

## REVIEW

# How can we respond to the needs of colorectal cancer patients? A systematic review

Eliza-Maria Froicu<sup>1,2</sup>, Gema Bacoanu<sup>1,2</sup>, Vladimir Poroch<sup>1,2</sup>

<sup>1</sup>Universitatea de Medicină și Farmacie "Gr. T. Popa", Iași, România

<sup>2</sup>Institutul Regional de Oncologie, Iași, România

Received: 26.05.2023 • Accepted for publication: 12.10.2023

### Abstract

**Objectives:** This systematic review aims to understand and identify the unmet needs of patients with colorectal cancer (CRC) and explore potential strategies for meeting these needs. We aim to improve patient care and health outcomes by focusing on all aspects of the experience.

**Materials and Methods:** A systematic review of the PubMed and EMBASE electronic databases was conducted to assess the needs and proposed interventions for patients with colorectal cancer. Data extraction focused on patients' needs, potential solutions, and their effectiveness. The search publication date ranged from 2013 to 2023. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) using the PICO question, served as the framework for investigating the existing literature in this review.

**Results:** A total of 20 articles that might meet the eligibility criteria were identified for potential inclusion based on their full text. Upon reading the full text, nine studies were excluded, resulting in a total of 11 eligible review studies meeting the inclusion criteria for this review. Numerous findings emerged from the selected studies. With the needs of patients with colorectal cancer being diverse and often interconnected, we organized the outcomes into three major domains: aspects regarding quality of life, symptom management, and palliative care approaches.

**Conclusion:** Patients with colorectal cancer have multifaceted needs that can be addressed by implementing a holistic approach. Interventions should be patient-centered, designed to reduce symptom burden, enhance psychological well-being, and improve access to palliative care interventions. Further research is needed to develop and evaluate tailored interventions.

**Keywords:** palliative care, colorectal cancer, quality of life, symptom management

### Rezumat

**Obiective:** Această recenzie sistematică își propune să înțeleagă și să identifice nevoile nesatisfăcute ale pacienților cu cancer colorectal (CCR) și să exploreze potențialele strategii de satisfacere a acestor nevoi. Ne propunem să îmbunătățim îngrijirea pacienților și rezultatele privind sănătatea, concentrându-ne asupra tuturor aspectelor experienței.

**Materiale și Metode:** O recenzie sistematică a fost efectuată în bazele de date PubMed și EMBASE pentru a evalua nevoile și intervențiile propuse pentru pacienții cu cancer colorectal. Extragerea datelor s-a concentrat asupra nevoilor pacienților, soluțiilor potențiale și pe eficacitatea acestora. Intervalul de publicare a articolelor este cuprins între 2013 și 2023. Pentru examinarea literaturii existente, în această recenzie s-au utilizat diagrama PRISMA și formatul PICO.

**Rezultate:** Un total de 20 de articole care ar putea îndeplini criteriile de eligibilitate au fost identificate pentru o potențială includere pe baza textului complet al acestora. În urma citirii textului integral, 9 studii au fost excluse, rezultând un total de 11 studii de revizuire eligibile, care îndeplinesc criteriile de includere pentru această analiză. Numeroase constatări au reieșit din studiile selectate. Având în vedere că nevoile pacienților cu cancer colorectal sunt diverse și adesea interconectate, am organizat rezultatele în trei domenii majore: aspecte privind calitatea vieții, gestionarea simptomelor și abordările îngrijirii paliative.

**Concluzie:** Pacienții cu cancer colorectal au nevoi multiple care pot fi gestionate prin implementarea unei abordări holistice. Intervențiile ar trebui să fie centrate pe pacient, concepute pentru a reduce povara simptomelor, a îmbunătăți bunăstarea psihologică și accesul la intervențiile de îngrijire paliativă. Sunt necesare cercetări suplimentare pentru a dezvolta și evalua intervențiile adaptate.

