

ORIGINAL PAPERS

Reasons for participating in the Valencian Community Colorectal Cancer Screening Programme by gender, age, and social class

Ana Molina-Barceló^{1,2}, Dolores Salas-Trejo^{1,3}, Rosana Peiró-Perez^{1,3,4}, Mercedes Vanaclocha¹, Elena Pérez^{1,3} and Susana Castán^{1,3}

¹Fundación para el Fomento de la Investigación Sanitaria y Biomédica de la Comunitat Valenciana (FISABIO). Valencia, Spain. ²Universidad de Valencia. Valencia, Spain. ³Dirección General de Salud Pública (DGSP). Valencia, Spain. ⁴Centro de Investigación Biomédica en Red de Epidemiología y Salud Pública (CIBERESP). Madrid, Spain

ABSTRACT

Objective: To know the reasons to participate or not in a colorectal cancer (CCR) screening programme and to analyze the differences by sex, age and social class.

Methods: Cross-sectional study by a telephone survey directed to a sample of men and women aged between 50-74 year old, participants (n = 383) and non participants (n = 383) in the CCR screening programme of Valencian Community. Descriptive analysis and logistic regression models estimating the Odds Ratio ($p < 0.05$).

Results: The main reasons to participate are "it is important for health" (97.9 %) and "the test is easy" (97.6 %); and to non participate are "no CCR symptoms" (49.7 %) and "didn't receive invitation letter" (48.3 %). Women are more likely not to participate if the reason was to consider the "test unpleasant" (OR: 1.82; IC: 1.00-3.28), and men if the reason was "lack of time" (OR 0.51; IC: 0.27-0.97); persons 60 or more years old if the reason was "diagnostic fear" (OR: 2.31; IC: 1.11-4.80), and persons 50-59 years old if was "lack of time" (OR 0.44; IC: 0.23-0.85); non manual social class persons if the reason was "lack of time" (OR: 2.66; IC: 1.40-5.10); manual women if the reason was "embarrassment to perform the test" (OR: 0.37; IC: 0.14-0.97); and non manual men if was "lack of time" (OR: 4.78; IC: 1.96-11.66).

Conclusions: There are inequalities in the reasons for not participating in CCR screening programmes by sex, age and social class. It would be advisable to design actions that incorporate specific social group needs in order to reduce inequalities in participation.

Key words: Socioeconomic factors. Early detection of cancer. Colorectal neoplasm. Gender identity. Patient participation. Patient compliance.

INTRODUCTION

Social inequality in health refers to avoidable and unfair differences in health between socially, economically, demographically, or geographically defined population groups (1). In the case of cancer, social inequalities include inequalities in health along the continuum of the disease throughout the course of life, including issues of prevention, incidence, prevalence, detection and treatment, survival and mortality rates, and disease burden (2).

Screening programmes for colorectal cancer (CRC) are being progressively implemented in all the Autonomous Communities of Spain, following the Council Recommendations of the European Union (3). Reducing CRC mortality depends largely on the percentage of participation in these detection programmes (4), with a minimum participation of 45 % considered acceptable, although levels of 65-70 % are recommended (5). Ensuring equal access to these programmes is likewise considered to be a high priority (6) in order to help reduce social inequalities in cancer, and therefore in overall health.

The Valencian Community (VC) in Spain has implemented a Colorectal Cancer Screening Programme (CRC-SP) with a percentage of participation that does not reach that recommended by the European Commission and

Financing: This study has received a grant of 4,950 € from the Regional Health Authorities of the Valencian Community through the call for Grants for the "Fomento de la Investigación Sanitaria en la Comunitat Valenciana" (Ref. number: 053/2010).

Received: 31-03-2014
Accepted: 23-06-2014

Correspondence: Ana Molina Barceló. Fundación para el Fomento de la Investigación Sanitaria y Biomédica de la Comunitat Valenciana (FISABIO). Avda. Cataluña, 21. 46020 Valencia, Spain
e-mail: molina_anabar@gva.es

Molina-Barceló A, Salas-Trejo D, Peiró-Perez R, Vanaclocha M, Pérez E, Castán S. Reasons for participating in the Valencian Community colorectal cancer screening programme by gender, age, and social class. *Rev Esp Enferm Dig* 2014;106:439-447.

which is higher for women than for men (7). To increase the participation rate and ensure equal access to this programme, it is necessary to understand the factors that influence these inequalities in participation.

In terms of a theoretical model dealing with the social determinants of health inequalities (8), most research on the factors influencing participation have focused on analysing the structural factors related to the known axes of inequality, namely gender, age, and social class (9,10). Other studies have analysed the intermediary factors related with the knowledge, beliefs, attitudes, and organizational characteristics of the programmes, as well as motives for participating (11-14). All these factors contribute to social inequalities with regard to participation in these programmes, usually placing groups in the less favoured social strata at a disadvantage (15).

