Cancer-related help seeking in cancer survivors living in regional and remote Australia

Belinda C Goodwin* ^{a,b}, Suzanne Chambers ^{b-e}, Joanne Aitken ^{a-c,f}, Nicholas Ralph ^{b,d,i}, Sonja March ^{b,g}, Michael Ireland ^{b,g}, Arlen Rowe ^{b,g}, Fiona Crawford-Williams ^{b,g}, Leah Zajdlewicz ^a, Jeff Dunn ^{a-d,h}

^a Cancer Council Queensland, Brisbane, Australia

^b Centre for Health Research, University of Southern Queensland, Springfield, QLD, Australia

^c Menzies Health Institute Queensland, Griffith University, Mt Gravatt, QLD, Australia

^d Faculty of Health, University of Technology Sydney, NSW, Australia

^e Exercise Medicine Research Institute, Edith Cowan University, Perth, Australia

^f School of Public Health, The University of Queensland, Springfield, QLD, Australia

^g School of Psychology and Counselling, University of Southern Queensland, Springfield, QLD, Australia

^h Prostate Cancer Foundation of Australia, Sydney, NSW, Australia

ⁱ School of Nursing & Midwifery, University of Southern Queensland, Ipswich, QLD

*Corresponding author:
Cancer Council Queensland
553 Gregory Terrace, Fortitude Valley, QLD, 4006
belindagoodwin@cancerqld.org.au

Conflict of interest

The authors declare that they have no conflict of interest.

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Ethical Approval

The questionnaire and methodology for this study was approved by the Human Research Ethics committee of the University of Southern Queensland (Ethics approval number: ref. H17REA152).

Data Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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Abstract

Objectives: To measure rates of detection via screening, perceived self-imposed delays in seeking medical attention, and support seeking in a sample of regional and remote people with a cancer diagnosis and to test whether an association exists between these behaviours and minimising problems and resignation, a need for self-control and reliance and fatalism. Correlations and binary logistic regressions were conducted to test the associations between demographic characteristics, attitudes and behaviours.

Results: Females were more likely to have had their cancer detected via screening (OR = 10.02, CI = 3.49 – 28.78). Younger participants ($r = -.103$, $p = .009$) were slightly more likely to seek at least one form of support and online support was sought more often by younger patients ($r = -.269$, $p < .001$), females ($r = .152$, $p < .001$), those from higher socioeconomic (SES) areas ($r = .100$, $p = .012$), and those with higher education levels ($r = .247$, $p < .001$). Younger ($r = -.161$, $p < .001$), and female ($r = .82$, $p = .013$), participants were also slightly more likely to seek support specifically through cancer support groups. No significant relationships between minimising problems and resignation, needs for control and self-reliance or fatalism and detection via screening, support seeking, or perceived self-imposed delays to seeking medical attention were apparent, with the exception that those with higher fatalism (predetermined health) were slightly less likely to report seeking support or information online (OR = 0.79, CI = 0.65 – 0.95) and slightly more likely to report using Cancer Council's support services (OR = 1.24, CI = 1.02, 1.52).

Conclusions: Strategies to improve the accessibility and appropriateness of support available for regional and remote cancer patients should consider interventions that remove barriers to access associated with age, gender, and education as opposed to those which address the attitudinal traits measured here.

Keywords: cancer; rural health; early detection; screening; support; attitudes.

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Introduction

People living in regional and remote areas in Australia experience poorer cancer outcomes than those in metropolitan areas ^(1,2). Those living outside major cities show lower 5-year survival rates for many cancers ⁽¹⁾ and are more likely to report poor physical and mental health, lower quality of life and unmet supportive care needs ^(2,3) than those living in metropolitan areas. Several studies show that, compared to those living in major cities, people living in regional and remote areas tend to be 5 to 10% less likely to participate in cancer screening ^(4–6) and approximately 20% less likely to utilise primary medical care services ⁽⁷⁾. Early detection of cancer through participation in screening and the prompt seeking of medical attention upon noticing symptoms is key to increasing survival ⁽⁸⁾. Following diagnosis and treatment, maintaining mental and physical wellbeing also relies on seeking appropriate support and information. This not only involves seeking regular medical care, but also accessing appropriate information on self-management and general health, counselling and support services, and peer support ⁽⁹⁾.

The reasons for geographical disparities in cancer outcomes are not well-understood, but are likely to include socio-demographic factors and challenges in accessing timely and appropriate health services and support in regional and remote areas ⁽³⁾. In addition, it has been suggested that those living in regional and remote areas tend to exhibit attitudes that reduce the likelihood that they will seek support and medical attention when required ^(2,10–14). Attitudes and beliefs including a lack of trust in the health system, a fear or underestimation of consequences, stubbornness, stigma and stoicism are often quoted as barriers to seeking help for symptoms of ill-health ^(15,16). In the context of rural health, it is commonly proposed that people living outside of major cities, have a greater tendency to accept poor health and minimise pain and hardship, or endure it without complaint or emotion in an effort to remain

