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Supplemental Table 1. Search Strategy

Deadline May 18, 2023	
CINAHL	(colorectal) OR (colon) OR (rectal) OR (colostomy)
PLUS	AND (cancer) OR (tumor) OR (neoplasm) OR (carcinoma) AND (cognitive dysfunction) OR (cognitive impairment) OR (cognitive disorder) OR (cognitive decline) OR (cognitive complaint)
Cochrane Library	#1 (colorectal):ti,ab,kw OR (colon):ti,ab,kw OR (rectal):ti,ab,kw OR (colostomy):ti,ab,kw #2 (cancer):ti,ab,kw OR (tumor):ti,ab,kw OR (neoplasm):ti,ab,kw OR (carcinoma):ti,ab,kw #3 (cognitive dysfunction):ti,ab,kw OR (cognitive impairment):ti,ab,kw OR (cognitive disorder):ti,ab,kw OR (cognitive decline):ti,ab,kw OR (cognitive complaint):ti,ab,kw #1 AND #2 AND #3
Embase	#1 'colorectal' OR 'colon' OR 'rectal' OR 'colostomy' #2 'cancer' OR 'tumor' OR 'neoplasm' OR 'carcinoma' #3 'cognitive dysfunction' OR 'cognitive impairment' OR 'cognitive disorder' OR 'cognitive decline' OR 'cognitive complaint' #1 AND #2 AND #3
PsycINFO	(colorectal) OR (colon) OR (rectal) OR (colostomy) AND

	<p>(cancer) OR (tumor) OR (neoplasm) OR (carcinoma)</p> <p>AND</p> <p>(cognitive dysfunction) OR (cognitive impairment) OR (cognitive disorder) OR (cognitive decline) OR (cognitive complaint)</p>
PubMed	<p>Search terms: (((((colorectal) OR (colon)) OR (rectal)) OR (colostomy)) AND (((cancer) OR (tumor)) OR (neoplasm)) OR (carcinoma))) AND (((((cognitive dysfunction) OR (cognitive impairment)) OR (cognitive disorder)) OR (cognitive decline)) OR (cognitive complaint))</p>
CNKI	<p>'colorectal' + 'colon' + 'rectal' + 'colostomy'</p> <p>AND</p> <p>'cancer' + 'tumor' + 'neoplasm' + 'carcinoma'</p> <p>AND</p> <p>'cognitive dysfunction' + 'cognitive impairment' + 'cognitive disorder' + 'cognitive decline'</p> <p>+ 'cognitive complaint'</p>

Supplemental Table 1. Study Characteristics

Author (year) Country	Study design	Target population (Cancer stage, age, education)	Treatment (before and/or after treatment)	Time Points of Assessment	Outcome Measures for Cognitio n (Objecti ve and subjecti ve scale)	Main Findings and Conclusion (prevalence of cognitive impairment, factors contributing to cognitive impairment, interventions on cognitive impairment)
Andreis et al.	Longitudin al study	Stage III colon cancer patients (n=57)	Undergoing adjuvant chemotherapy	T0: before any	Objective scale: MMSE, CDT,	OCI/SCI: not report

<p>(2013)</p> <p>Italy</p>		<p>Mean age 58.68 (9.62)</p> <p>Mean education years 9.43 (3.91)</p>		<p>pharmacologi cal agents</p> <p>T1: at the end of adjuvant treatment</p> <p>T2: 6 months after T1</p>	<p>Rey Figure Complex (copy and recall),</p> <p>Rey Auditory Verbal Learning Test, TMT A and B</p> <p>Subjective scale: not report</p>	<p>-No cognitive impairment in time considered.</p> <p>-Some significant variation in tests evaluating verbal memory, as Rey Auditory Verbal Learning Test.</p> <p>-Significant variations in information processing speed performances, as TMT A.</p>
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						<p>- Adjuvant FOLFOX4 had no effect on MMSE test performance.</p> <p>- FOLFOX4 regimen was not able to determine persistent cognitive impairment.</p>
CHU Jin-gai (2019) China	Cross-sectional study	<p>CRC (n=94)</p> <p>Mean age 48.73 (9.2)</p> <p>Median education years 14</p>	Receiving chemotherapy	Before and after chemotherapy	<p>Objective scale: not report</p> <p>Subjective scale: FACT-Cog</p>	<p>OCI: not report</p> <p>SCI: 62 (65.9%) were of cognitive impairment before chemotherapy.</p> <p>After chemotherapy were 85 (90.43%).</p> <p>The incidence of</p>

