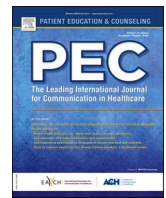




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## Decisions and prompts to screen for cervical, bowel, and breast cancer

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## ABSTRACT

**Objectives:** To investigate what makes Australians decide to screen and follow through for breast, cervical, and bowel cancer population screening programs.

**Methods:** A convenience sample ( $N = 962$ ) answered open-text questions about their decision to screen and what prompted them to act in an online survey. Open text responses were coded based on shared meaning using content analysis. Frequencies of each code were calculated.

**Results:** For breast and cervical screening, decisions were commonly based on *screening being routine* (32.58%<sub>breast</sub> and 35.19%<sub>cervical</sub>) or *receiving a reminder* (20.53%<sub>breast</sub> 13.07%<sub>cervical</sub>), and similarly, common prompts were *receiving a reminder* (40.68%<sub>breast</sub> and 29.13%<sub>cervical</sub>), *screening being routine* (22.05%<sub>breast</sub> and 18.65%<sub>cervical</sub>). Participants reported deciding to screen for bowel cancer due to *arrival of home screening test kit* (40.50%) or the *experience of loved one's cancer* (13.57%) and were prompted by *arrival of home test kit* (23.58%), and *convenience* (15.72%).

**Conclusions:** Findings can inform the development of interventions targeting non-participants of cancer screening programs.

**Practice Implications:** Messages to encourage breast and cervical cancer screening should frame screening as part of regular healthcare routine. Messages to encourage bowel cancer screening should encourage immediate use of the screening kit upon arrival.

## 1. Introduction

Cancer is a major cause of disease burden globally. For example, cancer accounts for approximately one in three deaths in Australia, equating to an estimated 50,000 deaths in 2022 alone [1]. Early detection of cancer is linked to increased survival [2]. As such, Australia, like many other countries, has implemented population-level screening programs for breast, bowel, and cervical cancer. 'BreastScreen Australia' invites individuals aged 50 to 74 for free mammography screening every two years [3], the 'National Bowel Cancer Screening Program' (NBCSP) distributes biannual home faecal occult blood test kits to individuals aged 50–74 [4], and the 'National Cervical Screening Program' invites women and people with a cervix aged 25–74 years to complete a Cervical Screening Test every five years through their healthcare provider [5]. Despite the well-established benefits of cancer screening,

participation rates in Australia are low: ranging from 68% for cervical cancer, 55% for breast cancer, to 43% for bowel cancer screening [6,7]. Understanding the factors that drive individuals' decisions and prompts to screen is crucial for increasing screening in Australia's three population screening programs and thereby reducing the overall burden of cancer.

Behavioural theories suggest that several factors facilitate participation in cancer screening. Some theories distinguish between the factors that drive one's *decision* to screen from those that lead to screening *behaviour*. These can be referred to as *motivational* factors and *volitional* factors respectively, with both being required to engage in a health behaviour [8]. During the motivation stage, individuals' attitudes and beliefs regarding their level of risk (e.g., perceived susceptibility of developing bowel cancer), outcome expectancies (e.g., the perceived benefits of participating in screening), and self-efficacy (e.g., their

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confidence in their ability to complete a bowel cancer screening kit) combine to produce an intention to participate in cancer screening.

Research has consistently shown that many eligible participants are motivated to screen for cancer, yet do not act on these intentions [9–13]. Given the existence of this phenomenon, referred to as the intention-behaviour gap [14], it is important to differentiate what drives one's decision to screen from what prompts them to act. This understanding will inform interventions bridging the intention-behaviour gap. Two types of interventions that aim to achieve this include *action planning* and *implementation intentions*, both of which rely on individuals having made the decision to act, and then aim to establish a prompt/-plan to act [15]. Action planning interventions have individuals develop specific situational parameters (i.e., “when” and “where”) and a sequence of step-by-step actions (i.e., “how”) to complete the desired behaviour (e.g., when the kit arrives, I will put it in the bathroom). Similarly, implementation intention interventions have individuals select a cue (e.g., receiving a reminder) and link it to the desired behaviour (e.g., making an appointment for a mammogram) to form an “if-then” plan. Identifying how these behaviour change strategies can be implemented in the context of cancer screening is vital to increase participation rates.