Dealing with and influencing the social determinants of inequalities in cancer is complex and requires a multidisciplinary approach (16). Most published research has analysed structural factors and intermediary factors separately, neglecting the influence they can exert on each other. The objective of the present study is to see how structural factors (the inequalities axes of gender, age, and social class) influence intermediary factors (motivations to participate or not in the programmes). To this end, we sought to determine the reasons both for participation and non-participation in the CRCSP of the VC and to analyse the differences by gender, age, and social class. Our broader aim was to gain insight into the social inequalities with regard to participation in these programmes in order to design strategies to reduce barriers by incorporating the needs of various social groups.

MATERIALS AND METHODS

Study scope

The study was conducted within the context of the CRCSP of the VC, an organized programme (7) that began in 2005 which is gradually being implemented throughout the VC. It is aimed at asymptomatic men and women between 50 and 69 years of age; the screening test used is a biennial faecal occult blood test (FOBT). The process of inviting subjects to participate involves sending a letter to the home of each individual patient together with an information leaflet and an acceptance card. People who agree to participate must send the pre-stamped acceptance card by post in order to receive the materials and instructions necessary for collecting the stool sample at home. The stool sample must then be brought to the patient's Primary Care Center and deposited in the special collection boxes provided for that purpose (7). The population data used to generate the list of prospective subjects comes from the Population Information System (PIS) that includes all individuals registered as residents of VC.

Design

This was a cross-sectional study in which a telephone survey was conducted on a representative sample of the target population of the screening programme. The subjects had been invited to participate in the CRCSP between October, 2009, and September, 2010, in the health care areas of Castellón, Sagunto, Valencia, and Denia (Spain).

The study subjects were men and women between 50 and 74 years of age. The sample included participants in the programme, that is, those who carried out and delivered the FOBT, as well as non-participants. Those who had suffered CRC or any other type of cancer were excluded, as were those diagnosed with polyps and/or who were being monitored due to a family history of cancer.

Stratified random sampling through simple affixation was carried out according to programme participation (yes/no). The resulting sample size, assuming an alpha error of 5 %, an accuracy of 5 %, and a probability of 50 % for the different variables considered, totalled 766 subjects (383 participants and 383 non-participants). Within each stratum the sampling was performed via quotas depending on the population size of each health care area, sex, and age.

Study variables

An *ad hoc* questionnaire was designed by a group of experts using the results of a previous qualitative study conducted within the context of the programme (17) as well as other questionnaires found in the literature (18). The questionnaire was pre-tested on a sample of convenience in order to check the wording of the questions and the duration. A pilot test was also carried out with a sample group of study subjects (15 participants and 15 non-participants) to assess the feasibility of the questionnaire.

The questionnaire consists of a total of 23 questions related to socio-economic variables, knowledge and access to information about the disease and the programme, previous preventive practices, and reasons for participation or non-participation. The analysis presented in this article focuses specifically on the questions referring to the socio-economic variables of age, sex, and social class, as well as those questions pertaining to the reasons for participating or not in the programme (Fig. 1).

Age was categorized into two groups, 50 to 59 or 60 or older; sex, men or women; and social class, manual or non-manual, following the abbreviated classification system of the Spanish Society of Epidemiology (19) and integrating the concept of dominant social class (20). Variables related to the reasons for participation or non-participation in the programme were collected through closed multiple choice questions and were categorized as yes or no (exam-

PERSONAL INFORMATION

Interview number _____

Name: _____

Sex: Male ¹ Female ² Age: Participant in the Programme: Yes ¹ No ²

Telephone number: _____ Country of birth: _____

Town of residence: _____

Health care area: Sagunto ¹ Castellón ² Valencia La Fe ³ Denia ⁴

P5. Do you currently work?
 Yes (go to P6) ¹
 No (go to P5A) ² →
 No reply ⁹

5A. What is your current work status?
 Unemployed ¹
 Retired ²
 Homemaker ³
 Other _____ ⁴
 No reply ⁹

5B. Did you work previously?
 Yes ¹ (go to P6)
 No ² (go to P7)
 No reply ⁹

P6. What is your current job? (if you are not currently working, but have worked in the past) **What was your occupation when you were working?**
 (Literal) Occupation: _____

6A. What is your position or job title? (if you are not currently working, but have worked in the past) **What was your job title?**
 (Literal) Position/job title: _____

P7. (Only for subjects who are married or living with someone) What is YOUR PARTNER'S/SPOUSE'S current job, and if he/she is not currently working, what was his/her main job during his/her career?
 (Literal) Occupation: _____

7A. What was his/her position or job title?
 (Literal) Position/job title: _____

P20. (For participants only) According to our information, you PARTICIPATED in the CRC Screening Programme. I'm going to read to you a series of reasons and I'd like you to tell me if they influenced your decision to PARTICIPATE or not. You PARTICIPATED because... (Multiple responses)

	Yes	No	Don't know	No reply
a) ...a friend or relative recommended that you do the test?	1	2	8	9
b) ...you think that if CRC is detected in time, it can usually be cured?	1	2	8	9
c) ...you felt unwell and thought you might have some symptoms of the disease?	1	2	8	9
d) ...you thought the test was simple to perform?	1	2	8	9
e) ...your primary health care physician recommended that you do the test?	1	2	8	9
f) ...you wanted to rule out the possibility of having CRC?	1	2	8	9
g) ...you think it's important for your health?	1	2	8	9
h) ...you have a friend or relative who had CRC?	1	2	8	9
i) Any other reason?:	1	2	8	9

