

Reduced employment and financial hardship among middle-aged individuals with colorectal cancer

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Abstract

Financial hardship may affect up to 30% of cancer survivors, however little research has addressed the effect of employment change on financial hardship. This study compared the self-reported financial hardship of middle-aged (45-64 years) colorectal cancer survivors (n=187) at 6 and 12 months following diagnosis with that of a matched general population group (n=355). Colorectal cancer survivors were recruited through the Queensland Cancer Registry, Australia; data from the Household Income and Labour Dynamics in Australia Survey were used for the general population group. Pearson chi-square tests were used to assess the differences in proportions between the two groups and McNemar tests to assess differences across time among the same group. Generalised linear modelling was performed to produce prevalence ratios. A higher proportion of workers with colorectal cancer reported financial strain (money shortage for living essentials) at six months (15%) but eased and was comparable to the comparison group at 12 months (7%). Middle-aged working cancer survivors who ceased or reduced work were more likely to report not being financially comfortable, compared with those who had continued work (adjusted prevalence ratio 1.66, 95%CI: 1.12, 2.44) at 12 months. Health professionals, employers and government services should address the impact of impaired employment on financial hardship among cancer survivors.

Introduction

Being diagnosed with cancer presents many challenges to a person's work life (Duijts *et al.*, 2014). Treatments can be disruptive to the daily routine and ongoing side-effects are often difficult to manage in the work place (Gordon *et al.*, 2014, Duijts *et al.*, 2014, Mehnert, 2011). Between 64-82% of cancer survivors return to employment within 18 months, depending on the type of cancer and treatment sequelae (Mehnert, 2011). A recent review of 30 studies highlighted that although a high proportion of persons with cancer return to work, there were ongoing issues relating to fatigue, physical difficulties, treatment-induced menopausal symptoms, cognitive problems, depression and anxiety which may impact on functioning at work (Duijts *et al.*, 2014).

Specific cancer types can pose additional challenges for returning to everyday activities. Individuals with colorectal cancer may have concerns around stomas and changes in bowel movements. The management of colorectal cancer can also be protracted and typically involves surgical removal of the tumour (open or laparoscopic techniques), adjuvant chemotherapy, targeted therapies or radiation therapy. Our previous analyses on employed, middle-aged (45-64 years) men and women with colorectal cancer showed 27% were not working 12 months after their diagnosis versus 8% of general population controls (matched by age group and gender) (Gordon *et al.*, 2014). A further 19% of colorectal cancer survivors in our study decreased their work hours and had consequently faced reduced income (Gordon *et al.*, 2014). Fifty percent of those who had stopped working during the acute treatment phase did so for 3 months, while 75% took up to 6 months off work (Gordon *et al.*, 2014). Poorer socio-economic status, chemotherapy treatment, longer hospital stay and excessive sleeping hours were linked to delayed return to work and/or stopping work at 12 months (Lynch *et al.*, 2016, Gordon *et al.*, 2014). We have also shown that health-related quality of life was significantly worse for cancer survivors stopping or reducing work than similar general population controls (Beesley *et al.*, 2016).

Stopping or reducing work may be a source of financial stress for cancer sufferers (Fenn *et al.*, 2014, McGrath *et al.*, 2017, Sharp and Timmons, 2016) where financial demands may be excessive due to the high cost of new therapies and ongoing use of health care services. Patient out-of-pocket expenses can be high following a cancer diagnosis and the consequences can mean delays in treatment (Kent *et al.*, 2013), poorer medication adherence (Kaisaeng *et al.*, 2014) and financial hardship (Bestvina *et al.*, 2014). Despite the large literature on financial hardship among cancer survivors (Azzani *et al.*, 2015, Gordon *et al.*, 2016), studies focus on out-of-pocket expenses (Bailli *et al.*, 2016, Davidoff *et al.*, 2013, Kaisaeng *et al.*, 2014, Lauzier *et al.*, 2013, Yabroff *et al.*, 2016), material hardships (Yabroff *et al.*, 2016) or psychological burdens (Fenn *et al.*, 2014, Yabroff *et al.*, 2016) and mostly ignore the concurrent issue of stopping work and reduced household income. Furthermore, most studies are cross-sectional and cannot determine if financial hardship from cancer is a temporary or long-term problem (Gordon *et al.*, 2016). An exception is a Canadian study by Lauzier *et al.* (2013) who found wage loss to be the most important determinant of financial decline among breast cancer survivors 12 months after diagnosis (Lauzier *et al.*, 2013).

