

# The evaluation of stress coping styles and type D personality in patients with coronary artery disease

Joanna M. Moryś<sup>1,2</sup>, Jerzy Bellwon<sup>2</sup>, Maria Jeżewska<sup>3</sup>, Katarzyna Adamczyk<sup>1</sup>, Marcin Gruchała<sup>2</sup>

<sup>1</sup>Department of Clinical Psychology, Medical University of Gdansk, Gdansk, Poland

<sup>2</sup>1<sup>st</sup> Department of Cardiology, Medical University of Gdansk, Gdansk, Poland

<sup>3</sup>Department of Occupational and Internal Medicine, Medical University of Gdansk, Gdansk, Poland

## Abstract

**Background:** The relationship between depression and heart disease is very complex. In the group of patients with depression the coronary artery disease risk factors related to lifestyle (lack of physical activity, smoking, hypertension, and diabetes) are frequently observed. For many years, researchers have been interested in the relationship between personality and the tendency to collapse on somatic disorders. The result of this research was to create the concept of type D personality, which is formed by two dimensions: negative emotionality and social inhibition. These features have their reflection in many aspects of life, including in stressful situations.

**Aim:** The prime goal of the study was to evaluate the prevalence of type D personality and dominant styles of coping with stress for patients with coronary artery disease. The study also tried to determine the correlation between the presence of type D personality and style of coping with stress in the examined group.

**Methods:** The studied group consisted of 100 patients (70 men and 30 women) with coronary heart disease. Patients were examined with the Type D Scale (DS14) and the Coping Inventory for Stressful Situations Questionnaire (CISS).

**Results:** Type D personality was found in 54% of cases for men and 47% for women. Distribution of type D personality did not differ for women and men. Analysis of the correlation between coping style in difficult situations and type D personality did not show that people with type D personality significantly more often chose a specific style of coping.

**Conclusions:** Type D personality was found in 52% patients with stable coronary artery disease. Similar scores were observed for men and women. There was no evidence that patients with type D personality prefer a specific style of coping with stress.

**Key words:** stress coping styles, type D personality, coronary artery disease

Kardiol Pol 2015; 73, 7: 557–566

## INTRODUCTION

Most of the research on risk factors for coronary artery disease (CAD) focuses on biological factors and lifestyle. However, a lot of research points to the important role of psychological factors and psychiatric disorders in the aetiology, development, course, and treatment of diseases of the cardiovascular (CV) system.

For many years, researchers' interest has concerned the relationship between personality and the tendency to collapse on somatic disorders. This research runs in two ways. Some of them are focused on identifying specific personality traits conducive to falling ill with certain medical disorders.

Representatives with specialisation known as "psychosomatic", Helen Flanders Dunbar (1902–1959) and Franz

Alexander (1891–1964), have been looking for personality traits that are specific to certain types of diseases. They have created "personality profiles" that appear to promote CV diseases, peptic ulcer disease, or asthma. Another study showed the relationship between psychological factors such as low self-esteem, suppression of anger and hostility, high level of anxiety, and heart disease.

People's personalities can be classified into five broad categories on the basis of personality types. Personality traits, like workaholicism, ambitiousness, aggressiveness, competitiveness, drive, impatience, the need for control, and an unrealistic sense of urgency, are conceptualised as features of a type "A" personality. People characterised by moderate ambitiousness

### Address for correspondence:

Dr Joanna M. Moryś, Department of Clinical Psychology, Medical University of Gdansk, ul. Tuwima 15, 80–210 Gdańsk, Poland, tel: +48 58 349 17 92,

fax: +48 58 349 17 92, e-mail: jmmorys@gmail.com

Received: 15.07.2014

Accepted: 29.01.2015

Available as AOP: 23.02.2015

Copyright © Polskie Towarzystwo Kardiologiczne

and drive, accommodating attitude, cooperativeness, and a generally easygoing approach to life are conceptualised as having type “B” personality. The type “C” personality has difficulty expressing emotion and has a marked tendency to bottle things up, especially anything in their life which is bothering them. People with type “D” personality are affected by mental depression more than other groups. They are stressed and get angry more than others. People with type “H” personality are hypothesised to be resistant to stress-induced illness, because of their adaptive cognitive style and a subsequently reduced level of physiological arousal.