						<p>chemotherapy was up to 24.47%.</p> <ul style="list-style-type: none">- Chemotherapy would enhance the incidence of patients' cognitive impairment, and between cognitive impairment onset and self-efficacy level there was relativity.- The incidence of cognitive impairment in CRC patients was
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						negatively correlated with the level of self-efficacy.
Couwenbergh et al. (2018) Netherlands	Longitudinal study	Stage I to IV CRC (n=324) Responders (n=272) Median age 65 No-responders (n=52) Median age 67 Education level: not report	Neoadjuvant chemoradiation or short-course radiotherapy and underwent rectal surgery	Before treatment and after 3, 6, 12, 18, and 24 months	Subjective scale: EORTC QLQ-C30	OCI: not report SCI: at 24 months, 20% of the patients reported worsened cognitive functioning compared with baseline. - Global health and cognitive functioning declined to a lesser extent, and emotional functioning

						<p>gradually improved over the time.</p> <p>- Cognitive functioning and symptoms of fatigue and insomnia remained significantly worse in patients on longer-term.</p> <p>- Global health, cognitive function, and emotional function</p>
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						<p>changed during treatment.</p> <p>- Patients reported lower physical, role, social, and cognitive function and more insomnia and fatigue up to 2 years after the start of treatment.</p>
<p>Cruzado et al. (2014) Spain</p>	<p>Longitudinal Study</p>	<p>Stage III and high-risk stage II colon cancer (n=81) Mean age 66.96 (9.52)</p>	<p>Treated with FOLFOX4 for 6 months</p>	<p>Prechemotherapy Post-chemotherapy (approximate</p>	<p>Objective scale: NP tests - Attention TMT A</p>	<p>OCI: a total of 28 patients (52%) showed a decline from pre-chemotherapy to 6-month assessments.</p>

		Mean education years 6.9 (4.1)		ly 5.5 months later) 6 months after the end of the last cycle of chemotherapy	- Verbal memory: Imm-Mem, Imm-Mem- Q, Delayed- Mem, Delayed- Mem-Q - Verbal learning : LMWT, Spanish adaptati on Barcelon a Test - Executive function	SCI: not report - Adjuvant FOLFOX4 in patients with colon cancer had a negative effect on verbal memory, which deterioration was mild and transient. - A high decline incidence and 13% of patients showed impairment at the end of treatment in verbal memory.
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					: DSymbol, SCWT, TMT B Subjective scale: not report	- It was not possible to determine which variables could be associated with patients' cognitive dysfunction.
Dhillon et al. (2018) Australia	Cohort study	Stage I to IV CRC (n=343) Group 1 (n=289): localized CRC Median age 59.0 Group 2 (n=73): metastatic or recurrent CRC Median age 55.5 Group 3 (n=72): healthy controls	Adjuvant or Neoadjuvant	At baseline (pre-chemotherapy) 6 months 12months 24 months (group 1)	Objective scale: NP tests, CANTAB Subjective scale: FACT-COG version 2	OCI: not report Subjective cognitive impairment: at baseline, 18-24% of cancer survivors reported impairment. -No association was seen between total FACT-COG