The country-specific protections offered in both health and labour sectors influence the impacts on citizens experiencing a serious disease. Australia has a universal health care system where public

hospital treatments are provided to citizens at no cost. Patients may choose to have private health insurance where they pay for insurance premiums in return for having choice regarding which hospital and which doctor they are treated by (Private Health Insurance Ombudsman, 2017). Typical employment contracts in Australia allow for 10 days sick leave, some have unpaid leave provisions but lengthy absences from work normally require optional income protection insurance policies paid by employees. There are also Australian laws for anti-discrimination due to (among others) illness which serve to protect workers from unfair dismissal and require employers to make reasonable accommodations in the workplace for employees with impairments. However, there is little Australian research into the financial impacts of patients' experiencing serious disease and the interface of employment, illness and financial wellbeing.

The aim of this study was to gain a better understanding of the work situation and the financial wellbeing of colorectal cancer survivors during the 12 months following diagnosis. Specifically, we aim to address the following questions:

1. What is the self-reported financial wellbeing of this population at 6- and 12-months post-diagnosis?
2. Is the financial wellbeing of colorectal cancer survivors adversely affected amongst those who had ceased or reduced work 6- and 12-months post-diagnosis?

For both objectives, we compared our cancer cohort to a general population group, matched on socio-demographic characteristics, to specifically understand the impact that cancer had for persons with colorectal cancer versus persons without cancer.

Methods

Study participants and recruitment

Data from a prospective, population-based study enrolling 45-64 year old men and women with colorectal cancer were used. Middle-aged persons were targeted to keep the group homogenous in life stage and prior to typical retirement age. Full details on the study methods have previously been reported (Gordon *et al.*, 2014, Gordon *et al.*, 2011). Potential participants were identified through the Queensland Cancer Registry between January 2010 and September 2011. For each potential participant, the doctor was contacted to obtain consent to contact the patient and to verify the patient's working status at diagnosis. Ethics approval was obtained from the Human Ethics Research Committee of QIMR Berghofer Medical Research Institute, Griffith University and Queensland Health Research Ethics and Governance Unit. We obtained de-identified general population comparison group data from the Household Income and Labour Dynamics in Australia (HILDA) Survey. This survey provided data for 2,590 employed persons enrolled in HILDA aged 45-64 years (from a total sample of ~11,693 in wave 1)-(Watson and Wooden, 2002). The wave-on-wave attrition rates are consistently low, approximately 5% each year. There was no way of identifying if HILDA participants had colorectal cancer and therefore, any that did were not excluded from our reference group. HILDA data were collected via face-to-face interviews during 2010 and 2011 i.e. two waves, 12 months apart. We matched participants with cancer to HILDA responders on a one-to-two ratio by: 5-year age group

(45-49, 50-54, 55-59, 60-64), gender (male, female), marital status (married/partnered, no partner), education (\leq high school, tertiary), income ($<$ AU\$38,000, AU\$38,001-\$78,000, AU\$78,001-\$104,000, AU\$104,001+), occupational group (professional, trades, clerical), and rurality (major city, regional/remote).

Data collection

Clinical data were collected from pathology forms submitted to the Queensland Cancer Registry. Participants with cancer completed a telephone interview and postal survey at 6 months (Time 1) and 12 months (Time 2) post-colorectal cancer diagnosis. The interviews collected socio-demographic information on age group, gender, marital status, employment participation, income, employment type and details about their treatment for cancer including the living proximity to treatment centre, distance travelled, accommodation required and requests for financial assistance. During the telephone interviews at 6-months post-diagnosis, participants were additionally asked to recall their employment situation at the time of diagnosis (baseline), to understand changes in employment participation at Time 1 and Time 2. The postal surveys collected additional sensitive information (e.g., household finances).

