

Awareness and uptake of colorectal cancer screening after Healthier-SG launch: A questionnaire survey

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Dear Editor,

Colorectal cancer (CRC) is one of the most common malignancies in high-income countries.¹ Despite Singapore's well-established cancer screening infrastructure, uptake remains below target. Early detection through screening is crucial for improving outcomes, yet many eligible individuals remain unscreened.² In July 2023, the Ministry of Health launched Healthier-SG, a national preventive health initiative encouraging residents aged 40 years and above to take charge of their health. CRC screening using the faecal immunochemical test (FIT) was emphasised for adults aged 50 years and above, with free FIT kits distributed through primary care clinics, community pharmacies and the Singapore Cancer Society.

To assess the impact of this initiative, we conducted a community-based, cross-sectional questionnaire survey in March 2024 among residents aged 50 to 85 years at a public multipurpose complex in Bedok, Singapore. The site was selected due to its high footfall of 280,000 to 300,000 per month and accessibility to residents from diverse socioeconomic backgrounds.³ Using a case-encounter sampling approach, participants were invited to complete an anonymised electronic survey in English. Demographics, awareness of CRC and its screening, history of CRC screening and reasons for participation or non-participation were collected.

A total of 350 participants were recruited. Table 1 below shows most participants were female (60.3%), of Chinese ethnicity (92.0%) and residents of public housing (76.9%). The majority (89.4%) were aware of CRC, and 84.6% were aware of available CRC screening. Overall, 65.1% reported having undergone screening, most commonly through FIT kits (47.4%) or colonoscopy (38.2%). Among those screened, key motivators included routine health checks (41.7%) and recommendations by healthcare professionals (25.0%). Among non-screeners, the primary reason cited was absence of symptoms (47.5%), followed by

a lack of awareness about the test (19.7%).

Further analysis using Poisson regression revealed that participants who were aware of CRC screening were over 8 times more likely to have been screened than those who were unaware (adjusted prevalence ratio: 8.489, 95% confidence interval 3.085–23.363, $P < 0.001$).⁴ In contrast, demographic variables, such as sex, education level, income proxy or medical subsidy status, were not significantly associated with screening uptake.

These findings suggest a notable increase in CRC screening compared to national statistics prior to Healthier-SG. According to the National Population Health Survey 2022, only 38.1% of residents aged 50 to 74 years had undergone CRC screening at recommended intervals.⁵ The observed rise to 65.1% in our study likely reflects a combination of enhanced public awareness, stronger engagement by healthcare providers and increased accessibility to free FIT kits. Nevertheless, this level remains below the 70% target commonly cited for effective population-level cancer screening.

Importantly, the gap between awareness and action highlights unresolved misconceptions and behavioural barriers. Many participants who had not undergone screening believed it was unnecessary in the absence of symptoms.⁶ This misunderstanding of the merits of screening undermines the concept of preventive care. CRC screening aims to detect early-stage disease or pre-cancerous lesions before symptoms appear, improving treatment success and reducing mortality. Patient education efforts must therefore address this misconception by reinforcing the value of asymptomatic screening.

Healthcare professionals, particularly family doctors and polyclinic physicians, have a vital role in closing this awareness–action gap. Our findings reinforce evidence from prior local and regional studies showing that primary care physician's recommendation is a powerful motivator for screening.^{7,8} Under the national Healthier-SG programme, primary care professionals,

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Table 1. Participant characteristics.

Variables	Characteristics	No. (%)
Age group ^a	50–59 years old	25 (7.1)
	60–69 years old	128 (36.7)
	70 years and above	196 (56.2)
Sex	Male	139 (39.7)
	Female	211 (60.3)
Ethnic group	Chinese	322 (92.0)
	Malay	13 (3.7)
	Others (Indians and others)	15 (4.3)
Education level	No formal education/primary	81 (23.1)
	Secondary	166 (47.4)
	High school equivalent (A level/diploma (ITE ^b /polytechnic ^c /private school)	57 (16.3)
	University/post-tertiary	44 (12.6)
	Others	2 (0.6)
Marital status	Single	55 (15.7)
	Married	266 (76.0)
	Divorced/separated/widowed	29 (8.3)
Current housing type	Public housing ^d	269 (76.9)
	Private housing ^e	81 (23.1)
Required to pay income tax last year (proxy for income)	No/not applicable	294 (84.0)
	Yes	56 (16.06)
Any medical subsidy received	No	23 (6.6)
	Yes	327 (93.4)
Medi Fund ^f assistance provided	No	325 (92.9)
	Yes	25 (7.1)
Awareness of CRC	No	37 (10.6)
	Yes	313 (89.4)
Awareness of screening for CRC	No	54 (15.4)
	Yes	296 (84.6)
History of CRC (FOBT/FIT or colonoscopy)	No	122 (34.9)
	Yes	228 (65.1)
(If no) Reasons for not going for screening (n=122, more than 1 option can be selected)	Absence of symptoms	58 (47.5)
	I do not know how to collect the FIT tests	2 (1.6)
	I am worried about the discomfort of the procedure	10 (8.2)

