0.027
Lack of exercise	195 (7%)	181 (8%)	14 (5%)	0.057
Obesity	271 (10%)	250 (10%)	21 (7%)	0.049
Family history of cancer/genetics	423 (16%)	395 (16%)	28 (9%)	<0.001
Family CRC history/genetics	156 (6%)	143 (6%)	13 (4%)	0.222
Unhealthy diet	1788 (67%)	1630 (68%)	158 (51%)	0.002
I don't know	578 (21%)	479 (20%)	99 (32%)	<0.001
<b>K9. What can reduce the risk of CRC (multiple choice) n(%)</b>				
Not smoking	518 (19%)	479 (20%)	39 (13%)	0.002
Not drinking alcohol	124 (5%)	118 (5%)	6 (2%)	0.019
A healthy diet	1510 (56%)	1378 (57%)	132 (43%)	<0.001
Exercising	257 (9%)	234 (10%)	23 (7%)	0.203
Regular medical check-ups	690 (25%)	643 (27%)	47 (15%)	<0.001
CRC screening	153 (6%)	147 (6%)	6 (2%)	0.003
Nothing	145 (5%)	122 (5%)	23 (7%)	0.078
I don't know	481 (18%)	391 (16%)	90 (29%)	<0.001
<b>K10. CRC symptoms (multiple choice) n(%)</b>				
Blood in stool	383 (14%)	358 (15%)	25 (8%)	0.001
Diarrhea	333 (12%)	307 (13%)	26 (8%)	0.030
Constipation	565 (21%)	528 (22%)	37 (12%)	<0.001
Stomachache	1102 (41%)	1010 (42%)	92 (30%)	<0.001
Weight loss	387 (14%)	360 (15%)	27 (9%)	0.003
I don't know	925 (34%)	768 (32%)	157 (51%)	<0.001
<b>K11. CRC in Jordan n(%)</b>				
Very common	300 (11%)	259 (11%)	41 (13%)	<0.001
Common	1215 (45%)	1116 (46%)	99 (32%)	
Rare	780 (29%)	699 (29%)	81 (26%)	
Very rare	234 (9%)	186 (8%)	48 (16%)	
Don't know	186 (7%)	147 (6%)	39 (13%)	
<b>K12. Frequency of CRC in Jordan compared to other types of cancer n(%)</b>				
More than other cancers	306 (11%)	265 (11%)	41 (13%)	<0.001
As frequent as other cancers	798 (29%)	748 (31%)	50 (16%)	
Less than other cancers	1417 (52%)	1247 (52%)	170 (55%)	
Don't know	194 (7%)	147 (6%)	47 (15%)	
<b>K13. Ever heard about medical tests for the early detection of CRC? n(%)</b>				
Yes	575 (21%)	531 (22%)	44 (14%)	0.002
No	2140 (79%)	1876 (78%)	264 (86%)	
<b>K14. Where have you heard about medical tests for the early detection of CRC? (multiple choice) n(%)</b>				
	n=575	n=531	n=44	
Family	288 (50%)	262 (49%)	26 (59%)	0.214
Healthcare workers	201 (35%)	189 (36%)	12 (27%)	0.266
TV	150 (26%)	140 (26%)	10 (22%)	0.597
Social media/internet	159 (28%)	151 (28%)	8 (18%)	0.144
Radio/newspapers/advertisements	46 (8%)	43 (8%)	3 (7%)	1.000
Textbooks	1 (0%)	1 (0%)	0 (0%)	1.000

At work	9 (2%)	8 (2%)	1 (2%)	1.000
<b>K15. Techniques are used for early detection of CRC (multiple choice) n(%)</b>				
	n=575	n=531	n=44	
Stool-based techniques	264 (46%)	251 (47%)	13 (29%)	0.020
Endoscopy techniques	184 (32%)	171 (32%)	13 (29%)	0.716
I don't know	157 (27%)	139 (26%)	18 (41%)	0.035
<b>K16. Meaning of a positive result in CRC test n(%)</b>				
I have cancer	1481 (55%)	1332 (55%)	149 (48%)	<0.001
I may have cancer	367 (14%)	350 (15%)	17 (6%)	
I am going to die	35 (1%)	31 (1%)	4 (1%)	
I need to undergo more tests	172 (6%)	164 (7%)	8 (3%)	
I don't have cancer	408 (15%)	336 (14%)	72 (23%)	
Don't know	252 (9%)	194 (8%)	58 (19%)	
<b>K17. Like to receive more information about CRC/early detection? n(%)</b>				
Yes	1988 (73%)	1844 (77%)	144 (47%)	<0.001
No	705 (26%)	551 (23%)	154 (50%)	
Don't know	22 (1%)	12 (0%)	10 (3%)	
<b>K18. Means preferred to receive the information? n(%)</b>				
Family or friends	103 (5%)	96 (5%)	7 (5%)	0.020
Healthcare workers	674 (34%)	636 (34%)	38 (25%)	
Television	456 (23%)	413 (22%)	43 (28%)	
Radio	2 (0%)	2 (0%)	0 (0%)	
Social media	596 (30%)	553 (30%)	43 (28%)	
Internet browsing	97 (5%)	82 (4%)	15 (10%)	
Newspapers/magazines	4 (0%)	3 (0%)	1 (1%)	
Advertisements	43 (2%)	41 (2%)	2 (1%)	
Textbooks	2 (0%)	2 (0%)	0 (0%)	
Other	33 (2%)	28 (2%)	5 (3%)	
<b>Statements about the CRC early detection test. Please let me know whether you strongly agree, agree, disagree, or strongly disagree</b>				
<b>K19. It is not necessary CRC screening if a person is healthy. n(%)</b>				
Strongly disagree	650 (24%)	602 (25%)	48 (16%)	<0.001
Disagree	957 (35%)	873 (36%)	84 (27%)	
Agree	666 (25%)	591 (25%)	75 (24%)	
Strongly agree	418 (15%)	329 (14%)	89 (29%)	
Don't know	24 (1%)	12 (0%)	12 (4%)	
<b>K20. Even if is healthy, is always advised. n(%)</b>				
Strongly disagree	235 (9%)	165 (7%)	70 (23%)	<0.001
Disagree	391 (14%)	316 (13%)	75 (24%)	
Agree	1133 (42%)	1031 (43%)	102 (33%)	
Strongly agree	931 (34%)	879 (37%)	52 (17%)	
Don't know	25 (1%)	16 (1%)	9 (3%)	
<b>K21. CRC always shows symptoms. n(%)</b>				
Strongly disagree	159 (6%)	139 (6%)	20 (6%)	<0.001
Disagree	607 (22%)	555 (23%)	52 (17%)	
Agree	1165 (43%)	1068 (44%)	97 (31%)	
Strongly agree	361 (13%)	322 (13%)	39 (13%)	

Don't know	423 (16%)	323 (13%)	100 (32%)	
<b>K22. Having cancer is a matter of chance, and it cannot be prevented. n(%)</b>				
Strongly disagree	281 (10%)	252 (10%)	29 (9%)	<0.001
Disagree	871 (32%)	799 (33%)	72 (23%)	
Agree	990 (36%)	886 (37%)	104 (34%)	
Strongly agree	423 (16%)	350 (15%)	73 (24%)	
Don't know	150 (6%)	120 (5%)	30 (10%)	
<b>K23. An early diagnosis of CRC can reduce the chances of dying. n(%)</b>				
Strongly disagree	51 (2%)	32 (1%)	19 (6%)	<0.001
Disagree	147 (5%)	112 (5%)	35 (11%)	
Agree	1376 (51%)	1250 (52%)	126 (41%)	
Strongly agree	1087 (40%)	979 (41%)	108 (35%)	
Don't know	54 (2%)	34 (1%)	20 (6%)	
<b>K24. Carrying out general check-ups is enough for detecting CRC. n(%)</b>				
Strongly disagree	314 (12%)	266 (11%)	48 (16%)	<0.001
Disagree	683 (25%)	616 (26%)	67 (22%)	
Agree	1163 (43%)	1058 (44%)	105 (34%)	
Strongly agree	390 (14%)	342 (14%)	48 (16%)	
Don't know	165 (6%)	125 (5%)	40 (13%)	
<b>K25. CRC screening is recommended only for people above 50 years old. n(%)</b>				
Strongly disagree	442 (16%)	381 (16%)	61 (20%)	<0.001
Disagree	714 (26%)	612 (25%)	102 (33%)	
Agree	930 (34%)	850 (35%)	80 (26%)	
Strongly agree	539 (20%)	499 (21%)	40 (13%)	
Don't know	90 (3%)	65 (3%)	25 (8%)	
<b>K26. There should be campaigns in Jordan for people to raise awareness about it. n(%)</b>				
Strongly disagree	14 (1%)	8 (0%)	6 (2%)	<0.001
Disagree	35 (1%)	23 (1%)	12 (4%)	
Agree	1021 (38%)	915 (38%)	106 (34%)	
Strongly agree	1630 (60%)	1455 (60%)	175 (57%)	
Don't know	15 (1%)	6 (0%)	9 (3%)	

**Table A1.3:** Attitudes towards CRC for the whole sample and by intention to attend CRC screening

	Total	Willing to attend CRC screening	Not willing to attend CRC screening	Test
N (%)	2,715 (100.0%)	2,407 (88.7%)	308 (11.3%)	
<b>A1. Over the last year, how would you rate your health? n(%)</b>				
Poor	245 (9%)	207 (9%)	38 (12%)	0.005
Fair	705 (26%)	634 (26%)	71 (23%)	
Good	1031 (38%)	929 (39%)	102 (33%)	
Very good	513 (19%)	454 (19%)	59 (19%)	
Excellent	221 (8%)	183 (8%)	38 (12%)	
<b>A2. Consider your lifestyle n(%)</b>				
Very healthy	242 (9%)	214 (9%)	28 (9%)	0.003
Healthy	1476 (54%)	1335 (55%)	141 (46%)	
Not healthy at all	997 (37%)	858 (36%)	139 (45%)	
<b>A3. Rate your personal risk of having CRC during your lifetime n(%)</b>				
Very high	55 (2%)	47 (2%)	8 (3%)	<0.001
High	409 (15%)	383 (16%)	26 (8%)	
Low	532 (20%)	492 (20%)	40 (13%)	
Very low	707 (26%)	623 (26%)	84 (27%)	
Don't know	1012 (37%)	862 (36%)	150 (49%)	
<b>A4. Why I have high risk of CRC (multiple choice) *Percentages are based on those who answered they had a "high" or "very high" risk of having CRC during their lifetime n(%)</b>				
	n=464	n=430	n=34	
Family history of cancer	135 (29%)	124 (29%)	11 (32%)	0.230
Family history of CRC	85 (18%)	78 (18%)	7 (20%)	0.358
Unhealthy diet	91 (20%)	84 (20%)	7 (20%)	0.264
It can happen to anyone	141 (30%)	131 (30%)	10 (29%)	0.102
Because of my age	57 (12%)	52 (12%)	5 (15%)	0.536
I have symptoms	21 (5%)	19 (4%)	2 (6%)	1.000
I have a sedentary life	33 (7%)	30 (7%)	3 (9%)	1.000
I am a smoker	43 (9%)	39 (9%)	4 (12%)	0.812
<b>A5. Why I have low risk of CRC (multiple choice) *Percentages are based on those who answered they had a "low" or "very low" risk of having CRC during their lifetime n(%)</b>				
	n=1239	n=1115	n=124	
No family history of cancer	337 (27%)	297 (27%)	40 (32%)	0.745
I have no symptoms	299 (24%)	262 (24%)	37 (30%)	0.552
I have a healthy diet	390 (31%)	360 (32%)	30 (24%)	0.014
I am active	72 (6%)	67 (6%)	5 (4%)	0.233
I do not smoke	182 (15%)	171 (15%)	11 (9%)	0.020
I attend regular check-ups	114 (9%)	110 (10%)	4 (3%)	0.007
I prefer not to think about it	382 (31%)	339 (30%)	43 (35%)	0.953
I am too young	18 (1%)	16 (1%)	2 (2%)	1.000
it does not happen to my gender	14 (1%)	12 (0%)	2 (2%)	0.668
<b>A6. Would you attend to undergo any detection cancer test for free? n(%)</b>				
Yes	1905 (70%)	1838 (76%)	67 (22%)	<0.001
No	630 (23%)	418 (17%)	212 (69%)	
Unsure	180 (7%)	151 (6%)	29 (9%)	

