

The Importance of Type D Personality for Mental Adjustment to Cancer in Patients with Colorectal Cancer

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Abstract

Background: Cancer diagnosis is a source of long-term stress for the patient. The patient's mental adjustment to the disease directly affects the quality of his life and may also determine the effectiveness of the final therapeutic effects. Determining the significance of Type D Personality for mental adjustment to cancer may have not only cognitive value, but also influence the improvement of preventive recommendations.

Material and methods: The study involved 200 patients diagnosed with colorectal cancer. During the study, the Author's Personal Questionnaire, the Mini-MAC questionnaire and the DS-14 were used.

Results: The majority of the respondents (56.4%) with Type D Personality present a Destructive Style of Mental Adjustment to Cancer Disease.

Conclusions: The significance of Type D Personality is evident after taking into account the presence of other cancer diseases, the patient's fitness level and alcohol consumption before the diagnosis of cancer in the case of the Destructive Style of Mental Adjustment to Cancer Disease dominating in the picture.

Keywords: colorectal cancer; typed personality; psychological adjustment; constructive style; destructive style

Introduction

For many years, the subject of scientific research has been to determine the significance of personality in the context of circumstances that shape the risk of developing health disorders, including chronic diseases. [1, 2, 3]

Type D Personality – distressed personality – is analyzed in terms of shaping the risk of developing psychosomatic illnesses. [1, 2, 3]

There is an association between type D personality and death in patients with colon cancer. This relationship is mainly observed in men. [1] According to studies conducted among people diagnosed with colorectal cancer, people with Type D Personality report a worse quality of life, more comorbidities and greater anxiety about it than people who do not have Type D Personality traits. [1, 2, 3]

Due to the fact that colorectal cancer in Poland is one of the most common malignant tumors among both genders and is also one of the most common causes of cancer-related deaths, it is important from the point of view of public health to know the psychological factors that may be significant for the development and course of the disease.

Cancer diagnosis is a source of long-term stress for the patient. Due to treatment and its associated side effects, the disease can affect the patient for a long time. The disease is associated with a reduced quality of life, reduced ability to work and reduced frequency of social contacts. In

addition to physical symptoms, the patient may be exposed to a number of serious psychological problems [4, 5, 6]. The patient's psychological attitude to the disease directly affects the quality of his life and may also determine the effectiveness of the final therapeutic effects [5, 7].

The aim of the study was to assess the importance of Type D Personality for Mental Adjustment to Cancer in patients with colorectal cancer. Determining the significance of Type D personality for mental adjustment to cancer may have not only cognitive value, but also a practical dimension in the form of improving methods of monitoring health status in the course of colorectal cancer, and perhaps also in the form of improving preventive recommendations.

Material And Methods

The cross-sectional study was conducted on 200 patients with diagnosed colorectal cancer in the "Department of General and Oncological Surgery" and in the "Department of Oncological Surgery" of Zagłębiowski Center of Oncology in Dąbrowa Górnicza. All patients signed informed consent forms. Participation in the study was voluntary. The statistical analysis covered patients aged between 24–85 years of age.

The protocol of the study was approved by the Bioethical Commission of the Medical University of Silesia in Katowice (decision no

KNW/0022/KB59/18). The following criteria were identified for inclusion to the study:

- diagnosed colorectal cancer,
- hospitalization in medical centers selected for the purpose of the study and planned surgery for cancer removal,
- the signed informed consent of the patient to participate in the study.

The criteria for exclusion from the study group were failure to meet any of the inclusion criterion requirements.

The questionnaire survey was conducted in direct contact between the respondent and the interviewer at the hospitalization site. Patients who answered the questions in the questionnaires were in a room with only the interviewer. The survey was conducted among patients diagnosed with colorectal cancer in the period immediately preceding surgical intervention. During the interview, the author's questionnaire was used, as well as the Polish versions of the questionnaires: the Mental Adjustment to Cancer Disease (Mini-MAC) and the Type D Personality Scale (DS-14).

The author's questionnaire consisted of 26 questions concerning anthropometric and socio-economic data. The questions also concerned the circumstances accompanying the suspicion and diagnosis of colorectal cancer.