Outcome measures

Financial hardship was defined by three main questions on financial status:

- Perceived prosperity assessed via the question 'Given your current needs and financial responsibilities, would you say that you and your family are; prosperous, very comfortable, reasonably comfortable, just getting along, poor or very poor.' We dichotomised this question into 'not financially comfortable' (true/false) where 'true' was defined as 'just getting along', 'poor' or 'very poor'.
- Financial strain defined by the question 'Since your cancer diagnosis, did any of the following happen to you because of a shortage of money? 1) could not pay utilities on time, 2) could not pay mortgage or rent on time, 3) pawned or sold something, 4) went without meals, 5) was unable to heat home, 6) asked for financial help from friends/family, 7) asked for help from other organisations. We dichotomised this question generating 'financial strain' (yes/no) with 'yes' defined as a shortage of money causing at least two affirmative responses above.
- Ability to raise money from the question 'Suppose you had to raise \$2000 for an emergency – how hard would that be?' with responses 'I could easily raise the money', 'I could raise the money but it would involve some sacrifices', 'I would have to do something drastic to raise the money', 'I don't think I could raise the money'. We dichotomised this question into 'Unable/difficult to raise money' (yes/no) with 'yes' defined as the three last responses above. The follow-up question was 'How would you obtain that money (with seven possible responses and more than one response was allowed). The follow up question excluded respondents who answered they could not raise the money.

The three questions above relating to financial hardship were based on those used in the HILDA survey. These have been previously piloted and validated within the HILDA data collection methods (Watson and Wooden, 2002) and they have been used extensively by other social and economic researchers (Siahpush *et al.*, 2007, Brown and Gray, 2014) to measure subjective prosperity, material wellbeing and financial deprivation. We aimed to be conservative in the cut-off of financial strain (i.e. at least two responses were positive regarding shortage of money) to reduce the chance of over-estimating these concepts given our small sample. Similarly, due to small numbers in some categories, we dichotomised responses.

Participants were asked how many hours per week they worked, in total for all their jobs, at baseline and 12 months. We created a 'change in employment' variable from baseline/diagnosis to 12 months based on how many hours were worked and collapsed these into two groups: 1) ceased or reduced work and 2) maintained or increased work. 'Increased work' and 'reduced work' were defined as greater than 4 hours' difference per week from baseline. This difference was set to establish meaningful change in work hours of greater than $\pm 10\%$ for a 40-hour work week. The financial status questions and the method of generating the 'change in employment' variable were identical for the cancer and general population groups.

Analysis

Statistical analyses were conducted using Stata Version 13 (StataCorp LP, 2013). We included all participants that completed the first postal survey (6 months) and answered the first financial question on perceived prosperity. Matching of cancer and HILDA participants was achieved through the 'radmatch' Stata procedure, which randomly selected two HILDA subjects for every study participant (without replacement) by radius matching on age group, gender, marital status, education, income, occupational group and rurality. Descriptive analyses were undertaken presenting frequencies and percentages, and cross-tabulations. Pearson chi-square tests were used to assess the differences in proportions between the two groups and McNemar tests to assess differences between Time 1 and Time 2 among the same group. Prevalence ratios were calculated where the exposure was change in employment (0=maintained/increased 1=ceased/reduced) and the event was financial hardship (i.e., defined by the three outcomes above). Generalized linear models with binomial family and log link were run to produce prevalence ratios, adjusted for age, employer size, number of comorbidities and cancer stage. Statistical significance was set with a p-value <0.05 .

Results

In total, 239 participants with colorectal cancer were enrolled in the study from 705 eligible persons identified (34% response rate) (Gordon *et al.*, 2014). Compared with non-participants, participants were more likely to be male (67% vs 58% $p=0.02$), slightly younger and a lower proportion had advanced cancer (Gordon *et al.*, 2014). For this analysis, after excluding participants with missing data for key items (e.g., financial status), the final sample size was 187 colorectal cancer survivors

and 355 participants in the comparison group. Three socio-demographic characteristics (age, number of comorbidities and employer size) were statistically significantly imbalanced (Table 1).