P21. (For non-participants only) According to our information, you DID NOT PARTICIPATE in the CRC Screening Programme. I'm going to read to you a series of reasons and I'd like you to tell me if they influenced your decision NOT TO PARTICIPATE or not. You DID NOT PARTICIPATE because... (Multiple responses)

	Yes	No	Don't know	No reply
a) ...you were afraid that you would be diagnosed with CRC?	1	2	8	9
b) ...the test seemed to be unpleasant to perform?	1	2	8	9
c) ...you did not want to undergo a colonoscopy?	1	2	8	9
d) ...you did not understand how the test was performed?	1	2	8	9
e) ...you did not have any symptoms and you did not feel ill?	1	2	8	9
f) ...you did not have time to perform the test?	1	2	8	9
g) ...you were embarrassed about performing the test?	1	2	8	9
h) ...you had already undergone previous tests for CRC?	1	2	8	9
i) ...you did not receive the invitation letter?	1	2	8	9
j) Any other reason?:	1	2	8	9

Fig. 1. Items on the questionnaire used in the analysis (items 1-4, 8-19, and 22-23 not shown).

ple: “Did you participate in the programme because you believe that it is important for your health?”). Questions about the reasons for participation were given only to those who had participated in the programme while questions on the motives for not participating were only given to non-participants.

Data were collected between January and February, 2011 (between 5 and 16 months after receiving the invitation to participate in the programme), and recorded in an Access database designed for this purpose. Each subject received a maximum of 3 calls made at different times. The interviews were conducted by trained interviewers. All participants in the study gave their informed consent orally. The study was approved by the Ethics Committee for Clinical Research of the General Directorate of Public Health of Valencian Community.

Statistical analysis

A descriptive analysis was performed using the frequencies and percentages of participants and non-participants in the programme in terms of their sex, age, and social class. Similarly, a descriptive analysis of the reasons for participation and non-participation in the programme was carried out.

To understand the relationship between the reasons for participation and non-participation and the variables of sex, age, and social class, we performed separate bivariate analyses of the reasons for participation and non-participation, calculating the chi-square values. Multiple logistic regression models for the dependent variables of sex, age, and social class were adjusted for the independent variables of the reasons for participation on the one hand, and on the other hand, the motives for not participating in the programme, which were found to have a significant association according to the results of the chi-square test. The model for social class was conducted both for the total sample as well as stratified by sex.

The results of the chi-square analyses are shown as p-values while those of the logistic regression models are given in terms of odds ratio (OR) and confidence interval (CI) at 95 %. The level of significance was taken to be 0.05. All analyses were carried out with the aid of the statistics program R.

RESULTS

A total of 785 questionnaires were sent out with a response rate of 59.61 % (Fig. 2).

Table I gives a description of the sample, from which it can be observed that the majority of participants in the programme were women (57.1 %), people aged 60 and over (58.4 %), and people belonging to the manual social class (51.1 %). On the other hand, non-participants in the

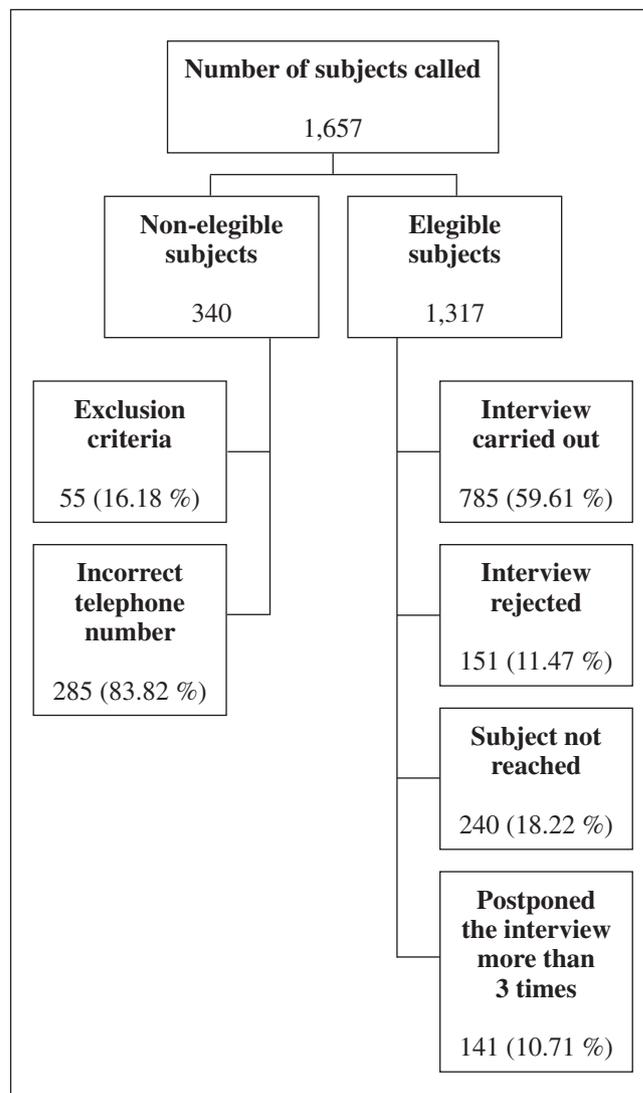


Fig. 2. Interview participation flowchart.

programme people were mostly men (51.6 %), between 50 and 59 years of age (50.70 %), also from the manual social class (51.1 %).