self-reliant and avoid potential stigma^(2,10–13,17). These tendencies are proposed to be a significant barriers to health-related help-seeking in regional and remote settings both in the context of general health behaviour^(11,13) and the behaviour of cancer survivors^(2,5,10,12). For instance, fatalistic beliefs regarding health outcomes (the beliefs that one's future health is predetermined by fate or destiny⁽¹⁸⁾) have been associated with poorer health-related help-seeking behaviour in regional communities⁽¹⁴⁾, with one study showing that people living outside major cities tend to report more fatalistic beliefs about health even after controlling for potential confounders such as ethnicity, education, or socio-economic status⁽¹⁹⁾. Furthermore, interview and survey research involving health professionals and residents strongly suggests that attitudes such as a need for self-control and reliance or a tendency to minimise or resign to problems can delay health-related help-seeking in regional and remote communities, and impact preventative health behaviours, adherence to treatment and the seeking of appropriate physical and psychological support when it is needed^(10,12,20).

Attitudes that promote self-reliance, dismissing or minimising symptoms, or a reliance on fate may prove detrimental to early detection, timely treatment and a healthy recovery from cancer. However, there is little quantitative evidence to corroborate the direction and magnitude of the relationship between these attitudes and cancer-related help-seeking in regional and remote cancer patients, with conclusions mostly drawn from qualitative or theoretical work. Some studies have statistically linked problem minimisation and fatalistic beliefs to reduced efforts to prevent poor health^(5,21), however, it is not clear whether they are also barriers to seeking assistance when faced with symptoms or a diagnosis such as cancer. Furthermore, a number of studies suggest that it is neither useful nor accurate to attribute geographic disparities in health outcomes to stereotypical, community-wide attitudinal traits and that doing so further impedes healthcare delivery in geographically

remote communities through misdirecting interventions and ostracising and typecasting patient needs ^(22,23).

In order to deliver optimal interventions to support cancer patients living outside of major cities, it is important to understand their care and support-seeking behaviours as well as any attitudinal barriers that may exist. The current study aims to assess the proportion of cancer detected via screening, perceived self-imposed delays to seeking medical attention for symptoms, and support seeking in a sample of regional and remote people with a cancer diagnosis, and to test whether an association exists between these behaviours and attitudinal barriers to health-related help-seeking including a need for self-reliance and control, minimising problems and resignation, and health fatalism. Findings will inform the development and delivery of interventions to increase the accessibility and appropriateness of support available for this population.

Methods

Participants

Participants were guests who stayed at one of Cancer Council Queensland's (CCQ) subsidised accommodation lodges in Brisbane (2), Townsville, Toowoomba, Rockhampton and/or Cairns, while receiving their cancer care. The details of the recruitment of a smaller proportions of this sample used in a different study also appear in another manuscript currently under review ⁽²⁴⁾. Participants were eligible for this study if they were 18 years or older, able to read and understand English, and staying at a CCQ lodge for cancer treatment. There were 2194 guests who stayed at CCQ accommodation lodges between September 2017 and June 2020. Of the 1620 who were eligible and invited to the study, 802 consented (49.5%), 382 (23.5%) actively refused to participate and 436 (26.49%) could not be re-contacted (Figure 1). Of the 802 consenting participants, those who didn't have a cancer diagnosis (n=10), lived in a major city (n=29), or completed either only the baseline

questionnaire (n=107) or the interview (n=8) components of the study were excluded, leaving 648 participants for this sample.

Procedure

Lodge guests were invited to participate in the study and given a welcome pack which was distributed via two methods: 1) upon arrival at the lodge for their stay or 2) mailed to their home address following their stay. After receiving the pack, they were phoned to discuss the study in more depth and asked to mail back their completed consent form and questionnaire if they wanted to participate. Consenting participants completed self-administered questionnaires at the following timepoints: baseline (at recruitment), 3 months, 12 months and annually thereafter post recruitment. At baseline participants were also asked to take part in a structured interview either face to face at the lodge or by telephone. Each component took approximately 45 minutes to complete. All participants provided informed consent. Ethics approval was granted from a recognised institutional Human Research Ethics Committee (ref. H17REA152).

Measures

Demographics. Gender, age, country of birth, highest level of education, and household income were reported by each participant. Residential street address was geocoded and mapped to the 2011 Statistical Area Level 2 (SA2) boundaries using MapMarker® Australia Version 15.16.0.21 and MapInfo Pro® Version 15.0. Participants were classified by Remoteness Area and Socio-Economic Indexes for Areas (SEIFA) index of relative socioeconomic advantage and disadvantage according to their SA2 ^(25,26).

Cancer diagnosis. Most recently diagnosed primary cancer site and date of diagnosis was obtained via self-report and verified where possible in the Queensland Cancer Register (QCR). The diagnoses could not be located in the QCR for a total of 50 participants where

the patient had non-melanoma skin cancer (which is not recorded in the Register), the diagnosis was too recent to have been notified to the Register, diagnosis occurred interstate, or consent to access QCR data was not provided. Participants were also asked whether they had ever been diagnosed with cancer in the past.