In the 1950s cardiologists Meyer Friedman and Ray H. Rosenman created the concept of the type “A” personality, linking it to heart attacks. Type “A” personality is associated with relatively stable behaviour characterised by competitiveness, the desire to achieve, aggression (sometimes strongly suppressed), haste, impatience, impulsivity, excessive vigilance, explosive way of speaking, facial muscle tension, and a sense of time pressure and excess liability. Type A is disclosed in a general way of life characterised by high activity, personality, and motivational characteristics associated with a high need for achievement, dominance, and aggression. This is also accompanied by a psychophysiological state with a highly reactive adrenergic system. However, despite many studies on the relationship between type A and CV diseases there is no conclusive proof of such a relationship [1]. The observation that not all people with type A are susceptible to heart disease led to the concept of type H (Hardy) personality [2]. Type H people differ from type A people because they have a deep sense of commitment to their values, beliefs, sense of identity, work, and family life. They feel that they are in control of their lives and what happens to them, and even when things go wrong they do not see a frightening problem to be avoided but instead a challenge to be met and answered.

A lack of conclusive evidence the relationship between certain personality traits and a tendency to collapse on specific disease entities, contributed to the exploration of personality traits that may be associated with overall susceptibility to disease. The result of this research was to create a concept of a new type of personality, a so-called stress personality — type D.

People classified into type “D” personality are affected by mental depression more than other groups. They are stressed and get angry more often than others. They do not feel comfortable with others. They are socialable and like to communicate with others, but they fear that their behaviour will not be accepted by others. They have lower self-esteem, and this fear threatens them permanently with the fear that they will not be accepted by others. This type of personality has two dimensions: Negative Emotionality (NE) and Social Inhibition (SI). NE refers to the tendency to experience negative emotions across time and situations. High-NE individuals experience more feelings of dysphoria, anxiety, and irritability; have a negative view of the self; and scan the world for signs

of impending trouble [3]. SI refers to the tendency to inhibit the expression of emotions/behaviours in social interactions to avoid disapproval by others [4]. High-SI individuals tend to feel inhibited, tense, and insecure when with others [5].

A type D personality is associated with a tendency for depression and difficulty in perception and use of social support. The following are typical for patients with type D personality:

- frequent experience of negative emotions, and rarely positive;
- tendency to consciously avoid expressing emotions, mostly in social situations;
- a tendency to grieve;
- a tendency to blame;
- pessimistic view of the world;
- low tendency to share their emotions, fear of disapproval and rejection;
- poor relationships with other human beings.

The way a person responds in a stressful situation is also important. It was found [6] that repressive coping and type D, both independently and when simultaneously considered, are predictors of cardiac-related death or myocardial infarction (MI). Repression, suppression and expression of emotional experience have been linked to CV risks [7]. Individuals categorised as repressive had twice the risk of death or MI compared to non-repressors [8].

People cope with stress in many ways. They are related to the problem, and are focused on the solution, or focus on their reactions and emotions. Endler and Parker mark out three styles of coping with stress:

- Task-Oriented Coping (TOC) — taking an active part, is designed to solve the problem by cognitive transformation or trying to change the situation;
- Emotion-Oriented Coping (EOC) — is the tendency to focus on yourself and your own experiences, being emotional, and prone to wishful thinking and distancing;
- Avoidance-Oriented Coping (AOC) — based on the activities aimed at blocking thinking about a stressful situation and its survival. It manifests itself as engaging in alternative activities (Distraction) or seeking social contact (Social Diversion).