<b>A7. Why yes? *Percentages are based on those who answered "Yes" to question A6 n(%)</b>				
	n=1905	n=1838	n=67	
Detection tests are necessary	857 (45%)	830 (45%)	27 (40%)	0.432
I care about my health condition	1245 (65%)	1202 (65%)	43 (64%)	0.837
A family member had cancer	50 (3%)	49 (2%)	1 (1%)	0.555
Not sure	15 (1%)	10 (0%)	5 (7%)	<0.001
<b>A8. Why not? *Percentages are based on those who answered "No" to question A6 n(%)</b>				
	n=810	n=569	n=241	
I am healthy	124 (15%)	88 (15%)	36 (15%)	0.069
I don't have time	56 (7%)	38 (7%)	18 (7%)	0.393
I don't believe it is useful	50 (6%)	29 (5%)	21 (9%)	0.849
I am afraid of the test	201 (25%)	146 (26%)	55 (23%)	0.051
I prefer not to think about it	344 (42%)	235 (41%)	109 (45%)	0.685
I am too young	2 (0%)	2 (0%)	0 (0%)	1.000
I have no health insurance	6 (1%)	3 (1%)	3 (1%)	0.276
I believe it is expensive	10 (1%)	9 (2%)	1 (0%)	1.000
I am not sure why	56 (7%)	46 (2%)	10 (4%)	0.120
<b>A9. Preference to be contacted to take the test n(%)</b>				
Home mailbox	5 (0%)	5 (0%)	0 (0%)	0.033
SMS	226 (12%)	221 (12%)	5 (7%)	
WhatsApp	202 (11%)	187 (10%)	15 (22%)	
TV	150 (8%)	143 (8%)	7 (10%)	
By phone call	1099 (58%)	1069 (58%)	30 (45%)	
Health Center	207 (11%)	198 (11%)	9 (13%)	
Other	16 (1%)	15 (1%)	1 (1%)	
<b>A10. Preferred technique to undergo CRC screening n(%)</b>				
Fecal-based technique	1595 (59%)	1562 (65%)	33 (11%)	<0.001
Endoscopy	438 (16%)	386 (16%)	52 (17%)	
Neither one	323 (12%)	113 (5%)	210 (68%)	
Both	359 (13%)	346 (14%)	13 (4%)	
<b>A11. Would you take feces to the HC for CRC screening? n(%)</b>				
Yes	2,407 (88%)	2,407 (100%)		
No	308 (11%)		308 (100%)	
<b>A12. Why not? *Percentages are based on those who answered "No" to question A11 n(%)</b>				
	n=308	n=0	n=308	
I feel ashamed	45 (15%)	0 (0%)	45 (15%)	
I don't know how to collect the sample	16 (5%)	0 (0%)	16 (5%)	
I prefer not to know the result	143 (46%)	0 (0%)	143 (46%)	
I don't have time	39 (13%)	0 (0%)	39 (13%)	
It is disgusting	38 (12%)	0 (0%)	38 (12%)	
I don't know what they will do with the feces	23 (7%)	0 (0%)	23 (7%)	
<b>A13. Would you recommend to family member or close friend to undergo CRC early detection test? n(%)</b>				
Yes	2348 (86%)	2201 (91%)	147 (48%)	<0.001
No	301 (11%)	168 (7%)	133 (43%)	
Don't know	66 (2%)	38 (2%)	28 (9%)	

*how important are to you those things for deciding to attend or not to a CRC early detection test?*

<b>A14. To receive information about the benefits of performing the test n(%)</b>				
Very important	1880 (69%)	1744 (72%)	136 (44%)	<0.001
Somewhat important	651 (24%)	563 (23%)	88 (29%)	
Not important at all	184 (7%)	100 (4%)	84 (27%)	
<b>A15. A healthcare worker personally recommends it to you n(%)</b>				
Very important	1835 (68%)	1707 (71%)	128 (42%)	<0.001
Somewhat important	635 (23%)	542 (23%)	93 (30%)	
Not important at all	245 (9%)	158 (7%)	87 (28%)	
<b>A16. To receive an invitation from the MoH n(%)</b>				
Very important	1666 (61%)	1569 (65%)	97 (31%)	<0.001
Somewhat important	724 (27%)	636 (26%)	88 (29%)	
Not important at all	325 (12%)	202 (8%)	123 (40%)	
<b>A17. To receive an invitation with a scheduled appointment n(%)</b>				
Very important	1526 (56%)	1431 (59%)	95 (31%)	<0.001
Somewhat important	703 (26%)	620 (26%)	83 (27%)	
Not important at all	486 (18%)	356 (15%)	130 (42%)	
<b>A18. Not needing to schedule the visit to the health center n(%)</b>				
Very important	996 (37%)	922 (38%)	74 (24%)	<0.001
Somewhat important	923 (34%)	834 (35%)	89 (29%)	
Not important at all	796 (29%)	651 (27%)	145 (47%)	
<b>A19. To have a work permit to attend CRC screening during working hours n(%)</b>				
Very important	1082 (40%)	1008 (42%)	74 (24%)	<0.001
Somewhat important	583 (21%)	532 (22%)	51 (17%)	
Not important at all	1050 (39%)	867 (36%)	183 (59%)	
<b>A20. To be scheduled to a healthcare center close to your house n(%)</b>				
Very important	1916 (71%)	1766 (73%)	150 (49%)	<0.001
Somewhat important	565 (21%)	497 (21%)	68 (22%)	
Not important at all	234 (9%)	144 (6%)	90 (29%)	
<b>A21. No waiting time at the health center n(%)</b>				
Very important	1952 (72%)	1773 (74%)	179 (58%)	<0.001
Somewhat important	536 (20%)	480 (20%)	56 (18%)	
Not important at all	227 (8%)	154 (6%)	73 (24%)	
<b>A22. Privacy about the reason for coming to the health center n(%)</b>				
Very important	1794 (66%)	1600 (66%)	194 (63%)	0.174
Somewhat important	443 (16%)	395 (16%)	48 (16%)	
Not important at all	478 (18%)	412 (17%)	66 (21%)	
<b>A23. Facilities to attend the screening with your children n(%)</b>				
Very important	1361 (50%)	1238 (51%)	123 (40%)	<0.001
Somewhat important	721 (27%)	655 (27%)	66 (21%)	
Not important at all	633 (23%)	514 (21%)	119 (39%)	
<b>A24. Free treatment if the results are positive n(%)</b>				
Very important	2385 (88%)	2138 (89%)	247 (80%)	<0.001
Somewhat important	255 (9%)	235 (10%)	20 (6%)	
Not important at all	75 (3%)	34 (1%)	41 (13%)	
<b>A25. If I have a positive result in CRC screening I would... (multiple choice) n(%)</b>				
To visit de doctor	1941 (71%)	1765 (73%)	176 (57%)	<0.001

To undergo more test	1260 (46%)	1142 (47%)	118 (38%)	0.002
To talk with family/friends	371 (14%)	325 (14%)	46 (15%)	0.491
<b>A26. When thinking about the possibility of having cancer n(%)</b>				
Happy	110 (4%)	92 (4%)	18 (6%)	<0.001
Calmed/Confident	205 (8%)	192 (8%)	13 (4%)	
Sad	585 (22%)	520 (22%)	65 (21%)	
Afraid/worried	781 (29%)	734 (30%)	47 (15%)	
Angry	1034 (38%)	869 (36%)	165 (54%)	
<b>A27. Before going to a medical check-up n(%)</b>				
Happy	103 (4%)	87 (4%)	16 (5%)	<0.001
Calmed/Confident	259 (10%)	236 (10%)	23 (7%)	
Sad	668 (25%)	610 (25%)	58 (19%)	
Afraid/worried	829 (31%)	764 (32%)	65 (21%)	
Angry	856 (32%)	710 (29%)	146 (47%)	
<b>A28. During a medical check-up n(%)</b>				
Happy	79 (3%)	67 (3%)	12 (4%)	<0.001
Calmed/Confident	229 (8%)	206 (9%)	23 (7%)	
Sad	693 (26%)	632 (26%)	61 (20%)	
Afraid/worried	773 (28%)	717 (30%)	56 (18%)	
Angry	941 (35%)	785 (33%)	156 (51%)	
<b>A29. When receiving advice on lifestyle changes n(%)</b>				
Happy	306 (11%)	267 (11%)	39 (13%)	<0.001
Calmed/Confident	594 (22%)	547 (23%)	47 (15%)	
Sad	938 (35%)	841 (35%)	97 (31%)	
Afraid/worried	472 (17%)	436 (18%)	36 (12%)	
Angry	405 (15%)	316 (13%)	89 (29%)	

**Table A1.4:** Health seeking behavior practices and healthy habits related with CRC for the whole sample and by intention to attend CRC screening

