

Knowledge of colorectal cancer risk factors and screening recommendations: a cross-sectional study of regional Australian general practice patients

Natalie Dodd^{a,b,c,d}, Mariko Carey^{a,b,c} and Elise Mansfield^{a,b,c}

^a Health Behaviour Research Collaborative, School of Medicine and Public Health, University of Newcastle, NSW, Australia

^b Priority Research Centre for Health Behaviour, University of Newcastle, NSW, Australia

^c Hunter Medical Research Institute, Newcastle, NSW, Australia

^d Corresponding author: natalie.dodd@newcastle.edu.au

Article history

Publication date: December 2017

Citation: Dodd N, Carey M, Mansfield E.

Knowledge of colorectal cancer risk factors and screening recommendations: a cross-sectional study of regional Australian general practice patients. *Public Health Res Pract.* 2017;27(5):e2751748. <https://doi.org/10.17061/phrp2751748>

Introduction

Higher levels of knowledge relating to colorectal cancer (CRC) are positively associated with CRC screening behaviour.¹ However, knowledge of CRC risk factors and screening recommendations is low.^{1,2}

The aim of this study was to examine knowledge of CRC risk factors and CRC screening recommendations among general practice patients aged 18–85 years, and the sociodemographic characteristics associated with knowledge.

Methods

This study was conducted in a convenience sample of five regional general practices in New South Wales (NSW), Australia, between December 2015 and March 2017. The practices had six to 18 practitioners and provided private and bulk-billing services. A consecutive sample of patients aged 18–85 years who spoke English and presented for a general practice appointment were invited to participate.

Data collection

Consenting patients completed a touchscreen survey in the waiting room. Ethics approval was received from the University of Newcastle Human Research Ethics Committee (H-2014-0198).

Measures

A 5-item survey, developed and piloted by the authors, assessed knowledge using a multiple-choice format. Participants were asked to identify which risk factors may increase a person's chance of developing CRC: smoking, being older than 50, being overweight, not eating enough fibre, and drinking alcohol regularly. Four questions assessed knowledge of CRC screening

recommendations for people at average risk of CRC (lay description provided). These included: 1) age to commence screening; 2) type of screening test recommended; 3) how often the faecal occult blood test (FOBT) should be done; and 4) what a positive FOBT result means. Participants could select one response for each of these questions. Correct responses aligned with Royal Australian College of General Practitioners guidelines for preventive activities in general practice.³ Participants reported their age, gender, marital status, employment status and highest level of education.

Data analysis

Scores for risk and screening were analysed separately using logistic regression (binary for risk [>1 versus ≤ 1] and ordinal for screening) to model the odds of higher scores. All demographics were included in the model. The Brant test assessed the parallel regression assumption, the Pearson's goodness-of-fit test assessed the binary model, and each model fit adequately.

Results

A total of 510 patients (70% of those assessed) were eligible to participate. Of these, 411 patients consented to participate (81% consent rate). Those with missing data were removed, leaving 363 participants in the final analyses. There was no significant difference in gender between consenters and nonconsenters ($\chi^2(1) 1.29$, $p = 0.254$).

Participant characteristics

More than half the sample was aged 50–74 years ($n = 208$; 57%), and similar proportions were aged 18–49 ($n = 65$; 18%), or 75–85 ($n = 90$; 25%). A total of 219 (60%) participants were female.

Colorectal cancer risk factors

Eighty-six participants (24%) correctly identified all risk factors (32% aged <50 versus 22% aged ≥ 50), and 35 (10%) identified none (15% aged <50 versus 8% aged ≥ 50). Higher proportions of those aged <50 identified smoking, alcohol consumption and being overweight as risk factors for CRC.

Those with a tertiary education had 2.1 times greater odds of identifying at least one risk factor (95% confidence interval [CI] 1.07, 4.3; $p = 0.03$). Those who were retired were less likely to identify at least one risk factor than those who were not retired (odds ratio [OR] 0.38; 95% CI 0.18, 0.82; $p = 0.01$).

Colorectal cancer screening

Less than 10% of participants identified the correct responses for all screening questions (12% aged <50 versus 9% aged ≥ 50); 11% selected no correct

responses (17% aged <50 versus 9% aged ≥ 50). Just over half of the sample (53%) knew that FOBT was the recommended screening test (55% aged <50 versus 53% aged ≥ 50). Only 41% knew the recommended frequency of FOBT (26% aged <50 versus 44% aged ≥ 50). Less than one-third knew the recommended age to commence screening.

Those aged ≥ 50 years had 2.5 times greater odds of higher scores for screening knowledge ($p < 0.003$; 95% CI 1.37, 4.67) compared with those aged <50 . Those with a tertiary education were more likely to score highly than those without (OR 2.02; $p < 0.002$; 95% CI 1.28, 3.17).