The questionnaire for the assessment of Mental Adjustment to Cancer Disease (Mini-MAC) adapted by Z. Juczyński [8] consists of 29 statements. It measures four strategies of coping with the disease. These are: Anxious Preoccupation, Fighting Spirit, Helplessness-Hopelessness and Positive Reappraisal. In each statement, the respondent uses a 4-point response scale (1 - definitely not, 2 - rather not, 3 - rather yes, 4 - definitely yes). The results were calculated for each category separately. Each category consists of 7 statements. The higher the score obtained by the examined person in a given category, the greater the intensity of behaviors characteristic of a given strategy. The Helplessness-Hopelessness strategy and Anxious Preoccupation form the Destructive Style of coping with the disease. The Fighting Spirit strategy and Positive Reappraisal represent the Constructive Style. After adding up the points obtained in the appropriate strategies, they are converted into sten units and interpreted as high, low or average scores. A score between 1 and 4 sten is considered a low score, while a score between 7 and 10 sten means a high score. A score between 5 and 6 sten is interpreted as an average score. A high score determines the presence of a given style. [8]

The DS-14 questionnaire consists of 14 statements [9]. In each statement, the respondent uses a 5-point response scale (0 – false, 1 – rather false, 2 – hard to say, 3 – rather true, 4 – true).

Type D Personality consists of two dimensions: Negative Emotionality (NE) and Social Inhibition (HS) [10]. Among the 14 statements of the questionnaire, 7 of them define the Negative Emotionality dimension, and the other 7 create the Social Inhibition dimension. The sum of the obtained results for the Negative Emotionality and Social Inhibition dimensions is calculated separately. Obtaining at least 10 points in a given dimension is the basis for classifying the examined person in a given category. Obtaining at least 10 points in both dimensions justifies the diagnosis of Type D Personality [11, 12].

The study assessed statistical relationships between the results of the questionnaire studies. The significance of Type D Personality for Mental Adjustment to Cancer Disease was assessed. The Chi2 test was used to assess the statistical relationship of qualitative variables. The results of simple relationship analyses were verified using logistic regression analysis.

Mini-MAC questionnaire variables (Anxious Preoccupation, Fighting Spirit, Helplessness-Hopelessness and Positive Reappraisal) were transformed due to the key significance of three diagnoses: Constructive Style, Destructive Style, Unspecified Style. Independent logistic regression models were subjected to multivariate analysis, with the dependent variables: Constructive Style (Yes/No), Destructive Style (Yes/No).

All statistical analyses were performed using the SAS9.4 statistical package.

Results

The analysis included observations conducted in 200 individuals (89 women and 111 men) diagnosed with colorectal cancer. The age of the subjects was 65.0 ± 11.3 years (minimum age = 24 years, maximum age = 85 years). The mean age at diagnosis was 64.6 ± 11.4 years.

Table I presents the results concerning the significance of Type D Personality for Mental Adjustment to Cancer Disease. The Type D Personality respondents most often present the Destructive Style (56.4%). The Constructive Style was presented by 10.0% of the respondents. The style of coping with the disease cannot be determined in 33.6% of the Type D Personality respondents. The observed relationships show statistical significance ($p < 0.001$).

	Type D Personality	Non-D Type Personality	p-value (Chi ² test result)
Constructive Style	11 (10.0%)	34 (37.8%)	<0.001
Destructive Style	37 (56.4%)	16 (17.8%)	
Style Undefined	62 (33.6%)	40 (44.4%)	

Table I. The Importance of Type D Personality for Mental Adjustment to Cancer Disease

Due to the three-level nature of the dependent variable, it was transformed. After transformation, the first model analyzed the Constructive Style vs. Other Styles (i.e. Destructive Style and Unspecified Style), while the second model analyzed the Destructive Style vs. Other Styles (i.e., Constructive Style and Unspecified Style).

Thus, the results of the multivariate analysis allow us to determine which explanatory variables differ between the two compared styles.

Table II presents the results of the analysis of the complete logistic regression model for the significance of Type D Personality for the Constructive Style of Mental Adjustment to Cancer Disease.