	Total	Willing to attend CRC screening	Not willing to attend CRC screening	Test
N	2,715 (100.0%)	2,407 (88.7%)	308 (11.3%)	
<b>P1. How often have you visited the medical doctor during the last year? n(%)</b>				
Once or several times a month	886 (33%)	796 (33%)	90 (29%)	<0.001
Every two or three months	915 (34%)	837 (35%)	78 (25%)	
Twice over the year	463 (17%)	408 (17%)	55 (18%)	
Once over the year	192 (7%)	158 (7%)	34 (11%)	
Never	259 (10%)	208 (9%)	51 (17%)	
<b>P2. Main reasons to go to the medical doctor for yourself n(%)</b>				
Sporadic health issues	1149 (42%)	997 (41%)	152 (49%)	<0.001
Reviews or routine checks	584 (22%)	539 (22%)	45 (15%)	
For follow-up checks of a disease	522 (19%)	483 (20%)	39 (13%)	
Getting medication	371 (14%)	319 (13%)	52 (17%)	
Other	54 (2%)	69 (3%)	20 (6%)	
<b>P3. Where do you usually go first when you feel sick n(%)</b>				
Hospital	1208 (44%)	1092 (45%)	116 (38%)	<0.001
Primary Healthcare center	1101 (41%)	987 (41%)	114 (37%)	
Pharmacy	196 (7%)	166 (7%)	30 (10%)	
None, stay at home	113 (4%)	81 (3%)	32 (10%)	
Other	97 (4%)	81 (3%)	16 (5%)	
<b>P4. Have you ever undergone a cancer detection test? n(%)</b>				
Yes	295 (11%)	270 (11%)	25 (8%)	0.100
No	2420 (89%)	2137 (89%)	283 (92%)	
<b>P5. For which type(s) of cancer(s) did you take the test? (multiple choice) *Percentages are based on those who answered "Yes" to question P4 n(%)</b>				
	n=295	n=270	n=25	
Breast cancer	209 (71%)	187 (69%)	22 (88%)	0.698
CRC	11 (4%)	11 (4%)	0 (0%)	0.625
Prostate cancer	11 (4%)	22 (8%)	0 (0%)	0.625
Uterus/cervix cancer	26 (9%)	24 (9%)	2 (8%)	0.761
Others	22 (7%)	22 (8%)	1 (4%)	0.214
<b>P6. Why did you take a cancer test? *Percentages are based on those who answered "Yes" to question P4 n(%)</b>				
	n=295	n=270	n=25	
It is important to do check-ups	39 (13%)	37 (14%)	2 (8%)	0.309
My age	18 (6%)	17 (6%)	1 (4%)	0.712
A friend or family recommended me	22 (7%)	20 (7%)	2 (8%)	1.000
I have family history of CRC/cancer	13 (4%)	13 (5%)	0 (0%)	0.384
My work company sent me	4 (1%)	3 (1%)	1 (4%)	0.382
I had symptoms	117 (40%)	109 (40%)	8 (32%)	0.116
I am afraid of acquiring CRC	49 (17%)	47 (17%)	2 (8%)	0.106
<b>P8. Ever been diagnosed cancer n(%)</b>				
Yes	28 (1%)	23 (1%)	5 (2%)	0.239
No	2687 (99%)	2384 (99%)	303 (98%)	
<b>P9. Which type of cancer? *Percentages are based on those who answered "Yes" to question P8 n(%)</b>				

	n=28	n= 23	n=5	
Breast cancer	10 (36%)	9 (39%)	1 (20%)	1.000
Lung cancer	2 (7%)	1 (4%)	1 (20%)	0.214
Prostate cancer	1 (4%)	1 (4%)	0 (0%)	1.000
Blood cancer	1 (4%)	0 (0%)	1 (20%)	0.113
Uterus cancer	4 (14%)	3 (13%)	1 (20%)	0.382
Thyroid cancer	3 (11%)	3 (13%)	0 (0%)	1.000
Others	7 (25%)	6 (26%)	1 (0%)	1.000

**P11. Have you received treatment for your cancer? \*Percentages are based on those who answered "Yes" to question P8 n(%)**

	N=28	N=23	N=5	
Yes	25 (89%)	20 (87%)	5 (100%)	0.310
No	3 (11%)	3 (13%)	0 (0%)	

**P12. Where were you treated? \*Percentages are based on those who answered "Yes" to question P11 n(%)**

	N=25	N=20	N=5	
King Hussein Cancer Center	8 (32%)	6 (30%)	2 (40%)	1.000
Al Basheer Hospitals	4 (16%)	3 (15%)	1 (20%)	
King Abdullah University Hospital	3 (12%)	3 (15%)	0 (0%)	
Jordanian Royal Medical Services	8 (32%)	6 (30%)	2 (40%)	
Other	1 (4%)	2 (10%)	0 (0%)	

**P13. Are you now cured of your cancer? \*Percentages are based on those who answered "Yes" to question P11 n(%)**

	N=25	N=20	N=5	
Yes	15 (60%)	12 (60%)	3 (60%)	0.294
No	1 (4%)	0 (0%)	1 (20%)	
Still in treatment	9 (36%)	8 (40%)	1 (20%)	

**P15. Anyone in your immediate family (parents/siblings/children) ever had cancer? n(%)**

Yes	1125 (41%)	1014 (42%)	111 (36%)	0.088
No	1570 (58%)	1376 (57%)	194 (63%)	
Don't know	20 (1%)	17 (1%)	3 (1%)	

**P16. Which type of cancer(s)? (multiple choice) n(%)**

Bladder cancer	22 (1%)	21 (1%)	1 (0%)	0.503
Breast cancer	271 (10%)	250 (10%)	21 (7%)	0.049
Lung cancer	157 (6%)	145 (6%)	12 (4%)	0.132
Prostate cancer	86 (3%)	77 (3%)	9 (3%)	0.794
Blood cancer	200 (7%)	181 (8%)	19 (6%)	0.393
Uterus cancer	63 (2%)	57 (2%)	6 (2%)	0.645
CRC	259 (10%)	233 (10%)	26 (8%)	0.486
Thyroid cancer	56 (2%)	50 (2%)	6 (2%)	0.881

**P17. Someone of your immediate/extended family/close friend died of cancer? n(%)**

Yes	765 (67%)	694 (67%)	71 (62%)	0.279
No	380 (33%)	337 (33%)	43 (38%)	

**P18. Which type of cancer(s)? \*Percentages are based on those who answered "Yes" to question P17 n(%)**

	N=765	N= 694	N= 71	
Breast cancer	117 (15%)	109 (16%)	8 (11%)	0.116
Lung cancer	122 (16%)	113 (16%)	9 (13%)	0.157
Prostate cancer	63 (8%)	57 (8%)	6 (8%)	0.645
Blood cancer	143 (17%)	133 (19%)	10 (14%)	0.097

CRC	212 (28%)	188 (27%)	24 (34%)	0.580
Bladder cancer	11 (1%)	10 (1%)	1 (1%)	1.000
Uterus cancer	32 (4%)	27 (4%)	5 (7%)	0.401
Thyroid cancer	27 (3%)	25 (4%)	2 (3%)	0.761
Others	26 (3%)	18 (3%)	8 (11%)	0.535
<b>P19. Ever smoked any tobacco/electronic nicotine product (including waterpipe)? n(%)</b>				
I currently smoke	767 (28%)	680 (28%)	87 (28%)	0.859
Former smoker	206 (8%)	185 (8%)	21 (7%)	
Never smoked	1742 (64%)	1542 (64%)	200 (65%)	
<b>P20. When did you stop smoking? years ago (median, IQR)</b>				
	8.50 (14.00)	9.00 (14.00)	6.00 (11.00)	0.449
<b>P21. Do/Did you smoke daily? *Percentages are based on those who have ever smoke n(%)</b>				
	N=973	N=865	N=108	
Yes	859 (88%)	765 (88%)	94 (87%)	0.669
No	114 (12%)	100 (12%)	14 (13%)	
<b>P22. How long have you been smoking? (years) (mean, sd) *Only ever smokers</b>				
	26.88 (13.5)	26.89 (13.42)	26.82 (14.14)	0.961
<b>P23. Advice from any healthcare worker to stop smoking? *Percentages are based on those who have ever smoke n(%)</b>				
	n=973	n=865	n=108	
Yes	633 (65%)	570 (66%)	63 (58%)	0.120
No	340 (35%)	295 (34%)	45 (42%)	
<b>P24. Did his/her advice make you quit or reduce tobacco smoking? *Percentages are based on those who have ever received advice from a healthcare worker to stop smoking n(%)</b>				
	n=633	n=570	n=63	
Yes	199 (31%)	185 (32%)	14 (22%)	0.097
No	434 (69%)	385 (68%)	49 (78%)	
<b>P25. Ever drunk alcohol n(%)</b>				
Yes	39 (1%)	34 (1%)	5 (2%)	0.797
No	2676 (99%)	2373 (99%)	303 (98%)	
<b>P26. Advice from any healthcare worker to stop or to reduce your alcohol consumption *Percentages are based on those who have drink alcohol n(%)</b>				
	n=39	n=34	n=5	
Yes	17 (44%)	16 (47%)	1 (20%)	0.363
No	22 (56%)	18 (53%)	4 (80%)	
<b>P27. Did his/her advice make you quit or reduce your alcohol consumption? consumption *Percentages are based on those who have ever received advice from a healthcare worker to stop drinking alcohol n(%)</b>				
	n=17	n=16	n=1	
Yes	11 (65%)	11 (69%)	0 (0%)	0.353
No	6 (35%)	5 (31%)	1 (100%)	
<b>P28. How many times/day do you eat fruit and vegetables (median, iqr)</b>				
	2.00 (2.00)	2.00 (2.00)	1.50 (1.00)	0.001
<b>P29. How many times/day do you eat whole grains (median, iqr)</b>				
	0.00 (2.00)	0.00 (2.00)	0.00 (1.00)	0.007
<b>P30. How many times/week do you eat red meat? beef/goat/lamb/pork. (median, iqr)</b>				
	1.00 (2.00)	1.00 (2.00)	1.00 (1.00)	0.031
<b>P31. How many times/week do you eat processed meat? (median, iqr)</b>				
	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.468

<b>P32.</b> How many times/week do you eat fast-food? (median, iqr)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.201
<b>P33.</b> How many times/week do you eat legumes? (median, iqr)	2.00 (2.00)	2.00 (2.00)	2.00 (2.00)	0.799
<b>P34.</b> How many times/week do you eat sweets/pastries/sugary drinks? (median, iqr)	2.00 (4.00)	2.00 (5.00)	2.00 (5.00)	0.089
<b>P35.</b> Has any healthcare worker advised you to improve your diet? n(%)				
Yes	1145 (42%)	1051 (44%)	94 (31%)	<0.001
No	1570 (58%)	1356 (56%)	214 (69%)	
<b>P36.</b> Did his/her advice make you improve your diet? Percentages are based on those who have ever received advice from a healthcare worker to improve their diet n(%)				
	N=1145	N=1051	N=94	
Yes	857 (75%)	799 (76%)	58 (62%)	0.002
No	288 (25%)	252 (24%)	36 (38%)	
<b>P37.</b> Hours/day spend sitting (mean, sd)	5.51 (3.94)	5.46 (3.79)	5.89 (4.95)	0.791
<b>P38.</b> Do you usually walk/ride bicycle to get to and from places? n(%)				
Yes	1609 (59%)	1469 (61%)	140 (45%)	<0.001
No	660 (24%)	580 (24%)	80 (26%)	
Sometimes	446 (16%)	358 (15%)	88 (29%)	
<b>P39.</b> Do you usually practice exercise such a walking, dancing, or a sport? n(%)				
Yes	1254 (46%)	1122 (47%)	132 (43%)	0.213
No	1461 (54%)	1285 (53%)	176 (57%)	
<b>P40.</b> Days/week of moderate physical activity (median, IQR)	7.00 (3.00)	7.00 (3.00)	7.00 (3.00)	0.927
<b>P40.</b> Mins/day of moderate physical activity (median, IQR)	30.00 (30.00)	30.00 (30.00)	30.00 (30.00)	0.531
<b>P41.</b> Days/week of vigorous physical activity (median, IQR)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.883
<b>P41.</b> Mins/day of vigorous physical activity (median, IQR)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.901

