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# Personality variables as predictors of early non-metastatic colorectal cancer patients' psychological distress and health-related quality of life: A one-year prospective study

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**Abstract**

**Objective:** We aimed to assess the course of early non-metastatic colorectal cancer patients' psychological distress and health-related quality of life (HRQOL) and to identify relevant clinical and psychological predictors during a one-year period. **Methods:** Of the 144 early non-metastatic colorectal cancer patients initially assessed for psychological distress symptoms (SCL-90-R), HRQOL (WHOQOL-BREF), sense of coherence (SOC), defense mechanisms (LSI) and hostility (HDHQ), 84 (58.3%) completed the one-year follow-up. Mean (SD) age was 65.1 (9.8) years and 67.4% were male. Mean (SD) disease duration was 1.7 (2.2) years, with 49.3% being diagnosed within the last six months. In 75.0% the site was at colon and in 25.0% at rectum; 2.1% had stage I, 59.0% stage II and 38.9% stage III disease. **Results:** Paranoid ideation, psychoticism, interpersonal sensitivity, anxiety and depressive symptoms increased significantly over the one-year period of the study and most of the HRQOL components were significantly decreased over the same period. Men were at greater risk for further developing depressive symptomatology. Low SOC was independent predictor of depression, while hostility independently predicted anxiety, interpersonal sensitivity and psychoticism symptoms. General psychological distress and low SOC were independent predictors of HRQOL, while repression was also an independent predictor of Physical HRQOL. **Conclusions:** In early non-metastatic colorectal cancer patients, psychological distress symptoms are increased and HRQOL is decreased over one-year period. Symptoms of psychological distress are strong predictors of HRQOL, while personality variables can also predict psychological distress symptoms' increase and HRQOL decrease over time, and this could be relevant to psychological interventions.


*Keywords:* Oncology; Colorectal cancer; Psychological distress; Personality; Ego mechanisms of defense; SOC; Quality of life

## Introduction

Although colorectal cancer remains the second leading cause of cancer-related mortality, survival has improved through earlier diagnosis and advances in treatment [1,2]. Approximately 80% of patients survive the first year after diagnosis, and over 60% survive more than 5 years, making health-related quality of life (HRQOL) an important outcome [1–3]. People diagnosed with cancer face the "existential plight" [4], a psychosocial phase characterised by intense distress emerging the first months after diagnosis and initial treatment of cancer, with those most vulnerable to distress being at greater risk for developing a psychiatric disorder [5], further impairing their HRQOL [6,7]. Identifying, thus, the most vulnerable to psychological distress patients and understanding the psychosocial factors that predict HRQOL and might be amenable to treatment could help clinicians to identify patients who could improve with psychological interventions.

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Several demographic and disease parameters have been determined as predictors or correlates of HRQOL in colorectal cancer [3,8–12]. Little is known, however, about the complex interplay between the background psychological profile, the course of psychological distress during the disease's course and the formation of patients' HRQOL. Psychological distress was found negatively correlated to all HRQOL domains in various types of cancer [6,7], while the limited evidence suggests that the same applies to colorectal cancer [13,14]. Scarce studies also showed that depression was the leading predictor of colorectal cancer patients' global HRQOL [15]. The role of psychosocial and personality variables in the development of psychological distress and in determining HRQOL is less clear, although several personality traits seem to play a significant role in the disease process. Ego defense mechanisms, for example, were associated with reduced survival in cancer patients [16], while anger was associated with the progression of cancer [17]. Also, a strong sense of coherence (*SOC*), a health promoting factor [18], was associated with reduced rates of all-cause mortality [19] or even with delay in the onset of cancer [20].

There is, however, little research on the contribution of these traits in the development of psychological distress or in the formation of cancer patients' HRQOL [21,22], while no study focused on the predictive power of these factors in colorectal cancer patients' psychological distress and HRQOL. Our previous cross-sectional study in colorectal cancer patients showed that *SOC* and *denial* were independently positively associated with all aspects of HRQOL, while psychological distress, *hostility* and *repression* were independently but negatively associated with *Physical* HRQOL [23]. We examine here whether the same applies to a further analysis from our prospective cohort study. The present study aimed (1) to assess the course of colorectal cancer patients' psychological distress and HRQOL during a one-year period, (2) to identify clinical and psychosocial predictors of a wide range of psychological distress symptoms, (3) to identify clinical and psychosocial predictors of HRQOL, and (4) to confirm in a prospective design our previous findings that psychological distress and personality variables contribute significantly in the formation of HRQOL.

## Patients and methods

### *Sample*

The sample comprised consecutive patients with early non-metastatic colorectal cancer attending the oncological outpatient department of the University General Hospital of Ioannina, Greece, during one and a half-year. Diagnosis was confirmed based on positive biopsy for cancer cells, after colonoscopy [24,25]. Exclusion criteria were inability to read and write Greek, stage IV disease, history of psychotic illness, alcohol and/or drug abuse or dementia. Participants provided written consent; all the procedures were in accordance with the ethical standards on human experimentation (World Medical Association Helsinki Declaration) and were approved by the hospital's ethical committee (No 11/7.11.2006).

### *Baseline assessments*

Clinical data were obtained by reviewing the patients' records using a standardized collection form. The disease's stage was assessed using the current joint American Joint Committee on Cancer TNM staging system for colorectal cancer [24,25]. Disease parameters studied were the site of cancer (i.e. colon or rectum), the operation procedure and the time elapsed since the operation. The current treatment procedures (chemotherapy alone, radiotherapy alone, a combination of both and follow-up alone) were also recorded. The following self-report instruments were used:

*Psychological distress* was measured using the Symptom Distress Checklist (SCL-90-R), a 90-item multidimensional self-report symptom inventory designed to measure a wide range of psychopathological symptoms in psychiatric and medical patients [26]. It was chosen because of its superior reliability and extensive validation in oncology samples [26–28]; also, it has been standardized for the Greek population [29].

*Defense Mechanisms:* Ego mechanisms of defense are defined as "automatic psychological processes that protect the individual against anxiety and from the awareness of internal or external dangers or stressors, mediating the individual's reactions to emotional conflicts and to internal or external stressors" [30]. We assessed them using the 97-item self-report questionnaire *Life Style Index (LSI)* [31,32]. A high agreement rate was found between individual defense mechanisms as assessed by the LSI and clinical ratings of the relevant defenses [32]. LSI was translated into Greek and recent investigation of its psychometric properties by our research team supports its validity for use within the Greek population [33]. Cronbach's alphas obtained from the present sample considered acceptable for measuring defenses in cancer patients ($\alpha$>0.60) [21,23], and were as follows: *denial*, 0.69; *regression*, 0.69; *repression*, 0.81; *compensation*, 0.63; *projection*, 0.79; *displacement*, 0.70; *intellectualization*, 0.68 and *reaction formation*, 0.71.

*Hostility:* the Hostility and Direction of Hostility Questionnaire (HDHQ) was used [34], which provides a measure of hostility manifestation that reflects an attitudinal personality trait and shows the participant's reaction to frustrating occurrences. It has been used within the general Greek population and with medical patients [23,35].

*Sense of Coherence (SOC)*, is defined as a global orientation based on a person's pervasive confidence that internal and external stimuli are structured and predictable; that the resources needed to meet these demands are available; and that these demands are seen as challenges,