Discussion

Our data identified gaps in knowledge for CRC risk factors and screening recommendations. Several risk factors were poorly identified by participants; however, our study found higher knowledge scores in some areas compared with previous Australian research.⁴ Ten per cent of participants in our study did not identify any risk factors, which was lower than the 34.8% of Australian participants in a 2012 study.⁴ This may reflect differences in the study methods or populations, or an increase in knowledge of risk factors since this study. As expected, screening knowledge scores were higher for people aged 50 years and older compared with people aged younger than 50 years.

Table 1. Proportions selecting correct responses for colorectal cancer risk factors and screening questions ($N = 363$)

Category	Knowledge questions	Selected correct option, n (%)	
		<50 years ($n = 65$)	≥ 50 years ($n = 298$)
Risk factors	Smoking	44 (68)	167 (56)
	>50 years	38 (58)	176 (59)
	Overweight	42 (65)	156 (52)
	Low fibre	42 (65)	232 (78)
	Alcohol consumption	37 (57)	117 (39)
Screening	Age to commence screening	20 (31)	91 (31)
	Recommended screening test	36 (55)	159 (53)
	Frequency of FOBT	17 (26)	130 (44)
	Meaning of positive FOBT	42 (65)	225 (76)

FOBT = faecal occult blood test

Our data strongly suggest that there is a need to raise awareness of modifiable risk factors and CRC screening recommendations. Guidelines suggest that general practitioners routinely monitor patient body mass index; assess risky behaviour; promote healthy eating, drinking and physical activity; and recommend appropriate CRC screening.³

Given the complexity of opportunistic approaches, general practitioners should be better supported to perform preventive health activities. Strategies that could be implemented outside of the general practice setting could include population-based education interventions, as well as policies to reduce poor lifestyle decisions and incentives to foster positive lifestyle choices.⁵

Limitations

This study took place in five regional general practices, which limits the generalisability of our results to the broader Australian population. Further, non-English speaking patients were excluded.

Conclusion

Our results indicate gaps in the awareness of CRC risk factors and screening recommendations among a convenience sample of Australian general practice patients. Increasing patient knowledge may promote lifestyle changes and appropriate screening behaviour that could reduce individual risk of CRC.

Acknowledgements

We thank Tiffany Evans from the Clinical Research Design and Statistics Support unit at the Hunter Medical Research Institute for statistical support. This work is supported by the Hunter Cancer Research Alliance, a Strategic Research Partnership Grant (CSR 11-02) from Cancer Council NSW to the Newcastle Cancer Control Collaborative (New-3C) and infrastructure funding from the Hunter Medical Research Institute. MC is supported by a National Health and Medical Research

Council Translating Research into Practice Fellowship (APP1073031). ND is supported by the Australian Rotary Health/Rotary District 9650 Bowelscan Funding Partner Scholarship and the MM Sawyer Postgraduate Scholarship in Cancer Research 2014.

Competing interests

None declared

Author contributions

EM, MC and ND conceived the study. All authors contributed to the drafting of the manuscript or revising it critically for intellectual content.

References

1. Koo JH, Arasaratnam MM, Liu K, Redmond DM, Connor SJ, Sung JJ, Leong RW. Knowledge, perception and practices of colorectal cancer screening in an ethnically diverse population. *Cancer Epidemiol.* 2010;34(5):604–10.
2. Power E, Simon A, Juszczak D, Hiom S, Wardle J. Assessing awareness of colorectal cancer symptoms: measure development and results from a population survey in the UK. *BMC Cancer.* 2011;11:366.
3. Royal Australian College of General Practitioners. Guidelines for preventive activities in general practice: 9th edition. Melbourne: RACGP; 2016 [cited 2017 Nov 13]. Available from: www.racgp.org.au/your-practice/guidelines/redbook/
4. Koo JH, Leong RWL, Ching J, Yeoh K-G, Wu D-C, Murdani A, et al. Knowledge of, attitudes toward, and barriers to participation of colorectal cancer screening tests in the Asia-Pacific region: a multicenter study. *Gastrointest Endosc.* 2012;76(1):126–35.
5. World Health Organisation. Preventing chronic diseases: designing and implementing effective policy. Geneva: WHO [cited 2017 Nov 13]. Available from: www.who.int/chp/advocacy/policy.brief_EN_web.pdf

Copyright: 

© 2017 Dodd et al. This article is licensed under the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International Licence, which allows others to redistribute, adapt and share this work non-commercially provided they attribute the work and any adapted version of it is distributed under the same Creative Commons licence terms. See: www.creativecommons.org/licenses/by-nc-sa/4.0/