**Table A1.5:** Health literacy and household for the whole sample and by intention to attend a CRC screening

Total	Willing to attend CRC screening	Not willing to attend CRC screening	Test
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N (%)	2,715 (100.0%)	2,407 (88.7%)	308 (11.3%)	
<i>please tell me how easy or difficult it might be for you....</i>				
<b>H1.</b> To judge when you need to go to a doctor for a check-up (mean, sd)	2.96 (0.82)	2.99 (0.79)	2.71 (1.00)	<0.001
<b>H2.</b> To find information about the health screening tests you require (mean, sd)	2.87 (0.83)	2.89 (0.80)	2.63 (1.01)	<0.001
<b>H3.</b> To understand why you need health screening tests (mean, sd)	2.92 (0.82)	2.95 (0.79)	2.66 (1.00)	<0.001
<b>H4.</b> To find information on how to prevent/manage health condition such as high blood (mean, sd)	2.93 (0.82)	2.95 (0.79)	2.75 (1.02)	0.017
<b>H5.</b> To understand health warnings about unhealthy behaviors (mean, sd)	3.10 (0.74)	3.11 (0.72)	3.01 (0.88)	0.363
<b>H6.</b> To decide how can you protect from illness based on information in the media (mean, sd)	2.99 (0.79)	3.02 (0.76)	2.78 (0.99)	<0.001
<b>H7.</b> To complete medical forms by yourself (mean, sd)	2.64 (0.98)	2.67 (0.96)	2.40 (1.11)	<0.001
<b>H8.</b> To decide how reliable health warnings are (mean, sd)	2.76 (0.93)	2.79 (0.91)	2.57 (1.04)	0.002
<b>H9.</b> To read hospital or clinical recommendations (mean, sd)	3.12 (0.79)	3.15 (0.74)	2.88 (1.06)	0.003
<i>From the following communication channels, let me know how often you use them</i>				
<b>H10.</b> Check your post mail n(%)				
Everyday	65 (2%)	56 (2%)	9 (3%)	0.897
2-6 days/week	59 (2%)	53 (2%)	6 (2%)	
Once a week	38 (1%)	35 (1%)	3 (1%)	
Less than once a week	58 (2%)	53 (2%)	5 (2%)	
Never	2495 (92%)	2210 (92%)	285 (93%)	
<b>H11.</b> Check your SMS inbox n(%)				
Everyday	1491 (55%)	1349 (56%)	142 (46%)	<0.001
2-6 days/week	424 (16%)	394 (16%)	30 (10%)	
Once a week	182 (7%)	156 (6%)	26 (8%)	
Less than once a week	102 (4%)	88 (4%)	14 (5%)	
Never	516 (19%)	420 (17%)	96 (31%)	
<b>H12.</b> Check your WhatsApp, telegram or similar n(%)				
Everyday	1847 (68%)	1679 (70%)	168 (55%)	<0.001
2-6 days/week	152 (6%)	135 (6%)	17 (6%)	
Once a week	34 (1%)	33 (1%)	1 (0%)	
Less than once a week	24 (1%)	23 (1%)	1 (0%)	
Never	658 (24%)	537 (22%)	121 (39%)	
<b>H13.</b> Watch television n(%)				
Everyday	1752 (65%)	1558 (65%)	194 (63%)	0.005
2-6 days/week	401 (15%)	363 (15%)	38 (12%)	
Once a week	187 (7%)	172 (7%)	15 (5%)	
Less than once a week	111 (4%)	97 (4%)	14 (5%)	
Never	264 (10%)	217 (9%)	47 (15%)	
<b>H14.</b> Listen the radio n(%)				
Everyday	128 (5%)	120 (5%)	8 (3%)	0.066

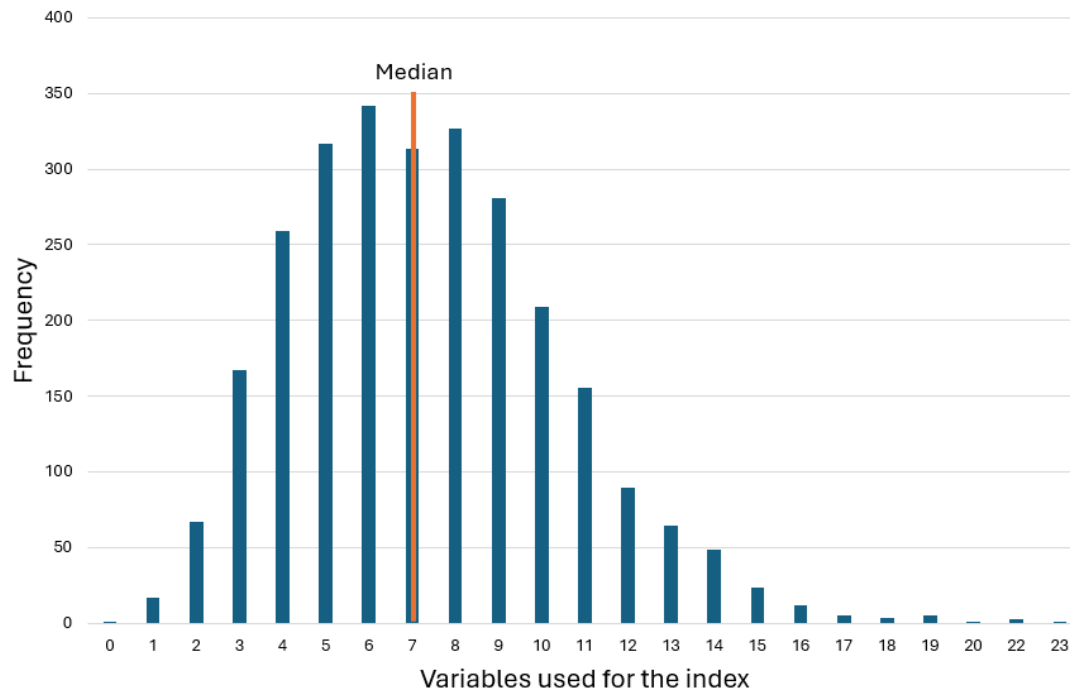
2-6 days/week	84 (3%)	77 (3%)	7 (2%)	
Once a week	38 (1%)	36 (1%)	2 (1%)	
Less than once a week	22 (1%)	22 (1%)	0 (0%)	
Never	2443 (90%)	2152 (89%)	291 (94%)	
<b>H15. Read the newspaper n(%)</b>				
Everyday	66 (2%)	59 (2%)	7 (2%)	0.587
2-6 days/week	40 (1%)	36 (1%)	4 (1%)	
Once a week	20 (1%)	18 (1%)	2 (1%)	
Less than once a week	22 (1%)	22 (1%)	0 (0%)	
Never	2567 (95%)	2272 (94%)	295 (96%)	
<b>H16. Does this house belong to your family or are you renting it? n(%)</b>				
My family owns the house	2383 (88%)	2119 (88%)	264 (86%)	0.242
My family rents the house	332 (12%)	288 (12%)	44 (14%)	
<b>H17. In your house, do you use gas for cooking? n(%)</b>				
Yes	2710 (100%)	2402 (100%)	308 (100%)	1.000
No	5 (0%)	5 (0%)	0 (0%)	
<b>H18. Air conditioned in your house n(%)</b>				
Yes	1034 (38%)	922 (38%)	112 (36%)	0.509
No	1681 (62%)	1485 (62%)	196 (64%)	
<b>H19. Have a smartphone? n(%)</b>				
Yes	2212 (81%)	1992 (83%)	220 (71%)	<0.001
No	503 (19%)	415 (17%)	88 (29%)	
<b>H20. Have a radio? n(%)</b>				
Yes	194 (7%)	178 (7%)	16 (5%)	0.158
No	2521 (93%)	2229 (93%)	292 (95%)	
<b>H21. Have a television? n(%)</b>				
Yes	2658 (98%)	2364 (98%)	294 (95%)	0.001
No	57 (2%)	43 (2%)	14 (5%)	
<b>H22. What is the monthly income of your household? n(%)</b>				
≤250 JD	718 (26%)	621 (26%)	97 (31%)	0.006
251-499 JD	1166 (43%)	1032 (43%)	134 (44%)	
≥ 500 JD	786 (29%)	718 (30%)	68 (22%)	
Don't know	45 (2%)	36 (1%)	9 (3%)	
<b>H23. How many people live in this house, including yourself? (median, iqr)</b>				
	5.00 (3.00)	5.00 (3.00)	5.00 (4.00)	0.515
<b>H24. How many bedrooms of the house are used for sleeping? (median, iqr)</b>				
	2.00 (1.00)	2.00 (1.00)	2.00 (2.00)	0.075
<b>H25. How many cars does your family have? (median, iqr)</b>				
	1.00 (1.00)	1.00 (1.00)	1.00 (1.00)	0.002
<b>H26. The number of people who work (median, iqr)</b>				
	1.00 (1.00)	1.00 (1.00)	1.00 (1.00)	<0.001

## Annex III: Knowledge, attitudes and practices indexes

## Knowledge index

**Table A2.1:** Questions included in the knowledge index with the correct answers and the maximum score per question

Knowledge index	
Question	Answers
<b>K4.</b> What do you think is the age group most affected by CRC?	Between 50 and 65 (+1)
<b>K5.</b> Do you know if one sex is more affected than the other of CRC?	No, all sexes are equally (+1)
<b>K8.</b> Do you know what could increase the chances of having CRC?	(1)Smoking (2)Alcohol (3)Lack of exercise (4)Obesity (5)Family history of cancer (6)Family CRC history (7)Unhealthy diet (8)Low fruits or vegetables intake (9)High processed meat intake (10)Daily red meat intake (11)Low dairy products intake (+11)
<b>K9.</b> Do you know if there is something that someone can do to reduce the chances of developing CRC?	(1)Not smoking (2)Not drinking alcohol (3)Healthy diet (4)Exercise (5)CRC screening (+5)
<b>K10.</b> Do you know what the CRC symptoms are?	(1)Blood in stool (2)Diarrhea (3)Constipation (4)Stomachache (5)Weight loss (+5)
<b>K15.</b> Do you know which techniques are used for early detection of CRC?	Stool-based techniques (+1)
<b>K16.</b> Do you know what a positive result in CRC test means?	(a)I may have cancer or (b) I need to undergo more tests (+1)
<b>K20.</b> Even if a person is healthy, performing early detection CRC tests is always advised	Strongly agree or agree (+1)
<b>K21.</b> CRC always shows symptoms	Strongly disagree or disagree (+1)
<b>K22.</b> Having cancer is a matter of chance, and it cannot be prevented	Strongly disagree or disagree (+1)
<b>K23.</b> An early diagnosis of CRC can reduce the chances of dying	Strongly agree or agree (+1)
<b>K24.</b> Carrying out general check-ups is enough for detecting CRC	Strongly disagree or disagree (+1)
<b>K25.</b> CRC screening is recommended only for people above 50 years old	Strongly agree or agree (+1)
<b>Maximum total score: 31</b>	



**Figure A2.1:** Frequency of scores for the knowledge index. The median (a score of 7) is indicated in orange.

**Table A2.2:** Knowledge index

Index	Score (n=2715)	Median (iqr)
Low	1,170 (43%)	7.00 (4.00)
High	1,545 (57%)	