There were no statistically significant differences across time or between study groups for perceived prosperity or the dichotomised 'financially comfortable' variable (Table 2). There was a statistically non-significant improvement (70% to 75%) in financial comfort among cancer survivors from Time 1 to Time 2. For the question on financial strain, measuring the ability to meet living expenses, a higher proportion of participants with cancer indicated financial strain at Time 1 (n=28, 15%) than at Time 2 (n=14 or 7%) (p=0.003). Specifically, by Time 2, 18 survivors had no further strain, 10 survivors experiencing strain at both times and 4 survivors worsened from no to some strain. The proportion of financial strain (7%) was the same between cancer and comparison groups at 12 months. At Time 1, 41% of cancer survivors were unable to raise funds in an emergency compared with 33% in the comparison group (not statistically significant) but a negligible difference was found by Time 2. Further, among those able to raise funds, a statistically significantly higher proportion of cancer survivors said they would use savings compared with the comparison group, at Time 2 (Table 2). Although not statistically significant, the results showed a tendency for those with cancer to be less likely to borrow from a bank at both time points (23%) than the comparison group (28%).

At Time 2, cancer survivors were 66% more likely to report not being financially comfortable if they had ceased/decreased employment (21 or 33%) compared with those who maintained/increased employment participation (15 or 19%)(adjusted prevalence ratio 1.66 95%CI: 1.12, 2.44) (Table 3). There were no notable differences between those who maintained/increased work and those who ceased/decreased work in the inability to raise emergency funds among cancer survivors or the comparison group at Time 2.

Discussion

Main findings

Our findings show that, among colorectal cancer survivors working at diagnosis, a proportion experienced significant financial hardship and were unable to meet their living expenses. Approximately one-third indicated they were not financially comfortable six months after diagnosis. There were improvements between 6 and 12 months in colorectal cancer survivors for financial strain. However, by 12 months the extent of financial strain appeared similar to that reported by members of the general population without colorectal cancer. The prevalence ratio indicates that cancer patients who decreased or ceased work were more likely to report they were not financially comfortable than those who maintained or increased work. This highlights that even in middle-aged colorectal cancer survivors who are working and earning income, reduced employment contributes to financial vulnerability for some people.

Interpretation of findings

Financial strain appeared to be higher for colorectal cancer survivors at 6 months, but had mostly returned to 'normal' levels by 12 months. At 6 months, many participants were undergoing chemotherapy and radiation treatments (Gordon *et al.*, 2014) and temporary treatment-related work stoppages may explain the source of financial difficulties (McGrath *et al.*, 2017). In addition, while we did not collect information on out-of-pocket medical expenses, many of our participants with cancer could be expected to have high expenses if they lived in rural locations, due to vast travelling distances in Queensland, Australia. Nineteen percent of participants lived more than 50km from treatment centres and, among these, three quarters were required to travel up to 550 km and would have needed accommodation in the metropolitan centres (Gordon *et al.*, 2009).

Our findings substantiate our qualitative work where survivors who stopped work gave specific examples about the difficult financial consequences they experienced (McGrath *et al.*, 2017). We also know that some of our participants were obliged to return to work for financial reasons, and did so earlier than preferred (McGrath *et al.*, 2017). Some of the difficulties experienced are chemotherapy-related constipation, diarrhoea, fatigue, physical weakness, problems with stomas and bowel movements, difficulty concentrating and short-term memory issues (Lynch *et al.*, 2016). Further, some respondents reported that employers and co-workers were not supportive, which evoked more emotional and social challenges for the participants. In these situations, it seems cancer survivors are forced to make a trade-off between financial and other types of wellbeing, which may all individually contribute to a person's distress. These findings are consistent with other research (Bains *et al.*, 2012, McKay *et al.*, 2013, Sanchez *et al.*, 2004).

Strengths and limitations

Our analyses are limited by smaller than expected numbers enrolled to the study (response rate 34%), but were sufficiently powered to detect significant differences in the key outcome for the original study, employment participation (Gordon *et al.*, 2014). Furthermore, a total of 28 (15%) participants with cancer had missing data at 12 months post-diagnosis. Our study requires caution due to the different methods of data collection; postal and telephone surveys for the patients with cancer versus face-to-face surveys for the general population. This may have introduced biases (e.g., social desirability bias may be higher in face-to-face surveys) on the findings. We cannot rule out the contribution of additional chronic health conditions in the cancer group on the financial hardship experienced. However, greater financial hardship was observed in the first 6 months after colorectal cancer diagnosis than at 12 months which we attribute to the demands of colorectal cancer. Findings from our study of working, middle-aged colorectal cancer survivors will not be representative of all patients with colorectal cancer. It is possible that people with colorectal cancer not working at diagnosis, minority groups, younger persons or those with different types of cancer could have higher levels of financial hardship than reported here. This may be particularly true of other cancer types with prolonged treatments and high medical expenses. Persons with other types of cancers may have different experiences than our working age sample and we suspect there might be more favourable

