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Impact of gender on decisions to participate in Faecal Immunochemical Test-based colorectal cancer screening: A qualitative study

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3 **Impact of gender on decisions to participate in Faecal Immunochemical Test-based**
4 **colorectal cancer screening: A qualitative study**
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Abstract

Objective

Faecal immunochemical tests (FIT) are increasingly being used in population-based colorectal cancer screening programmes. Uptake of FIT is lower in men than women however the reasons for this are not well understood. We aimed to explore gender differences in influences on decisions to participate in FIT screening.

Methods

A qualitative study using in-depth face to face interviews of four groups of screening invitees (male and female screening users; male and female screening non-users), purposively sampled from the database of a population-based FIT screening programme. Recruitment continued until saturation was reached. Interviews were audio-recorded and transcribed verbatim. Thematic analysis using the Framework approach was employed with the Theoretical Domains Framework (TDF) guiding analysis.

Results

47 screening invitees were interviewed. Six TDF domains influenced screening uptake: “environmental context and resources”, “beliefs about capabilities”, “beliefs about consequences”, “emotions”, “social influences” and “knowledge”. Male non-users were often fatalistic, less knowledgeable, and misinformed about cancer and FIT screening compared to other groups. Female non-users expressed negative attitudes, beliefs and emotions towards FIT screening, cancer, social influences and the medical profession, and were over-confident about their health.

Conclusions

Negative attitudes and emotions to screening dominated non-user decision-making but differed by gender. Opportunities to improve uptake in men and women exist. Greater national discussions on the benefits of FIT screening, and development of screening materials tackling negative attitudes and beliefs while recognising male/female differences, may improve screening uptake.

Background

Worldwide, colorectal cancer is the second most common cancer diagnosed in women and the third most common in men although men have higher incidence and mortality from the disease. [1] Screening is effective in reducing colorectal cancer incidence and mortality. [2–7] Current guidelines recommend population based-screening of asymptomatic people aged 50-74 years or ≥ 50 years annually or biennially using non-invasive methods (guaiac-based faecal occult blood test (FOBT) or faecal immunochemical test (FIT)) or every 5-10 years using other procedures (flexible sigmoidoscopy/colonoscopy). [8,9] Many population-based screening programmes employ FOBT as the initial screening test. However FIT is increasingly being recommended because it has higher specificity and sensitivity [8] and higher uptake. [10,11]

In order to be effective in reducing incidence and mortality, population-based screening programmes require high uptake. Males have higher uptake of endoscopy-based screening procedures, while females have higher uptake of non-invasive tests such as FOBT and FIT. [12–14] For FIT specifically, a recent systematic review and meta-analysis estimated that the odds of screening participation was significantly lower in males compared to females (odds ratio [OR], 0.84; 95% confidence interval [CI], 0.75–0.95). [15] However the drivers of lower male uptake did not appear to be related to screening programme design or organisation. [15]

Lower colorectal cancer screening uptake in men has been associated with poorer knowledge of colorectal cancer and screening [16,17]; lower perceived severity of colorectal cancer; fatalistic beliefs about cancer; procrastination; lower beliefs about capabilities of successfully completing testing; machismo and homosexual sensitivities. [16,18,19] Higher uptake in women has been associate with having a family member with colorectal cancer [20] while lower uptake has been associated with fear of endoscopic based procedures and fear of a positive diagnosis. [16] However, this evidence relates to FOBT or endoscopic based tests; evidence on reasons for gender differences in uptake of FIT specifically is lacking.

We used a qualitative approach to explore differences in male and female influences on use and non-use of a population-based FIT colorectal cancer screening programme.

Methods

Design

In-depth semi-structured interviews were conducted among people invited to participate in the Tallaght Hospital/ Trinity College Dublin Colorectal Cancer Screening Programme (TTC-CRC-SP), a population-based FIT-based colorectal cancer screening programme in Tallaght, one of the most disadvantaged areas of Ireland. [20,21] Approximately 10,000 people aged 50-74 were identified through primary care practices and invited by mail to participate in screening; the FIT kit was sent with the initial invitation. Round 1 operated during 2008-2010 (uptake was 51%) and Round 2 during 2011-2012 (uptake was 47.5%). [22] In both rounds uptake was significantly lower among men than women (e.g. round 2: 44.5% vs. 50%; OR 0.79; CI 0.73-0.89). [22] The TTC-CRC-SP ceased in December 2012 after two screening rounds and, in 2013 a national FIT based screening programme (BowelScreen) began (<http://www.bowelscreen.ie>).