**Table A2.3:** Knowledge index by intention to attend the CRC screening

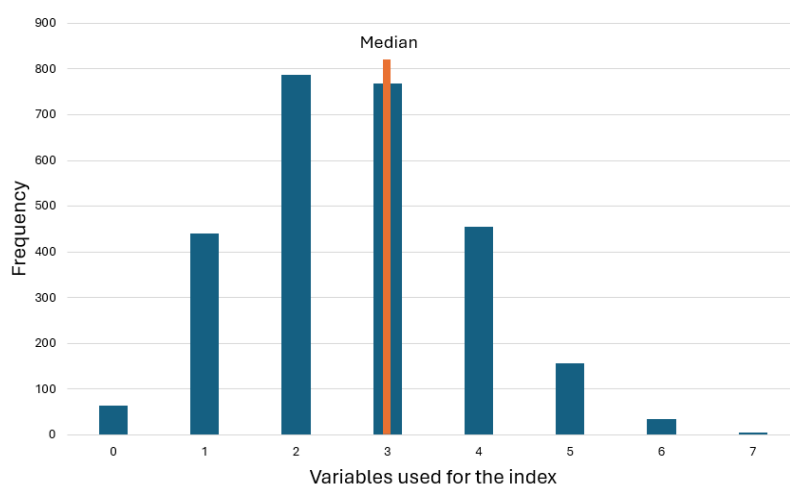
Index	Willing to attend CRC screening n(%)=2407 (88%)	Not willing to attend CRC screening n(%)=308(11%)	p-value
Low (0-7)	968 (40%)	202 (66%)	<0.001*
High (8-31)	1439 (60%)	106 (34%)	

\* Chi-square Pearson test

## Prevention knowledge index

**Table A2.4:** Questions included in the knowledge about CRC prevention index with the correct answers and the maximum score per question

Prevention knowledge index	
Question	Answers
<b>K9.</b> Do you know if there is something that someone can do to reduce the chances of developing CRC?	(1)Not smoking (2)Not drinking alcohol (3)Healthy diet (4)Exercise (5)CRC screening (+5)
<b>K22.</b> Having cancer is a matter of chance, and it cannot be prevented	Strongly disagree or disagree (+1)
<b>K23.</b> An early diagnosis of CRC can reduce the chances of dying	Strongly agree or agree (+1)
<b>K24.</b> Carrying out general check-ups is enough for detecting CRC	Strongly disagree or disagree (+1)
<b>Maximum total score: 8</b>	



**Figure A2.2:** Frequency of scores for the prevention knowledge index. The median (a score of 3) is indicated in orange.

**Table A2.5:** Prevention knowledge index

Index	Score (n=2715)	Median (iqr)
Low	1,294 (48%)	3.00 (1.00)
High	1,421 (52%)	

**Table A2.6:** Prevention knowledge index by intention to attend the CRC screening

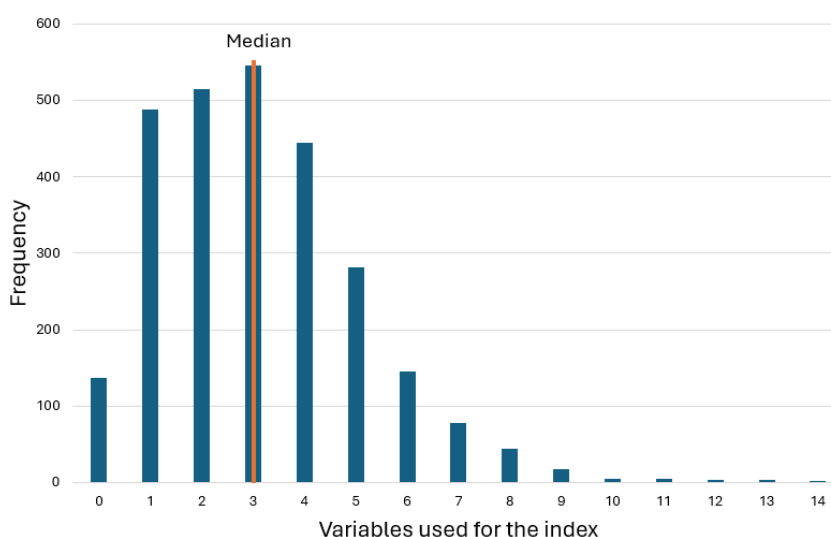
Index	Willing to attend CRC screening n(%)=2407 (88%)	Not willing to attend CRC screening n(%)=308(11%)	p-value
Low (0-3)	1103 (46%)	191 (62%)	<0.001*
High (4-8)	1304 (54%)	117 (38%)	

\* Chi-square Pearson test

## Colorectal cancer knowledge index

**Table A2.7:** Questions included in the knowledge about CRC index with the correct answers and the maximum score per question

CRC knowledge index	
Question	Answers
<b>K4.</b> What do you think is the age group most affected by CRC?	Between 50 and 65 (+1)
<b>K5.</b> Do you know if one sex is more affected than the other of CRC?	No, all sexes are equally (+1)
<b>K8.</b> Do you know what could increase the chances of having CRC?	(1)Smoking (2)Alcohol (3)Lack of exercise (4)Obesity (5)Family history of cancer (6)Family CRC history (7)Unhealthy diet (8)Low fruits or vegetables intake (9)High processed meat intake (10)Daily red meat intake (11)Low dairy products intake (+11)
<b>K10.</b> Do you know what the CRC symptoms are?	(1)Blood in stool (2)Diarrhea (3)Constipation (4)Stomachache (5)Weight loss (+5)
<b>K21.</b> CRC always shows symptoms	Strongly disagree or disagree (+1)
<b>Maximum total score: 19</b>	



**Figure A2.3:** Frequency of scores for the colorectal cancer knowledge index. The median (a score of 3) is indicated in orange.

**Table A2.8:** Colorectal cancer knowledge index

Index	Score (n=2715)	Median (iqr)
Low	1,140 (42%)	3.00 (2.00)
High	1,575 (58%)	

**Table A2.9:** Colorectal cancer knowledge index by intention to attend the CRC screening

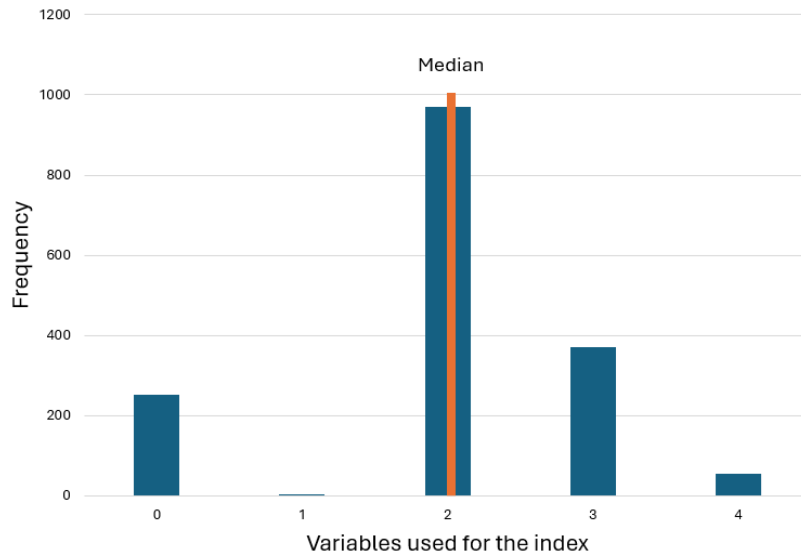
Index	Willing to attend CRC screening n(%)=2407 (88%)	Not willing to attend CRC screening n(%)=308(11%)	p-value
Low (0-3)	968 (40%)	172 (56%)	<0.001*
High (4-19)	1439 (60%)	136 (44%)	

\*Fisher exact test

### Colorectal cancer screening knowledge index

**Table A2.10:** Questions included in the knowledge about the CRC screening index with the correct answers and the maximum score per question

CRC screening knowledge index	
Question	Answers
<b>K15.</b> Do you know which techniques are used for early detection of CRC?	Stool-based techniques (+1)
<b>K16.</b> Do you know what a positive result in CRC test means?	(a)I may have cancer or (b) I need to undergo more tests (+1)
<b>K20.</b> Even if a person is healthy, performing early detection CRC tests is always advised	Strongly agree or agree (+1)
<b>K25.</b> CRC screening is recommended only for people above 50 years old	Strongly agree or agree (+1)
<b>Maximum total score: 4</b>	



**Figure A2.4:** Frequency of scores for the colorectal cancer screening knowledge index. The median (a score of 2) is indicated in orange.

**Table A2.11:** Colorectal cancer screening knowledge index

Index	Score (n=2715)	Median (iqr)
Low	1,321 (49%)	2.00 (1.00)
High	1,394 (51%)	

**Table A2.12:** Colorectal cancer screening knowledge index by intention to attend the CRC screening

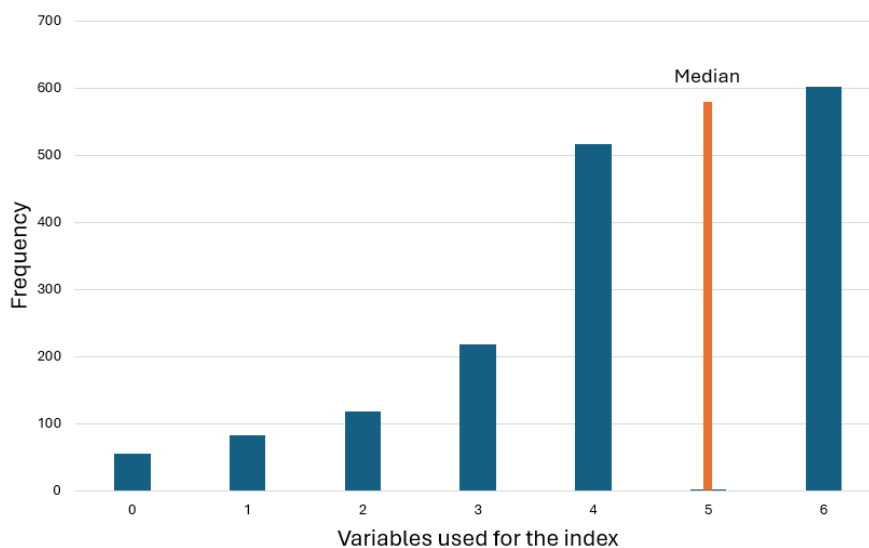
Index	Willing to attend CRC screening n(%)=2407 (88%)	Not willing to attend CRC screening n(%)=308(11%)	p-value
Low (0-2)	1093 (45%)	228 (74%)	<0.001*
High (3-4)	1314 (55%)	80 (26%)	

\* Chi-square Pearson test

## Attitudes index

**Table A2.13:** Questions included in the attitudes index with the correct answers and the maximum score per question

Attitudes index	
Question	Answers
<b>A6.</b> Would you attend to an invitation of the health authorities to undergo any detection cancer test for free?	Yes (+1)
<b>A10.</b> Now imagine that you are invited to undergo a CRC prevention test, which type of technique would you prefer?	(a)Fecal-based techniques or (b)Endoscopy techniques or (c) Both (+1)
<b>A11.</b> If you were asked by your doctor or the MoH to bring your feces to the health center in a recipient provided by the MoH for a CRC prevention test, would you do it?	Yes (+1)
<b>A13.</b> Would you recommend a family member or a close friend to undergo CRC early detection test?	Yes (+1)
<b>A25.</b> Imagine you get a positive result in the CRC early detection test; what do you think you would do?	(1)Visit the doctor, (2)Undergo more tests (+2)
<b>Maximum total score: 6</b>	