It is presently unclear what facilitates the formation of decisions to screen for cancer, versus what prompts individuals to complete screening actions. Existing factors used by screeners may help to design interventions that are well-received and used by invitees, as opposed to researcher-imposed interventions. Furthermore, despite differences in screening method utilised for each cancer type, limited evidence currently exists comparing the facilitators of screening intentions versus behaviour across cancer types. Therefore, the aims of the present study were to: i) identify and (ii) delineate the factors that drive screening *decisions* and those that *prompt* screening behaviour for Australia's only national cancer screening programs: breast, bowel, and cervical screening.

## 2. Methods

### 2.1. Recruitment and Procedure

Participants were recruited through a wider survey study and only methodology relevant to the current study is described here. Using a convenience sampling approach, participants were recruited through Facebook advertising, and digital and physical flyer distribution to community groups. Participants were offered the chance to win one of five retail vouchers valued at \$50. Participants needed to i) be at least 18 years of age, ii) have access to the internet, iii) be able to read English, and iv) have previously participated in at least one form of breast, bowel, and/or cervical cancer screening to be eligible to participate.

Participants completed an anonymous online survey about health and cancer screening behaviours, delivered via Qualtrics software [16]. Survey questions relevant to this study took approximately 10 minutes to complete and upon completion, participants could leave their contact details for prize draw entry via a linked survey, detached from their responses. Ethical approval was granted by a university Human Research Ethics Committee (ref. H22REA090) and all participants provided informed consent.

### 2.2. Measures

#### 2.2.1. Demographics

The survey captured age, sex, country of birth, First Nations identity, postcode, education, and employment status. Those who did not identify as male or female gender were asked their biological sex assigned at birth how they would describe their gender identity and whether they currently have a cervix and/or breasts, to determine the relevance of the cancer screening programs for each participant. To the authors knowledge, there are no published standard, accepted measures for capturing

data on non-cis gender or sex for cancer screening research. These questions were created in collaboration with a research team member investigating cancer in LGBTIQ+ populations (see [supplementary material](#)). Additionally, space was provided for participants to comment on the way in which these questions were asked in the current survey. Fifty-eight of the 62 people who left feedback provided positive responses, expressing the questions were respectful and easy to follow. The remaining 10 suggested minor revisions.

### 2.3. Cancer Screening History

To assess if participants were up to date with screening, those with a cervix aged 25 to 74 years were asked whether they had completed cervical cancer screening within the last five years (“yes” or “no”); those with breasts aged 50 to 74 were asked whether they had undergone breast cancer screening within the past two years (“yes” or “no”) and participants aged 50 to 74 years were asked whether they had completed a home bowel cancer screening kit within the last two years (“yes, (NBCSP kit)”, “yes, other kit” or “no”).

### 2.4. Decisions and Prompts to Screen for Cancer

Participants who were up-to-date with screening for breast, bowel, and/or cervical cancer were asked to reflect on their most recent experience with each form of cancer screening and indicate what made them decide to undergo screening (i.e., “Thinking of the last time you screened for cervical cancer, what made you decide to undergo screening?”) and what prompted them behaviourally to complete their cancer screening test (i.e., “Again, thinking of the last time you screened for cervical cancer, what prompted you at the time to actually schedule your appointment?”). When asked about bowel cancer screening the wording was changed to “what prompted you on the day to use the bowel cancer screening kit?”. Participants provided open text responses to each question which was best suited for the exploratory study approach.

### 2.5. Data Analysis

Open text responses were coded based on shared meaning using content analysis [17], such that data were coded without existing theoretical assumptions, and instead aimed to capture common responses. A codebook was developed by one member of the research team [removed for blinding] to provide definitions of each code type (see [supplementary material](#)). Each response was coded by [removed for blinding] and a second independent researcher [removed for blinding] using the codebook. Percentage of agreement and Cohen's kappa were calculated using the irr package in R (Gamer et al., 2019). Disagreements were then resolved through discussions between researchers [removed for blinding]. During this process, two new codes (‘complete’ and ‘peace of mind’) were identified. The frequency and percentage of participants responses in each code were calculated separately for responses regarding decisions and prompts to screen for breast, bowel, and cervical cancer.