Detection via screening. During the interview, participants were asked *“For this current cancer, how did you first become aware that you were unwell?”* Nine response options were provided. Five reflected a scenario whereby symptoms were already apparent (e.g., *“I was experiencing symptoms or I felt unwell”* or *“My GP noticed symptoms during a routine check-up”* [in Australia, a GP is a general medical practitioner similar to a family physician]) and three reflected a scenario whereby symptoms were not apparent (e.g., *“I took a screening test recommended to me (without symptoms)”* or *“I choose to take a screening test because I saw an advertisement or a letter in the mail prompting me to”*). Participants also had the option to provide an open-ended response to the question. Open-ended responses ($n = 41$) were coded according to whether the participant’s cancer was detected via screening before or after symptoms were apparent. Following this, a binary variable was created for all responses, reflecting whether the patient had their cancer detected via screening before symptoms were present or not (coded 1 = cancer detected via screening, 0 = cancer not detected via screening). Note that this variable pertained only to the means by which participants’ current primary cancer was diagnosed as opposed to their participation in screening programs in general. Analysis of this variable included those participants ($n = 251$) with cervical, breast or bowel cancer who, at the time of diagnosis, were eligible to take part in the relevant population cancer screening program, that is, (women aged over 18 with cervical cancer, women aged 50 to 74 with breast cancer and men and women aged over 50 with bowel cancer. We also included participants of any age who were diagnosed with skin cancer on the grounds that, while Australia has no recommended population skin cancer

screening program, whole-body skin screening for early detection of skin cancer has long been recommended as part of standard routine healthcare by authoritative bodies such as the Royal Australian College of General Practitioners ⁽²⁷⁾.

Delays in seeking medical attention. During the interview, participants were asked details regarding their first attempt to seek medical attention after they became aware that they were unwell. Interviewers asked “*Did you feel like your seeking of medical advice was delayed in any way? If yes, why?*” Responses were coded to reflect whether the participant had reported a self-imposed delay to seeking medical attention (i.e., the delay was within their control/by choice, as opposed to no delay or delay caused by external factors such as long waiting times or service availability). From this, a binary variable was created, coded 1 = “*self-delay*”, 0 = “*no delay/or other delay outside of their control*” (i.e., health service waitlists).

Support-seeking (post-diagnosis). Participants were asked whether they had sought support or information through any service/source after their cancer diagnosis, including Cancer Council’s Information and Support Service, cancer support groups, a GP or other medical professional, from a psychologist, social worker, counsellor, etc., online, or from another cancer survivor. Those who had sought support through at least one these sources were allocated a code of 1 = “yes”, while those who had not sought *any* form of support were coded 0 = “no”.

Attitudes to health-related help-seeking: Two subscales from Mansfield and colleagues’ barriers to help-seeking scale (BHSS) were administered to assess 1) the individual’s need for control and self-reliance (NCS); containing items that capture a desire to avoid being perceived as weak or vulnerable to others (e.g., “*I’d feel better about myself knowing I didn’t need help from others*”) and 2) minimising problems and resignation (MPR); containing items that capture the tendency to ignore, suppress or accept discomfort (e.g., “*Symptoms like this are part of life; they’re just something you have to deal with*”) ⁽²⁸⁾. Participants were

asked to imagine a scenario whereby they were experiencing mild symptoms in their body regularly for a few days before reading a list of reasons why they may not seek help for these symptoms. Participants rated the degree to which each reason might stop them from seeking help on a 5-point Likert scale, ranging from 1 (“*not at all*”) to 5 (“*very much*”). Means for each subscale were calculated by averaging item responses, with higher scores representing higher levels of NCS and MPR. Cronbach’s alpha statistics in the current sample suggested the NCS ($\alpha = .90$) and MPR subscales ($\alpha = .87$) demonstrated good to excellent internal consistency.

Fatalism. The degree to which participants held fatalistic beliefs about their health was measured using a 10-item predetermination subscale from Shen and colleagues’ health fatalism scale⁽¹⁸⁾. The scale includes items such as “*If someone is meant to get a serious disease, they will get it no matter what*” and “*My health is determined by fate*”. Participants rated each item on a 5-point Likert scale, ranging from 1 (“*strongly disagree*”) to 5 (“*strongly agree*”). Mean scores were calculated by averaging item responses with higher scores representing a greater belief that health outcomes are predetermined. Internal consistency in the current sample was good at $\alpha = .89$.

Data Analysis

Scale means were aggregated using available data unless more than 50% of items per scale were missing ($n = 17$). Participants with missing data on key variables were excluded from the main analyses in a pairwise manner. The frequencies and percentages were calculated for participants diagnosed via cancer screening, those who reported self-imposed delays to seeking medical attention, and those who sought support after diagnosis. Pearson correlations were used to assess relationships between demographic variables and outcomes. Binary logistic regression analyses were conducted to calculate odds ratios (OR) and 95% confidence intervals (CI) to test the relationships between each attitudinal variable and the

likelihood of reporting pre-symptom detection, a self-imposed delay to seeking medical attention, and seeking each form of support after diagnosis. ORs were adjusted for age and gender. An a-priori power analysis, using GPower 3.1 was conducted to calculate the sample size required to detect a small to medium effect. Assuming $1-\beta = .80$, $\alpha = .05$, a sample of 230 participants was sufficient to detect an effect of $OR = 0.66$. This OR is based on the smallest effect in a recent study linking attitudes to likelihood of cancer screening in a regional sample ⁽⁵⁾.