**Cuvinte cheie:** îngrijiri paliative, cancer colorectal, calitatea vieții, managementul simptomelor

### Introduction

Colorectal cancer (CRC) is a global health problem with significant socio-economic implications, as it is one of the

leading causes of death and morbidity [1]. Approximately 50% of patients with CRC with local or advanced disease will develop distant metastases, while approximately 25-35% of

patients had metastases at initial diagnosis [2]. For many of these patients, the primary goal of treatment is to alleviate pain and other care needs to improve their quality of life, regardless of duration. A more violent end to life is related to deterioration of caretaking measures or their abandonment [3]. As a result, in the provision of palliative care, we need to act in two directions: a 'preventive' one, aimed at identifying patients in need of palliative care as early as possible, and a 'therapeutic' one, aimed at managing and supporting patients with colorectal cancer in need of palliative care.

More than a third of patients with CRC have an incurable disease and need palliative care interventions alongside active cancer treatment to prevent complications, effectively manage associated symptoms and improve quality of life for both patients and their families. The goal of palliative care is to relieve the suffering of patients and their families and must be provided at the onset of oncological disease and not solely at the end of life [4].

The primary responsibility of the palliative care professional is to conduct a comprehensive assessment of the physical, psychological, and spiritual aspects of patients with colorectal cancer, in order to identify their needs. The focus is on enhancing the individual's quality of life throughout the course of the disease, rather than solely during the terminal phase. The approach seeks to reinforce the individual's autonomy and entitlement to participate proactively in their own healthcare, while endeavoring to provide patients and their families with a stronger sense of control. This will help healthcare providers develop a comprehensive care plan that addresses all aspects of the patient's well-being. By understanding the unique challenges faced by patients with CRC, we can improve their quality of life and overall health outcomes. Through this review, our aim is to identify the most significant characteristics of caring for patients with CRC.

## Material and Methods

### 1. Study eligibility criteria

**Inclusion criteria:** limited to scholarly articles that pertained to the topics of palliative care and colorectal cancer. The study's supplementary inclusion criteria comprised research that centered on the particular symptomatology of oncological pathology in the colorectal domain, inquiries into the fulfilled and unfulfilled necessities of patients who have colorectal cancer and are undergoing palliative care, and investigations on the subject of quality of life. The predominant categories of articles encompassed in the study were literature reviews and systematic reviews written in English.

**Exclusion criteria:** consisted of articles that were not relevant to the research topic, publications that focused on other oncological areas, articles that did not consider the palliative care perspective, and duplicate publications. In addition, considering the possibility of ambiguity between palliative chemotherapy or surgery and palliative care, the inquiry necessitated supplementary exertion and a more rigorous analysis of the research.

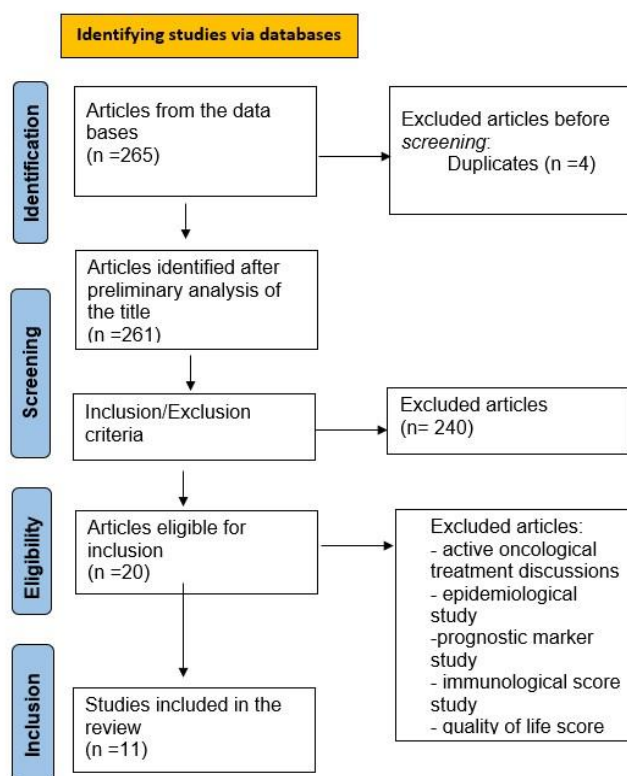
### 2. Literature search strategy

The strategy used for the proposed topic involved an electronic search across major online databases using the following keywords: "colorectal cancer" and "palliative care needs". These words were selected following a preliminary search in PubMed and Medline. The databases utilized for the search were Pubmed/Medline and EMBASE. The search publication date ranged from January 1st, 2013 to January 1st, 2023. The

Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) using the PICO question served as the framework for investigating the existing literature in this review.