Theoretical Framework

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3 The Theoretical Domains Framework (TDF) [23] was used as a framework for examining
4 potential influences on whether individuals accepted an invitation to participate in the TTC-
5 CRC-SP. The TDF integrates 33 psychological and organisational theories to provide a
6 comprehensive framework of possible influences on behaviour. [23] It consists of 14
7 domains [23]: knowledge, skills, social/ professional role and identity, beliefs about
8 capabilities, optimism, beliefs about consequences, reinforcement, intentions, goals, memory
9 attention and decision processes, environmental context and resources, social influences,
10 emotion, and behaviour regulation.
11

12 *Recruitment and interviews*

14 A purposive sample was drawn from the TTC-CRC-SP database (supplementary figure 1).
15 “Users” were defined as those who had taken part in either or both screening rounds; “non-
16 users” did not take part in any screening round. Screening invitees were stratified into four
17 groups according to participation status (users/non-users) and gender (male/female). Each
18 group was sorted alphabetically in Microsoft Excel by surname and forename and a random
19 number assigned to each person (using the RAND function). We re-sorted each group from
20 lowest to highest number and approached people in sequence, starting with the lowest
21 numbered individual. The study was approved by the St James/Adelaide Meath Hospital
22 incorporating the National Children’s Hospital Research Ethics Committee (REC Reference
23 2013/12/05).
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26 Potential interviewees were contacted by mail and invited to be interviewed. Those who
27 returned a reply slip were telephoned by the male interviewer (NC) who answered any
28 questions and arranged a convenient time and place for the interview. All participants
29 provided written informed consent. Interviews were conducted face-to-face, at the
30 participant’s home, the local hospital or another venue, according to the interviewee’s
31 preference, during May-August 2014. Everyone who accepted and was available to take part
32 was interviewed. Recruitment continued until saturation was reached (i.e. no new themes
33 emerging across all interviews). Interviews were audio recorded with the interviewee’s
34 permission and lasted 15-90 minutes (mean=41 minutes).
35
36

37 *Topic guide*

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39 The topic guide (Supplementary Table 1) was informed by the TDF. Questions were
40 developed for each domain to explore potential influences on screening invitees’ decisions
41 regarding FIT screening use.
42

43 *Analysis*

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45 Transcripts were imported into NVivo 9. Data was analysed thematically using the
46 Framework approach; this involved familiarisation, construction of a thematic framework
47 (the TDF domains), indexing and sorting data, and reviewing data extracts. [24] Two
48 researchers independently read four transcripts, coded these to the TDF domains then
49 discussed coding to reach consensus. The remaining interviews were then coded to the TDF
50 by one researcher (NC). A health psychologist (PG) was consulted when necessary. Domains
51 were compared and contrasted by strata. Selected illustrative quotes are presented in Tables 1
52 (users) and 2 (non-users), with additional quotes in Supplementary Tables 2 (users) and 3
53 (non-users).
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Results

Interviews were conducted with 47 people, 28 users of FIT-based screening (16 male, 12 female) and 19 non-users (9 male, 10 female). Interviewees' characteristics are summarised in Supplementary Table 4.

Six TDF domains were identified as influencing interviewees' decisions on participation in FIT-based screening: 'environmental context and resources', 'beliefs about capabilities', 'beliefs about consequences', 'social influences', 'emotions' and 'knowledge' (Supplementary Table 5).

Environmental context and resources

Screening users

A prominent influence on screening behaviours was salient events in interviewees' lives. These acted as a catalyst encouraging screening participation in male and female users. Generally these related to others diagnosed with cancer or other gastric/bowel conditions and were a context within which screening was validated as a positive health behaviour.

Resources and materials relating to the FIT kit also influenced participation. Most female users found the test equipment simple and easy to use. In a few instances females raised concerns with the kit (e.g. paper for catching stool, sampling tool, packaging for storing the sample in the refrigerator); these issues were overcome and did not act as barriers to participation. Male users were very positive about the screening resources and materials provided.

Screening non-users

Female non-users referred to salient events related to colorectal cancer, other cancers or other gastric conditions; these events were seen in a negative light and presented as reasons not to participate. Male non-users also mentioned salient events acting as barriers to screening; these were generally unrelated to medical matters or illness (e.g. relationship breakdown, child custody battle).

Uniquely female non-users had poor trust in the medical profession, particularly their local hospital, and this influenced their decision not to take part. Some male non-user had issues with the environmental context, specifically delivery of mail, implying the screening invitation did not reach them.

Female non-users' attitude to FIT test materials was often negative and related to the sampling kit (e.g. catching of the stool using the paper provided, using the sampling stick) and packaging for storing the sample in their refrigerator (e.g. concerns about food contamination). Male non-users had few or no issues with the resources and material.