Results

Participants ranged from 26 to 92 years ($M = 64.45$, $SD = 11.20$) and 53% identified as male. Most participants were born in Australia (80.3%), with the remainder born in the United Kingdom (9%), New Zealand (5.1%), and other countries (5.6%). Inner regional areas were under-represented (i.e., 46.8%) in comparison with the Australian population (i.e., 63.0%)⁽⁷⁾, with 45% of participants living in outer regional areas, 3.9% in remote areas and 4.3% very remote. The sample was marked by high levels of socio-economic disadvantage. (i.e., 68.4% were in the lowest socio-economic quintiles). Primary cancer diagnoses were breast (18.4%), head and neck (15.6%), skin (11.7%), and prostate (11.4%) cancer. Details of sample characteristics are presented in [Table 1](#). Based on available data, those who did not respond or consent to participate in the study did not differ significantly according to gender ($\chi^2 = 1.91$, $p = .167$), socio-economic status ($t = .95$, $p = .345$) or remoteness category ($\chi^2 = 1.53$, $p = .667$), when compared to the participating sample.

Table 1. Characteristics of sample (n=648)

		n	% [^]
Gender	male	343	53.0%
	female	304	47.0%
ATSI	yes	24	3.7%
	no	600	92.6%

	not reported	24	3.7%
Born			
	Australia	563	80.3%
	UK	63	9.0%
	NZ	36	5.1%
	Other	39	5.6%
Education			
	up to year 9 (primary school)	89	13.7%
	year 10 (middle school)	194	29.9%
	year 12 (senior school)	95	14.7%
	tertiary or trade cert.	260	40.1%
Relationship			
	In a relationship	427	67.6%
	Not in a relationship	204	32.4%
Cancer site			
	Breast	119	18.4%
	Head and Neck	101	15.6%
	Skin	76	11.7%
	Prostate	74	11.4%
	Colorectal	46	7.1%
	Cervical	10	1.5%
	Other	222	34.3%
SES Quintile			
	1st (lowest)	241	37.4%
	2nd	200	31.0%
	3rd	134	20.8%
	4th	63	9.8%
	5th (highest)	7	1.1%
Level of remoteness			
	inner regional	302	46.8%
	outer regional	290	45.0%
	remote	25	3.9%
	very remote	28	4.3%

^Valid percentage calculated from sample excluding missing/unknown

SES = socioeconomic status

ASTI = Aboriginal or Torres Strait Islander

At the time of baseline questionnaire completion, time since diagnosis ranged from 0 days to 33 years, with the exception of three participants who received their diagnosis after completing the questionnaire. The majority of participants (73%), however, had been diagnosed in the 18 months prior to completing the baseline questionnaire (5% trimmed Mean= 15.25). Fifty-six percent of participants had been diagnosed with cancer before.

Overall, participants scores ranged from 1 to 5 on the need for control and self-reliance scale ($M = 2.32$, $SD = 0.90$); the minimising problems and resignation scale ($M = 2.35$, $SD = 0.99$); and the fatalism scale ($M = 2.67$, $SD = 0.90$).

Detection via screening

Of the 251 participants who at the time of diagnosis were eligible for screening for their cancer, 60 (23.9%) reported that their cancer was detected before symptoms were apparent through a screening test (see Table 2). Of all the participants who provided a valid response to this question ($n = 607$), 69% ($n = 420$) reported seeking medical attention after being aware of symptoms and 12.7% ($n = 77$) reported that their cancer was detected by a health professional before they were aware of any symptoms. In the sub-sample of participants who were eligible to have their cancer detected via screening, female were more likely to have done so ($OR = 10.02$, $CI = 3.49 - 28.78$). That is 33.9% of females in this group had their cancer detected via screening and only 4.9% males in this group had their cancer detected via screening. There were no significant associations between need for minimising problems and resignation, self-control, or fatalism and the likelihood of reporting detection via screening.

Table 2. Percentage of participants reporting pre-symptom screening, delays to seeking medical attention, and seeking information or support through each source.