outcomes with those with breast or prostate cancers who do not face symptoms relating to bowel movements and physical barriers to work. In addition, colorectal cancer has many treatments which are reimbursed for government subsidy via Australian Medicare and thus financial impacts may be less. Finally, our study did not collect out-of-pocket expenses which represent the financial outgoings faced by the study participants. These may have provided a greater understanding of the monetary burden for this population.

Implications for practice and further research

Practical advice about working after cancer and related support materials are increasingly important for those affected by cancer and their health professionals (McGrath *et al.*, 2017). These include advice about communicating work issues with employers, dealing with financial institutions to reduce debt, and speaking to health professionals to express concerns around cost issues. Ensuring front-line health professionals, employers and governments acknowledge that financial strain exists for some cancer survivors is important. Professional support may be equally as important as patient awareness and their self-help efforts to access support materials and mechanisms. Further research would be valuable on evaluating existing support programs and initiatives that aim to facilitate return to work or target cancer survivors with particularly debilitating problems after treatment.

Conclusion

In conclusion, self-reported financial hardship among middle-aged workers at 6 and 12 months after diagnosis with colorectal cancer was generally comparable to a general population comparison group. A small proportion of cancer survivors fared poorly and financial difficulty eased by 12 months. Middle-aged workers with colorectal cancer who ceased or reduced work were more likely to experience inability to meet everyday living expenses, compared to those who increased or maintained work hours. Health professionals and patients should seek help on strategies that will identify and ease the financial burden through cancer support services.

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Table 1: Socio-demographic and treatment characteristics for the colorectal cancer group and general population comparison group, n (%)

	Cancer group n=187	Comparison group n=355	p value
#Age (mean, sd)	56.3 (5.2)	54.9 (5.0)	0.002
#Gender (male)	123 (66%)	239 (67%)	0.716
Country of birth (Aust)	140 (81%)	267 (75%)	0.143
#Marital status (partnered)	142 (82%)	295 (83%)	0.771
#Lived in a major city (yes)	96 (51%)	176 (50%)	0.697
#Education (higher edu)	62 (36%)	149 (42%)	0.193
#Household income ¹			
≤\$36,000	11 (7%)	36 (10%)	
\$36,001 to \$78,000	47 (31%)	104 (29%)	
\$78,001 to \$104,000	36 (23%)	63 (18%)	0.357
>\$104,000	60 (39%)	152 (43%)	
#Occupation group			
Professional	40 (23%)	99 (28%)	
Trades	79 (46%)	160 (45%)	0.462
Clerical	53 (31%)	96 (27%)	
Employer type			
Private/profit	129 (75%)	261 (74%)	0.717
Other			
Employer size			
Small <20 staff	73 (42%)	185 (53%)	0.027
Work schedule			
Regular daytime	128 (74%)	259 (73%)	0.802
No. of comorbidities			
None	74 (43%)	192 (55%)	
One	53 (31%)	107 (31%)	0.002
At least two	46 (27%)	50 (14%)	
Body mass index (mean, sd)	27.3 (4.9)	28.0 (5.8)	0.157
Cancer site			
Colon	86 (55%)	n/a	-
Rectal	71 (45%)		
Cancer stage			
Early	71 (65%)	n/a	-
Late	38 (35%)		
Chemotherapy or radiotherapy			
Yes	99 (56%)	n/a	-
Lived >50km from treatment centre			
Yes	34 (19%)		
No	141 (81%)	n/a	-

Needed accommodation			
Yes	17 (10%)		
No	156 (90%)	n/a	-
Financial support received			
Yes	25 (14%)		
No	149 (86%)	n/a	-

Frequencies do not always add up to group size due to missing data, % values calculated with number of non-missing values in denominator

matching variables – the cancer and comparison group were matched on these variables.