Logistic regression was used to determine if commonly reported codes (i.e., >20%) were associated with the persons age, living in or outside of a major city, or area-level socioeconomic status (percentile rank). Levels of remoteness and socioeconomic status was based on the participants postcode using the 2017 Australian geographic standard [18]. The analyses were also conducted to examine the percentage of participants who gave the same response for the decision and prompt questions. See [supplementary materials](#) for R code.

## 3. Results

In total, 962 people were included in this study, with a mean age of 57.30 years ( $SD = 15.90$ ), see [Fig. 1](#) for participant flowchart. Valid responses (i.e., responses that were comprehensible) for the decision to

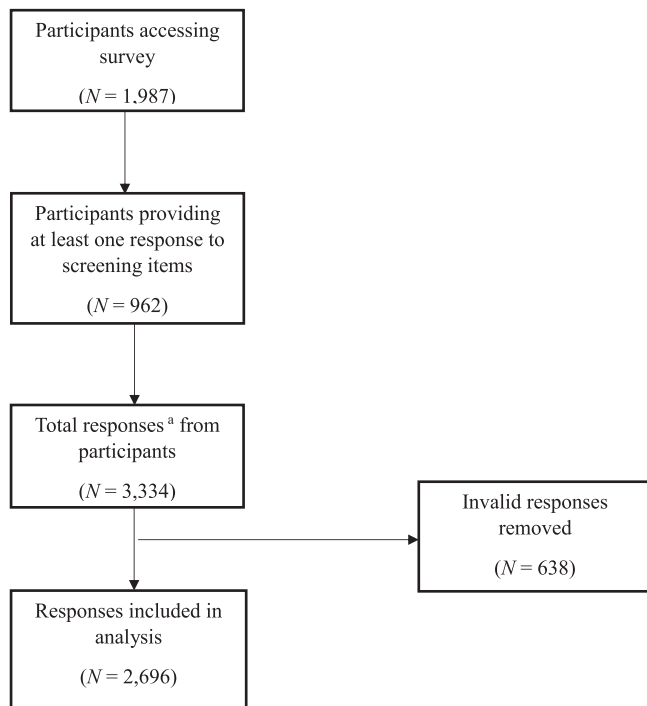


Fig. 1. Participant Flowchart.

screen for cancer were obtained from 531 breast screeners, 516 bowel screeners, and 574 cervical screeners. Valid responses for prompts to screen were obtained from: 526 breast screeners, 509 bowel screeners, and 563 cervical screeners. Irrelevant responses (e.g., “not applicable”) were removed. Of the people that responded to the bowel cancer screening questions, 74.62% (n = 388) were female and 25.38% (n =

132) were male. The remaining demographic information is reported in Table 1. Interrater reliability analysis of coding showed ‘almost perfect agreement’ between coders ( $\kappa = .96$ ,  $\%_{\text{agree}} = 97\%$ )[19].

As shown in Table 2, the most commonly reported factor regarding the decision to screen for breast (32.85%) and cervical (35.19%) cancer was screening as part of an existing routine (e.g., “biannual regular check”). Whereas, for bowel cancer the most commonly reported factor to decide to screen was the arrival of the home test kit in the mail (e.g., “was sent kit because I am over 50”; 40.50%). Receiving a reminder (e.g., “I received a reminder from BreastScreen”) was also among the most commonly reported decision factor for breast (20.53%) and cervical cancer (13.07%) screening, but rarely reported for bowel cancer screening (3.49%). Exposure to loved one’s diagnosis or experience of cancer (e.g., “mother had breast cancer”) was among the most commonly reported decision factor for breast (16.20%) and bowel (13.57%) cancer screening. Finally, health consciousness (e.g., “prevention or early detection”; 14.11%) and advice from a healthcare professional (e.g., “told to do so every two years by gynae”; 20.56%) were also commonly decision factors cervical cancer screening.

