

Determinants of physical activity among patients with colorectal cancer: from diagnosis to five years post-diagnosis

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Background

- Physical activity (PA) is associated with improved prognosis and health-related quality of life among colorectal cancer (CRC) patients.
- Adhering to exercise guidelines poses challenges for many CRC patients.

Objectives

- To explore which sociodemographic and disease-related factors are determinants of physical activity among CRC patients from diagnosis until five years post-diagnosis.
- To compare sociodemographic determinants of PA levels at diagnosis with the general population.

Methods

- Data of two large CRC cohort studies were combined.
- Moderate-to-vigorous PA during sport and leisure time (MVPA-SL) was measured at diagnosis (T0) and 6, 12, 24 and 60 months post-diagnosis.
- Mixed-effects models were performed to identify sociodemographic and disease-related determinants of MVPA-SL, separately for stage I-III colon (CC), stage I-III rectal cancer (RC), and stage IV CRC (T0 and T6 only).
- Sociodemographic associations were considered consistent when statistically significant at ≥ 4 timepoints for the stage I-III subsets.
- Linear models were performed to compare sociodemographic determinants of MVPA-SL for the three CRC subsets at diagnosis with an age- and sex-matched sample of the general Dutch population.

Table 1. Patient characteristics at diagnosis (stratified by stage and location of cancer), and an age- and sex-matched sample of the general Dutch population.

	Patients				General population
	Total (N=4910)	St. I-III CC (N=2905)	St. I-III RC (N=1459)	St. IV CRC (N=436)	Total (N=4910)
Female sex, n (%)	1799 (37 %)	1189 (41 %)	430 (29 %)	148 (34 %)	1799 (37 %)
Age, median (IQR)	66 (59, 73)	67 (61, 73)	65 (58, 72)	65 (57, 71)	66 (59, 73)
MVPA-SL, median hours/week (IQR)	5.0 (1.5, 11)	5.0 (1.5, 10)	5.0 (2.0, 11)	4.3 (1.0, 9.8)	6.0 (1.5, 12.5)
Missing	220 (4.5%)	117 (4.0%)	54 (3.7%)	25 (5.7%)	0 (0%)
BMI, median (IQR)	26 (24, 29)	26 (24, 29)	26 (24, 29)	25 (23, 28)	26 (24, 29)
Missing	110 (2.2%)	58 (2.0%)	25 (1.7%)	6 (1.4%)	0 (0%)
Low educational attainment, n (%)	1676 (36 %)	1040 (37 %)	471 (33 %)	132 (32 %)	1811 (37 %)
Missing	201 (4.1%)	108 (3.7%)	49 (3.4%)	22 (5.0%)	0 (0%)
Heavy drinker, n (%)	418 (9 %)	252 (9 %)	133 (9 %)	21 (5 %)	461 (9 %)
Missing	231 (4.7%)	131 (4.5%)	51 (3.5%)	25 (5.7%)	0 (0%)
Current smoker, n (%)	387 (8 %)	204 (7 %)	140 (10 %)	38 (9 %)	863 (18 %)
Missing	183 (3.7%)	97 (3.3%)	40 (2.7%)	23 (5.3%)	0 (0%)
Married/common-law, n (%)	843 (18 %)	522 (19 %)	238 (17 %)	71 (17 %)	-
Missing	179 (3.6%)	95 (3.3%)	40 (2.7%)	21 (4.8%)	-
Surgical resection, n (%)	4562 (95 %)	2899 (100 %)	1360 (93 %)	274 (65 %)	-
Missing	95 (1.9%)	0 (0%)	1 (0.1%)	14 (3.2%)	-
Stoma, n (%)	1128 (24 %)	157 (5 %)	835 (58 %)	132 (32 %)	-
Missing	145 (3.0%)	28 (1.0%)	14 (1.0%)	20 (4.6%)	-
Systemic therapy (any), n (%)	1737 (36 %)	967 (33 %)	467 (32 %)	301 (70 %)	-
Missing	111 (2.3%)	17 (0.6%)	5 (0.3%)	7 (1.6%)	-
Radiotherapy (any), n (%)	958 (20 %)	16 (1 %)	831 (58 %)	110 (26 %)	-
Missing	165 (3.4%)	56 (1.9%)	18 (1.2%)	9 (2.1%)	-
Fatigue score, median (IQR)	22 (0.0, 33)	22 (0.0, 33)	11 (0.0, 33)	33 (11, 44)	-
Missing	234 (4.8%)	132 (4.5%)	43 (2.9%)	25 (5.7%)	-
Emotional functioning score, n (%)	83 (67, 100)	83 (67, 100)	83 (67, 92)	83 (66, 92)	-
Missing	218 (4.4%)	117 (4.0%)	42 (2.9%)	25 (5.7%)	-