The aim of the study was to evaluate the prevalence of type D personality and dominant styles of coping with stressful situations, and to determine the relationship between the presence of type D personality and style of coping in patients with CAD.

### **Study group**

The sample group consisted of 100 consecutive patients with stable CAD (confirmed by coronary angiography) hospitalised in the Department of Cardiology, Medical University of Gdansk to undergo elective coronary angiography or, if necessary, elective percutaneous coronary intervention. This research project was approved by the Bioethics Committee of the Medical University of Gdansk.

Eligibility criteria included age 18 years and older, no serious psychiatric disorders or dementia, no present substance abuse, and the ability to complete the questionnaires. Subjects were given the opportunity to not participate in the study or resign at any stage.

The average age was  $67.3 \pm 9.8$  years. Among the patients, 70 (70%) were men aged 31–84 years (mean  $66.4 \pm 10.4$ ) and 30 (30%) were women aged 49–83 years (mean  $64.4 \pm 7.8$ ). There were no statistically significant differences between the ages of the men and the women.

## METHODS

Subjects were examined with the Type D Scale (DS14) used to assess NE, SI, and type D personality, and the Coping Inventory for Stressful Situations (CISS) Questionnaire to diagnose coping with stress.

The presence of type D personality traits was assessed by the DS14 developed by Denollet and Van Heck [9] and adapted to Polish conditions by Ogińska-Bulik and Juczyński [10]. The questionnaire consists of 14 items, of which seven measure the tendency to experience negative emotions, and the remaining seven measured the tendency to avoid expressing these emotions and related behaviours (Social Inhibition). The examined group marked their answers on a five-point scale (ranging from 0 — false to 4 — true). Results were analysed separately for the subscale “Negative Emotionality” and “Social Inhibition”. The NE and SI scales can be scored as continuous variables (range 0–28) to assess these personality traits in their own right. The higher the score, the greater the severity of a particular feature. A cutoff of 10 on both scales was used to classify subjects as type D (i.e.  $NE \geq 10$  and  $SI \geq 10$ ).

The style in which patients coped with stress was evaluated using the CISS developed by Endler and Parker. Adaptation to Polish conditions was carried out by Strelau et al. [11]. The CISS questionnaire consists of 48 statements about the different behaviours that people can manifest in stressful situations. The test determines on a five-point (from 1 — not at all to 5 — very much) how often an action is taken in difficult, stressful situations. The higher the result in points (raw/calculated), the more frequent the action in a certain way. The results are presented on three scales: TOC, EOC, and AOC (distinguishing between Distraction — D and Social Diversion — SoD).

Participants’ item responses were summed to form the total raw scores for each of the CISS subscales. The potential range of these scores on the Task, Emotion, and Avoidance scales was from 16 to 80. The possible range for the Distraction subscale was from 8 to 40 and for SoD the range was 5 to 25. Then, the results were converted to sten score depending on the age of the subject. For patients older than 80 years norms from 55 to 79 years were used.

Both questionnaires used in our study were validated by the Psychological Test Laboratory of the Polish Psycho-

logical Association. The questionnaires are available only for psychologists, personally, based on a diploma in psychology.

## Statistical analysis

All results are reported as mean  $\pm$  standard deviation for continuous variables and as proportions for categorical variables. Distribution of continuous variables was assessed in terms of its compliance with the normal distribution using the Kolmogorov-Smirnov test. Statistical significance of differences between the means of continuous variables with normal distribution were evaluated using Student’s t test, and the average distributed variables different from the normal Man-Whitney U test.

To determine the correlation between the different parameters Spearman correlation index ( $r$ ) was used. A value of  $p < 0.05$  was considered statistically significant. Statistical calculations were performed using a commercial statistical package StatSoft, Inc. (2003), STATISTICA (data analysis software system), version 6.1, Tulsa, United States.

## RESULTS

In the study group, 52% of patients presented type D personality, while the remaining 48% did not. Type D personality was found in 54% of men and 47% of women. Distribution of type D personality and non-D did not differ in women and men.