The main reasons for participating in the programme (Table II) were as follows: Consider that “the test is important for their health” (97.9 %), that “the test is simple to perform” (97.6 %), that “CRC can be cured if detected early” (93.6 %), and that they wanted “to rule out the possibility of CRC” (92.6 %). The main reasons for non-participation were the “absence of CRC symptoms” (49.7 %) and that they “did not receive the invitation letter” (48.3 %).

The analyses of the reasons for participation and non-participation by sex, age, and social class (Table II) showed that the motives for participating were not statistically significant different in terms of sex or social class, but that there were statistically significant differences between

Table I. Description of the sample by participants and non-participants

	Participants		Non-Participants		N	p
	n	%	n	%		
<i>Sex</i>						
Men	172	42.9	198	51.6	370	0.01*
Women	229	57.1	186	48.4	415	
n	401		384		785	
<i>Age</i>						
50-59	167	41.6	194	50.7	361	0.01*
60 and over	234	58.4	189	49.3	423	
n	401		383		784	
<i>Social class</i>						
Non-manual	180	48.9	153	48.9	333	0.99
Manual	188	51.1	160	51.1	348	
n	368		313		681	

*p < 0.05

the two age groups ($p < 0.05$), especially with regard to the motive of having a “primary care physician’s recommendation”. Regarding the reasons for non-participation, statistically significant differences ($p < 0.05$) were observed with regard to sex for the following reasons: “lack of time,” “unpleasant nature of the test,” “fear of a CRC diagnosis,” and “embarrassed about performing the test.” With regard to age the reasons that showed significant differences were “lack of time,” “unpleasant nature of the test,” “fear of a cancer diagnosis,” and “embarrassed about performing the test.” By social class the main differences were noted in the motive “lack of time.” The analysis of the reasons for non-participation of women and men in terms of social class (Table III) showed statistically significant differences ($p < 0.05$) for women for the reason “embarrassed about performing the test”; for men the differences were observed for the reason “lack of time.”

Since the only statistically significant differences found among participants in the programme were according to age, only one model for the age variable (adjusted for sex and social class) was performed. This model (data not shown in a table) it can be observed that when the reason for participating was “primary care physician’s recommendation” the participants were more likely to be 60 years of age or older (OR: 1.665, CI: 1.03-2.669).

For non-participants, multiple logistic regression models for sex, age, and social class (Fig. 3) were performed. Analysis of the relationship between sex and the reasons for non-participation (Fig. 3A) revealed that it was more likely for women not to participate due to their perception that “the test is unpleasant” (OR: 1.82, CI: 1.00-3.28), whereas men were more likely not to participate due to a “lack of time” (OR: 0.51, CI: 0.27-0.97). The analysis of

the relationship between age and the reasons for non-participation (Fig. 3B) showed that it was more likely for people aged 60 and older not to participate for “fear of a CRC diagnosis” (OR: 2.31, CI: 1.11-4.80) while people aged 50-59 tended not to be involved because of a “lack of time” (OR: 0.44, CI: 0.23-0.85). Finally, in the analysis of the relationship between social class and the reasons for non-participation (Fig. 3C), it can be observed that out of the total sample, people from the non-manual social class were more likely not to participate due to a “lack of time” (OR: 2.66, CI: 1.40-5.10); however, when stratified by sex, women from the manual social class were more likely not to participate on the grounds that they were “embarrassed about performing the test” (OR: 0.37, CI: 0.14-0.97) while men from the non-manual social class did not participate due to a “lack of time” (OR: 4.78, CI: 1.96-11.66).

DISCUSSION

This study shows that the reasons for participating in the CRCSP of the VC are broadly similar across the total population, with the main reasons for participation being that “it’s important for my health” and that “the test is simple to perform”. On the other hand, the reasons for non-participation vary by gender, age, and social class, with the majority of non-participants citing the “absence of CRC symptoms” and the fact that they “did not receive the invitation letter.”

Following the health beliefs model (21), the main reasons given by those who participated in the programme are related both to the perceived benefits of participation (“if detected early, CRC can be cured,” “to rule out the possibility of CRC,” and “it is important for my health”) as well as with a perceived lack of barriers with regard to the programme and the test (“the test is simple to perform”). These results coincide with those from previous studies (17,22) in which the beliefs and attitudes associated with participation are associated with greater perceived benefits from and lower perceived barriers to participation. Although generally no differences in motivations for participation were observed when stratified by sex or social class, differences were found with regard to age, with older people more likely than younger subjects to take part upon “primary care physician’s recommendation”. This may be because older people make more use of health services (23), which in turn would contribute to an increased frequency of recommendations to participate in such programmes by primary health care professionals (24).