## Results

The initial search strategy utilizing the aforementioned keywords identified a total of 261 results. Applying filters such as Systematic Reviews, Revision, Full Text, Free Full Text, Text Published in the Last 10 years, and English Language, a total of 20 results were identified. Following the application of the filters and a thorough examination of the titles and abstracts, a total of 20 articles that may meet the eligibility criteria were identified for potential inclusion based on their full text. Of the 20 full-text articles assessed for eligibility, 6 articles were excluded due to their lack of relevance to the subject matter (Figure 1.).



**Figure 1 - The strategy for identifying relevant studies for the literature review**

Upon reading the full text, another three studies were excluded, resulting in a total of 11 eligible review studies that meet the inclusion criteria for this review (Table 1.).

**Table 1 - Articles included in the literature review**

Author	Title	Aim of study	Type of Article
<b>Luigi Grassi, et al. 2020 [14]</b>	Cancer and severe mental illness: Bi-directional problems and potential solutions	To raise awareness on the issue of cancer within the context of severe mental illness.	Review
<b>Carlota Castro-Espin, et al. 2022 [8]</b>	The Role of Diet in Prognosis among Cancer Survivors: A Systematic Review and Meta-Analysis of Dietary Patterns and Diet Interventions	To evaluate the qualitative and, where applicable, quantitative relationships between dietary patterns and cancer prognosis based on prospective cohort studies.	Review
<b>Renato Costi, et al. 2014 [13]</b>	Palliative care and end-stage colorectal cancer management: the surgeon meets the oncologist	To explore the several therapeutic alternatives available in the context of palliative and end-of-life care for individuals diagnosed with advanced colorectal cancer.	Review
<b>Sylvia M Vonk-Klaassen, et al. 2016 [6]</b>	Ostomy-related problems and their impact on quality of life of colorectal cancer ostomates: a systematic review	To analyze patient-centered research that investigates issues connected to ostomy and their influence on the perceived quality of life among individuals with long-term colostomies.	Review
<b>Geerard Beets, et al. 2017 [16]</b>	ECCO Essential Requirements for Quality Cancer Care: Colorectal Cancer. A critical review	To underline the essential requirements for quality care in colorectal cancer.	Review
<b>Millan M, et al. 2015 [9]</b>	Treatment of colorectal cancer in the elderly	This review centers on the available evidence for surgical, oncologic, and palliative therapy in colorectal cancer patients over the age of 70.	Review
<b>C S E W Schuurhuizen, et al. 2017 [7]</b>	Does severe toxicity affect global quality of life in patients with metastatic colorectal cancer during palliative systemic treatment? A systematic review	To analyze recent published randomized controlled trials to see whether severe toxicity impacts global quality of life in patients with metastatic colorectal cancer undergoing palliative systemic therapy.	Review
<b>Walid Alam, et al. 2021 [18]</b>	Management of colorectal cancer in the era of COVID-19: Challenges and suggestions	To discuss the management of colorectal cancer in the era of COVID-19.	Review
<b>Engelhardt EG, et al. 2018 [17]</b>	Clinical Usefulness of Tools to Support Decision-making for Palliative Treatment of Metastatic Colorectal Cancer: A Systematic Review	To offer a full assessment of the various Decision support systems for incurable metastatic colorectal cancer and to assess their therapeutic value.	Systematic Review
<b>Toftagen C, et al. 2022 [15]</b>	A Systematic Review of Nutritional Lab Correlates with Chemotherapy Induced Peripheral Neuropathy	To assess the empirical evidence regarding the association between laboratory nutrition measurements and chemotherapy-induced peripheral neurotoxicity in cancer patients who received neurotoxic chemotherapy medications.	Review
<b>Peter C Kurniali, et al. 2014 [11]</b>	Management of locally advanced and metastatic colon cancer in elderly patients	To address approaches to the management of elderly individuals with locally advanced and metastatic colon cancer.	Review

Several findings emerged from the 11 studies, which we organized into three major domains: aspects regarding quality of life, symptom management, and palliative care approaches (Table 2.).