	<i>n</i>	<i>(%)</i> [^]	<i>Odds Ratios</i>				
			<i>Age</i>	<i>Gender</i>	<i>SES</i>	<i>Edu.</i>	<i>Rel.</i>
Detection via screening (n=247)	60	24.3%	1.00	10.02**	1.00	1.04	1.02
Delays in seeking medical attention (n=626)	64	10.2%	1.00	1.20	1.01	1.11	0.70
Support Seeking (n=645)							
GP or medical professional	301	46.5%	1.00	0.99	1.00	0.83**	0.78
Other cancer survivors	296	46.7%	0.99*	1.47*	1.00	0.96	1.33
Online	251	39.6%	0.95**	1.87**	1.01*	1.61**	1.19
Cancer Council support service	167	26.1%	0.99	1.19	1.01	0.93	0.80
Cancer support groups	140	22.1%	0.97**	1.49*	1.00	1.10	0.97
Psychologist, counsellor, social worker	183	28.7%	0.97**	1.25	1.00	0.91	0.74
Any of the above	500	77.5%	0.98*	1.56*	1.01	0.98	.874

[^]Valid percentage calculated from sample excluding missing/unknown

Gender (1 = male, 2 = female), SES = socioeconomic status percentile, Edu. = Education level (1-4), Rel. = Relationship Status (0 = no partner, 1 = partner), OR = Odds Ratio

** = $p < .01$, * = $p < .05$

Table 3. Results of logistic regression analyses testing associations between attitudes and pre-symptom screening, delays to seeking medical attention, and seeking support

	Minimising problems and resignation			Need for control and self-reliance			Fatalism (n =244)		
	<i>n</i>	OR [^]	95% CI	<i>n</i>	OR [^]	95% CI	<i>n</i>	OR [^]	95% CI
Detection via screening	244	0.82	0.60, 1.12	245	0.80	0.56, 1.04	245	0.92	0.65, 1.28
Delay seeking medical attention	613	1.20	0.93, 1.56	614	1.25	0.95, 1.64	618	1.11	0.83, 1.49
Support seeking (any)	634	0.99	0.82, 1.20	635	1.19	0.96, 1.45	637	1.07	0.88, 1.332
Specific support seeking:									
GP or medical professional	624	0.95	0.81, 1.12	625	1.08	0.91, 1.28	627	1.07	0.90, 1.28
Other cancer survivors	624	0.95	0.80, 1.11	625	0.94	0.79, 1.11	627	1.03	0.86, 1.23
Online	624	0.98	0.82, 1.16	625	1.07	0.90, 1.28	627	0.79	0.65, 0.96
Cancer Council support service	629	0.87	0.72, 1.04	630	0.97	0.80, 1.18	632	1.24	1.01, 1.51
Cancer support groups	623	0.84	0.69, 1.03	624	1.05	0.86, 1.29	625	1.02	0.82, 1.28
Psychologist, counsellor, social worker	627	0.87	0.72, 1.04	628	1.06	0.88, 1.29	630	1.11	0.91, 1.36

[^] ORs adjusted for age and gender.

Delays to seeking medical attention

Of the total sample of 648, perceived self-imposed delays to seeking medical attention were reported by 64 (9.9%) participants ($n = 21$ missing). Within those who sought medical attention after noticing or experiencing symptoms ($n=420$), 13.6% ($n=57$) perceived self-imposed delays to seeking medical attention. There were no significant associations identified between these delays and the need for self-control, minimising problems and resignation, fatalism or participant characteristics (see Table 3). Post hoc tests on a sub-group consisting of only those participants who sought medical attention after noticing or experiencing symptoms also yielded null results (all p 's $>.05$).

Support Seeking

Seventy-eight percent of the sample reported seeking support or information through at least one of the listed sources. The most common sources of support reported in this sample were GP or medical professionals ($n = 301$, 46.5%) and other survivors ($n = 296$, 46.7%) with cancer support groups the least common ($n = 140$, 22.1%). Overall, females (OR = 1.56, CI = 1.07 – 2.27) and younger (OR = 0.98, CI = 0.96 – 0.99) participants were slightly more likely to seek at least one form of support and online support was sought more often by younger patients (OR = 0.95, CI = 0.94 – 0.97), females (OR = 1.87, CI = 1.35 – 2.58), those from higher socioeconomic (SES) areas (OR = 1.01, CI = 1.00 – 1.02), and those with higher education levels (OR = 1.61, CI = 1.38 – 1.89). Younger (OR = 0.97, CI = 0.95 – 0.98), and female (OR = 1.49, CI = 1.02 – 2.17) participants were also slightly more likely to seek support specifically through cancer support groups (see Table 2). No significant associations were identified between need for self-control and minimising problems and resignation and the likelihood of seeking each form of support. Those with higher fatalism (predetermined health) were slightly less likely to report seeking support or information online (OR = 0.79, CI = 0.65 – 0.95) and slightly more likely to report using Cancer Council's support services (OR = 1.24, CI = 1.02, 1.52) (see Table 3). Given the gender differences in support seeking,

post hoc interaction analyses were conducted whereby a gender by attitude effect were included in each model tested. No interaction effects were evident (all p 's >.05).

Discussion

Within the health literature it has been suggested that unique attitudes towards health and healthcare may have a detrimental impact on the health-related help seeking behaviours of people living in regional and remote communities^(2,10–13). Furthermore, portrayals of stoic and fatalistic rural individuals who downplay or dismiss health concerns and resist seeking help have also been heavily propagated in popular media^(11,29). However, our findings do not support an association between minimising or resigning to health problems, a need for control and self-reliance or a fatalistic outlook and screen detected cancers, perceived self-imposed delays in medical care seeking, and various forms of support-seeking in regional and remote cancer survivors.