Beliefs about capabilities

Screening users

Both male and female users had strong confidence in their ability to do the test, describing how they carefully followed the test instructions and pointing out "it's not rocket science".

Screening non-users

Male non-users generally believed they would have had no problems conducting the test despite not participating. Female non-users raised several issues impacting on their perceived ability to carry out the test, including an inability to deal with faecal matter and lack of

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3 confidence in sampling stool with the equipment provided. Others suggested that they felt
4 confident to recognise illness in themselves observing that they did not participate in
5 screening because they felt they were not ill or that they had no bowel symptoms; several
6 made statements such as “you know your own body” and “if it’s not broke don’t fix it”.

Beliefs about consequences

Screening users

9
10 Both female and male users were very positive about the implication of a colorectal cancer
11 diagnosis, often stating that they considered that early detection is the key to successful
12 treatment.

Screening non-users

14
15 Both female and male non-users were generally negative about the implication of a colorectal
16 cancer diagnosis. Many female non-users discussed undergoing surgery and the potential
17 need for a colostomy bag in negative terms. Male non-users often held fatalistic beliefs that a
18 diagnosis inevitably resulted in death.

Social influences

Screening users

21
22 Male users spoke about the positive influence of female partners in their decision to
23 participate. Female users discussed social influences outside the family on their screening
24 participation including the impact of media campaigns for other cancer screening and quitting
25 smoking.

Screening non-users

26
27 Female non-users raised a range of social influences which were generally negative and
28 influenced their decision not to participate in screening (e.g. a neighbour who experienced
29 colonoscopy-related complications, lack of encouragement from one’s GP, discouragement
30 by one’s mother). While there were fewer social influences on male non-users’ screening
31 decisions, some discussed a female relative’s unsuccessful attempt to encourage them to
32 participate.

Emotions

Screening users

33
34 Male and female users spoke of their decision to be screened with positive emotional affect
35 feeling it was a “brilliant idea”. Although male users sometimes mentioned fear of cancer and
36 embarrassment (with respect to the test), these did not inhibit their participation. Instead fear
37 of cancer was a catalyst to screening, providing “peace of mind” in knowing that one has a
38 “pretty good chance of not getting it”.

Non-users

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40 Female non-users expressed negative emotions around screening including disgust (related to
41 handling faeces or storing the sample in the fridge), anger (timing e.g. receiving test while
42 grieving a spouse’s death) and fear (of cancer). Some female non-users described emotional
43 burnout due to other conditions leaving them emotionally unequipped to deal with a potential
44 colorectal cancer diagnosis, leading them to decide not to participate. Male non-users
45 expressed negative emotions relating to a fear of cancer, and dying (considered as potential
46 consequences of screening) influencing their decision not to participate.

Knowledge

Screening users

Generally female users considered their risk of developing colorectal cancer as low, based on their family history of the disease and lifestyle (which they considered “healthy”). Some male users considered they had low risk because they had previously had a colonoscopy (either having a negative result or polyps removed) and therefore were in no immediate danger or because they had a healthy diet and lifestyle; others considered that they had high risk because of other gastrointestinal conditions (e.g. Crohn’s disease). Overall, users had a very considered view of their colorectal cancer risk and felt screening participation would sustain a low risk or reduce a high risk. Male and female users often knew other people with colorectal cancer and this motivated them to participate in screening.

Screening non-users

Female non-users generally believed that their risk was low, mainly because they had no family history or symptoms of the disease (generally understood as frequent bowel motions). This perceived low risk led them to believe they did not need to be screened. Male non-users generally stated they did not know their risk of developing colorectal cancer and were often unsure if they knew anyone with colorectal cancer.

Female non-users were often unclear about the screening procedure, and sometimes described having not read the information sent with the test kit. Male non-users stated that they were clear about how the test was carried out but upon discussion several had misunderstood how to complete it.

Discussion

We used qualitative methods to explore influences on males’ and females’ decisions to participate in FIT-based colorectal cancer screening. Considering FIT based screening is increasingly being used in population-based programmes, and that uptake is variable (19%-76% in population-based programmes, average 44% [15]), this study provides valuable information on factors influencing non-participation, examining these differences by gender. Six TDF domains emerged as influencing individuals’ decisions on FIT-based screening participation. Although all of these domains were evident for users and non-users, issues within domains differed between groups, or the same issues played out differently in the two groups and sometimes by gender.