**Figure A2.5:** Frequency of scores for the attitudes index. The median (a score of 5) is indicated in orange.

**Table A2.14:** Attitudes index

Index	Score (n=2715)	Median (iqr)
Low	993 (37%)	5.00 (1.00)
High	1,722 (63%)	

**Table A2.14:** Attitudes index by intention to attend the CRC screening

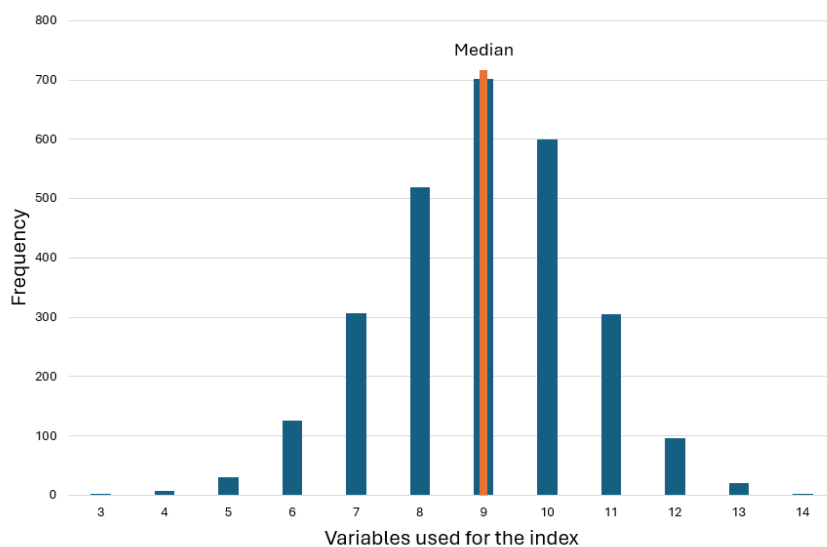
Index	Willing to attend CRC screening n(%)=2407 (88%)	Not willing to attend CRC screening n(%)=308(11%)	p-value
Good (6)	700 (29%)	293 (95%)	<0.001*
Bad (0-5)	1707 (71%)	15 (5%)	

\*Chi-square Pearson test

### Practices index

**Table A2.15:** Questions included in the practices index with the correct answers and the maximum score per question

Practices index	
Question	Answers
<b>P3.</b> Where do you usually go first when you feel sick?	(1)Hospital (2)Primary Healthcare center (+1)
<b>P4.</b> Have you ever undergone a cancer detection test?	Yes (+1)
<b>P19.</b> Have you ever smoked?	Never smoked (+1)
<b>P25.</b> Have you ever drunk alcohol?	No (+1)
<b>P28.</b> how many times do you eat fruit and vegetables per day?	Minimum 5 (+1)
<b>P29.</b> how many times do you eat whole grains per day?	Minimum 3 (+1)
<b>P30.</b> how many times do you eat red meat per week?	Maximum 3 (+1)
<b>P31.</b> how many times do you eat processed meat per week?	Maximum 0 (+1)
<b>P32.</b> on how many times do you eat fast-food per week?	Maximum 0 (+1)
<b>P33.</b> on how many times do you eat legumes per week?	Minimum 3 (+1)
<b>P34.</b> on how many times do you eat sweets, pastries, and sugary drinks per week?	Maximum 1 (+1)
<b>P37.</b> how many hours per day do you spend sitting?	Maximum 6 (+1)
<b>P38.</b> Do you usually walk or ride bicycle to get to and from places?	Yes (+1)
<b>P39.</b> Do you usually practice exercise or a sport?	Yes (+1)
<b>P40.</b> How often do you practice moderate physical activity	Minimum 3 (+1)
<b>P41.</b> How often do you practice vigorous physical activity	Minimum 2 (+1)
<b>Maximum total score: 16</b>	



**Figure A2.6:** Frequency of scores for the attitudes index. The median (a score of 9) is indicated in orange.

**Table A2.16:** Practices index

Index	Score (n=2715)	Median (iqr)
Low	990 (36.5%)	9.00 (2.00)
High	1,725 (63.5%)	

**Table A2.17:** Practices index by intention to attend the CRC screening

Index	Willing to attend CRC screening n(%)=2407 (88%)	Not willing to attend CRC screening n(%)=308(11%)	p-value
Good (10-16)	859 (36%)	131 (43%)	0.019*
Bad (0-9)	1548 (64%)	177 (57%)	

\* Chi-square Pearson test

## Annex IV: Results by refugee status

**Table A3.1:** Description of demographics for the whole sample and by refugee status

	Total	Not refugee	Refugee	Test
N	2,715 (100.0%)	2,415 (89.0%)	300 (11.0%)	
<b>Sex n(%)</b>				
Male	1330 (49%)	1186 (49%)	144 (48%)	0.717
Female	1385 (51%)	1229 (51%)	156 (52%)	
<b>Age (median, iqr)</b>				
	57.00 (10.00)	58.00 (10.00)	55.00 (13.00)	<0.001
<b>Nationality n(%)</b>				
Jordanian	2379 (88%)	2379 (99%)	0 (0%)	<0.001
Syrian	306 (11%)	11 (0%)	295 (98%)	
Palestinian	5 (0%)	1 (0%)	4 (1%)	
Other	25 (1%)	24 (1%)	1 (0%)	
<b>Area of residence n(%)</b>				
Urban	1905 (70%)	1815 (75%)	90 (30%)	<0.001
Rural	615 (23%)	598 (25%)	17 (6%)	
Refugee camp	195 (7%)	2 (0%)	193 (64%)	
<b>Governorate n(%)</b>				
Mafraq	899 (33%)	626 (26%)	273 (91%)	<0.001
Ajloun	939 (35%)	920 (38%)	19 (6%)	
Tafilah	877 (32%)	869 (36%)	8 (3%)	
<b>Marital status n(%)</b>				
Single	81 (3%)	73 (3%)	8 (3%)	0.134
Married/Coupled	2147 (79%)	1918 (79%)	229 (76%)	
Divorced/Separated	48 (2%)	38 (2%)	10 (3%)	
Widowed	439 (16%)	386 (16%)	53 (18%)	
<b>Children n(%)</b>				
Yes	2567 (95%)	2280 (94%)	287 (96%)	0.366
No	148 (5%)	135 (6%)	13 (4%)	
<b>Level of education n(%)</b>				
Illiterate	400 (15%)	336 (14%)	64 (21%)	<0.001
Primary studies	1121 (41%)	962 (40%)	159 (53%)	
Secondary studies	674 (25%)	631 (26%)	43 (14%)	
Professional training	17 (1%)	16 (1%)	1 (0%)	
Diploma	216 (8%)	210 (9%)	6 (2%)	
University studies	228 (8%)	203 (8%)	25 (8%)	
Postgraduate	59 (2%)	57 (2%)	2 (1%)	
<b>Occupation n(%)</b>				
Public employee	194 (7%)	193 (8%)	1 (0%)	<0.001
Private employee	170 (6%)	143 (6%)	27 (9%)	
Unemployed	139 (5%)	75 (3%)	64 (21%)	
Housewife	1134 (42%)	997 (41%)	137 (46%)	
Self-employed	343 (13%)	279 (12%)	64 (21%)	
Retired	735 (27%)	728 (30%)	7 (2%)	

<b>Religion n(%)</b>				
Muslim	2684 (99%)	2384 (99%)	300 (100%)	0.042
Christian	31 (1%)	31 (1%)	0 (0%)	
<b>Health insurance n(%)</b>				
Private	93 (3%)	92 (4%)	1 (0%)	<0.001
Civil insurance (MoH)	710 (26%)	708 (29%)	2 (1%)	
University hospitals	53 (2%)	52 (2%)	1 (0%)	
RMS	1405 (52%)	1404 (58%)	1 (0%)	
UNHCR/UNRWA	251 (9%)	4 (0%)	247 (82%)	
No health insurance	169 (6%)	121 (5%)	48 (16%)	
From another country	2 (0%)	2 (0%)	0 (0%)	
Other	31 (1%)	32 (1%)	0 (0%)	
<b>Transportation to the nearest health center n(%)</b>				
Walking	879 (32%)	698 (29%)	181 (60%)	<0.001
Bus	178 (7%)	156 (6%)	22 (7%)	
Taxi	298 (11%)	241 (10%)	57 (19%)	
Private car	1311 (48%)	1302 (54%)	9 (3%)	
Other	49 (2%)	18 (1%)	31 (10%)	
<b>Time from home to the nearest health center (median, iqr)</b>				
	10.00 (10.00)	10.00 (10.00)	15.00 (11.50)	<0.001

**Table A3.2:** Knowledge about CRC for the whole sample and by status of refugee

	Total	Not refugee	Refugee	Test
N	2,715 (100.0%)	2,415 (89.0%)	300 (11.0%)	
<b>Think is the main health problem in Jordan n(%)</b>				
Heart attack/CVDs	404 (15%)	347 (14%)	57 (19%)	0.030
Cancer	823 (30%)	751 (31%)	72 (24%)	
Diabetes	1085 (40%)	991 (41%)	94 (31%)	
Car accidents	28 (1%)	27 (1%)	1 (0%)	
Digestive diseases	69 (3%)	56 (2%)	13 (4%)	
Neurological diseases	63 (2%)	58 (2%)	5 (2%)	
Respiratory diseases	114 (4%)	82 (3%)	32 (11%)	
Mental disorders	25 (1%)	22 (1%)	3 (1%)	
Other	104 (4%)	81 (3%)	23 (8%)	
<b>Ever heard about CRC n(%)</b>				
Yes	1894 (70%)	1729 (72%)	165 (55%)	<0.001
No	821 (30%)	686 (28%)	135 (45%)	
<b>Where have you heard about CCR (multiple choice) n(%)</b>				
Family/friends	1361 (50%)	1241 (51%)	120 (40%)	<0.001
Healthcare workers	325 (12%)	304 (13%)	21 (7%)	0.005
TV	436 (16%)	398 (16%)	38 (13%)	0.090
<b>Age group most affected by CRC (multiple choice) n(%)</b>				
30-50 age group	908 (33%)	838 (35%)	70 (23%)	<0.001
50-65 age group	479 (18%)	390 (16%)	89 (30%)	<0.001
<b>One sex is more affected than the other of CRC n(%)</b>				
No, all sex equally	883 (33%)	775 (32%)	108 (36%)	<0.001
Yes, Females	532 (20%)	483 (20%)	49 (16%)	
Yes, Males	925 (34%)	846 (35%)	79 (26%)	
Don't know	375 (14%)	311 (13%)	64 (21%)	
<b>Likelihood to die with CRC n(%)</b>				
Very likely	695 (26%)	602 (25%)	93 (31%)	0.009
Likely	1398 (51%)	1262 (52%)	136 (45%)	
Unlikely	370 (14%)	338 (14%)	32 (11%)	
Very unlikely	74 (3%)	62 (3%)	12 (4%)	
Don't know	178 (7%)	151 (6%)	27 (9%)	
<b>Risk factors of CRC (multiple choice) n(%)</b>				
I don't know	578 (21%)	490 (20%)	88 (29%)	<0.001
<b>What can reduce the risk of CRC (multiple choice) n(%)</b>				
Healthy diet	1510 (56%)	1361 (56%)	149 (50%)	0.028
Regular medical check-ups	690 (25%)	628 (26%)	62 (21%)	0.045
I don't know	481 (18%)	416 (17%)	65 (22%)	0.057
<b>CRC symptoms (multiple choice) n(%)</b>				
Blood in stool	383 (14%)	363 (15%)	20 (7%)	<0.001
Diarrhea	333 (12%)	310 (13%)	23 (8%)	0.010
Constipation	565 (21%)	518 (21%)	47 (16%)	0.020
I don't know	925 (34%)	805 (33%)	120 (40%)	0.022
<b>CRC in Jordan n(%)</b>				
Very common	300 (11%)	289 (12%)	11 (4%)	<0.001