		<p>Median age 58.5</p> <p>Education level: not report</p>				<p>or PCI, and neuropsychological domains.</p> <p>-A weak moderate association was found between PCA and attention, visual memory, or executive function.</p> <p>-There were significant differences between groups in longitudinal changes on the total FACT-COG score, and all</p>
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						<p>subscales from baseline to 6 months.</p> <ul style="list-style-type: none">-Older participants with CRC reported poorer cognitive abilities.-No association was seen between the FACT-COG scores and results of formal neuropsychological testing.
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<p>Du et al. (2013) USA</p>	<p>Cohort study</p>	<p>Stage I to IV CRC (n=72,374) The entire cohort (n=72,374) Median age 73 (chemo), 78 (no chemo) The matched cohort (n=15,921) Median age 75 Education level: not report</p>	<p>Chemotherapy and no-chemotherapy</p>	<p>At baseline with up to 17 years of follow-up</p>	<p>Not report</p>	<p>OCI: patients who received chemotherapy were 24% significantly more likely to develop drug-induced dementia compared to those without chemotherapy after adjusting for patient and tumor characteristic. SCI: not report -The incidence rate of various cognitive impairments increased with</p>
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						<p>advanced age and higher comorbidity scores but was relatively similar across gender and tumor stage.</p> <p>- The status of mood disorder which demonstrated important differences in the associations between chemotherapy use and</p>
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						<p>cognitive impairments.</p> <p>-The receipt of chemotherapy was associated with the decreased risk of all cognitive impairments combined.</p>
<p>Dwek et al. (2015) UK</p>	<p>Longitudinal study</p>	<p>CRC (n=156)</p> <p>Receive chemotherapy (n=78)</p> <p>Non-chemotherapy surgical patients (n=78)</p> <p>Age: not report</p>	<p>50 % of whom received chemotherapy, 50 % was nonchemotherapy surgical patients</p>	<p>T1: post-surgery but prior to chemotherapy treatment</p> <p>T2: between 12 and 14 weeks after first</p>	<p>Objective scale: MoCA version 3, NP tests (HVLT-R, TMT A and B, COWA)</p> <p>Subjective scale:</p>	<p>OCI/SCI: not report</p> <p>-A decline in cognitive functioning can be attributed to chemotherapy or to disease, surgical or some</p>

		Education level: not report		scheduled chemotherapy T3: three months after last scheduled chemotherapy	FACT-Cog version 3	other confounding factor.
Dwek et al. (2023) UK	Cohort study	Stage II and III CRC (n=136) Mean age 61.3 (59.5) Median education years 12	Surgery or chemotherapy	T1: 4 weeks post-surgery and prior to chemotherapy T2: 12 weeks after first scheduled chemotherapy T3: 3 months after last scheduled chemotherapy	Objective scale: NP tests	OCI: 45%-55% of all CRC patients showed cognitive deficits 10 months after surgery. -Memory and executive function (16% at 2SD) were the cognitive domains most

				<p>for patients receiving 6 months of treatment or 6 months after last scheduled chemotherapy for patients receiving 3 months of treatment</p>	<p>frequently affected.</p> <p>- Surgery group showed an improvement in test performance over time, while the chemotherapy group showed no improvement.</p> <p>- The relationship between mood, fatigue and cognition was not strong, with weak correlations</p>
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						<p>found between fatigue and cognition.</p> <ul style="list-style-type: none">- CRC patients display cognitive impairment 10 months after surgery.- Chemotherapy did not worsen cognitive impairment but did appear to slow cognitive recovery relative to those
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						undergoing surgery only.
Galica et al. (2011) Canada	Cross-sectional study	Stage I, II, or III CRC (n=74) Group A (n = 19): prechemotherapy Group B (n = 18): post-surgery control Group C (n = 20): post-chemotherapy Group D (n = 17): six-month post-surgery control Age: not report Education level: not report	Undergone surgical resection, receive or not receive adjuvant and/or neoadjuvant chemotherapy	At baseline (either prior to chemotherapy administration for the cases, or within 12 weeks of surgery for the control group) At 6 months At 12 months At 24 months	Objective scale: CANTAB Subjective scale: not report	OCI: 25% had cognitive deficits as determined by the CANTAB results. SCI: not report -No evidence was found to suggest that a strong relationship exists between cognitive impairment and psychosocial adjustment, nor that any such relationship is