Regarding the main reasons for non-participation and once again taking the health belief model into account, there was a perception among non-participants of a low vulnerability to CRC (“absence of CRC symptoms”). These results coincide with those from other studies (25) and show a lack of knowledge about one of the basic crite-

Table II. Reasons for participation or non-participation by sex, age, and social class

Reasons for participation	Total		Sex				p	Age				p	Social class				p
	Total sample		Men		Women			50-59		60 and over			Manual		Non-manual		
	n/N	%	n/N	%	n/N	%		n/N	%	n/N	%		n/N	%	n/N	%	
It is important for my health	368/376	97.9	154/158	97.5	214/218	98.2	0.73	154/156	98.7	214/220/	97.3	0.48	167/170	98.2	169/174	97.1	0.72
The test is simple to perform	367/376	97.6	153/158	96.8	214/218	98.2	0.50	153/156	98.1	214/220	97.3	0.74	167/170	98.2	169/174	97.1	0.72
If detected early, CRC can be cured	348/376	92.6	149/158	94.3	199/218	91.3	0.32	144/156	92.3	204/220	92.7	1.00	162/170	95.3	157/174	90.2	0.10
To rule out the possibility of CRC	352/376	93.6	148/158	93.7	204/218	93.6	1.00	149/156	95.5	203/220	92.3	0.28	158/170	92.9	162/174	93.1	1.00
Primary care physician's recommendation	125/376	33.2	53/158	33.5	72/218	33	1.00	40/156	25.6	85/220	38.6	0.01*	60/170	35.3	54/174	31	0.42
One family member died from it	110/375	29.3	41/157	26.1	69/218	31.7	0.25	48/156	30.8	62/219	28.3	0.65	46/170	27.1	55/173	31.8	0.35
Family member's recommendation	59/375	15.7	21/158	13.3	38/217	17.5	0.32	22/156	14.1	37/219	16.9	0.57	27/169	16	28/174	16.1	1.00
I had symptoms of CRC	40/376	10.6	15/158	9.5	25/218	11.5	0.61	16/156	10.3	24/220	10.9	0.87	17/170	10	22/174	12.6	0.50
Reasons for non-participation	Total		Sex				p	Age				p	Social class				p
	Total sample		Men		Women			50-59		60 and over			Manual		Non-manual		
	n/N	%	n/N	%	n/N	%		n/N	%	n/N	%		n/N	%	n/N	%	
Absence of CRC symptoms	179/360	49.7	93/188	49.5	86/172	50	1.00	89/182	48.9	90/177	50.8	0.75	79/179	53	72	51.1	0.81
Did not receive the invitation letter	175/362	48.3	85/188	45.2	90/174	51.7	0.25	79/183	43.2	95/178	53.4	0.06	76/148	51.4	73	50.7	1.00
Lack of time	82/360	22.8	57/189	30.2	25/171	14.6	0.00*	57/182	31.3	25/177	14.1	0.00*	17/148	11.5	37	26.1	0.00*
Difficulty understanding the test	73/360	20.3	31/188	16.5	42/172	24.4	0.07	34/182	18.7	39/177	22	0.44	27/148	18.2	38	26.8	0.09
Fear of having a colonoscopy	70/359	19.5	25/188	13.3	45/171	26.3	0.00*	25/182	13.7	45/176	25.6	0.00*	34/148	23	30	21.3	0.78
Unpleasant nature of the test	71/359	19.8	32/188	17	39/171	22.8	0.19	29/182	15.9	42/176	23.9	0.07	34/148	23	33	23.4	1.00
Fear of a CRC diagnosis	53/359	14.8	23/188	12.2	30/171	17.5	0.18	16/182	8.8	37/176	21	0.00*	27/148	18.2	20	14.2	0.43
Underwent other previous CRC tests	45/359	12.5	17/189	9	28/170	16.5	0.04*	18/182	9.9	27/176	15.3	0.15	17/148	11.5	23	16.2	0.31
Embarrassed about performing the test	38/359	10.6	13/188	6.9	25/171	14.6	0.02*	12/182	6.6	26/176	14.8	0.02*	22/148	14.9	13	9.2	0.15

*p < 0.05. n represents the number of people who responded "yes" to each reason for participation and non-participation. N is the total number of people who responded to each of the reasons enumerated (the denominators are not the same in each case due to lost data).

ria for participation in the programme, namely, the absence of symptoms. In addition, our results identify a perceived barrier with regard to the organization of the programme: The invitation procedure ("did not receive the invitation letter"). This is one of the main reasons identified in other studies (26) and constitutes a key element for participation

(27). Even though the citing of this particular reason may be masking other motives the subjects did not want to mention, it would still be advisable to identify and reduce the source of possible errors in personal data extracted from the database population through the PIS system currently used by the CRCSP of the VC.

