

# Screening for Colorectal Cancer: The impact of tailored decision support delivered via the internet on psychological predictors of screening and on screening participation

research  
prevention  
support

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# The problem and study goals

- Colorectal cancer morbidity and mortality.
- Roll-out of National Bowel Cancer Screening Program utilising bi-annual FOBT
  - Sub-optimal participation rates
- Why – psychological predictors?
- Improve attitude to screening AND participation rates.
- Achieve by tailoring communication in line with psychological predictors.
- Deliver these messages in a cost-effective and convincing manner.

# Hypothesis

- Messages tailored in real time on PHM and PAPM and delivered as personalised feedback online will lead to improved performance on psychological predictors of screening and improved participation.
- This approach will be more effective than:
  - Web-based, non-tailored.
  - Paper-based, non-tailored.

# Design and Participants

- Three group randomised, controlled trial.
- Total n = 3,408; mean age 60<sub>yrs</sub> (SD=6<sub>yrs</sub>); range = 47-75<sub>yrs</sub>; 49.1% male
- Groups
  - 1. Tailored web (n=1,137;  $M_{age}=60_{yrs}$  (SD=6<sub>yrs</sub>); Range = 50-75<sub>yrs</sub>; 49.2% male)
  - 2. Non-tailored web (n=1,136;  $M_{age}=60_{yrs}$  (SD=6<sub>yrs</sub>); Range = 47-75<sub>yrs</sub> ; 48.9% male)
  - 3. Non-tailored paper (usual care) (n =1,135;  $M_{age}=60_{yrs}$  (SD=6<sub>yrs</sub>); Range = 49-75<sub>yrs</sub> ; 49.1% male)
- Intervention was exposure to material:
  - 1. Messages designed to **motivate** or **reinforce** responses to psychological variables (PHM) demonstrated as influence stage of readiness to screen (PAPM) in previous research.
  - 2. Access to the online information and educational materials supplied in the National Bowel Cancer Screening Program.
  - 3. Access to the paper book of information and educational materials supplied in the National Bowel Cancer Screening Program.

# Procedure and Dependent Variables

- Baseline survey assessment (Dependent variables):
  - PAPM
  - PHM (Risk Perception; Salience and Coherence of screening; Cancer Worries; Response Efficacy and Perceived Social Support).
  - Additional variables: Self efficacy for FOBT use, Faecal Aversion
- All who completed the questionnaire received an FOBT
  - 1. Tailored web (n=719)
  - 2. Non-tailored web (n=710)
  - 3. Non-tailored paper (n=811)
- Endpoint survey assessment (Dependent variables):
  - PAPM
  - PHM
  - Additional variables
  - Return of kits (6 weeks; 12 weeks).

# Results – Significant Changes on Psychological Variables

Psych variables returning significant effects	Salience & Coherence (F, p)		Cancer Worries (F, p)		Self-efficacy (F, p)		Faecal Aversion (F, p)	
Time (Baseline, Endpoint)					11.72	$p<.001$	21.17	$p<.001$
Time X Group (Tailored Web, Non-tailored Web, Paper)	5.81	$p<.003$			7.01	$p<.001$	7.81	$p<.001$
Time X Participation Status (Yes, No)	7.86	$p<.005$	9.12	$p<.003$	98.3	$p<.001$	28.41	$p<.001$
Time X Intervention X Participation					4.68*	$p<.01$		

\* Non-significant after Bonferroni correction for multiple comparisons

# Results – Differences in kit returns at 6 and 12 weeks

	Return rate for FOBT at <b>6 weeks</b> post mail out	Return rate for FOBT at <b>12 weeks</b> post mail out
Tailored Web	N=539, or 74.9% (539/719)	N=590, or 82.1% (590/719)
Non-Tailored Web	N=539, or 75.9% (539/710)	N=593, or 83.5% (593/710)
Non-Tailored Paper	N=572, or 70.5% (572/811)	N=619, or 76.3% (619/811)
Chi <sup>2</sup> , probability (location of significant difference)	$\chi^2$ (2) = 6.58, $p=.037$ (1 and 2 cf 3)	$\chi^2$ (2) = 14.21, $p<.001$ (1 and 2 cf 3)

# Discussion

- *Tailoring doesn't improve participation; web does.*
- *What changes with exposure to the intervention?*
  - Tailoring can help change the variables that previous studies have linked to stage of readiness to screen:
    - Salience and coherence (PHM) *enhanced* by tailoring as is self-efficacy. Faecal aversion is decreased *more* by tailoring.
- *Which psychological variables are linked to participation in our study, irrespective of intervention group?*
  - Salience and Coherence increased in participants; decreased in non-participants.
  - Cancer Worries decreased in participants; increased in non-participants.
  - Self-efficacy increased in participants; decreased in non-participants.
  - Faecal aversion decreased in participants; unchanged in non-participants.
- *Changes in psych constructs in intervention groups are not clearly related to participation.*