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Psychosocial predictors of health outcomes in colorectal cancer: A comprehensive review



Paulo M.G. Sales ^{a,1}, André F. Carvalho ^{b,1}, Roger S. McIntyre ^c, Nicholas Pavlidis ^d, Thomas N. Hyphantis ^{e,*}

- ^a Faculty of Medicine. Federal University of Ceará. Fortaleza. CE. Brazil
- ^b Department of Clinical Medicine, Federal University of Ceará, Fortaleza, CE, Brazil
- ^c Mood Disorders Psychopharmacology Unit (MDPU) and Department of Psychiatry, University of Toronto, Toronto, ON, Canada
- ^d Department of Medical Oncology, Medical School, University of Ioannina, Greece
- ^e Department of Psychiatry, Medical School, University of Ioannina, Greece

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ABSTRACT

Background: A diagnosis of colorectal cancer (CRC) and its long-term treatment may lead to significant psychological distress and impaired health-related quality of life (HRQoL) for a significant proportion of patients.

Methods: We searched the PubMed/MEDLINE electronic database for available literature on the associations between personality characteristics, depression, psychological distress and HRQoL in CRC. Additional references were identified through the citation tracking of the included articles.

Results: Recent evidence indicates that Type-D (distressed) personality may predict distress among CRC patients. Additionally, other personality traits, such as specific ego defense mechanisms, influence the coping responses and HRQoL. Although the presence of a stoma has been linked to the development of depressive symptoms and impairment in HRQoL in CRC patients, more prospective studies are necessary to confirm these associations. Sense of coherence (SOC) has both a moderating and mediating effect on health (especially mental health and HRQoL), and preliminary data indicate that SOC may be an independent predictor of CRC survival.

Conclusions: The interplay between personality variables during the elaboration of "the impaired role" is complex, and the assessment of personality traits may be incorporated into a comprehensive psychosomatic evaluation of CRC patients. More well-designed prospective investigations are necessary to establish the contributory role of personality dimensions for the development of and protection from distress and impairment in the HRQoL of CRC patients, which could eventually lead to the development of psychosocial interventions that are personalized to this patient population (for example, manual-based psychotherapies).

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Introduction

Colorectal cancer (CRC) is the second leading cause of cancer-related mortality, with an estimated 1.2 million cases diagnosed in 2008 worldwide [1]. During the past decade, survival of patients with CRC has significantly improved through earlier diagnosis and advances in treatment. Approximately 80% of CRC patients now survive the first year after diagnosis, with the 5-year survival varying between 45% and 65% in developed countries and between 8%

and 40% in developing countries [2]. This increase in the survival rates of CRC suggests that aspects of illness adjustment and health-related quality of life (HRQoL) are becoming increasingly critical to patient reported outcomes (PROs). Approximately 10–40% of cancer patients experience significant levels of psychological distress [3–5]. Specific personality traits may also play an important role in CRC patients' psychological adaptation to the illness.

Several socio-demographic and disease parameters have been identified as predictors or correlates of health status and HRQoL in CRC [6–8]. Furthermore, psychological distress leads to negative outcomes in patients with various types of cancer [9,10] through several bio-behavioral pathways, including poor treatment adherence, an unhealthy lifestyle and divergent reappraisals of the symptom burden [11–13]. However, relatively little attention

^{*} Corresponding author. Address: Department of Psychiatry, Medical School, University of Ioannina, 45110 Ioannina, Greece. Tel.: +30 26510 07322; fax: +30 26510 97054.

E-mail address: tyfantis@cc.uoi.gr (T.N. Hyphantis).

¹ PMGS and AFC contributed equally to the present work.

has been given to the complex interplay between specific personality profiles, psychological distress and somatic symptom severity in the formation of CRC patients' HRQoL. Several personality traits have been found to predict better physical and mental health in the long term [14–17], and the severity of somatic symptoms is independently associated with some personality characteristics [18].

The overarching aim of the present article was to review the evidence regarding the potential of psychosocial factors, including body image disturbances, personality traits, coping capacities, ego defense mechanisms and other psychological dimensions, to act as predictors of CRC patients' outcomes, including psychological distress and HRQoL. Furthermore, the clinical implications of these findings are highlighted, and future research directions are presented.