Common	1215 (45%)	1124 (47%)	91 (30%)	
Rare	780 (29%)	673 (28%)	107 (36%)	
Very rare	234 (9%)	181 (7%)	53 (18%)	
Don't know	186 (7%)	148 (6%)	38 (13%)	
Frequency of CRC in Jordan compared to other types of cancer n(%)				
More than other cancers	306 (11%)	292 (12%)	14 (5%)	<0.001
As frequent as other cancers	798 (29%)	721 (30%)	77 (26%)	
Less than other cancers	1417 (52%)	1242 (51%)	175 (58%)	
Don't know	194 (7%)	160 (7%)	34 (11%)	
Ever heard about medical tests for the early detection of CRC? n(%)				
Yes	575 (21%)	538 (22%)	37 (12%)	<0.001
No	2140 (79%)	1877 (78%)	263 (88%)	
Heard about medical tests for the early detection of CRC n(%)				
Family and friends	288 (11%)	275 (11%)	13 (4%)	<0.001
TV	150 (6%)	143 (6%)	7 (2%)	0.010
Social media	129 (5%)	125 (5%)	4 (1%)	0.003
Techniques are used for early detection of CRC (multiple choice) n(%)				
Stool-based techniques	264 (10%)	249 (10%)	15 (5%)	0.003
Endoscopy techniques	184 (7%)	173 (7%)	11 (4%)	0.023
It is not necessary CRC screening if a person is healthy n(%)				
Strongly agree	418 (15%)	353 (15%)	65 (22%)	0.009
Agree	666 (25%)	609 (25%)	57 (19%)	
Disagree	957 (35%)	858 (36%)	99 (33%)	
Strongly disagree	650 (24%)	573 (24%)	77 (26%)	
Don't know	24 (1%)	22 (1%)	2 (1%)	
There should be campaigns in Jordan for people to raise awareness about it n(%)				
Strongly agree	1630 (60%)	1437 (60%)	193 (64%)	0.027
Agree	1021 (38%)	922 (38%)	99 (33%)	
Disagree	35 (1%)	32 (1%)	3 (1%)	
Strongly disagree	14 (1%)	14 (1%)	0 (0%)	
Don't know	15 (1%)	10 (0%)	5 (2%)	

**Table A3.3:** Attitudes towards CRC for the whole sample and by refugee status

	Total	Not refugee	Refugee	Test
N	2,715 (100.0%)	2,415 (89.0%)	300 (11.0%)	
<b>Over the last year, how would you rate your health? n(%)</b>				
Poor	245 (9%)	208 (9%)	37 (12%)	<0.001
Fair	705 (26%)	608 (25%)	97 (32%)	
Good	1031 (38%)	940 (39%)	91 (30%)	
Very good	513 (19%)	453 (19%)	60 (20%)	
Excellent	221 (8%)	206 (9%)	15 (5%)	
<b>Consider your lifestyle n(%)</b>				
Very healthy	242 (9%)	225 (9%)	17 (6%)	<0.001
Healthy	1476 (54%)	1347 (56%)	129 (43%)	
Not healthy at all	997 (37%)	843 (35%)	154 (51%)	
<b>Rate your personal risk of having CRC during your lifetime n(%)</b>				
Very high	55 (2%)	47 (2%)	8 (3%)	0.007
High	409 (15%)	375 (16%)	34 (11%)	
Low	532 (20%)	491 (20%)	41 (14%)	
Very low	707 (26%)	616 (26%)	91 (30%)	
Don't know	1012 (37%)	886 (37%)	126 (42%)	
<b>Preferred technique to undergo CRC screening n(%)</b>				
Fecal-based technique	1595 (59%)	1402 (58%)	193 (64%)	0.009
Endoscopy	438 (16%)	409 (17%)	29 (10%)	
Either one	323 (12%)	282 (12%)	41 (14%)	
Both	359 (13%)	322 (13%)	37 (12%)	
<b>How important is to receive information about the benefits of performing the test? n(%)</b>				
Very important	1880 (69%)	1652 (68%)	228 (76%)	0.027
Somewhat important	651 (24%)	595 (25%)	56 (19%)	
Not important at all	184 (7%)	168 (7%)	16 (5%)	
<b>How important is that healthcare worker personally recommends it to you? n(%)</b>				
Very important	1835 (68%)	1604 (66%)	231 (77%)	<0.001
Somewhat important	635 (23%)	589 (24%)	46 (15%)	
Not important at all	245 (9%)	222 (9%)	23 (8%)	
<b>How important is to receive an invitation from the MoH? n(%)</b>				
Very important	1666 (61%)	1440 (60%)	226 (75%)	<0.001
Somewhat important	724 (27%)	678 (28%)	46 (15%)	
Not important at all	325 (12%)	297 (12%)	28 (9%)	
<b>How important is to receive an invitation with a scheduled appointment? n(%)</b>				
Very important	1526 (56%)	1326 (55%)	200 (67%)	<0.001
Somewhat important	703 (26%)	652 (27%)	51 (17%)	
Not important at all	486 (18%)	437 (18%)	49 (16%)	
<b>How important is not needing to schedule the visit to the health center? n(%)</b>				
Very important	996 (37%)	858 (36%)	138 (46%)	<0.001
Somewhat important	923 (34%)	846 (35%)	77 (26%)	
Not important at all	796 (29%)	711 (29%)	85 (28%)	
<b>How important is to have a work permit to attend CRC screening during working hours? n(%)</b>				
Very important	1082 (40%)	953 (39%)	129 (43%)	0.049
Somewhat important	583 (21%)	535 (22%)	48 (16%)	

Not important at all	1050 (39%)	927 (38%)	123 (41%)	
How important is to be scheduled to a healthcare center close to your house? n(%)				
Very important	1916 (71%)	1685 (70%)	231 (77%)	0.032
Somewhat important	565 (21%)	518 (21%)	47 (16%)	
Not important at all	234 (9%)	212 (9%)	22 (7%)	
How important is no waiting time at the health center? n(%)				
Very important	1952 (72%)	1718 (71%)	234 (78%)	0.018
Somewhat important	536 (20%)	495 (20%)	41 (14%)	
Not important at all	227 (8%)	202 (8%)	25 (8%)	
How important are facilities to attend the screening with your children? n(%)				
Very important	1361 (50%)	1184 (49%)	177 (59%)	<0.001
Somewhat important	721 (27%)	667 (28%)	54 (18%)	
Not important at all	633 (23%)	564 (23%)	69 (23%)	
How important is a free treatment if the results are positive? n(%)				
Very important	2385 (88%)	2101 (87%)	284 (95%)	<0.001
Somewhat important	255 (9%)	245 (10%)	10 (3%)	
Not important at all	75 (3%)	69 (3%)	6 (2%)	
If I have a positive result in CRC screening I would... (multiple choice) n(%)				
To visit de doctor	1,941 (71%)	1,713 (71%)	228 (76%)	0.067
To undergo more test	1260 (46%)	1150 (48%)	110 (37%)	<0.001
To talk with family/friends	371 (14%)	312 (13%)	59 (20%)	0.001
How do you feel when thinking about the possibility of having cancer n(%)				
Happy	110 (4%)	94 (4%)	16 (5%)	0.037
Calmed/Confident	205 (8%)	186 (8%)	19 (6%)	
Sad	585 (22%)	534 (22%)	51 (17%)	
Afraid/worried	781 (29%)	702 (29%)	79 (26%)	
Angry	1034 (38%)	899 (37%)	135 (45%)	
How do you feel before going to a medical check-up n(%)				
Happy	103 (4%)	91 (4%)	12 (4%)	0.008
Calmed/Confident	259 (10%)	236 (10%)	23 (8%)	
Sad	668 (25%)	614 (25%)	54 (18%)	
Afraid/worried	829 (31%)	736 (30%)	93 (31%)	
Angry	856 (32%)	738 (31%)	118 (39%)	
How do you feel during a medical check-up n(%)				
Happy	79 (3%)	69 (3%)	10 (3%)	<0.001
Calmed/Confident	229 (8%)	207 (9%)	22 (7%)	
Sad	693 (26%)	647 (27%)	46 (15%)	
Afraid/worried	773 (28%)	693 (29%)	80 (27%)	
Angry	941 (35%)	799 (33%)	142 (47%)	
How do you feel when receiving advice on lifestyle changes n(%)				
Happy	306 (11%)	269 (11%)	37 (12%)	<0.001
Calmed/Confident	594 (22%)	557 (23%)	37 (12%)	
Sad	938 (35%)	868 (36%)	70 (23%)	
Afraid/worried	472 (17%)	403 (17%)	69 (23%)	
Angry	405 (15%)	318 (13%)	87 (29%)	