Table 1. Participant characteristics. (Cont'd)

Variables	Characteristics	No. (%)
	I am afraid it might be positive for cancer	10 (8.2)
	It feels embarrassing to do the test	1 (0.8)
	Lack of time	5 (4.1)
	I find it inconvenient to collect FIT test at community pharmacies	1 (0.8)
	Not aware of screening available	24 (19.7)
	Others	18 (14.8)
(If yes) Reasons for screening (n=228, more than 1 option can be selected)	Presence of symptoms	38 (16.7)
	Healthcare professionals' recommendation	57 (25.0)
	Through family and friend's recommendation	9 (3.9)
	Family history of CRC	6 (2.6)
	Personal history of other health problems	3 (1.3)
	Routine health check-up	95 (41.7)
	Publicity from media/healthcare institutions	30 (13.2)
	Given free FIT kit	15 (6.6)
	Others	9 (3.9)
(If yes) Location for collection of FIT kits (n=228, more than 1 option can be selected)	Primary care clinics or hospital	108 (47.4)
	Community pharmacy	45 (19.7)
	Collected directly from Singapore Cancer Society	1 (0.4)
	Requested for mailed FIT kit on the Singapore Cancer Society website	15 (6.6)
	Others	16 (7.0)
(If yes) Location of colonoscopy performed (n=228, more than 1 option can be selected)	Hospital	87 (38.2)

CRC: colorectal cancer; FIT: faecal immunochemical test; FOBT: faecal occult blood test; ITE: Institute of Technical Education

^a Total count does not tally due to missing data.

^b Singapore-Cambridge General Certificate of Education Advance Level: An internationally recognised university entrance examination that is conducted annually in Singapore.

^c ITE: A post-secondary educational institution, established by Singapore's Ministry of Education.

^d Public housing: Singapore's public housing system is managed by the Housing Development Board (HDB), and houses around 80% of Singapore's resident population. Public housing includes 1–5 rooms HDB flats.

^e Private housing includes private condominiums or houses, rental rooms or apartments, and maisonette or executive condominiums.

^f MediFund is Singapore's government endowment fund, meant to assist needy patients with their healthcare bills at public healthcare institutions.

including general practitioners, polyclinic physicians and community nurses, are now tasked with building long-term, preventive-focused relationships with patients. They are at the frontline to routinely initiate conversations about CRC screening, clarify doubts and align test options with individual preferences.

To support these efforts, decision aids and digital tools are under development. A locally designed patient decision aid tailored to Singapore's diverse population has shown promise in raising awareness and facilitating informed choices.⁹ However, its current

print-only format limits scalability. Efforts are underway to develop artificial intelligence agents or mobile applications with interactive features and built-in reminders in smart phones to encourage regular annual screening. Such digital health interventions could be particularly useful to complement personal approaches by primary care professionals to nudge at-risk adults to screen for CRC.

Aside from personal interventions, logistical challenges persist. Only 19.7% of those screened obtained FIT kits from community pharmacies, suggesting the

underutilisation of this distribution channel. Innovative delivery methods, such as self-serve kiosks at community hubs or direct-to-home mailing of FIT kits, may help address this gap. Pilot testing of a kiosk has begun, and further research will be needed to assess their effectiveness, feasibility and user experience.

This study has several limitations. The case-encounter sampling method may introduce selection bias, and the participant pool overrepresented Chinese residents (92.0%) relative to the national population aged 50 to 85 years. Additionally, data were self-reported and not independently verified, raising the possibility of recall bias or social desirability bias. Nevertheless, the study provides timely community-level insights into CRC screening behaviour in the early months of the Healthier-SG rollout.

In conclusion, CRC screening awareness and uptake have improved substantially following the launch of Healthier-SG, indicating that national preventive strategies may be making an impact. However, gaps remain, particularly among asymptomatic individuals who remain unconvinced of the need for screening. To increase the CRC screening uptake beyond 70% for the successful implementation of a nationwide preventive health programme, future efforts should prioritise patient education, reinforce the role of trusted healthcare professionals, and expand access for the convenient collection of FIT kits. With coordinated action across primary care, public health and community platforms, Singapore can move closer to its goal of effective CRC prevention for its adult population.

Ethics statement

The study was approved by the SingHealth Centralised Institution Review Board (2021/2603) in accordance with the International Council for Harmonisation Good Clinical Practice guidelines. Informed verbal consent to participate in the study was taken during the recruitment.

Declaration

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