Attitudes such as a need for self-reliance and control, minimising problems and resignation and fatalism have been shown to influence preventive health behaviours in general regional and remote samples, but evidence from the current study does not support a strong link between these attitudes and support seeking through health professionals, support services and peers after a confirmed diagnosis^(30,31). Potentially, these attitudes may influence behaviour differently in contexts where the health issue of concern is a potential *risk* as opposed to an actuality. According to the Health Beliefs Model, 'cues to action' and cognitive factors such as perceived threat can interact to impact behaviour⁽³²⁾. Participants in this study were asked to respond to items about their attitudes to help seeking while imagining a hypothetical scenario in which they were experiencing mild symptoms. After receiving a confirmed cancer diagnosis from a medical professional, the effect of any tendency to downplay health threats, may be tempered by the reality of their current situation leading the person to seek information or support⁽³³⁾. In addition, very few participants in

the current sample reported self-imposed delays to seeking medical attention, suggesting that this group of regional and remote cancer patients attended to their health and well-being in a timely manner. This does not support the theory that people living in non-metropolitan areas tend to ignore poor health in an effort to prioritize and maintain productivity⁽¹¹⁾. It is important to acknowledge that a wide range of attitudinal barriers to support seeking in regional and remote cancer survivors that are not measured here may exist. For example, fear of stigma and an avoidance of local mental health professionals have been identified as barriers to seeking psychological support in rural communities⁽¹⁷⁾ and warrant investigation in future studies.

Female participants were more likely to have had their cancer detected through screening; a finding that reflects documented gender differences in both bowel and skin cancer screening behaviour^(6,34). This tendency for males to be underscreened may reflect masculinities and their effect on accessing health and cancer care highlighting the importance of a gendered approach to health promotion and service provision⁽³⁵⁾.

In seeking information and support after a cancer diagnosis, participants showed a clear preference for GPs and online sources as well as the desire to access support from other survivors. Hence, there is a need for supporting the capacity of rural healthcare providers' capabilities to deliver appropriate survivorship care, and for communities to supplement this care through peer support and online resources. Younger participants were slightly more likely to seek some form of support and seeking support and information through online channels was more likely for younger participants, females, and those with higher SES and education levels. Age and education effects may reflect that younger and more educated people are often more experienced and perhaps better skilled at locating and accessing support services, particularly those with an online component^(36,37). Virtual access to support and information is increasingly important for cancer survivors living outside of major cities

⁽³⁸⁾ and demographic differences in online service utilisation are an important consideration when designing digital cancer survivorship care interventions. Such interventions may need to be better designed to accommodate older males with less education and resources or alternative sources of support made accessible to these groups.

Clinical implications

Clinicians and those involved in health service delivery should be aware that older male cancer survivors are less likely to actively seek support and information after a cancer diagnosis and facilitate and encourage help-seeking for those in need in this population group. Nevertheless, gender and age factors only explained minimal variance, suggesting that the key drivers of variance in help-seeking behaviour remains unknown. Importantly, a tendency to minimize or resign to problems, a needs for control and self-reliance and fatalistic beliefs did not appear to affect help seeking behaviour. This in line with existing research suggesting that restricted access to health services, and a lack of resources, social support or awareness act as greater barriers to cancer screening than individual traits ⁽³⁹⁾.

Study strengths and limitations

The strengths of the current study include a large sample of a well-described, non-metropolitan cancer patient population. It is one of very few studies to quantitatively assess the role of attitudes and health behaviour in a regional and remote sample, however, with several limitations are worth noting. Data pertaining to detection and the seeking of medical care and support were self-reported and were not able to be verified against administrative records. Despite a satisfactory response rate of 45%, it is important to consider any bias that may arise from self-selection to participate as well as potential bias linked to the social desirability of responses pertaining to health behaviour. Further to this, all participants were already utilizing a cancer support service (i.e., staying at the Cancer Council accommodation lodge) when recruited meaning that rates of support seeking may be overestimated in

comparison with the broader regional and remote cancer population. Finally, including participants with varying cancer types, histories and treatment statuses improves the diversity and representativeness of the current sample, however, future research may benefit from focusing on or comparing populations with specific disease characteristics. For example, some patients had already had a previous cancer diagnosis and many were surveyed 12 months after diagnosis which may have affected their support seeking behaviours and ability to recall them.

Conclusion

Our findings provide some support for recent calls to challenge and re-construct common beliefs about rural health attitudes ⁽²²⁾. Our results suggest that tendencies to minimise problems and be self-reliant, or to take a fatalistic outlook on health may not play a role in cancer screening or help-seeking in regional and remote cancer survivors. Those developing strategies to improve the accessibility and appropriateness of support available for regional and remote cancer patients should consider health systems limitations and develop interventions that help remove barriers to access associated with age, gender, and education as opposed to those which address the attitudinal traits measured here.