The average results of individual items in the CISS questionnaire are presented in Table 1. The results obtained in the TOC scale were higher than those obtained at EOC and AOC. In the AOC scale more people were engaged in alternative activities (D) than were seeking social contact (SoD).

Analysis of the correlation between personality D and styles of coping with stress gave different results depending on whether the analysis was based on the raw or calculated scores (Table 2). If the results are calculated, we observed that men with type D personality significantly more often chose TOC and EOC. Such a relationship did not apply to women. However, the raw results did not show a preference to choose a particular style of coping with stress.

Analysis of the relationship between coping style in stressful situations and the various dimensions that form personality type D also showed no style preferences when we analysed the raw scores (Tables 3, 4).

When we analysed the calculated results we observe the relationship between the particular dimensions of type D personality and coping styles. People who received a high score on the SI scale ( $> 10$ ) were significantly more likely to use the EOC than patients with low SI score ( $< 10$ ). For other factors, there was no relationship between SI and style of coping (Table 3). In the case of NE we observed that men with high results in the NE scale obtained significantly higher scores on TOC, EOC, and D than men with low results on the NE scale. In women, correlation between high/low score on the NE scale and styles of coping related only to EOC.

**Table 1.** Average results of the questionnaire items in the Inventory for Stressful Situations Questionnaire (CISS)

	N		Average	SD	Median	Lower quartile	Upper quartile
TOC	100	Raw score	50.0	10.4	51.0	43.5	57.0
		Sten	4.4	4.5	1.0	9.0	3.0
EOC	100	Raw score	42.4	10.8	42.0	34.5	50.0
		Sten	4.7	5.0	1.0	9.0	3.0
AOC	100	Raw score	44.5	9.9	44.5	38.0	50.0
		Sten	5.5	5.5	1.0	10.0	4.0
D	100	Raw score	20.5	7.3	20.0	16.0	23.0
		Sten	5.8	6.0	1.0	10.0	5.0
SoD	100	Raw score	16.3	3.7	16.0	14.5	19.0
		Sten	5.3	5.0	1.0	10.0	4.5
<b>Men</b>							
TOC	70	Raw score	50.6	9.2	51.0	46.0	57.0
		Sten	3.9	4.0	1.0	8.0	2.0
EOC	70	Raw score	43.8	9.8	43.0	36.5	51.5
		Sten	3.8	3.0	1.0	9.0	2.0
AOC	70	Raw score	43.9	9.1	42.5	40.0	49.5
		Sten	5.3	5.0	2.0	10.0	4.0
D	70	Raw score	20.8	9.2	20.0	16.0	23.0
		Sten	5.5	5.0	2.0	10.0	4.0
SoD	70	Raw score	16.3	3.4	16.0	14.5	18.0
		Sten	5.3	5.5	1.0	10.0	4.0
<b>Women</b>							
TOC	30	Raw score	49.3	11.4	50.0	42.5	56.0
		Sten	4.8	5.0	1.0	9.0	3.0
EOC	30	Raw score	41.1	11.6	42.0	32.0	49.5
		Sten	5.5	6.0	1.0	9.0	4.0
AOC	30	Raw score	45.0	10.5	45.0	37.5	51.0
		Sten	5.8	6.0	1.0	10.0	5.0
D	30	Raw score	20.2	5.1	20.0	17.5	24.0
		Sten	6.1	6.0	1.0	10.0	5.0
SoD	30	Raw score	16.3	4.0	16.5	14.5	19.0
		Sten	5.3	5.0	1.0	9.0	5.0

TOC — Task-Oriented Coping; EOC — Emotion-Oriented Coping; AOC — Avoidance-Oriented Coping; D — Distraction; SoD — Social Diversion; SD — standard deviation

Spearman correlation index between styles of coping with stress and the dimensions that make up personality D (SI and NE) showed no statistically significant relationship (Table 5).