Methods

A MEDLINE search of studies published from 1950 to September 2013 was performed to identify relevant articles. The following algorithm of medical subject heading terms was used: cancer and (colon or rectal or colorectal) and ((depression or depressive symptoms or psychological distress or anxiety or mental illness) or (quality of life or health-related quality of life or patient reported outcomes)) and ((age or gender or occupation or occupational or marital status) or temperament or ("Type-D" or "Type D" or "Type-Distressed" or "Type Distressed") or (Trait-anxiety) or ("Sense of coherence" or SOC) or ("positive affect" or "negative affect" or "positive affects" or "negative affects" or PANAS) or dispositional optimism or ("self-sacrifice" or "self-sacrificing") or neuroticism or (genetic and (test or testing or screening or analysis)) or (((defense or defence) and (mechanism or mechanisms)) or DSQ or "defense style" or "defense styles" or "ego defense" or "ego defence") or ("body schema" or "body experience" or "body image") or ((personality or psychosocial or temperament) and ("risk factor" or "predictor" or "predictive" or "cancer-prone" or "cancer prone" or "cancer onset")) or (stoma or colostomy or ostomy)). This comprehensive review focused on prospective and intervention studies with adequate sample sizes and an appropriate methodology. Citation tracking of the included articles was used to search for additional references in Google Scholar.

Results

Course of psychological distress and health-related quality of life in CRC

An Australian prospective survey with 1822 CRC patients reported significant levels of psychological distress in 8.3% and 6.7% of the participants at 6 and 12 months post-diagnosis, respectively, as measured by the Brief Symptom Inventory-18 [19]. However, in another Australian longitudinal study [20], Dunn et al. reported clinically significant levels of psychological distress in up to 49% of 1703 CRC patients studied using the same instrument, which indicates that an accurate estimation of the prevalence of psychological distress in CRC patients varies according to the cutoff values applied [21], the study setting and other methodological or conceptual differences.

The psychosocial adjustment to the diagnosis, treatment and post-treatment phases of cancer management has distinct consecutive phases. During the first months following a cancer diagnosis, usually around the first 100 days, people frequently experience what was defined by Weisman and Worden as an "existential plight" [22] (from the ancient English word pliht, which means danger, peril, risk). This state consists of constant paradoxical

life/death reappraisals, which are closely related to worries and complaints about health and physical concerns. Cancer patients struggle to surpass the *existential plight* phase through a reestablishment of a sense of control, a better understanding of the available resources needed to meet the therapeutic demands and a reappraisal about the meaning of life and death during their cancer experience. Sometimes, patients perceive these demands as challenges worthy of investment and engagement.

Four basic trajectory patterns for psychological distress in CRC patients were identified in a five-year prospective study [20]: Constant Low, Medium Level, Medium Increase and High Decrease, with the occurrence of each pattern being 19.4%, 29.6%, 38.5% and 12.5%, respectively. The patients with a Constant Low pattern maintained low levels of psychological distress during the whole study period. The patients with a Medium Level had a U-shaped pattern of distress, with an initial decrease in distress scores and a slight return after a 4-year period. The Medium Increase distress pattern represented patients with elevated distress levels during the entire follow-up period. Finally, the High Decrease distressed patients displayed high levels of distress initially, but their levels of distress decreased gradually during the study period.

Although more prospective studies are needed to clarify the course of psychological distress and its trajectory patterns during the years following a CRC diagnosis, the work of Dunn et al. provides an optimistic perspective on the psychological adaptation to CRC. These authors found that a substantial proportion of CRC patients may present with non-pathological levels of psychological distress 5 years following diagnosis [20].

Similar to the trajectories of psychological distress, the course of CRC patients' HRQoL seems to be variable. Although CRC patients' HRQoL and psychological distress have been extensively investigated [6,23–26], there have been few prospective studies. These studies indicate that the HRQoL of CRC patients is generally worse in the early postoperative period [27] and may improve from the third post-operative month onward [28–30]. In the first three years following diagnosis, the HRQoL of the patients in these studies was lower and varied substantially among the participants, but after 3 years, the respondents reported a relatively uniform and higher HRQoL [31]. However, other studies have found variable courses or no change in HRQoL over time [32–34]. It is possible that there are distinct trajectories and individual variability in the factors contributing to CRC patients' HRQoL.

Genetic testing and psychological distress in CRC

There is an increasing willingness to undergo genetic risk assessment for CRC from both patients and their families [35] because the results can lead to earlier-stage diagnosis. Approximately 2–5% of all CRC cases are presumed to be caused by inherited genetic mutations, and approximately 25–62% of those can be explained by mutations in high-risk genes, such as repair genes and Adenomatous Polyposis Coli [36]. Nevertheless, a recent systematic review showed that screening for genetic mutations is still underused, and its importance is underestimated [36].

Genetic testing carries clear ethical dilemmas about genetic privacy [37]. Furthermore, genetic testing may result in severe distress with questionable benefits for some individuals. In their recent review, Heiniger et al. [38] showed that patients who declined genetic testing reported less cancer-related distress than those who agreed to participate. Conversely, the population enrolled in the testing procedure had better coping abilities when confronted with a presumed positive result for CRC risk [38]. In addition, receiving information regarding the possible heritability of CRC has been ranked among the most consistent predictors of screening participation among subjects with a clear familial risk for CRC [39]. More investigations with individuals who decline

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