						<p>affected by treatment type or time.</p> <p>-Cognitive changes do not influence patients' relationships and functional roles, as indicated from the PAIS-SR.</p>
Gao et al. (2018) China	RCT	Stage I and II CRC (n=50) Group C: routine preoperative visit and postoperative follow-up	Before surgery	Before operation After entering the operation room	Objective scale: MMSE, TMT	<p>OCI/SCI: not report</p> <p>- Compared with the group I, the MMSE score of the group C was significantly</p>

		<p>Mean age 68.6 (4.3)</p> <p>Group I: simultaneous psychological intervention</p> <p>Mean age 67.9 (3.5)</p> <p>Education level: not report</p>		<p>After wakefulness</p> <p>During follow-up on the 2nd and 5th d after operation</p>		<p>reduced 1, 3 and 7 days after surgery.</p> <p>- The TMT completion time of the group C was significantly prolonged 1, 3 and 7 days after surgery.</p> <p>- The incidence of postoperative cognitive dysfunction in the Group I was significantly decreased 1, 3</p>
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							and 7 days after surgery.
Kim et al. (2021) Korea	Cohort study	CRC (n=95,303) Mean age 64.52 (11.9) Education level: not report	Surgery Chemotherapy Radiotherapy	Baseline After chemotherapy	Not report		OCI: the incidence rates of cognitive impairment were 22.17 per 1,000 person-years in chemotherapy non-recipients and 14.48 per 1,000 person-years in chemotherapy recipients. SCI: not report - The adverse effect of certain chemotherapy regimens on

						<p>cognition was more prominent in older adults.</p> <p>- Neither chemotherapy nor radiotherapy was positively associated with cognitive impairment.</p> <p>- The FOLFOX regimen was negatively associated with cognitive impairment in both colon</p>
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						<p>cancer and rectal cancer.</p> <p>-Chemotherapy and radiotherapy did not impose marked adverse cognitive effects in colorectal cancer patients.</p>
Lee et al. (2016) Korea	Longitudinal study	Stage II and III colon cancer (n=56) Mean age 59.5 Education level: not report	Received the combination adjuvant chemotherapy FOLFOX	Before and after 6 cycles of adjuvant chemotherapy	Objective scale: not report Subjective scale: EORTC QLQ-C30	OCI: peripheral neuropathy developed in 31 patients (55.4%) after oxaliplatin administration. SCI: not report

						<p>- Patients with peripheral neuropathy scored low in emotional and cognitive functioning.</p> <p>- Age was an important factor influencing QoL during chemotherapy in this study, as patients over 70 years experienced worsening of</p>
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						<p>their general health status.</p> <p>- There was a decrease in emotional and cognitive functions.</p>
Lin et al. (2022) China	RCT	<p>Stage I to III CRC (n=60)</p> <p>Experimental group (n=27): CBT combined with exercise intervention for 6 mo</p> <p>Mean age 52</p> <p>Median education years 12</p>	<p>After radical resection and chemotherapy</p>	<p>At baseline</p> <p>3 mo</p> <p>6 mo</p>	<p>Objective scale: not report</p> <p>Subjective scale: FACT-Cog</p>	<p>OCI/SCI: not report</p> <p>- Among the cognitive status dimensions, others evaluation score was the highest, followed by corrected</p>