### DISCUSSION

The presence of type D personality significantly increases the risk of coronary heart disease, and in patients with known CAD the D personality is an independent risk factor for death. A six-year observation of a group of 319 patients with diagnosed CAD (inclusion criterion was MI, coronary angioplasty, or coronary artery bypass grafting (CABG) for up

to two months before the examination) showed that patients with type D personality are at much greater risk of MI (13% in patients with personality D vs. 2% without type D personality) and cardiac death (6% vs. 0.5%) [12].

A lot of studies indicate that type D personality is an independent risk factor for MI, myocardial revascularisation, or sudden cardiac death. Type D personality is associated with an increased risk of life-threatening arrhythmia after implantable cardioverter-defibrillator (ICD) and is a risk factor for death in this group, independent of ICD shocks and the severity of the disease [13]. Type D personality is related to

**Table 2.** Analysis of the level of particular styles of coping with stress, depending on type D personality and gender

Examined group		Type D personality		Non-D personality		t	p
		Average	SD	Average	SD		
TOC	Sten	4.8	2.1	4.0	1.8	2.268	0.025496
	Raw score	49.3	11.4	50.6	9.2	-0.624	> 0.05
EOC	Sten	5.6	1.7	3.9	2.1	4.399	0.000028
	Raw score	41.1	11.6	43.8	9.8	-1.278	> 0.05
AOC	Sten	5.8	2.2	5.3	2.1	1.241	> 0.05
	Raw score	45.0	10.5	43.9	9.1	0.587	> 0.05
D	Sten	6.1	1.8	5.5	1.9	1.779	> 0.05
	Raw score	20.2	5.1	20.8	9.2	-0.410	> 0.05
SoD	Sten	5.3	1.7	5.3	2.0	-0.017	> 0.05
	Raw score	16.3	4.0	16.3	3.4	-0.058	> 0.05
<b>Men</b>							
TOC	Sten	5.0	2.1	3.8	1.7	2.525	0.013913
	Raw score	50.2	10.5	50.7	7.2	-0.230	> 0.05
EOC	Sten	5.7	1.5	3.8	1.9	4.679	0.000014
	Raw score	40.9	10.9	43.7	9.3	-1.169	> 0.05
AOC	Sten	6.1	2.2	5.5	2.1	1.212	> 0.05
	Raw score	46.0	10.9	43.3	8.4	1.153	> 0.05
D	Sten	6.4	1.6	5.6	1.9	1.953	> 0.05
	Raw score	20.8	5.1	20.1	4.9	0.558	> 0.05
SoD	Sten	5.5	1.8	5.2	1.9	0.696	> 0.05
	Raw score	16.7	3.9	15.9	3.0	0.884	> 0.05
<b>Women</b>							
TOC	Sten	4.5	2.1	4.3	2.0	0.329	> 0.05
	Raw score	47.0	13.8	50.5	12.6	-0.727	> 0.05
EOC	Sten	5.3	2.3	4.0	2.6	1.406	> 0.05
	Raw score	41.6	13.9	44.0	11.0	-0.533	> 0.05
AOC	Sten	5.0	2.0	4.9	2.1	0.168	> 0.05
	Raw score	42.4	9.4	45.1	10.7	-0.711	> 0.05
D	Sten	5.4	2.1	5.3	2.1	0.233	> 0.05
	Raw score	18.7	5.0	22.3	14.5	-0.867	> 0.05
SoD	Sten	4.8	1.5	5.6	2.3	-1.079	> 0.05
	Raw score	15.1	4.1	17.1	4.0	-1.296	> 0.05

Abbreviations as in Table 1

a higher risk of death both nine months [14] and two years [15] after surgery CABG.

Type D personality also affects the assessment of the effectiveness of cardiac rehabilitation. In patients with type D personality a much higher severity of fatigue and feeling less capacity than patients not exhibiting D personality traits.