Negative attitudes, beliefs and emotions, pervaded decisions of non-users, while positive attitudes, beliefs and emotions were evident among users. Negative attitudes are associated with lower colorectal cancer screening participation. [25,26] Our study found differences in these attitudes and beliefs by gender especially among male and female non-users. These included differences in salient events (medical matters in females and non-medical matters in males); response to materials and resources (test kit, storage and faecal sampling in females; non-test related factors in males); perceived consequences of screening and diagnosis (males’ fatalism); and social influences (negatively impacting on females’ decisions, but less apparent in males).

Fear of cancer and fatalistic beliefs result in low adherence to screening recommendations [27] but fear may have different effects on screening decision-making around participation [28]; this has not been explored by gender. In our study, although male users had some fear around a cancer diagnosis, this did not impede participation whereas in non-users fear was an impediment to screening. Fatalism has been associated with poor screening uptake [19,29–

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3 31] and those with greater fatalistic beliefs are more likely to believe they have a greater risk
4 of cancer and that it is a more severe disease. [31] Where our study extends these is that we
5 found fatalistic beliefs were present among male non-users only and influenced their decision
6 not to participate.
7

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9 Non-users, particularly male non-users had poorer knowledge of colorectal cancer than users
10 and less often knew of others with cancer. Knowledge about cancer generally, and knowing
11 someone with colorectal cancer, is positively associated with screening intention and
12 participation [25,32,33] while low health literacy has been identified as influencing non-
13 participation. [34] Our findings suggest that health literacy and social supports which provide
14 opportunities to learn about illnesses or screening may be especially poor among male non-
15 users thereby influencing non-participation. Von Wagner et al, have suggested the use of a
16 wider range of communication strategies in raising awareness of screening [35] and we
17 concur with this.
18

19 Disgust influenced females', but not males', decisions to participate in screening. Different
20 forms of disgust, such as trait disgust (the stable tendency to experience disgust) and state
21 disgust (current emotional experience), might influence particular types of decisions such as
22 taking part in screening. A recent study found that while females had higher scores for both
23 forms of disgust, between-gender differences were not significant, but the authors
24 acknowledged methodological limitations. [36] There is a need for research identifying how
25 screening information could address anticipated disgust [36,37] and our finding suggests this
26 should be considered with gender differences in mind.
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29 There were few differences between male and female users in influences on screening
30 decisions, but female relatives often influenced male users' decisions to be screened but this
31 influence did not operate in the other direction. Spouses play an important role in colorectal
32 cancer screening decision making; [38,39] and women have been described as the guardians
33 of men's health [40]; our study appears to be the first to show that this positive influence
34 operates only for men. Among male non-users, while social influences were fewer, females
35 relatives had sometimes attempted to influence them, albeit unsuccessfully. Further
36 investigation of the influence of females on male screening decision-making is warranted.
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39 Male non-users were less clear about their non-participation than female non-users, citing
40 external circumstances or that they had forgotten or didn't have time. Those who cited
41 external circumstances or forgetting as reasons for non-participation could have been
42 masking their true reasons. Elsewhere it has been reported that unscreened males often
43 procrastinated about screening, being vague and emotionally distant around screening
44 decisions. [19] In our study a small number of male non-users revealed that they
45 unconsciously resisted doing the test due to an underlying fear of the potential outcome of
46 screening. Further investigation on resistance to screening in males is warranted.
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49 This is the first study to employ the TDF within a qualitative study investigating influences
50 on FIT-based colorectal cancer screening decisions. Although interviewees were recruited
51 from a population-based screening programme, this operated in a specific area in one city and
52 it is possible that themes/influential domains may not generalise to other settings/populations.
53 Our sample was drawn from a screening programme which had finished two years prior to
54 recruitment and interviewees may have had difficulty with recall, although we provided recall
55 aids. One (male) interviewer conducted all interviews and while this provided consistency
56 across interviews, it is possible that the interviewer's gender influenced interviewees'
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3 responses. Finally, while we reached saturation of themes across the entire dataset, and in all
4 strata except male non-users, the relatively small number of non-users who were interviewed
5 is a limitation. Recruitment of non-users was challenging: 550 individuals were approached
6 in order to obtain interviews with 19 people. It is possible that if more non-users had
7 participated further domains might have been identified as influencing screening decisions.
8

9 Conclusions

10
11 Our study provides novel information on influences on FIT uptake in men and women.
12 Further investigation is required of whether and how the influences identified in this study
13 operate independently and together at the population-level. Our findings may be used to
14 inform the development of gender-specific interventions designed to improve uptake in FIT-
15 based screening programmes. Moreover, the opportunity exists, within Ireland at least, where
16 colorectal cancer screening is relatively new, to open a national discussion on the benefits of
17 FIT-based screening, tackling the issues raised in this study and ultimately seeking to
18 improve screening participation in both genders.
19