Table III. Reasons for non-participation for women and men by social class (SC)

Reasons for non-participation	Women					Men				
	Manual SC		SC		p	Manual SC		SC		p
	n/N	%	n/N	%		n/N	%	n/N	%	
Absence of CRC symptoms	43/80	53.8	39/77	50.6	0.70	36/69	52.2	33/64	51.6	0.94
Did not receive invitation letter	42/81	51.9	36/78	46.2	0.47	34/67	50.7	37/66	56.1	0.54
Lack of time	9/79	11.4	12/77	15.6	0.44	8/69	11.6	25/65	38.5	0.00*
Difficulty understanding the test	23/79	29.1	18/77	23.4	0.42	11/69	15.9	12/64	18.8	0.67
Fear of having a colonoscopy	18/79	22.8	18/77	23.4	0.93	16/69	23.2	15/64	23.4	0.97
Unpleasant nature of the test	17/79	21.5	7/77	9.1	0.03*	5/69	7.2	6/64	9.4	0.66
Fear of a CRC diagnosis	16/79	20.3	21/78	26.9	0.32	11/69	15.9	17/64	26.6	0.13
Underwent other previous CRC tests	16/79	20.3	11/77	14.3	0.32	11/69	15.9	9/64	14.1	0.76
Embarrassed about performing the test	12/79	15.2	15/77	19.5	0.48	5/69	7.2	8/65	12.3	0.32

*p < 0.05. n represents the number of people who responded "yes" to each of the reasons for not participating. N is the total number of people who responded to each of the reasons enumerated (the denominators are not the same in each case due to lost data).

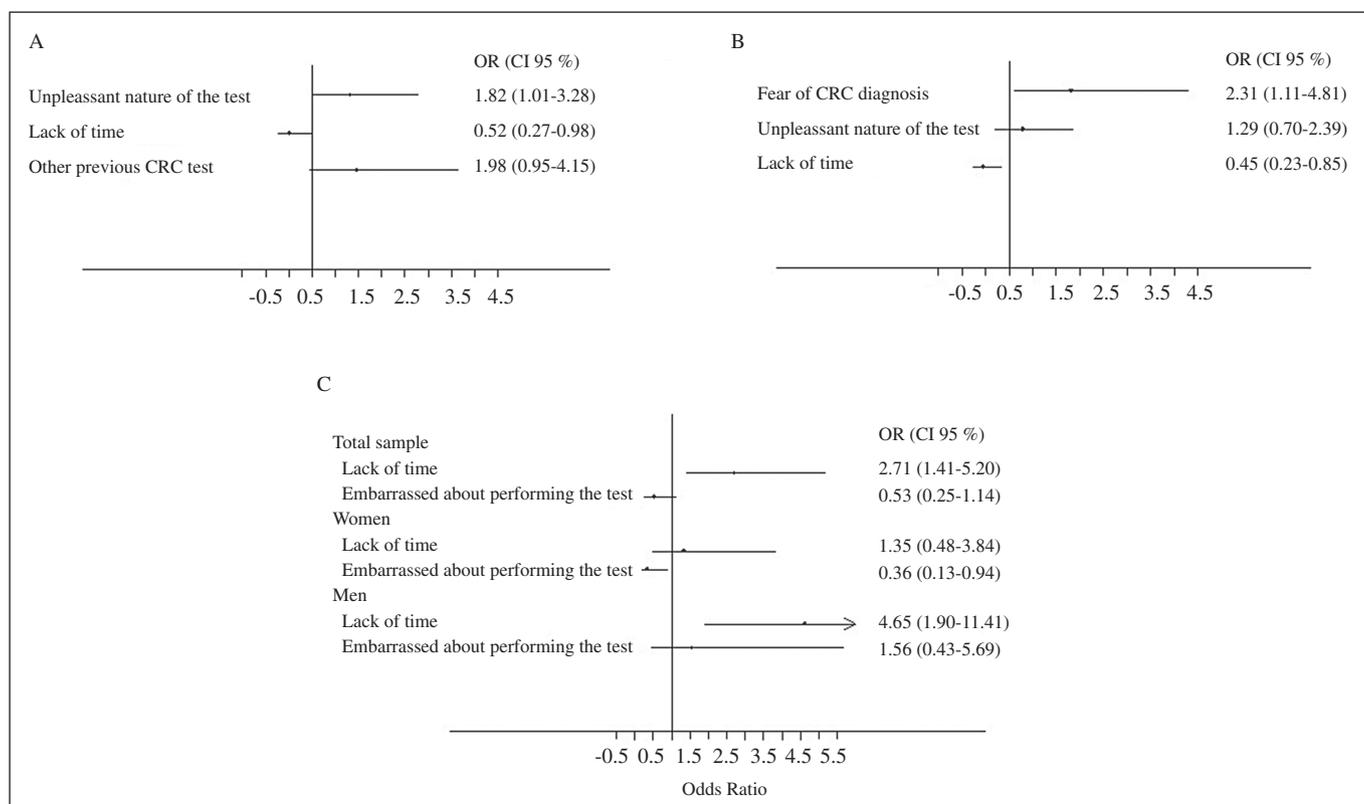


Fig. 3. Multivariable models of the reasons for non-participation according to sex, age, and social class. A. Multivariable model of the reasons for non-participation according to sex. The model was made for the variable of sex (reference: Male), adjusted for the reasons for non-participation, age, and social class. B. Multivariable model of the reasons for non-participation according to age. The model was made for the variable of age (reference: 50-59 years), adjusted for the reasons for non-participation, sex, and social class. C. Multivariable model of the reasons for non-participation according to social class. Three models were constructed for the variable of social class (reference: Manual social class): One for the total number of non-participants, adjusted for the reasons for non-participation, sex, and age; another for women, adjusted for the reasons for non-participation and age; and another for men, adjusted for the reasons for non-participation and age.