Variable	Regression logistic coefficient	p-value
Type D Personality (no vs. yes)	0.8	0.003
Sex (female vs. male)	-0.6	0.05
Place of residence (city vs. country)	-0.7	0.05
Education level (lower than secondary level vs. secondary and higher education)	-0.6	0.03
Marital status (in a relationship vs. single)	0.1	0.9
Employment (working person vs. unemployed person)	0.05	0.8
Belief (believer vs. unbeliever)	0.3	0.5
Housing conditions (alone vs. with a family member)	0.6	0.4
Support from family (no vs. yes)	-6.6	0.9
Financial status (satisfactory vs. non-satisfactory)	-1.0	0.04
Circumstances of cancer diagnosis (by a patient vs. by a doctor)	0.3	0.3
A family history of colorectal cancer (yes vs. no)	0.5	0.03
Satisfaction with medical care (yes vs. no)	0.2	0.8
Occurrence of chronic disease – without mental disease (yes vs. no)	0.2	0.4
Occurrence of other cancers diseases (yes vs. no)	-0.2	0.8
Fitness status (unchanged vs. worse)	0.5	0.1
Nutritional status (unchanged vs. worse)	-0.3	0.2
Smoking status before being diagnosed with cancer (no vs. yes)	0.5	0.08
Consuming alcohol before being diagnosed with cancer (no vs. yes)	0.3	0.4

Table II. Results of the analysis of the complete logistic regression model for the significance of Type D Personality for the Constructive Style of Mental Adjustment to Cancer Disease

Statistical significance in the analysis of the complete logistic regression model for the importance of Type D Personality for the Constructive Style of Mental Adjustment to Cancer Disease was demonstrated for the variables: Type D Personality ($p=0.003$), sex ($p=0.05$), place of residence ($p=0.05$), education level ($p=0.03$), financial status ($p=0.04$), occurrence of colorectal cancer in the family ($p=0.03$).

The complete multivariate analysis model was subjected to verification parameterization using an automatic procedure of the so-called backward selection. The criterion of statistical significance was adopted at the level of $p<0.1$. The circumstances statistically significantly associated with the

Mental Adjustment of the Constructive Type, in comparison with the Other Styles, were: Type D Personality (no vs. yes) – IS = 3.6 (95% CI: 1.6 – 8.2), education level (lower than secondary level vs. secondary and higher education) – IS = 0.3 (95% CI: 0.1 – 0.7), family history of colorectal cancer (yes vs. no) – IS = 2.8 (95% CI: 1.3 – 6.4), fitness status (unchanged vs. worse) – IS = 3.0 (95% CI: 1.0 – 8.7).

Table III presents the results of the analysis of the complete logistic regression model for the significance of Type D Personality for the Destructive Style of Mental Adjustment to Cancer Disease.

Variable	Regression logistic coefficient	p-value
Type D Personality (no vs. yes)	-0.6	0.007
Sex (female vs. male)	0.1	0.6
Place of residence (city vs. country)	0.3	0.5
Education level (lower than secondary level vs. secondary and higher education)	0.3	0.2
Marital status (in a relationship vs. single)	0.7	0.3
Employment (working person vs. unemployed person)	0.3	0.2
Belief (believer vs. unbeliever)	-0.1	0.6
Housing conditions (alone vs. with a family member)	0.5	0.4
Support from family (no vs. yes)	0.1	0.8
Financial status (satisfactory vs. non-satisfactory)	0.05	0.9
Circumstances of cancer diagnosis (by a patient vs. by a doctor)	-0.2	0.1
A family history of colorectal cancer (yes vs. no)	-0.2	0.4
Satisfaction with medical care (yes vs. no)	0.4	0.3

Occurrence of chronic disease – without mental disease (yes vs. no)	-0.1	0.6
Occurrence of other cancers diseases (yes vs. no)	0.5	0.1
Fitness status (unchanged vs. worse)	0.4	0.08
Nutritional status (unchanged vs. worse)	0.1	0.6
Smoking status before being diagnosed with cancer (no vs. yes)	-0.3	0.1
Consuming alcohol before being diagnosed with cancer (no vs. yes)	-0.5	0.1

Table III. Results of the analysis of the complete logistic regression model for the significance of Type D Personality for the Destructive Style of Mental Adjustment to Cancer Disease

Statistical significance in the analysis of the complete logistic regression model for the significance of Type D Personality for the Destructive Style of Mental Adaptation to Cancer Disease was demonstrated for the Type D Personality variable (p=0.007).