1. Australian dollars 2010

Table 2: Self-reported financial status of the colorectal cancer group at 6- and 12-months post-diagnosis and a general population comparison group at 12 months

	Colorectal cancer group		
	6-months post-diagnosis	12-months post-diagnosis	Comparison Group - 12 months
Perceived prosperity			
Prosperous	3 (2%)	5 (3%)	6 (2%)
Very comfortable	24 (13%)	18 (11%)	51 (14%)
Reasonably comfortable	104 (56%)	97 (61%)	185 (53%)
Just getting along	54 (29%)	38 (24%)	104 (30%)
Poor	2 (1%)	1 (0.6%)	4 (1%)
Very poor	0 (0%)	0 (0%)	2 (0.6%)
Not financially comfortable¹			
True	56 (30%)	39 (25%)	110 (31%)
False	131 (70%)	120 (75%)	242 (69%)
Financial strain			
Could not pay for utilities on time	17 (9%)	7 (4%)	32 (9%)
Could not pay mortgage or rent on time	19 (10%)	7 (4%)	10 (3%)
Pawned or sold something	13 (7%)	6 (4%)	8 (2%)
Went without meals	6 (4%)	4 (3%)	8 (2%)
Was unable to heat home	2 (1%)	1 (0.6%)	12 (3%)
Asked for financial help (family/friends)	17 (9%)	13 (8%)	22 (6%)
Asked for financial help (organisations)	23 (12%)	11 (7%)	10 (3%)*
Experiencing financial strain²			
Yes	28 (15%)	14 (7%)	26 (7%)
No	162 (85%)	176 (93%)**	354 (93%)
Ability to raise \$2000 in an emergency			

Easily raised	111 (59%)	105 (67%)	242 (69%)
Could raise but with sacrifices	52 (28%)	41 (26%)	65 (19%)
Could raise but drastic action	13 (7%)	7 (4%)	19 (5%)
Could not raise money	12 (6%)	5 (3%)	24 (7%)
Unable or difficult to raise \$2000 easily ³			
Yes	77 (41%)	53 (33%)	109 (31%)
No	111 (59%)	105 (67%)	242 (69%)
How would the money be raised in an emergency?⁴			
Use savings	136 (76%)	129 (82%)	236 (72%)*
Borrow from relative (lives with)	6 (3%)	5 (3%)	12 (4%)
Borrow from relative (lives elsewhere)	17 (10%)	16 (10%)	34 (10%)
Borrow from friend	9 (5%)	5 (3%)	13 (4%)
Borrow from a bank/use credit	40 (23%)	36 (23%)	93 (28%)
Sell asset	24 (13%)	20 (13%)	34 (10%)
Use other method	3 (2%)	4 (3%)	9 (3%)

*p<0.05 based on Pearson's chi-square statistic between cancer 12 months and comparison

** p<0.05 based on McNemar's chi-square statistic between cancer 6 and 12 months

1. Not financially comfortable 'true' was a positive response to either 'just getting along', 'poor' or 'very poor' while a 'false' was defined as a response of 'prosperous' 'very comfortable' or 'reasonably comfortable'.
2. Financial strain was defined as a shortage of money causing ≥ 2 occurrences of either: 1) could not pay utilities on time, 2) could not pay mortgage or rent on time, 3) pawned or sold something, 4) went without meals, 5) was unable to heat home, 6) asked for financial help from friends/family, 7) asked for help from other organisations.
3. Not able to raise \$2000 easily was defined as the other responses than 'easily raised'.
4. Response categories are not mutually exclusive and figures may not add up to 100%. Comparisons between cancer and comparison groups for each method of raising money occurred separately for 6 and 12 months.

Table 3: Adjusted prevalence ratios of financial hardship at 12 months by employment change within colorectal cancer and general population comparison groups

Employment change group	Cancer group		Comparison group	
	Maintained/ increased n=84 PR (95%CI)	Ceased/ decreased n=72 PR (95%CI)	Maintained/ increased n=236 PR (95%CI)	Ceased/ decreased n=112 PR (95%CI)
Not financially comfortable ¹	referent	1.66 (1.12, 2.44)*	referent	1.09 (0.78, 1.52)
Action indicated financial strain ²	referent	1.50 (0.79, 2.84)	referent	1.34 (0.81, 2.23)

Unable to raise money easily³ referent 1.27 (0.72, 2.24) referent 1.03 (0.73, 1.44)