References

1. Cancer Council Queensland, Queensland University of Technology, Cooperative Research Centre for Spatial Information. Australian Cancer Atlas Version 09-2018. Accessed [give date] [Internet]. 2018 [cited 2018 Dec 14]. Available from: <https://atlas.cancer.org.au>
2. Butow PN, Phillips F, Schweder J, White K, Underhill C, Goldstein D. Psychosocial well-being and supportive care needs of cancer patients living in urban and rural/regional areas: a systematic review. *Support Care Cancer*. 2012;20(1):1–22. <https://doi.org/10.1007/s00520-011-1270-1>
3. Salehi A, Frommolt V, Coyne E. Factors affecting provision of care services for patients with cancer living in the rural area: an integrative review. *Aust J Cancer Nurs*. 2019;20(1). <https://doi.org/10.1155/2020/1379547>
4. Doescher MP, Jackson JE. Trends in cervical and breast cancer screening practices among women in rural and urban areas of the United States. *J Public Health Manag Pr*. 2009 May;15(3):200–9. <https://doi.org/10.1097/PHH.0b013e3181a117da>
5. Goodwin BC, March S, Ireland M, Crawford-Williams F, Manski D, Ford M, et al. Geographic variation in compliance with CRC screening programs: The role of attitudinal and cognitive traits. *Rural Remote Health*. 2019;19(3). <https://doi.org/10.22605/RRH4957>
6. Sun J March, S, Ireland, MJ, Crawford-Williams, F, Goodwin, BC, Hyde, MK, Chambers, SK, Aitken, JF, & Dunn, J. Socio-demographic factors drive regional differences in participation in the National Bowel Cancer Screening Program (NBCSP) – An ecological analysis on the NBCSP data. *Aust N Z J Public Health*. 2017; doi.org/10.1111/1753-6405.12722
7. Australian Institute of Health and Welfare. Rural and remote health [Internet]. Canberra, Australia; 2019 [cited 2020 Oct 13]. Report No.: Cat. no. PHE 255. Available from: <https://www.aihw.gov.au/reports/rural-remote-australians/rural-remote-health>
8. Organization WH. Cancer control: knowledge into action. WHO guide for effective programmes: prevention. World Health Organization; 2007.
9. Nekhlyudov L, Mollica M, Jacobsen PB, Geiger AM. Improving quality of cancer survivorship care: From framework to action. American Society of Clinical Oncology; 2018. <https://doi.org/10.1093/jnci/djz089>.
10. Crawford-Williams F, Goodwin B, March S, Ireland MJ, Hyde MK, Chambers SK, et al. Cancer care in regional Australia from the health professional's perspective. *Support Care Cancer*. 2018;26(10):3507–15. <https://doi.org/10.1007/s00520-018-4218-x>.

11. Elliot-Schmidt R, Strong J. The concept of well - being in a rural setting: understanding health and illness. *Aust J Rural Health*. 1997;5(2):59–63. <https://doi.org/10.1111/j.1440-1584.1997.tb00239.x>.
12. Emery JD, Walter FM, Gray V, Sinclair C, Howting D, Bulsara M, et al. Diagnosing cancer in the bush: a mixed-methods study of symptom appraisal and help-seeking behaviour in people with cancer from rural Western Australia. *Fam Pract*. 2013;30(3):294–301. <https://doi.org/10.1093/fampra/cms087>.
13. Harvey DJ. Understanding Australian rural women's ways of achieving health and wellbeing-a metasynthesis of the literature. *Rural Remote Health*. 2007;7(4). <https://doi.org/10.22605/RRH823>
14. Howat A, Veitch C, Cairns W. A descriptive study comparing health attitudes of urban and rural oncology patients. *Rural Remote Health*. 2006;6(4):563. <https://doi.org/10.22605/RRH563>
15. Cheesmond NE, Davies K, Inder KJ. Exploring the role of rurality and rural identity in mental health help-seeking behavior: A systematic qualitative review. *J Rural Ment Health*. 2019;43(1):45–59. <https://doi.org/10.1037/rmh0000109>
16. Yousaf O, Grunfeld EA, Hunter MS. A systematic review of the factors associated with delays in medical and psychological help-seeking among men. *Health Psychol Rev*. 2015;9(2):264–76. <https://doi.org/10.1080/08870440801902535>
17. Gunn K, Turnbull D, McWha JL, Davies M, Olver I. Psychosocial service use: a qualitative exploration from the perspective of rural Australian cancer patients. *Support Care Cancer*. 2013;21(9):2547–55. doi. 10.1007/s00520-013-1812-9
18. Shen L, Condit CM, Wright L. The psychometric property and validation of a fatalism scale. *Psychol Health*. 2009;24(5):597–613. <https://doi.org/10.1080/08870440801902535>
19. Befort CA, Nazir N, Engelman K, Choi W. Fatalistic cancer beliefs and information sources among rural and urban adults in the USA. *J Cancer Educ*. 2013;28(3):521–6. <https://doi.org/10.1007/s13187-013-0496-7>
20. Andrykowski MA, Burris JL. Use of formal and informal mental health resources by cancer survivors: Differences between rural and nonrural survivors and a preliminary test of the theory of planned behavior. *Psychooncology*. 2010;19(11):1148–55. <https://doi.org/10.1002/pon.1669>
21. Niederdeppe J, Levy AG. Fatalistic beliefs about cancer prevention and three prevention behaviors. *Cancer Epidemiol Prev Biomark*. 2007;16(5):998–1003. <https://doi.org/10.1158/1055-9965.EPI-06-0608>
22. Malatzky C, Bourke L. Re-producing rural health: Challenging dominant discourses and the manifestation of power. *J Rural Stud*. 2016;45:157–64. <https://doi.org/10.1016/j.jrurstud.2016.03.005>