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26 Conflicts of interests

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28 The authors declare no conflicts of interest with respect to this article
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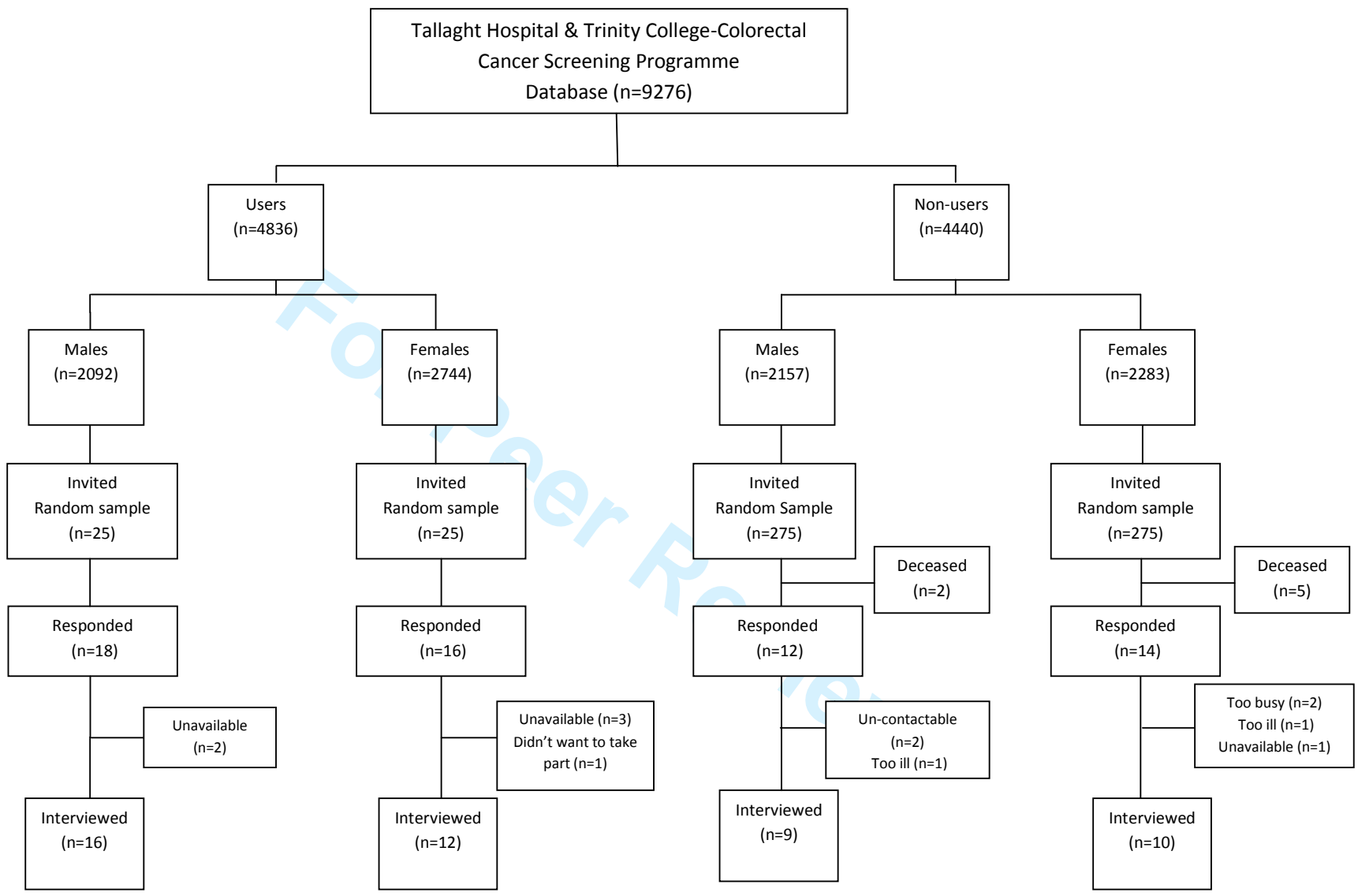
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Table 1: Illustrative quotes for domains potentially influencing screening decisions in users, by gender