As this study was conducted in the first four health care areas to participate in the CRCSP and because this screening programme is still being progressively implemented, it would be advisable to extend this study to the new areas of implementation in order to analyze whether there are any geographical differences with regard to participation.

From the association found between being women and finding the test “unpleasant” as a reason for not participating in screening, coupled with the results of a study carried out in a similar context (17), it can be deduced that this may be related to a lack of information about the type of test used. The authors of the aforementioned study observed that there was a false belief that the screening programme consisted of a colonoscopy rather than a FOBT, which could condition how people viewed the test. Moreover, if looked at from a gender perspective, we could conclude that this reason may be related to the traditional stereotype of women purity (28), which makes women embarrassed and even ashamed about bodily functions such as defecation. This would, of course, add to the sense women have that the test is “unpleasant.” Our results show that this reason is cited more often by women from the manual social class, that is, women whose occupations correspond to a lower educational and socioeconomic level. This may play a role both in the lack of information about the type of test used in the screening programme as well as the greater influence of traditional gender stereotypes.

The association found between being men and citing a “lack of time” as a reason for not participating in the screening can also be interpreted from a gender perspective, namely from a model of a gendered division of labour market. This dichotomy defines “men’s work” as being “productive” whereas “women’s work” is “reproductive,” a division that assigns differentiated values and spaces to both (29). Health care issues have traditionally been associated with the reproductive sphere, to be assumed mostly by women (30). We can thus infer that this implicit assumption on the part of men—that they have a productive rather than a reproductive role—may contribute to the fact that men give less importance to their health care needs. This, in turn, leads to them devoting less time to healthy practices such as cancer screenings. This reason was cited more often by men in the non-manual social class, that is, men with a higher socio-economic level. This may be due to the fact that the men who belong to this social class have a better perception of their own state of health than men from less privileged social classes, which leads to a lower perception of their own vulnerability. Taken together, all of this causes men of this social class to dedicate less time to preventative health measures.

Taking our results into account, it can be advisable that a serious attempt should be made to raise public awareness about the benefits of participating in this type of screening programme, offering clear information about the nature of the test and highlighting the fact that one of the requirements for participation is the lack of CRC symptoms. It

would also be recommendable to tailor the information to the intended audience, so that campaigns aimed at men highlight the importance of making preventative health measures a priority while messages aimed at women explain the exact nature of the test. It would also be beneficial to assess the invitation system of the programme as well as the possibility of including new invitation strategies (text messaging, the use of existing organizational structures for breast cancer screening, reminders through primary health care physicians, etc.).

This study adds to our knowledge of the complex interaction between social determinants and participation in CRCSPs in that it has found associations between structural and intermediary factors. This knowledge may thus contribute to raising participation levels in these programmes from an equity perspective, serving as a basis for designing intervention strategies that incorporate the specific needs of various social groups.

ACKNOWLEDGEMENTS

We are grateful to the technicians of the Valencian Community Colorectal Cancer Screening Programme for their cooperation and collaboration.

REFERENCES

1. Solar O, Irwin A. A conceptual framework for action on the social determinants of health. Cairo: Commission on Social Determinants of Health; 2007. p. 7
2. Krieger N. Defining and investigating social disparities in cancer: critical issues. *Cancer Causes Control* 2005;16:5-14.
3. Council Recommendation (2003/878/EC) of 2 December 2003 on cancer screening. *Official Journal of the European Union*; 16/12/2003.
4. Parkin DM, Tappenden P, Olsen AH, Patnick J, Sasieni P. Predicting the impact of the screening programme for colorectal cancer in the UK. *J Med Screen* 2008;15:163-74.
5. von Karsa L, Patnick J, Segnan N. Executive summary. En: Segnan N, Patnick J, von Karsa L, editores. *European Guidelines for Quality Assurance in Colorectal Cancer Screening and Diagnosis*. 1st ed. European Commission; 2010. p. 46.
6. Malila N, Signore C, Armadori P. Organisation. En: Segnan N, Patnick J, von Karsa L, editores. *European Guidelines for Quality Assurance in Colorectal Cancer Screening and Diagnosis*. 1st ed. European Commission; 2010. p. 35.
7. Málaga A, Salas D, Sala T, Sala Felis T, Ponce Romero M, Goicoechea Sáez, et al. Programa de cribado de cáncer colorrectal de la Comunidad Valenciana. Resultados de la primera ronda: 2005-2008. *Rev Esp Salud Pública* 2010;84:729-41.
8. World Health Organization. A conceptual framework for action on the social determinants of health. *Social Determinants of Health discussion paper 2*. Geneva: World Health Organization; 2010. p. 20-48.
9. von Euler-Chelpin M, Brasso K, Lynge E. Determinants of participation in colorectal cancer screening with faecal occult blood testing. *J Public Health (Oxf)* 2010;32:395-405.
10. Wardle J, Miles A, Atkin W. Gender differences in utilization of colorectal cancer screening. *J Med Screen* 2005;12:20-7.
11. Courtier R. Análisis de la participación y cumplimiento de la prueba de cribado en un programa de detección precoz de la neoplasia colorrectal. Influencia de la forma de contacto con la población diana [tesis doctoral]. Barcelona: Universidad Autónoma; 2001.