The complete multivariate analysis model was subjected to verification parameterization using an automatic procedure of the so-called backward selection. The criterion of statistical significance was adopted at the level of p<0.1. The circumstances statistically significantly associated with the Mental Adjustment of the Destructive Type, in comparison with the Other Styles, were: Type D Personality (no vs. yes) – IS = 0.3 (95% CI: 0.2 – 0.7), the occurrence of other cancer diseases (yes vs. no) – IS = 3.6 (95% CI: 0.8 – 15.8), fitness status (unchanged vs. worse) – IS = 2.0 (95% CI: 0.9 – 4.3), consuming alcohol before being diagnosed with cancer (no vs. yes) – IS = 0.2 (95% CI: 0.06 – 0.9).

Discussion

The aim of the study was to assess the importance of Type D Personality for Mental Adjustment to Cancer in patients with colorectal cancer.

There is little research in the literature that addresses the importance of Type D Personality for Mental Adjustment to Cancer such as colorectal cancer.

In our study, it was shown that more than half of the Type D Personality subjects represented the Destructive Style of Mental Adaptation to Cancer (56.4%). The Constructive Style was represented by 10.0% of the Type D Personality subjects. The occurrence of other cancer diseases apart from colorectal cancer and the declared non-deteriorated state of fitness were factors that increased the chances of the occurrence of the Destructive Style of Mental Adjustment to Cancer (IS = 3.6 and IS = 2.0, respectively). The factors protecting against qualification to the discussed

style were not drinking alcohol before the diagnosis of cancer and having the features of the non-D Type Personality (IS = 0.2 and IS = 0.3, respectively).

The occurrence of colorectal cancer in the family, as well as the declared non-deteriorated physical fitness were factors that increased the chances of the occurrence of the Constructive Style among the respondents almost threefold (IS = 2.8 and IS = 3.0, respectively). Education lower than secondary was a factor that decreased the chance of qualifying for the discussed style (IS = 0.3). Among people with the non-D Personality Type, the chances of qualifying for the Constructive Style were observed to be 3.6 times higher.

A more frequent occurrence of the Destructive Style among oncological patients with Type D Personality was observed, similarly to the own work, in the study by J. Kozak and P. Kobus [13].

In the study by E. Franke and E. Kupcewicz [14], similarly to our own work, no significance of marital status and employment was observed for the style of coping

with the disease. In the discussed study, no significance of education was observed for the style of coping with cancer, which is contrary to the results obtained in our own work, where a reduced chance of qualifying for the Constructive Style was observed among people with education lower than secondary.

Table IV presents the final predictors discussed above for the significance of Type D Personality for the Constructive and Destructive Style of Mental Adjustment to Cancer Disease in our own work. The final predictors were identified after performing the so-called backward selection of the complete multivariate analysis model. The criterion of statistical significance was adopted at the level of p<0.1.

	Qualification for the Constructive Style of Mental Adjustment to Cancer Disease	Qualification for the Destructive Style of Mental Adjustment to Cancer Disease
Type D Personality	↓	↑
Education less than secondary	↓	
Family history of colorectal cancer	↑	
Occurrence of other cancers diseases		↑
Unchanged Fitness status	↑	↑
Not drinking alcohol before cancer is diagnosed		↓

Explanations:

↑ - a factor that increases the chance of a given feature occurring; ↓ - a factor that reduces the chance of a given feature occurring

Table IV. Final predictors of the significance of Type D Personality for the Constructive and Destructive Style of Mental Adjustment to Cancer Disease

The study, as is the case with other questionnaire studies, is not without its weaknesses. Among the limitations of our own work, it is worth mentioning the limited representativeness of the group of patients with colon cancer. This is due to the fact that recruitment to the study was conducted in only one hospital. Only patients who were waiting for a surgical procedure to remove the tumor and agreed to participate in the study were examined. Therefore, for organizational reasons, patients treated in other medical facilities could not participate in the study.

