Patterns of Bowel Cancer Diagnosis and Treatment in Relation to Culturally and Linguistically Diverse (CALD) Status in SWSLHD

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BACKGROUND

- 43.3% of the SWSLHD population are born overseas and 45.3% speak a language other than English at home[1].
- CALD populations experience worse health-related quality of life due to language difficulties, poorer health literacy and challenges navigating a foreign healthcare system[2].
- Multicultural communities have been shown to be disproportionately affected by cancer[3].
- In 2019, bowel cancer was the fourth most diagnosed cancer and the second most common cause of cancer death in Australia[4].
- The incidence of bowel cancer is expected to rise in SWSLHD by 4% annually[5.]

AIM

To investigate the impact of CALD status on extent of disease and treatment patterns in bowel cancer patients presenting to SWSLHD Cancer Services.

METHODOLOGY

- Retrospective cohort study of patients identified:
  - Patient had an encounter with SWSLHD Cancer Services
  - Primary bowel cancer diagnosed (C18-21) between 01/01/2013 to 31/12/2022.
- Data was collected from MOSAIQ information system, including:
  - Demographic data (birth date, sex, country of birth, language, address)
  - Diagnostic outcomes (primary, metastatic, recurrent diagnosis)
  - Treatment utilisation (surgery, systemic therapy, radiotherapy, palliative care)
- Data gaps were supplemented from the Electronic Medical Record (eMR).
- Patient data up until 30th of June 2023 was collected.
- The CALD status of this study was assigned based on preferred language and country of birth (Table 1).

Table 1. Mechanism of assigning CALD status

		Preferred Language		
		English	Arabic	Vietnamese	All other language
Country of Birth	Non-English-speaking	CALD-E	CALD-AV		CALD-NOS
	English-speaking[6]	Non-CALD			

- A multivariable regression model accounting for CALD status, age, gender, and socioeconomic status (SES) was used to analyse the extent of disease and treatment patterns variations.

RESULTS

- 2749 bowel cancer patients were identified. 49% of patients identified as being from a CALD background. There was a higher proportion of males (55%) across all CALD groups.
- CALD-NOS had the highest proportion of patients in the most disadvantaged SES group (52%).
- There was no statistically significant association between CALD status and distant metastasis/recurrent disease or the receipt of surgery, systemic therapy, or radiotherapy.
- The CALD-AV group was more likely to receive palliative care (OR: 1.443, 95% CI 95%: 1.058-1.957, p=0.019) compared to the non-CALD group.
- The most disadvantaged SES group were more likely to:
  - have distant metastasis or recurrent disease (OR: 1.202, 95% CI: 1.030-1.403, p=0.019).
  - receive radiotherapy (OR: 1.189, 95% CI 95%: 1.011-1.398, p=0.036).
  - receive palliative care (OR: 1.418, 95% CI: 1.174-1.714, p<0.001).

Variable	CALD-AV (n,%)	CALD-E (n,%)	CALD-NOS (n,%)	Non-CALD (n,%)	P value	Total (n,%)
Total	295 (10.7%)	596 (21.7%)	459 (16.7%)	1399 (50.9%)		2749 (100%)
Gender					<0.001	
Male	178 (60.3%)	362 (60.7%)	270 (58.8%)	707 (50.5%)		1517 (55.2%)
Female	117 (39.7%)	234 (39.3%)	189 (41.2%)	692 (49.5%)		1232 (44.8%)
Age group					<0.001	
<40	7 (2.4%)	18 (3.0%)	5 (1.1%)	79 (5.7%)		109 (4.0%)
40-49	32 (10.9%)	59 (9.9%)	21 (4.6%)	126 (9.0%)		238 (8.7%)
50-59	76 (25.8%)	123 (20.6%)	49 (10.7%)	258 (18.4%)		506 (18.4%)
60-69	99 (33.6%)	185 (31.0%)	134 (29.2%)	385 (27.5%)		803 (29.2%)
70-79	51 (17.3%)	142 (23.8%)	152 (33.1%)	358 (25.6%)		703 (25.6%)
80+	30 (10.2%)	69 (11.6%)	98 (21.4%)	193 (13.8%)		390 (14.2%)
SES (IRSD)					<0.001	
Quintile 3-5	155 (52.5%)	323 (54.2%)	219 (47.7%)	886 (63.3%)		1583 (57.6%)
Quintile 1-2	140 (47.5%)	273 (45.8%)	240 (52.3%)	513 (36.7%)		1166 (42.4%)
TNM Stage					0.415	
I	14 (4.7%)	32 (5.4%)	30 (6.5%)	75 (5.4%)		151 (5.5%)
II	65 (22.0%)	102 (17.1%)	81 (17.7%)	264 (18.9%)		512 (18.6%)
III	143 (48.5%)	284 (47.7%)	214 (46.6%)	622 (44.5%)		1263 (45.9%)
IV	73 (24.8%)	178 (29.9%)	134 (29.2%)	438 (31.3%)		823 (29.9%)
Tumour site					<0.001	
Colon	185 (62.7%)	323 (54.2%)	261 (56.9%)	886 (63.3%)		1655 (60.2%)
Rectosigmoid	28 (9.5%)	33 (5.5%)	34 (7.4%)	79 (5.7%)		174 (6.3%)
Rectum	76 (25.8%)	223 (37.4%)	147 (32.0%)	353 (25.2%)		799 (29.1%)
Anus	6 (2.0%)	17 (2.9%)	17 (3.7%)	81 (5.8%)		121 (4.4%)
Surgery					0.448	
Yes	232 (78.6%)	466 (78.2%)	344 (75.0%)	1061 (75.8%)		2103 (76.5%)
No	63 (21.4%)	130 (21.8%)	115 (25.1%)	338 (24.2%)		646 (23.5%)
Radiotherapy					0.183	
Yes	94 (31.9%)	215 (36.1%)	169 (36.8%)	454 (32.5%)		932 (33.9%)
No	201 (68.1%)	381 (63.9%)	290 (63.2%)	945 (67.6%)		1817 (66.1%)
Systemic therapy					0.224	
Yes	232 (78.6%)	443 (74.3%)	332 (72.3%)	1025 (73.3%)		2032 (73.9%)
No	63 (21.4%)	153 (25.7%)	127 (27.7%)	374 (26.7%)		717 (26.1%)
Palliative care					**0.031**	
Yes	85 (28.8%)	140 (23.5%)	142 (30.9%)	358 (25.6%)		725 (26.4%)
No	210 (71.2%)	456 (76.5%)	317 (69.1%)	1041 (74.4%)		2024 (73.6%)
Any treatment					0.820	
Yes	287 (97.3%)	579 (97.2%)	443 (96.5%)	1350 (96.5%)		2659 (96.7%)
No	8 (2.7%)	17 (2.9%)	16 (3.5%)	49 (3.5%)		90 (3.3%)