		<p>Control group (n=28): no exercise intervention</p> <p>Mean age 51</p> <p>Median education years 12</p>				<p>cognitive impairment, cognitive ability, and impact on quality of life.</p> <p>- To less exercise, bed rest, chemotherapy, and other internal and external factors, patients often appear with anxiety, depression, and other negative emotions and</p>
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						<p>varying degrees of cognitive impairment.</p> <ul style="list-style-type: none">- Cognitive impairment and the scores of each dimension were positively correlated with quality of life.- CBT combined with body-building Baduanjin exercise can improve CRF and cognitive impairment in CRC patients after
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						chemotherapy, and improve their QOL.
Liu et al. (2022) UK	Cross-sectional study	Stage I to IV CRC (n=29) Mean age 58.21 (8.55) Mean education years 14.03 (1.57) HCs (n=29) Mean age 56.97 (7.02) Mean education years 14.62 (1.45)	Undergone chemotherapy	Only for once	Objective scale: MMSE, MoCA Subjective scale: FACT-Cog	OCI/SCI: not report - Patients had decreased scores of MMSE, MoCA and FACT-Cog when compared with those of HCs. - Patients presented with decreased scores of cognitive function assessment,

						<p>which suggested that chemotherapy might lead cognitive dysfunction.</p> <p>-CRC patients had decreased scores of MMSE, MoCA and FACT-Cog, which implied that these patients following chemotherapy had impaired cognitive function.</p>
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						- Cognitive impairment was observed in CRC patients following chemotherapy.
Sales et al. (2018) Brazil	Longitudinal study	Stage II and III CRC (n=137) Mean age 62.5 (9.4) Mean education years 7.6 (3.7)	Chemotherapy and nonchemotherapy	T1: baseline assessment at 1 to 3 months after surgery and before the start of adjuvant therapy. T2: follow-up assessment for the CTh+	Objective scale: NP tests Subjective scale: the Everyday Cognition questionnaire	OCI/SCI: not report - Patients with CRC who received adjuvant 5-fluorouracil with or without oxaliplatin presented with a decline in executive function after 12 months

				patients were conducted 12 months after chemotherapy initiation.		compared with patients with localized disease who had not received chemotherapy.
Tong et al. (2015) China	Cross-sectional study	CRC (n=98) Study group (n=98) Mean age 57.55 (10.61) Mean education years 5.83 (2.78) Health controls group (n=48) Mean age 56.30 (9.63) Mean education years 6.53 (3.53)	After chemotherapy	Only for once	Objective scale: WAIS-RC, CMS, CPT, WCST, TMT-A and B, Halstead Reitan Test Battery,	OCI/SCI: not report - Attention dysfunction exists in rectal cancer patients undergoing postoperative chemotherapy. - The results showed that the instantaneous memory

						<p>performance of the study group decreased in the early stage of chemotherapy, but the difference was not statistically significant.</p> <p>-The results of meaningless picture recognition and associative learning, which reflected short-term memory, are</p>
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						lower than those of the control group, suggesting that there is a more extensive memory impairment in the study group after chemotherapy.
Vardy et al. (2014) Australia	Longitudinal study	Stage I to III CRC (n=435) Group 1 (n=291): cognitive function and fatigue in patients with localized CRC	After surgery and before any adjuvant chemotherapy	Baseline	Objective scale: NP tests, CANTAB, SET Subjective scale: FACT-Cog version 2	OCI: 45% of patients with localized CRC had impairment on NP tests and 30% on CANTAB. SCI: perceived cognitive