**Table 2 - Citations organized by discussion domain**

Aspects regarding quality of life	Vonk-Klaassen SM, et al. Ostomy-related problems and their impact on quality of life of colorectal cancer ostomates: a systematic review. <i>Qual Life Res.</i> 2016 Jan;25(1):125-33. [6]	Schuurhuizen CSEW, et al. Does severe toxicity affect global quality of life in patients with metastatic colorectal cancer during palliative systemic treatment? A systematic review. <i>Ann Oncol.</i> 2017 Mar 1;28(3):478-486. [7] Castro-Espin, et al. The Role of Diet in Prognosis among Cancer Survivors: A Systematic Review and Meta-Analysis of Dietary Patterns and Diet Interventions. <i>Nutrients</i> 2022, 14, 348. [8]
-----------------------------------	--	---

Symptom management	<p>Millan M, et al. Treatment of colorectal cancer in the elderly. <i>World J Gastrointest Oncol</i> 2015; 7(10): 204-220. [9]</p> <p>Balducci L. Management of cancer in the elderly. <i>Oncology (Williston Park)</i>. 2006;20:135-143; discussion 144, 146, 151-152. [10]</p> <p>Kurniali PC, et al. Management of locally advanced and metastatic colon cancer in elderly patients. <i>World J Gastroenterol</i>. 2014 Feb 28;20(8):1910-22. [11]</p> <p>Rosen SA, et al. Initial presentation with stage IV colorectal cancer: how aggressive should we be. <i>Arch Surg</i>. 2000;135:530-534; discussion 534-535. [12]</p> <p>Costi R, et al. Palliative care and end-stage colorectal cancer management: The surgeon meets the oncologist. <i>World J Gastroenterol</i> 2014; 20(24): 7602-7621. [13]</p> <p>Grassi L, Riba M. Cancer and severe mental illness: Bi-directional problems and potential solutions. <i>Psychooncology</i>. 2020 Oct;29(10):1445-1451. [14]</p> <p>Toftagen C, et al. Systematic Review of Nutritional Lab Correlates with Chemotherapy Induced Peripheral Neuropathy. <i>J Clin Med</i>. 2022 Jan 12;11(2):355. [15]</p>
Palliative care approaches	<p>Beets G, et al. ECCO Essential Requirements for Quality Cancer Care: Colorectal Cancer. A critical review. <i>Crit Rev Oncol Hematol</i>. 2017 Feb;110:81-93. [16]</p> <p>Engelhardt EG, Révész D, et al. Clinical Usefulness of Tools to Support Decision-making for Palliative Treatment of Metastatic Colorectal Cancer: A Systematic Review. <i>Clin Colorectal Cancer</i>. 2018 Mar;17(1):e1-e12. [17]</p> <p>Alam W, et al. Management of colorectal cancer in the era of COVID-19: Challenges and suggestions. <i>Sci Prog</i>. 2021 Apr Jun;104(2):368504211010626. [18]</p>

### 1. Aspects regarding quality of life

In their literature review, Vonk-Klaassen et al.'s. [6] stated that the presence of a permanent stoma has been linked to a negative body image, sexual problems, decreased appetite, decreased quality of life and increased financial concerns. Furthermore, skin irritation, unpleasant odor, and gas accumulation have been identified as the primary events affecting the quality of life of stoma patients.

The impact of systemic therapies on the quality of life of patients with colorectal cancer is widely recognized due to their associated toxicity. Another study conducted by Schuurhuizen et al.'s. [7] aimed to evaluate the impact of the toxicity of systemic therapies on quality of life and the applicability of

quality of life assessment questionnaires into routine clinical practice to better understand and address the needs of cancer patients undergoing systemic therapy.

Castro-Espin et al.'s. [8] conducted an investigation into the prognostic significance of diet for cancer survivors and observed that a higher quality diet was positively correlated with enhanced survival rates in individuals who had previously been diagnosed with colorectal cancer. The study also reported an enhancement in fatigue scores and a decrease in depression levels following a regimen of home-based exercise and dietary guidance. Overall, the study suggests that a healthy diet and exercise can have a positive impact on the survival and well-being of cancer survivors, particularly those with colorectal cancer.

