

SUPPLEMENTARY APPENDIX

Measurement of outcome and mediator variables used in:

Hersch J et al. How information about overdetection changes breast cancer screening decisions: a mediation analysis within a randomised controlled trial

This appendix contains the questions used for the measures included in the mediation analysis, including the range of available response options, and describes how each score was calculated. Correlations among the set of variables are also presented.

The questions were administered during a structured, computer-assisted telephone interview that took place after the participant had read her allocated decision aid.

Knowledge about over-detection

OC1. Who do you think is more likely to be diagnosed with breast cancer?

- Women who have screening mammograms [1]
- Women who do not have screening mammograms [0]

OC2. All breast cancers will eventually cause illness and death if they are not found and treated.

- TRUE [0]
- FALSE [1]

OC3. When screening finds cancer, doctors can reliably predict whether it will ever cause harm.

- TRUE [0]
- FALSE [1]

OC4. Even breast cancers that may not cause any health problems are likely to be treated.

- TRUE [1]
- FALSE [0]

OC5. Screening leads some women with a harmless cancer to get treatment they do not need.

- TRUE [1]
- FALSE [0]

OC6. Screening finds harmless cancers more often than it prevents death from breast cancer.

- TRUE [1]
- FALSE [0]

OC7. Which of these 2 statements best describes over-detection?

- Screening finds a cancer that would never have caused trouble [1]
- Screening finds an abnormality but extra tests show it is not cancer [0]

I would like you to imagine 1000 ordinary women who are 50 years old.

BN1. If these 1,000 women have breast screening every 2 years for 20 years, in that time about how many women do you think will avoid dying from breast cancer because of screening?

ON1. If these 1,000 women have screening every 2 years for 20 years, in that time about how many will be diagnosed and treated for a breast cancer that is not harmful?

1 mark was awarded if the answer given for ON1 was greater than the answer given for BN1.

1 mark was awarded if the answer given for ON1 was between 6 and 57. An additional

1 mark was awarded if the answer given for ON1 was between 10 and 38.

Marks were allocated as indicated above, and summed for a total score ranging between 0 and 10. Higher scores reflect better knowledge.

Attitudes to breast screening

For you, having breast screening is: Beneficial

- Strongly agree [5]
- Agree [4]
- Neither agree nor disagree [3]
- Disagree [2]
- Strongly disagree [1]

For you, having breast screening is: A good thing

- Strongly agree [5]
- Agree [4]
- Neither agree nor disagree [3]
- Disagree [2]
- Strongly disagree [1]

For you, having breast screening is: Harmful

- Strongly agree [1]
- Agree [2]
- Neither agree nor disagree [3]
- Disagree [4]
- Strongly disagree [5]

For you, having breast screening is: Worthwhile

- Strongly agree [5]
- Agree [4]
- Neither agree nor disagree [3]
- Disagree [2]
- Strongly disagree [1]

For you, having breast screening is: Important

- Strongly agree [5]
- Agree [4]
- Neither agree nor disagree [3]
- Disagree [2]
- Strongly disagree [1]

For you, having breast screening is: A bad thing

- Strongly agree [1]
- Agree [2]
- Neither agree nor disagree [3]
- Disagree [4]
- Strongly disagree [5]

Scores were allocated as indicated above, and summed for a total score ranging between 6 and 30. Higher scores reflect more positive attitudes.

Anticipated regret

If you do NOT have breast screening in the next few years, you may later wish you DID.

- Strongly agree [5]
- Agree [4]
- Neither agree nor disagree [3]
- Disagree [2]
- Strongly disagree [1]

Higher scores above indicate greater anticipated regret for *not* screening (inaction score).

If you DO have breast screening in the next few years, you may later wish you did NOT.

- Strongly agree [5]
- Agree [4]
- Neither agree nor disagree [3]
- Disagree [2]
- Strongly disagree [1]

Higher scores above indicate greater anticipated regret for screening (action score).

The action score was subtracted from the inaction score to produce a differential anticipated regret score ranging between -4 and 4. Higher scores reflect greater anticipated regret for *not* screening, adjusted for anticipated regret for screening.

Worry about breast cancer

How worried are you about developing breast cancer?

- Not worried at all [0]
- A bit worried [1]
- Quite worried [2]
- Very worried [3]

Scores were allocated as indicated above. Higher scores reflect greater worry.

Intentions about breast screening

At the moment, which of the following best describes your intentions about having breast screening within the next 2-3 years?

- You definitely will have breast screening [5]
- You are likely to have breast screening [4]
- You are unsure [3]
- You are not likely to have breast screening [2]
- You definitely will not have breast screening [1]

Scores were allocated as indicated above. Higher scores reflect more positive intentions.

Correlation matrix

| | Overdetection knowledge | Breast cancer worry | Screening attitudes | Anticipated regret | Screening intentions |
|-------------------------|-------------------------|---------------------|---------------------|--------------------|----------------------|
| Overdetection knowledge | 1 | -.137 | -.216 | -.251 | -.239 |
| Breast cancer worry | -.137 | 1 | .139 | .184 | .181 |
| Screening attitudes | -.216 | .139 | 1 | .634 | .730 |
| Anticipated regret | -.251 | .184 | .634 | 1 | .609 |
| Screening intentions | -.239 | .181 | .730 | .609 | 1 |

Note. n=811. All correlations are significant ($p < .001$).