		<p>Mean age 58.6 years</p> <p>Mean education years 13.8 (3.4)</p> <p>Group 2 (n=72): patients with limited metastatic or locally recurrent CRC before chemotherapy</p> <p>Mean age 56.9</p> <p>Mean education years 13.7 (3.4)</p> <p>HC (n=72): comparisons</p> <p>Mean age 56.2</p>				<p>impairment rates were 21% in group 1, 18.5% in group 2.</p> <p>- Only a weak association was observed between cognitive symptoms and neuropsychological performance by GDS on NP tests or CANTAB.</p> <p>- A weak association between OCI and SCI.</p>
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		Mean education years 13.6 (2.9)				<ul style="list-style-type: none"> - More women had cognitive impairment on the clinical GDS than men. - Women reported significantly more fatigue than men after adjusting for group. - The main cognitive domains affected were complex information processing speed, auditory
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						<p>working memory, and verbal learning efficiency.</p> <p>- Self-reported cognitive impairment was associated with fatigue, poorer QOL, and anxiety and depression.</p>
Vardy et al. (2015) Australia	Longitudinal study	Stage III or high-risk stage II CRC (n=434) Treated with surgery and adjuvant or neoadjuvant	Surgery and/or chemotherapy	At baseline (before chemotherapy, if given) At 6 months At 12 months At 24 months	Objective scale: NP tests, CANTAB, SET Subjective scale: FACT-Cog version 2	OCI: 20% of patients with localized CRC had significant decline in cognitive function from baseline to 12 months.

		<p>chemotherapy (n=173)</p> <p>Median age 57.0</p> <p>Mean education years 13.8 (3.3)</p> <p>Patients who underwent surgery but did not receive chemotherapy (n=1 16)</p> <p>Median age 60.5</p> <p>Mean education years 13.7 (3.5)</p> <p>Metastatic CRC (n=73)</p> <p>Median age 55.5</p> <p>Mean education years 13.7 (3.4)</p>				<p>OCI: rates of cognitive impairment for patients with localized CRC ranged from 36% to 52% between baseline and 24 months.</p> <p>SCI: perceived cognitive impairment was more common at 6 months in participants who received chemotherapy (32%) than in those who did not.</p>
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		<p>HCs (n=72)</p> <p>Median age 58.5</p> <p>Mean education years 13.6 (2.9)</p>				<p>- CRC had impaired attention, working memory, verbal learning, and processing speed domains.</p> <p>- There was a weak association between objective neuropsychological performance and self-reported cognitive function.</p> <p>- A moderate association was</p>
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						<p>found at each assessment between cognitive symptoms and fatigue, QOL, and anxiety/depression.</p> <p>- Women with CRC had more cognitive impairment than men at each assessment, but men had a greater risk of cognitive</p>
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						decline over time.
Vardy et al. (2022) Australia	Longitudinal study	CRC (n=25) Median age 72 Mean education years 13.6 (2.5) HCs (n=25) Median age 68 Mean education years 13.8 (3.1)	Received chemotherapy Survivors	At baseline 6 months 12 months 24 months	Objective scale: NP test, WRAT Subjective scale: FACT-Cog version 3, EORTC QLQ-C30	OCI: 4/24 (55%) of CRC survivors were impaired on functional tasks compared to 4/25 (16%) of controls. SCI: not report - There was no significant difference in cognitive scores or proportion with cognitive impairment between survivors and

						<p>controls and no evidence of accelerated ageing in CRC survivors.</p> <p>- There was no difference in cognitive capacity and function between CRC survivors and controls 6-12 years after diagnosis.</p> <p>- There was no significant difference in cognitive</p>
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						symptoms in CRC survivors compared to controls.
Visovatti et al. (2016) USA	Cross-sectional study	Stage I to IV CRC (n=50) Healthy participants (n=50) Mean age 56 Median education years 16	Before any treatment After surgery only Chemotherapy and/or radiation therapy	Once in 6 months	Objective scale: NP test (ANT, DS, TMT, RAVLT) Subjective scale: AFI, EMQ	OCI/SCI: not report - Individuals with CRC performed worse and reported more problems on tasks requiring attention and cognitive control. - Individuals with CRC reported less effectiveness