*p<0.05 CI = confidence interval, PR = prevalence ratio (adjusted for number of comorbidities, age and employer size & cancer stage for cancer group only)

1. Not financially comfortable 'yes' was a positive response to either 'no' was 'just getting along', 'poor' or 'very poor' while a 'no' was defined as a response of 'prosperous' 'very comfortable' or 'reasonably comfortable'.
2. Financial strain was defined as a shortage of money causing ≥ 2 occurrences of either: 1) could not pay utilities on time, 2) could not pay mortgage or rent on time, 3) pawned or sold something, 4) went without meals, 5) was unable to heat home, 6) asked for financial help from friends/family, 7) asked for help from other organisations.
3. Unable to raise \$2000 in an emergency was defined as other responses than 'easily raised'.

References

- Azzani M., Roslani A. C. & Su T. T. (2015) The perceived cancer-related financial hardship among patients and their families: a systematic review. *Supportive care in cancer* **23**, 889-898.
- Baili P., Di Salvo F., De Lorenzo F., Maietta F., Pinto C., Rizzotto V., Vicentini M., Giorgi Rossi P., Tumino R., Rollo P. C., Tagliabue G., Contiero P., Candela P., Scuderi T., Iannelli E., Cascinu S., Aurora F., Agresti R., Turco A., Sant M., Meneghini E. & Micheli A. (2016) Out-of-pocket costs for cancer survivors between 5 and 10 years from diagnosis: an Italian population-based study. *Supportive care in cancer* **24**, 2225-2233.
- Bains M., Munir F., Yarker J., Bowley D., Thomas A., Armitage N. & Steward W. (2012) The impact of colorectal cancer and self-efficacy beliefs on work ability and employment status: a longitudinal study. *European journal of cancer care* **21**, 634-641.
- Beesley V. L., Vallance J. K., Mihala G., Lynch B. M. & Gordon L. G. (2016) Association between change in employment participation and quality of life in middle-aged colorectal cancer survivors compared with general population controls. *Psychooncology* **8**.
- Bestvina C. M., Zullig L. L., Rushing C., Chino F., Samsa G. P., Altomare I., Tulskey J., Ubel P., Schrag D., Nicolla J., Abernethy A. P., Peppercorn J. & Zafar S. Y. (2014) Patient-oncologist cost communication, financial distress, and medication adherence. *Journal of oncology practice / American Society of Clinical Oncology* **10**, 162-167.
- Brown S. & Gray D. (2014) Household Finances and Well-Being: An Empirical Analysis of Comparison Effects. In: Sheffield Economic Research Paper Series, pp. 1-38. The University of Sheffield, Sheffield, UK.
- Davidoff A. J., Erten M., Shaffer T., Shoemaker J. S., Zuckerman I. H., Pandya N., Tai M. H., Ke X. & Stuart B. (2013) Out-of-pocket health care expenditure burden for Medicare beneficiaries with cancer. *Cancer* **119**, 1257-1265.