Domain	Female compliers	Male compliers
Environmental context and resources	She had bowel cancer. Well, her bowel burst, actually, she's lucky to be alive. I thought, oh no, I need to get this done, because there's slight changes, do you know.(P-9)	And certainly in light of the two guys, friends of mine who are in trouble now. So I would certainly be very conscious of it.(P-28)
Beliefs about capabilities	Well, I thought so. I mean, it's pretty simple to do, just take the little stick and... It's not exactly rocket science.(P-7)	It was easy enough, yeah. Yeah, you just prepare whatever you have to do upstairs and do it.(P-32)
Beliefs about consequences	But I always feel that if you had to get a cancer, it wouldn't be one of the worst [<i>colorectal cancer</i>], because it is treatable, and if it's caught in time I think you have a better chance than you have if you got pancreatic cancer.(P-3)	If they got it in time, if they were screening, and all that, that's the way I believe in it. Well, it's like anything, I suppose, if you get it in time.(P-26)
Social Influences	If I came to a bowel cancer awareness week or breast cancer or bowel cancer or whatever, it would make me think, and it's "oh I must follow up on that and have all that checked out for myself".(P-3)	She nagged me into it [female spouse], so I did it.(P-35)
Emotions	I thought brilliant....Great idea. Any of those tests for prevention, I would say, is a great idea.(P-1)	The more people you've met or have known that have had cancer, and the closer you are to getting it, the more frightening it becomes, especially when people die, obviously.(P-29)
Knowledge	I suppose it's one of the cancers I would think, no, you won't get that...it's just maybe to do with diet and lifestyle, is a lot to do with it probably.(P-6)	Well, at the moment, after doing this [<i>colonoscopy</i>] I think I'm okay.(P-29)

Table 2: Illustrative quotes for domains potentially influencing screening decisions in non-users, by gender

Domain	Female non-compliers	Male non-compliers
Environmental context and resources	I got it the morning after my young fellow nearly died the night before and I just... I'm sick of hospitals...and it was all bowels.(P-19)	So I just kept putting it off. I mean, in and out of the courts for the last... I mean, I'm going to the High Court now [<i>custody battle</i>]. So I've been down the courts for the last 12 years.(P-45)
Beliefs about capabilities	Well, when I saw what you had to do, I couldn't cope with that [<i>faecal sampling</i>].(P-15)	Yeah...I'd do it myself now. I've no problem doing it now. (P-39)
Beliefs about consequences	It'd probably be fairly invasive and end up with bags and all sorts of things.(P-18)	I'd say they'd be dead. Because there's no cure for cancer is there, not that I know of anyway.(P-47)
Social Influences	Well, it was my mother, when I got the letter my mother said, "Throw that in the bin, you don't want to know anything about yourself."(P-16)	And she [<i>wife</i>] said to me, "Did you do it?" "Aye," I said. But I didn't.(P-46)
Emotions	I thought, 'I'm not doing that' [<i>faecal sampling</i>]. Yes... If it had been probably- oh God, it sounds disgusting.(P-13)	At the time it was, yeah, it was a fear of dying.(P-47)
Knowledge	That would have been on my mind, opening that pack, and looking at it and thinking, 'Well, I don't have the symptoms that [sister] had. If I have, I'll go.'(P-22)	But you wiped your bottom and you sent this piece of paper off to the...wherever, the lab.(P-40)



Supplementary Figure 1: Consort diagram of interviewee recruitment

Supplementary Table 1: Topic Guide

Tell me a bit about yourself

Live here always?	All
Family	All
Occupation	All
General health/ other conditions	All
How often would you attend a GP/ when was the last time you attended A&E	All
Exercise/ diet	All
Health information and general understanding	All
What is your overall feeling about our health system? Trust?	All

First invitation:

What were your first thoughts on receiving invitation?	All
Was this different on second invitation?	All
Aware of screening before? Any screening - CRC screening - local/ National screening	All
Taking test – did you want to?	All

Decisions

Did you make an attempt to do the test?	Non-users
Why did you decide to do the test?	Users / attempters
Why did you decide not to do the test?	Non-users/ attempters
Others - did you speak or discuss the test with others?	All
Do you regret not doing the test - discuss	All

Test

How was it – easy/ difficult?	All
Confident – in doing test correctly (self testing vs GP testing)	All
Comfortable - Time / sampling/ storage/ smell/ disgust/ information/ support/ assistance	Users / attempters
What would make test easier?	All
Were there other factors that made it difficult?	All

Results

How long did it take to get your results?	Users
What was your result?	Users
What was it like waiting for the results?	Users
Did you understand the result?	Users
Were you confident result was correct?	Users
What impact did the result have on you?	Users

Screening - general

Screened before? - Mammogram/ cervical/ breastcheck - PSA - CRC	All
How do you find those screening tests?	All
Importance of screening you've taken part in?	All
Importance of screening in general?	All
What do you feel the purpose of screening is in general?	