Fig. 1. Determinants of MVPA-SL (hours/week) among CRC patients from diagnosis until five years post-diagnosis.

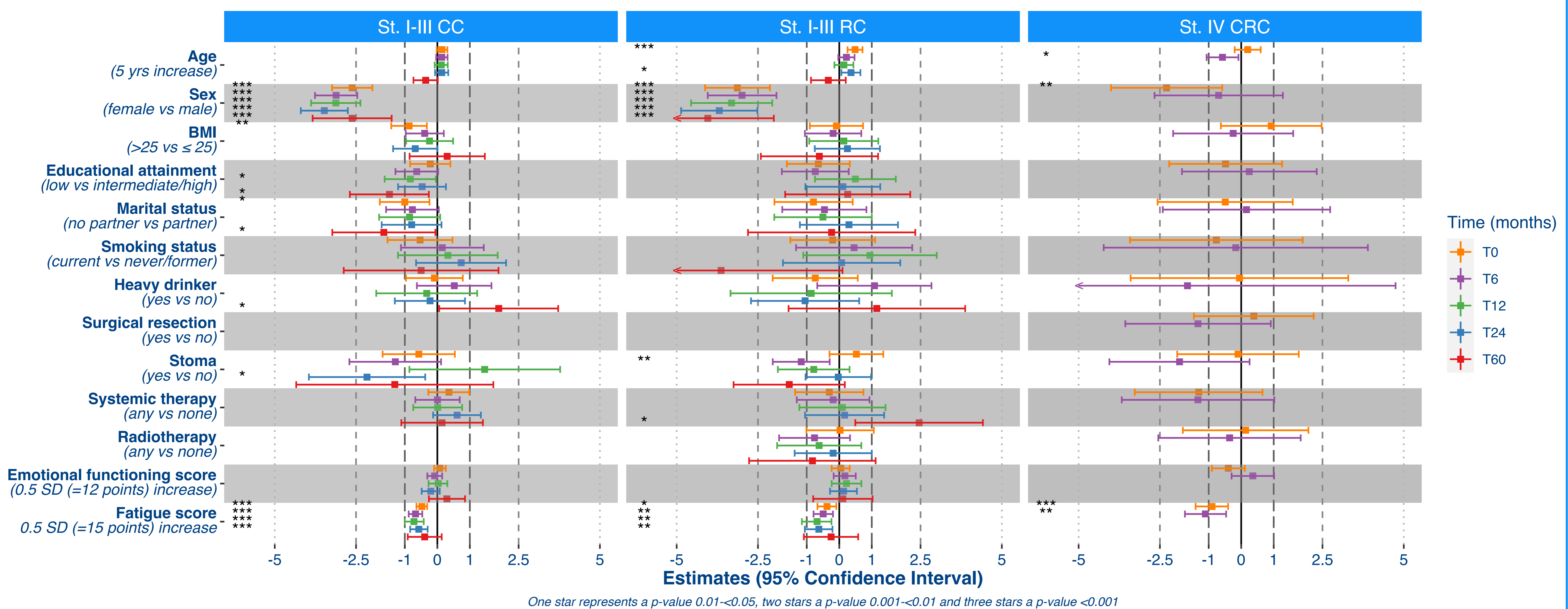
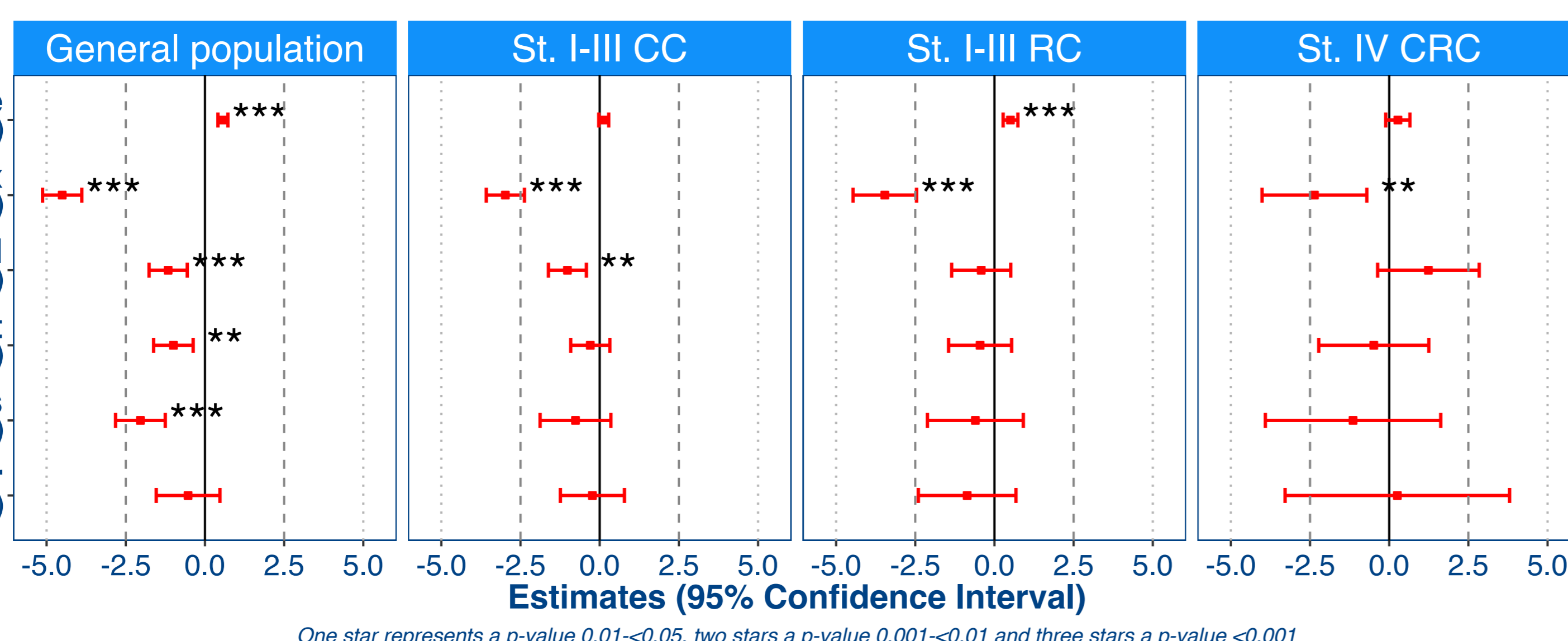


Fig. 2. Sociodemographic determinants of MVPA-SL among the general population and CRC patients at diagnosis.



Conclusion

- Female sex and higher fatigue scores are consistent determinants of lower PA levels among all CRC patients.
- Sociodemographic determinants of PA among CRC patients at diagnosis are comparable with the general population.
- These data can inform the design of intervention studies aimed at improving PA, and guide healthcare professionals in optimizing individualized support.