						<p>with activities requiring attention and cognitive control.</p> <p>- Older age, less education, and fatigue can increase risk for worse cognitive performance and self-reported cognition.</p> <p>- Objective measures are less sensitive to subtle deficits in</p>
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						<p>attentional capacity and cognitive control perceived by the individual or that subtle changes in fatigue may not affect objective test performance.</p>
Wilson et al. (2017) Australia	Case-control study	<p>CRC (n= 88) Mean age 65.9 (9.7) Spouses (n=40) Mean age 66.0 (9.1)</p>	Chemotherapy, surgery, or radiation therapy	Only for once	<p>Objective scale: not report Subjective scale: FACT-Cog version 3</p>	<p>OCI/SCI: not report - Survivors did experience mild levels of cognitive decline</p>

		Education level: not report				<p>accompanied by depression following treatment.</p> <p>-Neither internal locus of control nor optimism in colorectal cancer survivors influences correlation between cognition and depression.</p> <p>-Health care providers should note individual</p>
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						<p>differences in responses to treatment and be alert to the impact of depression on perceived everyday functioning.</p> <ul style="list-style-type: none">- Depression was the most important correlate with cognitive functioning.- Internal locus of control could explain additional
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						<p>variance in cognitive function beyond that accounted for by depression.</p> <p>- Confirmed moderately strong relationships between depression around time of treatment for colorectal cancer and adverse cognitive functioning</p>
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						experienced following treatment.
Yang et al. (2023) China	Cross-sectional study	Stage I to III CRC (n=63) Group A (n = 13) Mean age 62.15 (9.81) Mean education years 13.46 (3.97) Group B (n=24) Mean age 57.04 (8.42) Mean education years 14.17 (4.20)	New diagnosis (pretreatment) 2 years since chemotherapy completion > 2 years since chemotherapy completion	Only for once	Objective scale: MoCA, NP tests - Attention : - Memory: WMS-III - Executive function and: WAIS-IV, SCWT Subjective : FACT-Cog	OCI/SCI: not report - Findings reveal that the three groups exhibited comparable subjective cognitive functions and objective performances in overall cognitive function and

		<p>Group C (n = 26)</p> <p>Mean age 58.08 (7.74)</p> <p>Mean education years 13.38 (3.14);</p> <p>Matched set (n = 36)</p> <p>Group A (n = 12)</p> <p>Mean age 61.05 (9.94)</p> <p>Mean education years 13.25 (4.07)</p> <p>Group B (n = 12)</p> <p>Mean age 54.75 (7.93)</p>				<p>episodic memory.</p> <p>- Patients with CRC who receive chemotherapy exhibit high levels of cognitive impairment within 2 years of treatment completion.</p> <p>- Patients who completed chemotherapy in 1 to 2 years (Group B) had worse scores in cognitive</p>
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		<p>Mean education years</p> <p>14.50 (4.08)</p> <p>Group C (n = 12)</p> <p>Mean age</p> <p>59.42 (7.42)</p> <p>Mean education years</p> <p>14.00 (2.66)</p>				<p>function compared with the others.</p> <p>- Noted a dearth of studies on the evaluation of changes in specific cognitive functions at various time points within 1 to 2 years of the completion of chemotherapy.</p> <p>- Adjuvant chemotherapy had</p>
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						significantly deleterious effects on attention and processing speed in patients with CRC, which impacted cognitive symptoms lasting for approximately two years.
Zhang et al. (2018) China	Case-control study	Stage I to III CRC (total sample n=77)	Receiving surgery and non-chemotherapy	Preoperative ly and at the seventh day after operation	Objective scale: MMSE, VVLT, DST	OCI: nineteen patients were diagnosed as cognitive