### 2. Symptom management

The study by Milan M. et al.'s. [9] discusses the significance of geriatric assessment in treating symptoms in elderly patients. Thus, based on the results of another study in the literature that categorizes oncology patients with CRC according to symptomatology, comorbidities, and the presence of signs of frailty into three groups, type III patients (partially dependent patients with three or more comorbidities or with the presence of a geriatric syndrome) would be exclusively candidates for symptomatic or palliative treatment [10]. According to Peter Kurniali et al.'s. [11], a thorough evaluation of elderly patients, including their performance status, level of frailty, life expectancy, and desires, should become a central and essential issue in their management.

The most common life-threatening complications in patients with advanced colorectal cancer are obstruction and perforation, as reported by Rosen et al.'s. [12]. Yet, palliative interventions are always a viable option for those emergencies. Costi et al.'s. [13] highlights those bleeding and other symptoms associated with colorectal cancer, such as pain and tenesmus, can be managed through various minimally invasive approaches, including radiotherapy, laser therapy, and other transanal procedures.

The study by Grassi et al.'s. [14] undertook a narrative review to investigate the challenges faced by individuals with severe mental illnesses in identifying cancer. The author emphasizes the distinctions in the delivery of end-of-life healthcare services for this vulnerable population, particularly for cancer patients with psychiatric disorders.

In their comprehensive study, Toftagen et al.'s. [15] revealed that patients with colorectal cancer experiencing more severe chemotherapy-induced peripheral neuropathy have nutritional deficiencies (CIPN). In comparison to the group with grades 0-1 CIPN, the group with grades 2-3 CIPN had lower levels of magnesium and vitamin D. For the millions of cancer survivors worldwide, CIPN continues to be a clinically significant and potentially serious side effect of cancer treatment.

### 3. Palliative care approaches

Beets et al.'s. [16] demonstrate the importance of a multidisciplinary team in the management of oncological patients and the incorporation of palliative care specialists in the comprehensive approach to patient care in their publication outlining the requirements for providing quality care to patients with colorectal cancer. The authors also emphasize the importance of incorporating palliative care interventions early in the process. Engelhardt et al.'s. [17] present one decision-making system capable of assisting clinicians in striking a balance between extending lifespan and optimizing their

quality of life. The software generates case-specific treatment recommendations and helps oncologists present treatment options to their patients in a clear and comprehensive manner. It is essential for physicians to include a detailed discussion of the potential risks associated with primary and secondary treatment options, as well as the possibility of transition to palliative care interventions, during consultations with patients. This task has been particularly challenging in the context of the Coronavirus disease (COVID-19) pandemic, as highlighted by Alam *et al.*'s. [18] in their review, which outlines several barriers encountered by healthcare facilities, including issues surrounding opioid prescription, hospitalizations, and inadequate psychological and social assistance.

### Discussion

Despite the relatively small number of studies included in our search, a number of important palliative interventions have been identified for patients with colorectal cancer. Patients diagnosed with colorectal cancer who have undergone either surgical intervention or chemotherapy and/or radiotherapy experience a range of physical issues related to intestinal transit and anxiety, as well as social and psychological problems that require a multidisciplinary approach. Providing palliative care is still one of the most important needs of the health care system, especially in cases of CRC, where the incidence and rate of death are increasing, requiring specialized care, pain management, and symptom control.

The prevalence of colorectal cancer has increased leading to a growing number of patients who require surgical procedures annually. As a consequence, an abdominal cutaneous stoma is frequently created. This procedure necessitates a change in lifestyle, which can sometimes be difficult to accept. Despite the common issues already mentioned before, Sun *et al.*'s. [19] identified additional persistent challenges associated with ostomy care, including limitations and modifications to clothing, dietary considerations, equipment-related issues, and ongoing self-care demands. Sadly, rather than getting professional assistance, many patients must devise their own symptom management techniques. The care given to CRC survivors should include checking for long-term effects and providing particular support interventions for situations that affect patients who have stomas.