**Table A3.4:** Health seeking behavior practices and healthy habits related with CRC by refugee status

	Total	Not refugee	Refugee	Test
N	2,715 (100.0%)	2,415 (89.0%)	300 (11.0%)	
<b>Main reasons to go to the medical doctor for yourself n(%)</b>				
Sporadic health issues	1149 (42%)	1013 (42%)	136 (45%)	<0.001
Reviews or routine checks	584 (22%)	547 (23%)	37 (12%)	
For follow-up checks of a disease	522 (19%)	461 (19%)	61 (20%)	
Getting medication	371 (14%)	312 (13%)	59 (20%)	
To avoid future diseases	27 (1%)	27 (1%)	0 (0%)	
I just do it without thinking about it	5 (0%)	5 (0%)	0 (0%)	
My work company asked me to go	3 (0%)	3 (0%)	0 (0%)	
Other	54 (2%)	47 (2%)	7 (2%)	
<b>Where do you usually go first when you feel sick n(%)</b>				
Hospital	1208 (44%)	1100 (46%)	108 (36%)	<0.001
Primary Healthcare center	1101 (41%)	992 (41%)	109 (36%)	
Pharmacy	196 (7%)	155 (6%)	41 (14%)	
None, stay at home	113 (4%)	90 (4%)	23 (8%)	
Other	97 (4%)	78 (3%)	19 (6%)	
<b>Have you ever undergone a cancer detection test? n(%)</b>				
Yes	295 (11%)	276 (11%)	19 (6%)	0.007
No	2420 (89%)	2139 (89%)	281 (94%)	
<b>What kind of cancer test? n(%)</b>				
Breast cancer test	209 (8%)	197 (8%)	12 (4%)	0.011
<b>Anyone in your immediate family (parents/siblings/children) ever had cancer? n(%)</b>				
Yes	1125 (41%)	1044 (43%)	81 (27%)	<0.001
No	1570 (58%)	1352 (56%)	218 (73%)	
Don't know	20 (1%)	19 (1%)	1 (0%)	
<b>Which type of cancer? n(%)</b>				
Breast cancer	271 (10%)	252 (10%)	19 (6%)	0.025
Prostate cancer	86 (3%)	84 (3%)	2 (1%)	0.009
Blood cancer	200 (7%)	186 (8%)	14 (5%)	0.058
CRC	259 (10%)	240 (10%)	19 (6%)	0.045
Thyroid cancer	56 (2%)	55 (2%)	1 (0%)	0.025
<b>Some of my family/friends died from cancer n(%)</b>				
Prostate cancer	63 (2%)	62 (3%)	1 (0%)	0.015
Blood cancer	142 (5%)	134 (6%)	8 (3%)	0.034
CRC	160 (6%)	150 (6%)	10 (3%)	0.046
<b>Have you ever received an advice from any healthcare worker to stop smoking? n(%)</b>				
Yes	633 (65%)	551 (64%)	82 (75%)	0.018
No	340 (35%)	313 (36%)	27 (25%)	
<b>How many times/day do you eat fruit and vegetables? median (iqr)</b>				
	2.00 (2.00)	2.00 (2.00)	1.00 (1.00)	<0.001
<b>How many times/day do you eat whole grains? median (iqr)</b>				
	0.00 (2.00)	0.00 (2.00)	0.00 (1.00)	<0.001
<b>How many times/week do you eat red meat? median (iqr)</b>				
	1.00 (2.00)	1.00 (2.00)	0.00 (1.00)	<0.001
<b>How many times/week do you eat processed meat? median (iqr)</b>				

	0.00 (0.00)	0.00 (0.00)	0.00 (1.00)	<0.001
How many times/week do you eat fast-food? median (iqr)				
	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.022
How many times/week do you eat legumes? (mean, sd)				
	2.44 (1.6)	2.40 (1.6)	2.72 (1.5)	0.001
How many times/week do you eat sweets/pastries/sugary drinks? median (iqr)				
	2.00 (4.00)	2.00 (5.00)	2.00 (4.00)	0.056
How many hours/day do you spend sitting? median (iqr)				
	5.00 (4.00)	5.00 (4.00)	6.00 (4.00)	<0.001
Do you usually walk/ride bicycle to get to and from places? n(%)				
Yes	1609 (59%)	1412 (58%)	197 (66%)	<0.001
No	660 (24%)	616 (26%)	44 (15%)	
Sometimes	446 (16%)	387 (16%)	59 (20%)	
Do you usually practice exercise such a walking, dancing, or a sport? n(%)				
Yes	1254 (46%)	1141 (47%)	113 (38%)	0.002
No	1461 (54%)	1274 (53%)	187 (62%)	

**Table A3.5:** Health literacy and household for the whole sample and by refugee status

	Total	Not refugee	Refugee	Test
N	2,715 (100.0%)	2,415 (89.0%)	300 (11.0%)	
<b>To judge when you need to go to a doctor for a check-up</b>				
Very Easy	685 (25%)	576 (24%)	109 (36%)	<0.001
Easy	1411 (52%)	1308 (54%)	103 (34%)	
Difficult	469 (17%)	407 (17%)	62 (21%)	
Very difficult	134 (5%)	108 (4%)	26 (9%)	
Don't know	16 (1%)	16 (1%)	0 (0%)	
<b>To find information about the health screening tests you require.</b>				
Very Easy	580 (21%)	506 (21%)	74 (25%)	<0.001
Easy	1386 (51%)	1269 (53%)	117 (39%)	
Difficult	576 (21%)	502 (21%)	74 (25%)	
Very difficult	155 (6%)	120 (5%)	35 (12%)	
Don't know	18 (1%)	18 (1%)	0 (0%)	
<b>To understand why you need health screening tests</b>				
Very Easy	608 (22%)	528 (22%)	80 (27%)	<0.001
Easy	1460 (54%)	1342 (56%)	118 (39%)	
Difficult	486 (18%)	406 (17%)	80 (27%)	
Very difficult	137 (5%)	116 (5%)	21 (7%)	
Don't know	24 (1%)	23 (1%)	1 (0%)	
<b>To find information on how to prevent/manage overweight, high blood pressure or h</b>				
Very Easy	636 (23%)	557 (23%)	79 (26%)	0.002
Easy	1415 (52%)	1290 (53%)	125 (42%)	
Difficult	513 (19%)	438 (18%)	75 (25%)	
Very difficult	133 (5%)	114 (5%)	19 (6%)	
Don't know	18 (1%)	16 (1%)	2 (1%)	
<b>To understand health warnings about unhealthy behaviors</b>				
Very Easy	777 (29%)	678 (28%)	99 (33%)	0.003
Easy	1523 (56%)	1384 (57%)	139 (46%)	
Difficult	332 (12%)	280 (12%)	52 (17%)	
Very difficult	67 (2%)	59 (2%)	8 (3%)	
Don't know	16 (1%)	14 (1%)	2 (1%)	
<b>To decide how can you protect from illness based on information in the media. [I</b>				
Very Easy	677 (25%)	595 (25%)	82 (27%)	0.007
Easy	1491 (55%)	1352 (56%)	139 (46%)	
Difficult	432 (16%)	372 (15%)	60 (20%)	
Very difficult	86 (3%)	70 (3%)	16 (5%)	
Don't know	29 (1%)	26 (1%)	3 (1%)	
<b>To complete medical forms by yourself</b>				
Very Easy	517 (19%)	462 (19%)	55 (18%)	<0.001
Easy	1151 (42%)	1058 (44%)	93 (31%)	
Difficult	635 (23%)	549 (23%)	86 (29%)	
Very difficult	378 (14%)	313 (13%)	65 (22%)	
Don't know	34 (1%)	33 (1%)	1 (0%)	
<b>To decide how reliable health warnings are, such as smoking or low physical acti</b>				
Very Easy	839 (31%)	721 (30%)	118 (39%)	0.010

Easy	1489 (55%)	1351 (56%)	138 (46%)	
Difficult	287 (11%)	254 (11%)	33 (11%)	
Very difficult	62 (2%)	54 (2%)	8 (3%)	
Don't know	38 (1%)	35 (1%)	3 (1%)	
<b>To read hospital or clinical recommendations</b>				
Very Easy	558 (21%)	498 (21%)	60 (20%)	<0.001
Easy	1285 (47%)	1173 (49%)	112 (37%)	
Difficult	560 (21%)	483 (20%)	77 (26%)	
Very difficult	290 (11%)	240 (10%)	50 (17%)	
Don't know	22 (1%)	21 (1%)	1 (0%)	
<b>Check your post mail</b>				
Everyday	65 (2%)	61 (3%)	4 (1%)	0.051
2-6 days/week	59 (2%)	57 (2%)	2 (1%)	
Once a week	38 (1%)	37 (2%)	1 (0%)	
Less than once a week	58 (2%)	54 (2%)	4 (1%)	
Never	2495 (92%)	2206 (91%)	289 (96%)	
<b>Check your SMS inbox</b>				
Everyday	1491 (55%)	1327 (55%)	164 (55%)	0.653
2-6 days/week	424 (16%)	384 (16%)	40 (13%)	
Once a week	182 (7%)	160 (7%)	22 (7%)	
Less than once a week	102 (4%)	92 (4%)	10 (3%)	
Never	516 (19%)	452 (19%)	64 (21%)	
<b>Check your WhatsApp, telegram or similar</b>				
Everyday	1847 (68%)	1651 (68%)	196 (65%)	0.183
2-6 days/week	152 (6%)	132 (5%)	20 (7%)	
Once a week	34 (1%)	32 (1%)	2 (1%)	
Less than once a week	24 (1%)	24 (1%)	0 (0%)	
Never	658 (24%)	576 (24%)	82 (27%)	
<b>Watch television</b>				
Everyday	1752 (65%)	1584 (66%)	168 (56%)	0.002
2-6 days/week	401 (15%)	352 (15%)	49 (16%)	
Once a week	187 (7%)	167 (7%)	20 (7%)	
Less than once a week	111 (4%)	93 (4%)	18 (6%)	
Never	264 (10%)	219 (9%)	45 (15%)	
<b>Listen the radio</b>				
Everyday	128 (5%)	123 (5%)	5 (2%)	<0.001
2-6 days/week	84 (3%)	83 (3%)	1 (0%)	
Once a week	38 (1%)	38 (2%)	0 (0%)	
Less than once a week	22 (1%)	22 (1%)	0 (0%)	
Never	2443 (90%)	2149 (89%)	294 (98%)	
<b>Read the newspaper</b>				
Everyday	66 (2%)	65 (3%)	1 (0%)	<0.001
2-6 days/week	40 (1%)	40 (2%)	0 (0%)	
Once a week	20 (1%)	20 (1%)	0 (0%)	
Less than once a week	22 (1%)	22 (1%)	0 (0%)	
Never	2567 (95%)	2268 (94%)	299 (100%)	
<b>Does this house belong to your family or are you renting it?</b>				

My family owns the house	2383 (88%)	2212 (92%)	171 (57%)	<0.001
My family rents the house	332 (12%)	203 (8%)	129 (43%)	
In your house, do you use gas for cooking?				
Yes	2710 (100%)	2410 (100%)	300 (100%)	1.000
No	5 (0%)	5 (0%)	0 (0%)	
Air conditioned in your house				
Yes	1034 (38%)	992 (41%)	42 (14%)	<0.001
No	1681 (62%)	1423 (59%)	258 (86%)	
Have a smartphone?				
Yes	2212 (81%)	1980 (82%)	232 (77%)	0.050
No	503 (19%)	435 (18%)	68 (23%)	
Have a radio?				
Yes	194 (7%)	188 (8%)	6 (2%)	<0.001
No	2521 (93%)	2227 (92%)	294 (98%)	
Have a television?				
Yes	2658 (98%)	2371 (98%)	287 (96%)	0.004
No	57 (2%)	44 (2%)	13 (4%)	
What is the monthly income of your household?				
≤250 JD	718 (26%)	472 (20%)	246 (82%)	<0.001
251-499 JD	1166 (43%)	1119 (46%)	47 (16%)	
≥ 500 JD	786 (29%)	780 (32%)	6 (2%)	
Don't know	45 (2%)	44 (2%)	1 (0%)	
How many people live in this house, including yourself? median (iqr)				
	5.00 (3.00)	5.00 (3.00)	5.00 (3.00)	<0.001
How many bedrooms of the house are used for sleeping? median (iqr)				
	2.00 (1.00)	2.00 (1.00)	2.00 (1.00)	<0.001
How many cars does your family have? median (iqr)				
	1.00 (1.00)	0.00 (0.00)	1.00 (1.00)	<0.001
The number of people who work. median (iqr)				
	1.00 (1.00)	1.00 (1.00)	1.00 (1.00)	<0.001