As shown in Table 3, the most commonly reported prompt for breast (40.68%) and cervical (29.13%) cancer screening was receiving a reminder (e.g., “A reminder letter”). Having screening as part of their routine test (e.g., “yearly review”) was also commonly reported for breast (22.05%) and cervical (18.65%) cancer screening. For bowel cancer screeners, receipt of the home test kit was the most commonly reported prompt for participation (23.58%; e.g., “It was sent to me, so I followed through”), followed by the convenience of the test (e.g., 15.72%, “Easy and simple to complete”).

Identical responses regarding the decision to screen and the prompt to screen was given by 30.25% of breast screeners, 17.15% of bowel screeners, and 25.13% of cervical screeners. For all three screening types, less than 1% of participants did not provide an answer to both questions (decision and prompt).

Post hoc tests revealed little significant variation in reporting

Table 1  
Sample Characteristics <sup>a</sup>.

Demographic	Total		Australian Population		Breast		Bowel		Cervical	
	%	n	%	%	%	n	%	n	%	n
Born in Australia										
Yes	72.96%	(545)	71%	73.56%		(320)	70.21%	(297)	75.62%	(366)
No	27.04%	(202)	29%	26.44%		(115)	29.79%	(126)	24.38%	(118)
ATSI										
Yes	1.47%	(11)	3.8%	2.07%		(9)	0.71%	(3)	1.24%	(6)
No	98.53%	(735)	96.2%	97.93%		(425)	99.29%	(420)	98.76%	(478)
Remoteness										
Major City	56.33%	(418)	72.23%	54.52%		(235)	52.74%	(221)	60.04%	(290)
Inner Regional	31%	(230)	17.78%	33.64%		(145)	33.89%	(142)	28.16%	(136)
Outer Regional/Remote	12.67%	(94)	10%	11.83%		(51)	13.37%	(56)	11.8%	(57)
SEFIA										
1st - Most Disadvantaged	18.73%	(139)	16.8%	19.03%		(82)	19.57%	(82)	16.56%	(80)
2nd	16.44%	(122)	17.2%	16.94%		(73)	17.18%	(72)	16.15%	(78)
3rd	21.97%	(163)	20.7%	25.06%		(108)	25.06%	(105)	22.98%	(111)
4th	20.89%	(155)	20.5%	19.03%		(82)	17.42%	(73)	21.53%	(104)
5th - Least Disadvantaged	21.97%	(163)	24.8%	19.95%		(86)	20.76%	(87)	22.77%	(110)
Education										
Did not finish high school	12.09%	(90)	-	14.08%		(61)	13.06%	(55)	9.29%	(45)
Finished high school	5.78%	(43)	-	6.24%		(27)	5.7%	(24)	5.17%	(25)
TAFE/apprenticeship	15.46%	(115)	-	16.17%		(70)	18.76%	(79)	15.08%	(73)
University degree	66.4%	(494)	-	63.28%		(274)	62.47%	(263)	70.04%	(339)
Other	0.27%	(2)	-	0.23%		(1)	0%	(0)	0.41%	(2)
Employment										
Full time	20.13%	(150)	-	16.17%		(70)	17.77%	(75)	22.93%	(111)
Part time	12.89%	(96)	-	9.01%		(39)	7.58%	(32)	15.08%	(73)
Casual	7.11%	(53)	-	5.54%		(24)	6.64%	(28)	9.3%	(45)
Volunteer	3.76%	(28)	-	5.08%		(22)	4.27%	(18)	3.51%	(17)
Unemployed	6.71%	(50)	-	7.16%		(31)	7.11%	(30)	7.44%	(36)
Retired	41.61%	(310)	-	51.96%		(225)	50.95%	(215)	34.3%	(166)
Other	7.79%	(58)	-	5.08%		(22)	5.69%	(24)	7.44%	(36)

<sup>a</sup> Demographics were included at the end of the survey and responses were not provided by all participants.