With recent early palliative care recommendations and early advancements in personalized medicine, the number of cancer survivors is growing. The favorable survival rates underscore the need for a better understanding of the quality of life experiences of colorectal cancer survivors. Numerous dietary patterns have been evaluated for their prognostic significance in individuals who have survived colorectal cancer. The Mediterranean dietary pattern has been suggested to have a potential protective effect on overall mortality [20]. In contrast, the Dietary Approaches to Stop Hypertension (DASH) diet, which is primarily designed to lower hypertension, did not demonstrate any correlation with the survival of colorectal cancer, as per the findings obtained from two extensive cohorts [21,22]. These results suggest that while the DASH diet may be effective in managing hypertension, it may not be as beneficial for colorectal cancer patients as other dietary interventions. Further research is needed to determine the optimal diet for improving survival outcomes in this population, as well as a greater emphasis on onco-nutrition interventions. Some of the limitations of this review that we have identified are the inclusion of only free articles, written in English only, which may result in the exclusion of relevant literature on

palliative care and the unidentified needs of patients with colorectal cancer, and the heterogeneity obtained in terms of population, intervention, and outcome. This can make it challenging to draw firm conclusions, but rather to explore potential directions for further research questions and studies to be done. Furthermore, the lack of standardized definitions and measurements for palliative care outcomes can hinder the comparability of studies. Therefore, efforts should be made to establish a consensus on the definition and measurement of palliative care outcomes in colorectal cancer patients to improve the quality and applicability of research findings.

### Conclusion

Palliative care provides essential support for patients with colorectal cancer. The approach and management of cases within a multidisciplinary team remain the keys to therapeutic success. Supportive interventions further promote compliance with active oncologic treatment. It is necessary, however, for the care team's efforts to include improved patient education regarding nutrition, stoma care, and accessing psycho-oncology services in order to enhance the patient's quality of life. In addition, regular communication and collaboration between members of the care team can help identify and address any potential barriers to treatment adherence. This holistic approach can ultimately lead to better patient outcomes and overall satisfaction with their care.

### References:

1. Sung H, Ferlay J, Siegel RL, Laversanne M, Soerjomataram I, Jemal A, *et al.* Global Cancer Statistics 2020: GLOBOCAN Estimates of Incidence and Mortality Worldwide for 36 Cancers in 185 Countries. *CA Cancer J Clin.* 2021 May;71(3):209-249. doi: 10.3322/caac.21660. Epub 2021 Feb 4. PMID: 33538338.
2. Filip S, Vymetalkova V, Petera J, Vodickova L, Kubecek O, John S, *et al.* Distant Metastasis in Colorectal Cancer Patients-Do We Have New Predicting Clinicopathological and Molecular Biomarkers? A Comprehensive Review. *Int J Mol Sci.* 2020 Jul 24;21(15):5255. doi: 10.3390/ijms21155255. PMID: 32722130; PMCID: PMC7432613.
3. Cheung, M.C., Earle, C.C., Rangrej, J., Ho, T.H., Liu, N., Barbera, L., *et al.* (2015), Impact of aggressive management and palliative care on cancer costs in the final month of life. *Cancer*, 121: 3307-3315. <https://doi.org/10.1002/cncr.29485>
4. Rome RB, Luminais HH, Bourgeois DA, Blais CM. The role of palliative care at the end of life. *Ochsner J.* 2011 Winter;11(4):348-52. PMID: 22190887; PMCID: PMC3241069.
5. Liberati, A, Altman, D. G, Tetzlaff, J, Mulrow, C, Gotzsche, P. C, Ioannidis, J. P A, *et al.* (2009). The PRISMA statement for reporting systematic reviews and meta-analyses of studies that evaluate healthcare interventions: explanation and elaboration. *BMJ*, 339(jul21 1), b2700-b2700. doi:10.1136/bmj.b2700
6. Vonk-Klaassen SM, de Vocht HM, den Ouden ME, Eddes EH, Schuurmans MJ. Ostomy-related problems and their impact on quality of life of colorectal cancer ostomates: a systematic review. *Qual Life Res.* 2016 Jan;25(1):125-33.
7. Schuurhuizen CSEW, Braamse AMJ, Konings IRHM, Sprangers MAG, Ket JCF, Dekker J, Verheul HMW. Does severe toxicity affect global quality of life in patients with metastatic colorectal cancer during palliative systemic treatment? A systematic review. *Ann Oncol.* 2017 Mar 1;28(3):478-486.
8. Castro-Espin, C, Agudo, A. The Role of Diet in Prognosis among Cancer Survivors: A Systematic Review and Meta-Analysis of Dietary Patterns and Diet Interventions. *Nutrients* 2022, 14, 348.
9. Millan M, Merino S, Caro A, Feliu F, Escuder J, Francesch T. Treatment of colorectal cancer in the elderly. *World J Gastrointest Oncol* 2015; 7(10): 204-220
10. Balducci L. Management of cancer in the elderly. *Oncology (Williston Park).* 2006;20:135-143; discussion 144, 146, 151-152.