Bowel cancer

Experiences of bowel cancer (BC)	All
Causes of BC	All
Treatment for BC - effective/ ineffective	All
Whos at risk of BC	All
Your risk of BC	All

Finally

Finally - Will you take part in the national screening programme, BowelScreen?	All
Is there anything you'd like to add which we haven't discussed?	All

Supplementary Table 2: Illustrative quotes for domains potentially influencing screening decisions in users, by gender

Domain	Female users	Male users
Environmental context and resources	My paternal grandmother had it [colorectal cancer], and she was very bad, she ended up with a colostomy bag, which I just think is the most hideous thing in the world, myself. And she died a bad death, shall we say, so that certainly sticks in my mind. (P-10)	But I had a brother died of colon cancer, so the family took a bit of an interest then. Because we have a niece in England who kind of pushes a little bit, like, "You need to get this done." So she got her dad, a brother of mine, to do it – he's sadly passed away since. So there's an interest there and an interest to follow up alright, yeah. (P-31)
	She had bowel cancer. Well, her bowel burst, actually, she's lucky to be alive. I thought, oh no, I need to get this done, because there's slight changes, do you know (P-9)	And certainly in light of the two guys, friends of mine who are in trouble now. So I would certainly be very conscious of it. (P-28)
	Yeah, because they give you instructions. But the instructions, you know, you have to poo on a piece of paper. It might just go down the loo. You are not going to be fishing it out. (P-1)	Easy to do, easy to do. Once you follow the... As I said, they explained the test really well. If you followed what they'd said, you'd no problem, no problem whatsoever. It was easy to understand. (P-27)
Beliefs about capabilities	I'd think it would probably be more effective if it was maybe on a disc or a dish rather than, do you know, like... you know the way the screening is done, is like a swab, a tiny, tiny swab, and I think... I know, talking to people - I didn't have a problem because I would be got back to presumably if it hadn't been successful (P-5)	That's not a problem, you have your own bathroom, you have your privacy, you do it all, seal it up, bring it down in a package. It's not a problem, it's so easy. (P-31)
	No problem, no problem. Like, well, you know, my attitude is if you have to do something you'll find a way to make it easy for yourself kind of, you know what I mean.(P-4)	Oh it's no problem, you just do it. I mean, maybe it's a bit embarrassing given the nature of what you are doing, but it's not really, because you do it privately....//Normally, doing anything like that I'd be conscientious enough about reading instructions. I don't like to do things just, like, willy-nilly, you know. (P-36)
Beliefs about consequences	Well, I thought so. I mean, it's pretty simple to do, just take the little stick and... [Laughter]. It's not exactly rocket science. [Laughter]. (P-7)	Yeah. I did exactly what I was asked to do, yeah....// It was easy enough, yeah. Yeah, you just prepare whatever you have to do upstairs and do it, yeah. (P-32)
	But I always feel that if you had to get a cancer, it wouldn't be one of the worst [colorectal cancer], because it is treatable, and if it's caught in time I think you have a better chance than you have if you got pancreatic cancer. I'd prefer to be told I had bowel cancer than pancreatic cancer. (P-3)	Well, I'd have thought it all depends on how advanced it is before it's caught. It seems to be... like, you hear people have cancer, and they say, 'Oh, they were just too far gone.' Like, I think the frightening thing about cancer is you have it for so long and that you don't know you have it, and then when they discover the cell, you know it's... But I would believe, if they got it in time, if they were screening, and all that, that's the way I believe in it. Well, it's like anything, I suppose, if you get it in time. (P-26)
	Well, if they are caught quickly... Like, if I hadn't, God forbid, had it then, I would have been quite... I would have... after getting over the shock, I would say, 'No, I'll be alright.' I'm convinced, if you can get it at the right time... I think the trouble is when it starts spreading, obviously, you know. So if you can prevent it, as I say, or...? (P-9)	What did come into my head, "At least if it comes out the wrong result for me, at least it's known about and it can be treated." So that was in there that, if I'm being invited to do this and I'm detected as positive, well then they will do something and they'll treat me. I won't have to go to my doctor and then go to a consultant. This is what I was thinking.(P-31)

Supplementary Table 3: Illustrative quotes for domains potentially influencing screening decisions in non-users, by gender