23. Moore A, Grime J, Campbell P, Richardson J. Troubling stoicism: Sociocultural influences and applications to health and illness behaviour. *Health (N Y)*. 2013;17(2):159–73. <https://doi.org/10.1177/1363459312451179>
24. Dunn J, Goodwin BC, Aitken JF, March S, Crawford FW, Ireland MJ, et al. Applying National Cancer Control Indicators to Regional and Remote Cancer Patients' Experiences. Under review;
25. Australian Bureau of Statistics. ABS.Stat SEIFA by Local Government Area (LGA). [Internet]. Canberra: ABS; 2011. Available from: http://stat.data.abs.gov.au/Index.aspx?DataSetCode=ABS_SEIFA_LGA. [Accessed 7 November 2019].
26. Australian Bureau of Statistics. Australian Statistical Geography Standard (ASGS): Correspondences. Cat. No. 1270.0.55.006. [Internet]. Canberra: ABS; 2011. Available from: <https://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/1270.0.55.006July%202011?OpenDocument> [Accessed 7 November 2019].
27. RACGP, The Royal Australian College of General Practitioners. Guidelines for preventive activities in general practice. 7th edn. 2012; Available from: www.racgp.org.au/guidelines/redbook
28. Mansfield AK, Addis ME, Courtenay W. Measurement of Men's Help Seeking: Development and Evaluation of the Barriers to Help Seeking Scale. *Psychol Men Masculinity*. 2005;6(2):95. <https://doi.org/10.1037/1524-9220.6.2.95>
29. Xinhua. "Culturally entrenched" stoicism affecting Aussie farmers' mental health: study - Xinhua | English.news.cn [Internet]. [cited 2020 Aug 12]. Available from: http://www.xinhuanet.com/english/2017-06/15/c_136367984.htm
30. Fennell KM, Martin K, Wilson CJ, Trenerry C, Sharplin G, Dollman J. Barriers to Seeking Help for Skin Cancer Detection in Rural Australia. *J Clin Med*. 2017;6(2):19.
31. Fennell KM, Hull M, Jones M, Dollman J. A comparison of barriers to accessing services for mental and physical health conditions in a sample of rural Australian adults. 2018;
32. Rosenstock IM. Why people use health services. *The Milbank Memorial Fund Quarterly*, 44, 94–127. 1966. <https://doi.org/10.1111/j.1468-0009.2005.00425.x>
33. Austin LT, Ahmad F, McNally M-J, Stewart DE. Breast and cervical cancer screening in Hispanic women: a literature review using the health belief model. *Womens Health Issues*. 2002;12(3):122–8. [https://doi.org/10.1016/S1049-3867\(02\)00132-9](https://doi.org/10.1016/S1049-3867(02)00132-9)
34. Kasparian NA, McLoone JK, Meiser B. Skin cancer-related prevention and screening behaviors: a review of the literature. *J Behav Med*. 2009;32(5):406–28. <https://doi.org/10.1007%2Fs10865-009-9219-2>

35. Oliffe JL, Rossnagel E, Bottorff JL, Chambers SK, Caperchione C, Rice SM. Community-based men's health promotion programs: eight lessons learnt and their caveats. *Health Promot Int*. 2019; <https://doi.org/doi.10.1093/heapro/daz101>
36. Chua GP, Tan HK, Gandhi M. Information sources and online information seeking behaviours of cancer patients in Singapore. *ecancermedicalsecience*. 2018;12. <https://doi.org/10.3332/ecancer.2018.880>
37. Jacobs W, Amuta AO, Jeon KC. Health information seeking in the digital age: An analysis of health information seeking behavior among US adults. *Cogent Soc Sci*. 2017;3(1):1302785. <https://doi.org/10.1080/23311886.2017.1302785>
38. Hardcastle SJ, Hince D, Jiménez-Castuera R, Boyle T, Cavalheri V, Makin G, et al. Promoting physical activity in regional and remote cancer survivors (PPARCS) using wearables and health coaching: randomised controlled trial protocol. *BMJ Open*. 2019;9(5):e028369. <https://doi.org/10.1136/bmjopen-2018-028369>
39. Honein-AbouHaidar GN, Kastner M, Vuong V, Perrier L, Daly C, Rabeneck L, et al. Systematic review and meta-study synthesis of qualitative studies evaluating facilitators and barriers to participation in colorectal cancer screening. *Cancer Epidemiol Prev Biomark*. 2016;25(6):907–17. <https://doi.org/10.1158/1055-9965.EPI-15-0990>

Figure 1. Recruitment flowchart