A strong point of the study was the full returnability of the questionnaires, resulting from direct contact between the respondent and the interviewer at the place of hospitalization. When answering the questions included in the questionnaires, patients were in a room with the interviewer only, which eliminated any potential interference with the results caused by the presence of third parties during the study, as well as the possibility of the patient not understanding a given issue, due to the possibility of its expansion by the interviewer. The study used validated questionnaires commonly used for research in Poland. In this case, the questionnaire survey is the only research tool that can be used in this type of study.

Conclusion

The occurrence of Type D Personality among the examined patients with colorectal cancer in the period immediately preceding surgical intervention is associated with a more frequent presentation of the Destructive Style of Mental Adjustment to Cancer Disease. The significance of Type D Personality is visible after taking into account the occurrence of other cancer diseases, the patient's fitness status and alcohol consumption before the diagnosis of cancer in the case of the dominant Destructive Style of Mental Adjustment to Cancer Disease in the study.

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References

- Schoormans D, Husson O, Denollet J, et al. (2017). Is Type D personality a risk factor for all – cause mortality? A prospective population – based study among 2625 colorectal cancer survivors from the PROFILES registry. *J Psychosom Res*; 96: 76-83.
- Mols F, Oerlemans S, Denollet J, et al. (2012). Type D personality is associated with increased comorbidity burden and health care utilization among 3080 cancer survivors. *Gen Hosp Psychiatry*; 34: 352-359.
- Husson O, Vissers PAJ, Denollet J, et al. (2015). The role of personality in the course of health-related quality of life and disease – specific health status among colorectal cancer survivors: A prospective population – based study from the PROFILES registry. *Acta Oncologica*; 54(5): 669-677.
- Lueboonthavatchai P. (2007). Prevalence and psychosocial factors of anxiety and depression in breast cancer patients. *J Med Assoc Thai*; 90(10): 2164-2174, indexed in Pubmed: 18041438.
- Religioni U, Czerw A, Deptała A. (2018). Patient mental adjustment to selected types of cancer. *Psychiatr Pol*; 52(1): 129-141.
- Kulpa M, Ciuba A, Duda T, et al. (2022). Mental adaptation to cancer diagnosis and the health locus of control in patients undergoing treatment. *Nowotwory. Journal of Oncology*; 72(5): 275-281,
- Greer S, Morris T, Pettingale KW. (1979). Psychological response to breast cancer: effect on outcome. *Lancet*; 2(8146): 785-787,
- Juczyński Z. (2009). Zmaganie się z chorobą. [In:] Juczyński Z. *Narzędzia Pomiaru w Promocji i Psychologii Zdrowia*. Warszawa: Pracownia Testów Psychologicznych Polskiego Towarzystwa Psychologicznego; 162-166.
- Denollet J, Vaes J, Brutsaert DL. (2000). Inadequate response to treatment in coronary heart disease: adverse effects of Type D personality and younger age on 5 – year prognosis and quality of life. *Circulation*; 102(6): 630-635.
- Ogińska-Bulik N. (2010). Osobowość typu D a ryzyko uzależnienia od czynności. *Psychiatria*; 7(1): 11-24.
- Ogińska-Bulik N, Juczyński Z. (2008). Właściwości osobowości sprzyjające chorobom somatycznym – rola typu D. *Psychoonkologia*; 12(1): 7-13.
- Ogińska-Bulik N, Juczyński Z. (2004). Osobowość stresowa (typ D) a ryzyko występowania chorób układu krążenia. [In:] Kosińska-Dec K, Szewczyk L, red. *Rozwój, zdrowie, choroba. Aktualne problemy psychosomatyki*. Warszawa: BEL Studio; 5-17.
- Kozaka J, Kobus P. (2015). Osobowość typu D a satysfakcja z życia i radzenie sobie z chorobą nowotworową. *Psychoonkologia*; 2: 74-79.
- Franke E, Kupcewicz E. (2014). Akceptacja i przystosowanie psychiczne do choroby nowotworowej. [In:] Majchrzak-Kłokocka E, Woźniak A, red. *Organizacja i zarządzanie wyzwaniem dla pielęgniarek i położnych w nowoczesnej Europie – część I*. Łódź – Olsztyn: Wydawnictwo SAN; t. XV (12), str. 373-387.



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