Table 2. Study cohort characteristics, chi square univariate

	Distant metastasis / recurrent disease			Surgery			Systemic therapy			Radiotherapy			Palliative Care		
	OR	CI 95%	P value	OR	CI 95%	P value	OR	CI 95%	P value	OR	CI 95%	P value	OR	CI 95%	P value
CALD Status			0.196			0.720			0.247			0.266			**0.017**
Non-CALD	1			1			1			1			1		
CALD-AV	0.92	0.71-1.18	0.498	1.00	0.72-1.41	0.997	1.26	0.90-1.79	0.186	0.9	0.68-1.18	0.449	1.44	1.06-1.95	**0.019**
CALD-E	0.84	0.69-1.02	0.086	1.14	0.89-1.48	0.312	0.97	0.76-1.25	0.806	1.11	0.91-1.37	0.299	0.89	0.69-1.13	0.335
CALD-NOS	1.08	0.87-1.34	0.480	0.97	0.74-1.28	0.813	1.23	0.94-1.63	0.138	1.18	0.94-1.48	0.157	1.24	0.95-1.60	0.108
SES (IRSD)															
Quintile 3-5	1			1			1			1			1		
Quintile 1-2	1.20	1.03-1.40	**0.019**	1.14	0.93-1.39	0.203	1.02	0.84-1.24	0.849	1.19	1.01-1.40	**0.036**	1.42	1.17-1.71	**<0.001**

Table 3. multivariate logistic regression model accounting for CALD status, age, gender, and socioeconomic status (SES)

DISCUSSION

- There was no association between CALD status and diagnostic or treatment patterns, except for palliative care.
- The most disadvantaged SES group were more likely to have distant metastasis or recurrence. This is consistent with Teveron et al.[7], which is potentially due to lower uptake of colorectal cancer screening in patient populations[8].
- There is an association between CALD status and receiving palliative care. CALD-AV had higher adjusted odds of receiving palliative care compared to the non-CALD group. Post-hoc analysis found that CALD-AV and CALD-NOS were significantly more likely to receive palliative care compared to CALD-E. However, the reasons for palliative care referrals were not collected, leaving the implications of these results unclear.
- The most disadvantaged SES group had higher odds of receiving any treatment, only significantly associated for radiotherapy and palliative care.
- Our study did not record the treatment data for patients seeking care outside of the LHD or in the private system which potentially biases our results as the least disadvantaged patients might be more likely to seek private care[9]. A larger state-wide study by Zhao et al.[10], found the least disadvantaged quintiles were more likely to receive any treatment for colorectal cancer.
- Methodological limitations, such as lack of ethnicity data and IRSD data from the time of data collection rather than diagnosis, could be addressed with a prospective study before making definitive conclusions.

CONCLUSION

In SWSLHD, this study found that CALD status was not associated with diagnostic or treatment patterns for bowel cancer patients. However, the study found that the most disadvantaged SES group was more likely to have distant or recurrent disease and had a higher likelihood of receiving radiotherapy or palliative care. Our findings suggest that health service delivery should be targeted at low SES areas.

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