Domain	Female non-users	Male non-users
Environmental context and resources	I know a neighbour up there who did the bowel thing with her husband. Husband was alright. Went there and was alright. She came in and nearly lost her life, because they punctured her bowel. Priests know. Their family was all called. It was dreadful. That put the <i>[swear word]</i> up everybody in the estate (P-22)	Because it said to do it at the weekend [FIT test]and put it in the fridge. So I just kept putting it off. I mean, in and out of the courts for the last... I mean, I'm going to the High Court now. The kids were all taken out because she abused them. Mad stuff, crazy stuff, about 10 years ago. So I've been down the courts for the last 12 years. (P-45)
	I just didn't want to. Why didn't I do it? Yeah, because my eldest young fellow... I got it the morning after my young fellow nearly died the night before and I just - ' <i>[swear word]</i> ' - I'm sick of hospitals' - and it was all bowels - I just couldn't. (P-19)	Because I was separated, you see. I was in the house. I got a judicial separation. A lady judge told my wife she would have to sell the house and give half the proceeds to me, which wouldn't be an awful lot of money, but I had two daughters living in the house. So if she sold the house, it would do more damage.... I've gone through all that myself. And I decided... I didn't do anything about it. (P-40)
	You have to put it in the fridge. That's the only thing. But I suppose you can put it in an extra bag and leave it in the fridge. Well, I have another fridge now. <i>[Laughter]</i> But at the time I was saying, "Oh God!" But that's... I know it's stupid and all but... (P-17)	There's nothing I could do about it. It wasn't my fault. Probably wasn't their fault. It was GPOs <i>[swear word]</i> fault, or someone like the <i>[swear word]</i> bleeding postman that comes around. They skip <i>[swear word]</i> half the doors around here. (P-42)
	That's what put me off, the catching of it <i>[faeces]</i> . That would put me right off it. How would you catch it?//Or probably I'd just seen the size of the thing and panicked and thought, 'I'm not putting that into that <i>[container]</i> .' (P-13)	I had to solve a problem with the mail in my house. ...// Every post I get is always opened. (P-40)
Beliefs about capabilities	I think it's just by luck if you are able to get yourself back on the road. I don't honestly think they <i>[medical profession]</i> know what they're doing. I think so, anyway. (P-17)	The health system in general is crap, especially <i>[name]</i> Hospital. It's the worst hospital ever. // I've nothing against the nursing staff. The nursing staff at any hospital is brilliant, brilliant. It just depends on the doctors. (P-19)
	Well, when I saw what you had to do, I couldn't cope with that <i>[faecal sampling]</i> . Yeah... I wouldn't find it very... well, pleasant is not the word but...You know. I suppose nothing medical is, is it?...Nothing medical is pleasant. (P-15)	Yeah, you put the sheet down the toilet pot when you go to the toilet, naturally, and you have some and you put back into the bowl and send it off. Yeah...I'd do it myself now. I've no problem doing it now. (P-39)
	I didn't. I tell you why. For hygiene reasons I didn't do it. I thought, 'Oh God, I'm not doing that.... I just thought, 'I'm not doing that. That's just too messy. I can't be dealing with that.' So I said, 'No... not happening. (P-13)	To me, you know your own body. And if I thought... I have a young one with Crohn's disease, so I know if there's something wrong with your bowel, I know exactly when to go.I just didn't want to...//My attitude is - I know it's probably wrong, but if it's not broken, don't fix it. (P-19)

Supplementary Table 4: Characteristics of interviewees at time of interview

	Male users	Female users	Male non-users	Female non-users
All participants	16	12	9	10
Age				
Mean age	66	66	64	65
Age range	58-72	58-72	55-77	56-78
55-64	6	5	4	5
65+	10	7	5	5
Marital status				
Married	12	8	5	5
Single/ Divorced/ Separated/ Widowed	4	4	4	5
Health care access *				
Private Health Insurance - Yes	10	6	-	2
Private Health Insurance - No	6	6	9	8
Medical card** - Yes	3	4	8	5
Medical card - No	3	2	1	3
Employment status (n)				
Working	5	4	1	2
Retired	11	8	3	6
Not working due to injury or illness	-	-	5	2

*Participants may be in multiple categories, i.e. hold a medical card and private health insurance

**A medical card is provided to citizens who are on reduced means and entitles the holder to free health care under the public health system including primary care.

Supplementary Table 5: Definitions of TDF domains which emerged as potentially influencing screening decision making

Domain	Definition
<i>Environmental context and resources</i>	Any circumstance of a person’s situation or environment that discourages or encourages the development of skills and abilities, independence, social competence, and adaptive behaviour
<i>Beliefs about capabilities</i>	Acceptance of the truth, reality, or validity about an ability, talent, or facility that a person can put to constructive use
<i>Beliefs about consequences</i>	Acceptance of the truth, reality, or validity about outcomes of a behavior in a given situation
<i>Social influences</i>	Those interpersonal processes that can cause individuals to change their thoughts, feelings, or behaviours.
<i>Emotion</i>	A complex reaction pattern, involving experiential, behavioural, and physiological elements, by which the individual attempts to deal with a personally significant matter or event
<i>Knowledge</i>	An awareness of the existence of something

For Peer Review

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