**Table 2**  
Content analysis of text responses to decision to screen question for breast, bowel, and cervical cancer.

Response Code	Breast (n = 531)		Bowel (n = 516)		Cervical (n = 574)	
	n	%	n	%	n	%
“Thinking of the last time you screened for (breast/bowel/cervical) cancer, what made you decide to undergo screening?”						
Routinely complete cancer screening tests	173	<b>32.58%</b>	37	7.17%	202	<b>35.19%</b>
Arrival of home screening test kit in the mail <sup>a</sup>	-	-	209	<b>40.50%</b>	-	-
Receiving a reminder (e.g., text message, letter)	109	<b>20.53%</b>	18	3.49%	75	13.07%
Exposure to loved one’s diagnosis/experience of cancer	86	<b>16.20%</b>	70	<b>13.57%</b>	17	2.96%
Advice from healthcare professional	22	4.14%	34	6.59%	118	<b>20.56%</b>
Health consciousness	51	9.60%	42	<b>8.14%</b>	81	<b>14.11%</b>
Personal medical history	64	12.05%	30	5.81%	54	9.41%
Experiencing symptoms of potential cancer	38	7.16%	32	6.20%	23	4.01%
Awareness of age as a risk factor	30	5.65%	31	6.01%	5	0.87%
Convenience/availability of screening	21	3.95%	32	6.20%	8	1.39%
Fear of cancer	5	0.94%	10	1.94%	7	1.22%
Seeking peace of mind	4	0.75%	7	1.36%	7	1.22%
Exposure to pro-screening advertisement	8	1.51%	8	1.55%	1	0.17%
Screening occurred incidentally during testing or treatment for another reason	0	-	3	0.58%	14	2.44%
Encouraged by family/friends	2	0.38%	3	0.58%	2	0.35%
Desire to get screening “over and done with”	0	-	0	0	2	0.35%
Observing the test kit somewhere in the physical environment <sup>a</sup>	-	-	-	-	-	-
Other	24	4.52%	16	3.10%	52	9.06%

<sup>a</sup> This code only pertains to participants screening for bowel cancer. Bolded numbers are the three most commonly reported factors for each cancer screening type. % is calculated within each cancer screening type.

decision factors or prompts across age, level of remoteness, and socioeconomic (see Table 4). The odds of reporting *routinely complete cancer screening tests* for the decision to undergo cervical cancer screening or acting as a prompt for breast cancer screening, showed a significant increase with age. *Advice from a health care professional* was more likely to be a decision factor for cervical cancer screening if the participant was living in a major city (versus living out of a major city) and as socioeconomic status increased (i.e., in areas of low disadvantage).

#### 4. Discussion and Conclusion

##### 4.1. Discussion

The present study investigated why people decide to participate in each of Australia’s national screening programs for breast, cervical and bowel cancer and what prompts them to follow through on this decision. Findings suggested that routine was key to the decision to screen for both breast and cervical cancer, and reminders were key to prompting participants to book a screening appointment, particularly in older participants. In contrast, the decision and prompt to screen for bowel cancer was most commonly the arrival of the home test kit in the mail.

**Table 3**  
Content analysis of text responses to prompt question for breast, bowel, and cervical cancer screening.

Code	Breast (n = 526)		Bowel (n = 509)		Cervical (n = 563)	
	n	%	n	%	n	%
“Thinking of the last time you screened for breast/bowel/cervical cancer, what prompted you at the time to actually book your appointment for a mammogram/cervical screening test/complete the bowel cancer screening kit?”						
Receiving a reminder (e.g., text message, letter)	214	<b>40.68%</b>	7	1.38%	164	<b>29.13%</b>
Arrival of home screening test kit in the mail <sup>a</sup>	-	-	120	<b>23.58%</b>	-	-
Routinely complete cancer screening tests	116	<b>22.05%</b>	32	6.29%	105	<b>18.65%</b>
Advice from healthcare professional	29	5.51%	20	3.93%	105	<b>18.65%</b>
Convenience/availability of screening	31	<b>5.89%</b>	80	<b>15.72%</b>	18	3.20%
Health consciousness	19	3.61%	53	10.41%	27	4.80%
Experiencing symptoms of potential cancer	32	6.08%	13	2.55%	16	2.84%
Exposure to loved ones’ diagnosis/experience of cancer	20	3.80%	27	5.30%	13	2.31%
Personal medical history	30	5.70%	10	1.96%	21	3.73%
Desire to get screening “over and done with”	1	0.19%	52	10.22%	2	0.36%
Observing the test kit somewhere in the physical environment <sup>a</sup>	-	-	41	8.06%	-	-
Screening occurred incidentally during testing or treatment for another reason	2	0.38%	2	0.39%	37	6.57%
Seeking peace of mind	4	0.76%	13	2.55%	6	1.07%
Fear of cancer	9	1.71%	6	1.18%	6	1.07%
Awareness of age as a risk factor	3	0.57%	9	1.77%	1	0.18%
Exposure to pro-screening advertisement	4	0.76%	3	0.59%	3	0.53%
Encouraged by family/friends	3	0.57%	2	0.39%	0	-
Other	33	6.27%	71	<b>13.95%</b>	66	11.72%