		<p>Group cognitive impairment (n =58)</p> <p>Mean age 73.30(4.80)</p> <p>Mean education years 5.80(2.30)</p> <p>Group non-cognitive impairment (n =19)</p> <p>Mean age 69.30(4.60)</p> <p>Mean education years 7.80(2.60)</p>				<p>impairment (24.7%).</p> <p>SCI: not report</p> <p>-Diabetes history fasting over three days after surgery and SIRS score>3 on the second day after surgery were risk factors of early cognitive impairment in the elderly patients after radical resection for CRC.</p>
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Zhang et al. (2019) China	Cohort study	<p>Stage II and III CRC</p> <p>Non-cognitive impairment (n = 58)</p> <p>Mean age 69.3 (4.6)</p> <p>Mean education years 7.8 (2.6)</p> <p>Cognitive impairment (n = 19)</p> <p>Mean age 73.3 (4.8)</p> <p>Mean education years 5.8 (2.3)</p>	Receive colorectal surgery	One day before Seven days after surgery	Objective scale: MMSE, VVLT, DST Subjective scale: not report	<p>OCI: A total of 19 patients (24.7%) were identified as cognitive impairment.</p> <p>SCI: not report</p> <p>- The test battery scores in the cognitive impairment group were significantly lower than those in the non-cognitive impairment group.</p> <p>- There was no significant</p>
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						<p>difference between the cognitive impairment and non-cognitive impairment groups in terms of gender.</p>
Zhou et al. (2021) China	Case-control study	<p>Total sample CRC (n=386)</p> <p>Mean age 64.73 (10.8)</p> <p>Median education level 12</p>	After chemotherapy Survivorship	Only for once	<p>Objective scale: MMSE</p> <p>Subjective scale: not report</p>	<p>OCI: 117 patients with CRC were cognitive impairment.</p> <p>SCI: not report</p> <p>- This model could predict cognitive impairment risk in CRC patients after</p>

						<p>chemotherapy at an early stage.</p> <p>-The model suggested that advanced age, colostomy, diabetes, lower education, and later pathological stage could be risk factors for cognitive impairment in CRC patients after chemotherapy.</p>
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AFI: Attentional Function Index; ANT: Attention Network Test; CANTAB: Clinical Battery and Computer-Based Cambridge Automated Battery; CBT: Cognitive Behavior Therapy; CDT:

Clock Drawing Test; CMS: Clinical Memory Scale; COWA: the Controlled Oral Word Association of the Multilingual Aphasia Examination; CPT: Continuous Performance Test; CRC: Colorectal Cancer; CRF: Cancer-Related Fatigue; CTh+: receive chemotherapy; CTh-: without an adjuvant chemotherapy; Delayed-Mem: Delayed Memory; Delayed-Mem-Q: Delayed Memory-Questions; DST: Digital Span Test; DSymbol: WAIS-R Digit Symbol; EMQ: Everyday Memory Questionnaire; EORTC QLQ-C30: European Organization for Research and Treatment of Cancer Core Questionnaire; FACT-Cog: Functional Assessment of Cancer Therapy-Cognitive Function questionnaire; FOLFOX4: Combination of Oxaliplatin and 5-Fluorouracil Plus Leucovorin; GDS: Global Deficit Scores; HCs: Health Controls; HVLT-R: Hopkins Verbal Learning Test-Revised; Imm-Mem: immediate memory; Imm-Mem-Q: immediate memory-questions; LMWT: Luria Memory Words Test; MMSE: Mini Mental State Examination; MoCA: the Montreal Cognitive Assessment; NP tests: the clinic neuropsychological tests; PCI: perceived cognitive impairments; OCI: objective cognitive impairment; QoL: Quality of Life; RAVLT: Rey Auditory Verbal Learning Test; SCI: subjective cognitive impairment; SCWT: Stroop Color and Word Test; SET: Modified Six Elements Test; TMT: Trial Making Test; TMT A and B: Trial Making Test A and B; VVLT: Visual Verbal Learning Test; WAIS-R: Wechsler Adult Intelligence Scale-Revised; WAIS-RC: Wechsler Adult Intelligence Scale Revised in China;

WCST: Wisconsin Card Sorting Test; WRAT: Wide Range Achievement Test; WMS-III: Word Lists
Test from the Wechsler Memory Scale-II