- Duijts S. F., Van Egmond M. P., Spelten E., Van Muijen P., Anema J. R. & Van Der Beek A. J. (2014) Physical and psychosocial problems in cancer survivors beyond return to work: a systematic review. *Psychooncology* **23**, 481-492. doi: 410.1002/pon.3467. Epub 2013 Dec 1023.
- Fenn K. M., Evans S. B., Mccorkle R., Digiovanna M. P., Pusztai L., Sanft T., Hofstatter E. W., Killelea B. K., Knobf M. T., Lannin D. R., Abu-Khalaf M., Horowitz N. R. & Chagpar A. B. (2014) Impact of financial burden of cancer on survivors' quality of life. *Journal of oncology practice / American Society of Clinical Oncology* **10**, 332-338.
- Gordon L. G., Beesley V. L., Lynch B. M., Mihala G., Mcgrath C., Graves N. & Webb P. M. (2014) The return to work experiences of middle-aged Australian workers diagnosed with colorectal cancer: a matched cohort study. *BMC public health* **14**, 963.
- Gordon L. G., Ferguson M., Chambers S. K. & Dunn J. (2009) Fuel, beds, meals and meds: out-of-pocket expenses for patients with cancer in rural Queensland. *Cancer Forum* **33**.
- Gordon L. G., Lynch B. M., Beesley V. L., Graves N., Mcgrath C., O'rourke P. & Webb P. M. (2011) The Working After Cancer Study (WACS): a population-based study of middle-aged workers diagnosed with colorectal cancer and their return to work experiences. *BMC public health* **11**, 604.
- Gordon L. G., Merollini K. M., Lowe A. & Chan R. J. (2016) A Systematic Review of Financial Toxicity Among Cancer Survivors: We Can't Pay the Co-Pay. *Patient* **31**, 31.
- Kaisaeng N., Harpe S. E. & Carroll N. V. (2014) Out-of-pocket costs and oral cancer medication discontinuation in the elderly. *Journal of managed care & specialty pharmacy* **20**, 669-675.
- Kent E. E., Forsythe L. P., Yabroff K. R., Weaver K. E., De Moor J. S., Rodriguez J. L. & Rowland J. H. (2013) Are survivors who report cancer-related financial problems more likely to forgo or delay medical care? *Cancer* **119**, 3710-3717.
- Lauzier S., Levesque P., Mondor M., Drolet M., Coyle D., Brisson J., Masse B., Provencher L., Robidoux A. & Maunsell E. (2013) Out-of-pocket costs in the year after early breast cancer among Canadian women and spouses. *Journal of the National Cancer Institute* **105**, 280-292.
- Lynch B. M., Mihala G., Beesley V. L., Wiseman A. J. & Gordon L. G. (2016) Associations of health behaviours with return to work outcomes after colorectal cancer. *Support Care Cancer* **24**, 865-870. doi: 810.1007/s00520-00015-02855-x. Epub 02015 Jul 00523.
- Mcgrath C., Mihala G., Beesley V. L., Lynch B. M., Graves N. & Gordon L. G. (2017) "Cancer Put My Life on Hold": Work-Related Challenges Among Middle-aged Adults 12 Months After a Diagnosis of Colorectal Cancer. *Cancer Nurs* **40**, 160-167. doi: 110.1097/NCC.0000000000000359.

- Mckay G., Knott V. & Delfabbro P. (2013) Return to work and cancer: the Australian experience. *J Occup Rehabil* **23**, 93-105.
- Mehnert A. (2011) Employment and work-related issues in cancer survivors. *Crit Rev Oncol Hematol* **77**, 109-130.
- Private Health Insurance Ombudsman (2017) State of the Health Funds Report 2016
http://www.ombudsman.gov.au/_data/assets/pdf_file/0020/43355/2016-State-of-the-Health-Funds-Report.pdf Canberra.
- Sanchez K. M., Richardson J. L. & Mason H. R. (2004) The return to work experiences of colorectal cancer survivors. *AAOHN J* **52**, 500-510.
- Sharp L. & Timmons A. (2016) Pre-diagnosis employment status and financial circumstances predict cancer-related financial stress and strain among breast and prostate cancer survivors. *Supportive care in cancer* **24**, 699-709.
- Siahpush M., Spittal M. & Singh G. K. (2007) Association of smoking cessation with financial stress and material well-being: results from a prospective study of a population-based national survey. *Am J Public Health*. **97**, 2281-2287. Epub 2007 Oct 2230.
- Statacorp Lp (2013) Stata Statistical Software Release 13.0 College Station, Texas USA.
- Watson N. & Wooden M. (2002) The Household Income and Labour Dynamics in Australia (HILDA) Survey: Wave 1 Survey Methodology
<http://melbourneinstitute.unimelb.edu.au/assets/documents/hilda-bibliography/hilda-technical-papers/htec102.pdf>. In: HILDA Project Technical Paper Series No. 1/02, May 2002. The University of Melbourne, Melbourne.
- Yabroff K. R., Dowling E. C., Guy G. P., Jr., Banegas M. P., Davidoff A., Han X., Virgo K. S., Mcneel T. S., Chawla N., Blanch-Hartigan D., Kent E. E., Li C., Rodriguez J. L., De Moor J. S., Zheng Z., Jemal A. & Ekwueme D. U. (2016) Financial Hardship Associated With Cancer in the United States: Findings From a Population-Based Sample of Adult Cancer Survivors. *Journal of clinical oncology* **34**, 259-267.