<sup>a</sup> This code only pertains to participants screening for bowel cancer.

Findings were similar across age groups, levels of remoteness, or levels of socioeconomic status.

Interestingly, there was considerable overlap between factors influencing the decision and prompt to screen, whereby some participants gave the same response for each process (e.g., they *decided* to screen due to advice from a health professional, and this also *prompted* them to follow through). This overlap may indicate that some factors both motivate the decision to screen and prompt action. For example, *receiving a reminder* and *routinely completing cancer screening tests* were response commonly reported as driving the decision to screen and prompting action for booking the breast or cervical cancer screening appointment, but not for completing the home bowel cancer screening kit. This may indicate that when the behaviour is ‘simple’ (e.g., making an appointment), the distinction between deciding to act and prompting the behaviour is minor, but when the behaviour is more involved (e.g., collecting stool samples), the intention behaviour distinction becomes more pronounced. Indeed, qualitative research suggests that the lack of an appointment for bowel cancer screening leads to delay and forgetting among women who screened for breast and cervical, but not bowel cancer [20].

In Australia, participation in the bowel cancer screening program is substantially lower than participation in breast and cervical cancer screening (even in females) [21–23]. The current findings suggest that

**Table 4**  
Demographic Associations with Decisions and Prompts.

Screening Type	Factor	Age	Level of Remoteness	SES
<i>Decision to Screen</i>				
Breast cancer	Routinely complete cancer screening tests	$b = 0.02,$ $p = .06$	$b = -0.01,$ $p = .98$	$b = 0.00,$ $p = .78$
	Receiving a reminder	$b = 0.01,$ $p = .69$	$b = -0.47,$ $p = .05$	$b = 0.01,$ $p = .20$
Bowel cancer	Arrival of home screening test kit	$b = -0.02,$ $p = 0.11$	$b = -0.04,$ $p = .84$	$b = 0.00,$ $p = .98$
Cervical cancer	Routinely complete cancer screening tests	$b = 0.02, p = .02$	$b = 0.23,$ $p = .24$	$b = -0.01,$ $p = .08$
	Advice from healthcare professional	$b = 0.00,$ $p = .89$	$b = -0.48, p = .04$	$b = 0.01, p = .01$
<i>Prompt to Screen</i>				
Breast cancer	Receiving a reminder	$b = -0.02,$ $p = .17$	$b = -0.24,$ $p = .23$	$b = 0.00,$ $p = .40$
Breast cancer	Routinely complete cancer screening tests	$b = 0.04, p = .01$	$b = 0.05,$ $p = .83$	$b = 0.00,$ $p = .32$
Bowel cancer	Arrival of home screening test kit	$b = 0.01,$ $p = .39$	$b = -0.35,$ $p = .13$	$b = -0.01,$ $p = 0.16$
Cervical cancer	Receiving a reminder	$b = 0.00,$ $p = .56$	$b = -0.11,$ $p = .58$	$b = 0.00,$ $p = .67$

the motivators and prompts driving breast and cervical cancer screening (i.e., reminders and health care routines) may be different to those which drive bowel cancer screening (the arrival of a screening kit). This is likely explained by the differences in program delivery and procedures. For both breast and cervical cancer screening, participants (only) need to book and attend an appointment with a healthcare professional for screening to occur. In contrast, to participate in bowel cancer screening, participants must wait for the kit to arrive in the mail, read the kit materials, take two separate stool samples, and return them via post. When people are reminded to participate in breast or cervical cancer screening, they can immediately act by making the appointment. However, for bowel cancer screening, no appointment can be made, and it is unlikely that upon receiving the reminder letter, the invitee can immediately complete the stool sampling required.