11. Kurniali PC, Hrinchenko B, Al-Janadi A. Management of locally advanced and metastatic colon cancer in elderly patients. *World J Gastroenterol.* 2014 Feb 28;20(8):1910-22
12. Rosen SA, Buell JF, Yoshida A, Kazsuba S, Hurst R, Michelassi F, et al. Initial presentation with stage IV colorectal cancer: how aggressive should we be. *Arch Surg.* 2000;135:530-534; discussion 534-535.
13. Costi R, Leonardi F, Zanoni D, Violi V, Roncoroni L. Palliative care and end-stage colorectal cancer management: The surgeon meets the oncologist. *World J Gastroenterol* 2014; 20(24): 7602-7621.
14. Grassi L, Riba M. Cancer and severe mental illness: Bi-directional problems and potential solutions. *Psychooncology.* 2020 Oct;29(10):1445-1451.
15. Tofthagen C, Tanay M, Perlman A, Starr J, Advani P, Sheffield K, et al. Systematic Review of Nutritional Lab Correlates with Chemotherapy Induced Peripheral Neuropathy. *J Clin Med.* 2022 Jan 12;11(2):355.
16. Beets G, Sebag-Montefiore D, Andritsch E, Arnold D, Beishon M, Crul M, et al. ECCO Essential Requirements for Quality Cancer Care: Colorectal Cancer. A critical review. *Crit Rev Oncol Hematol.* 2017 Feb;110:81-93.
17. Engelhardt EG, Révész D, Tamminga HJ, Punt CJA, Koopman M, Onwuteaka-Philipsen BD, et al. Clinical Usefulness of Tools to Support Decision-making for Palliative Treatment of Metastatic Colorectal Cancer: A Systematic Review. *Clin Colorectal Cancer.* 2018 Mar;17(1):e1-e12.
18. Alam W, Bouferraa Y, Haibe Y, Mukherji D, Shamseddine A. Management of colorectal cancer in the era of COVID-19: Challenges and suggestions. *Sci Prog.* 2021 Apr-Jun;104(2):368504211010626.
19. Sun V, Grant M, McMullen C. K., Altschuler A., Mohler M. J., Hornbrook, M. C., et al. (2013). Surviving colorectal cancer: Long-term, persistent ostomy-specific concerns and adaptations. *Journal of Wound, Ostomy, and Continence Nursing,* 40(1), 61.
20. Ratjen, I, Schafmayer, C, di Giuseppe, R, Waniek, S, Plachta-Danielzik, S, Koch, M, et al. Postdiagnostic Mediterranean and Healthy Nordic Dietary Patterns Are Inversely Associated with All-Cause Mortality in Long-Term Colorectal Cancer Survivors. *J. Nutr.* 2017, 147, 636–644.
21. Fung T.T, Kashambwa R, Sato K, Chiuve S.E, Fuchs C.S, Wu, K, et al. Post Diagnosis Diet Quality and Colorectal Cancer Survival in Women. *PLoS ONE* 2014, 9, e115377.
22. Jacobs S, Harmon B.E, Ollberding N.J, Wilkens L.R, Monroe K.R, Kolonel L.N, et al. Among 4 Diet Quality Indexes, Only the Alternate Mediterranean Diet Score Is Associated with Better Colorectal Cancer Survival and Only in African American Women in the Multiethnic Cohort. *J. Nutr.* 2016, 146, 1746–1755.