12. Stockwell DH, Woo P, Jacobson BC, Remily R, Syngal S, Wolf J, et al. Determinants of colorectal cancer screening in women undergoing mammography. *Am J Gastroenterol* 2003;98:1875-80.
13. Jepson RG, Hewison J, Thompson A, Weller D. Patient perspectives on information and choice in cancer screening: A qualitative study in the UK. *Soc Sci Med* 2007;65:890-9.
14. Messina C, Lane D, Grimson R. Colorectal cancer screening attitudes and practices preferences of decision making. *Am J Prev Med* 2005;28:439-46.
15. Javanparast S, Ward P, Young G, Wilson C, Carter S, Misan G, et al. How equitable are colorectal cancer screening programs which include FOBTs? A review of qualitative and quantitative studies. *Prev Med* 2010;50:165-72.
16. Martín-Moreno JM, Anttila A, von Karsa L, Alfonso-Sanchez JL, Gorgojo L. Cancer screening and health system resilience: Keys to protecting and bolstering preventive services during a financial crisis. *Eur J Cancer* 2012;48:2212-8.
17. Molina-Barceló A, Salas Trejo D, Peiró-Pérez R, Málaga López A. To participate or not? Giving voice to gender and socio-economic differences in colorectal cancer screening programmes. *Eur J Cancer Care (Engl)* 2011;20:669-78.
18. van Rijn AF, van Rossum LG, Deutekom M, Laheij RJ, Bossuyt PM, Fockens P, et al. Getting adequate information across to colorectal cancer screening subjects can be difficult. *J Med Screen* 2008;15:149-52.
19. Álvarez-Dardet C, Alonso J, Domingo A, Regidor E. La medición de la clase social en ciencias de la salud. Informe de un grupo de trabajo de la Sociedad Española de Epidemiología. Barcelona: SG Editores S.A; 1995. p. 106.
20. Borrell C, Rohlf I, Artazcoz L, Muntaner C. Desigualdades en salud según la clase social en las mujeres. ¿Cómo influye el tipo de medida de la clase social? *Gac Sanit* 2004;18(Supl 2):75-82.
21. Moreno E, Gil J. El modelo de creencias en salud. Revisión teórica, consideración crítica, y propuesta alternativa. I: Hacia un análisis funcional de las creencias en salud. *Rev Int Psicol Ter Psicol* 2003;3:91-109.
22. Tastan S, Andsoy II, Iyigun E. Evaluation of the knowledge, behavior and health beliefs of individuals over 50 regarding colorectal cancer screening. *Asian Pac J Cancer Prev* 2013;14:5157-63.
23. Vegda K, Nie JX, Wang L, Tracy CS, Moineddin R, Upshur RE. Trends in health services utilization, medication use, and health conditions among older adults: A 2-year retrospective chart review in a primary care practice. *BMC Health Serv Res* 2009;9:217.
24. Brawarsky P, Brooks DR, Mucci LA, Wood PA. Effect of physician recommendation and patient adherence on rates of colorectal cancer testing. *Cancer Detect Prev* 2004;28:260-8.
25. Javadzade SH, Reisi M, Mostafavi F, Hasanzade A, Shahnazi H, Sharifirad G. Factors associated with the fecal occult blood testing for colorectal cancer screening based on health belief model structures in moderate risk individuals, Isfahan, 2011. *J Educ Health Promot* 2012;1:18.
26. van Rijn AF, van Rossum LG, Deutekom M, Laheij RJ, Fockens P, Bossuyt PM, et al. Low priority main reason not to participate in a colorectal cancer screening program with a faecal occult blood test. *J Public Health (Oxf)* 2008;30:461-5.
27. Ferroni E, Camilloni L, Jimenez B, Furnari G, Borgia P, Guasticchi G, et al. Methods to increase participation Working Group. How to increase uptake in oncologic screening: A systematic review of studies comparing population-based screening programs and spontaneous access. *Prev Med* 2012;55:587-96.
28. Carbonell N, Torras M, compiladores. *Feminismos literarios*. Madrid: Arco Libros; 1999. p. 246.
29. Hartmann H. Capitalismo, patriarcado y segregación de los empleos por sexos. En: Borderías C, Carrasco C, Alemany C, compiladores. *Las mujeres y el trabajo. Rupturas conceptuales*. Madrid/Barcelona: Fuhem/Icaria; 1994. p. 255 y 269.
30. Batthyány K. Cuidado de personas dependientes y género. En: Aguirre R, editora. *Las bases invisibles del bienestar social. El trabajo no remunerado en Uruguay*. Montevideo-Uruguay: UNIFEM; 2009. p. 90-2.