#### 4.2. Practical Implications

Perhaps reminders for bowel cancer screening should target granular behavioural goals that can be enacted immediately. Useful reminders may encourage invitees to: (i) put the kit near the toilet, or (ii) set a reminder in their phone to do it at a time that fits with their schedule; actions that are currently seldom done by people who do not return their bowel cancer screening kit [10,11]. Further, reminders may target health conscientiousness, the convenience of the home kit, and the desire to get screening “over and done with”; which were also found to support decisions and prompts to screen for bowel cancer.

In the current study, the decision and prompt to participate in screening was often driven by the fact that screening was simply a part of the participant’s healthcare routine, suggesting that there was little deliberate or conscious consideration underlying decision or action. This was more often reported by older participants, likely reflecting the fact as time passes, screening becomes more embedded in one’s routine. This highlights the importance of targeting screening promotion at first-time invitees to establish that routine at an early age, as invitees who screen once are more likely to re-screen [21,22].

Advice from a healthcare professional was also common factor for deciding and prompting cervical cancer screening participation, which aligns with past literature showing that primary care endorsement tends to increase cancer screening participation [24]. However, this was less common for those living outside of major cities and in lower

socioeconomic areas, which may be due to these populations having reduced access to healthcare services [25]. Those living outside of major cities and in lower socioeconomic areas also tend to also have lower cervical cancer screening rates [23]. Therefore, interventions aiming to reduce these screening gaps may need to target avenues outside of healthcare professionals to engage with invitees about cervical cancer screening.

#### 4.3. Conclusions

This study is one of few studies to use a large representative sample of screening invitees to investigate factors that lead people to decide to screen and factors that prompt action. Unlike most research in this area, this study looked at screening across the three population-level programs in Australia to better understand commonalities and differences between the programs. Findings may generalise to screening programs in other countries, and to other forms of cancer screening such as routine skin checks. However, some limitations in the methodology exist and there some caution is required when interpreting the findings. All reports were retrospective and based on free recall, meaning other factors may have been present and influential, but not reported by the participants. Further, the substantial overlap in responses for decisions and prompts may indicate that people were unable to separate in their own minds which factors led to each outcome. Methods for accurately and reliably understanding decision formation and cues to action in screening are needed to better distinguish between motivational and volitional factors. It is challenging to distinguish these to constructs in a survey, and perhaps researcher-led interviews or consumer advice are required to separate data on these two processes.

The present study provides valuable insight into decision-making and prompts to action experienced by people who do participate in cancer screening. Such findings can inform interventions to increase cancer screening for those who do not participate. For example, intervention efforts may benefit from reminders and messages supporting screening as part of regular healthcare routines for breast and cervical cancer. To increase bowel cancer screening, messages should encourage immediate use of bowel cancer screening kits upon arrival and follow up with reminders to complete the many steps involved in bowel cancer screening.

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#### CRediT authorship contribution statement

**Anderson Laura:** Writing – review & editing, Writing – original draft, Methodology, Formal analysis, Data curation, Conceptualization. **Collins Katelyn:** Writing – review & editing, Writing – original draft, Methodology, Formal analysis. **Myers Larry:** Writing – review & editing, Writing – original draft, Methodology, Formal analysis, Data curation, Conceptualization. **Ireland Michael:** Writing – review & editing, Writing – original draft, Supervision, Data curation, Conceptualization. **Omar Mariam:** Writing – review & editing, Methodology, Formal analysis. **Drummond Allannah:** Writing – review & editing, Writing – original draft, Data curation, Conceptualization. **Goodwin Belinda:** Writing – original draft, Supervision, Methodology.

#### Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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## Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at [doi:10.1016/j.pec.2024.108174](https://doi.org/10.1016/j.pec.2024.108174).

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