Research on the prevalence of type D personality in the Polish population showed that 9.3% of healthy individuals [16] and 34.8% in the general population [10] present type D personality, while the percentage of cardiac patients was 72.1% [10]. In a study conducted by our team, the proportion

of patients with type D personality was lower and amounted to 52%. This may be associated with the selection of the test group. The examined group included patients with stable CAD, whose symptoms of myocardial ischaemia had not worsened over a period of at least two months before the survey.

One purpose of this study was to determine whether any of the styles of coping with stress is preferred by patients with CAD.

Research assessing the relationship between coping and CV risks can be clustered into three groups: coping strategies that appear to be more adaptive for CV health, coping

**Table 3.** Analysis of the level of particular styles of coping with stress, depending on the dimension of Social Inhibition (SI) and gender

Examined group		SI > 10		SI < 10		t	p
		Average	SD	Average	SD		
TOC	Sten	4.55	2.05	4.13	1.86	0.977	> 0.05
	Raw score	49.29	10.52	51.42	10.01	-0.950	> 0.05
EOC	Sten	5.09	2.06	3.97	2.02	2.52318	0.013238
	Raw score	41.09	11.45	45.26	8.68	-1.806	> 0.05
AOC	Sten	5.40	2.20	5.87	2.09	-0.993	> 0.05
	Raw score	44.14	9.86	45.22	9.99	-0.505	> 0.05
D	Sten	5.87	1.89	5.71	1.81	0.396	> 0.05
	Raw score	20.56	8.18	20.35	4.92	0.133	> 0.05
SoD	Sten	5.22	1.79	5.58	2.04	-0.898	> 0.05
	Raw score	16.17	3.81	16.55	3.41	-0.469	> 0.05
<b>Men</b>							
TOC	Sten	4.54	2.09	4.20	1.73	0.643	> 0.05
	Raw score	49.86	9.84	51.80	6.65	-0.809	> 0.05
EOC	Sten	5.06	1.87	4.15	1.90	1.833	> 0.05
	Raw score	41.16	10.65	44.70	8.65	-1.320	> 0.05
AOC	Sten	5.70	2.20	6.10	2.22	-0.686	> 0.05
	Raw score	44.98	10.20	44.20	9.14	0.297	> 0.05
D	Sten	6.08	1.69	5.90	1.92	0.388	> 0.05
	Raw score	20.32	5.02	20.80	4.98	-0.362	> 0.05
SoD	Sten	5.26	1.82	5.70	1.89	-0.905	> 0.05
	Raw score	16.42	3.72	16.15	3.00	0.289	> 0.05
<b>Woman</b>							
TOC	Sten	4.58	2.01	4.00	2.14	0.742	> 0.05
	Raw score	47.79	12.29	50.73	14.70	-0.587	> 0.05
EOC	Sten	5.16	2.57	3.64	2.29	1.625	> 0.05
	Raw score	40.89	13.66	46.27	9.06	-1.162	> 0.05
AOC	Sten	4.63	2.06	5.45	1.86	-1.090	> 0.05
	Raw score	41.95	8.80	47.10	11.60	-1.372	> 0.05
D	Sten	5.32	2.31	5.36	1.63	-0.060	> 0.05
	Raw score	21.21	13.55	19.54	4.93	0.390	> 0.05
SoD	Sten	5.10	1.76	5.36	2.38	-0.340	> 0.05
	Raw score	15.53	4.05	17.27	4.12	-1.131	> 0.05

Abbreviations as in Table 1

strategies that appear to be maladaptive for cardio health, and coping strategies for which the relationship with CV health is unclear.

Styles of coping with stress related to high levels of avoidance, denial, or inhibition of emotions (maladaptive for cardio health) are associated with increased reactivity and long-term neuroendocrine stress response [17]. It was found that avoidant coping was associated with heightened rate pressure product [18]. Avoidant coping, in conjunction with other demographic and lifestyle variables, was associated

with higher diastolic blood pressure, despite family history. Use of self-blame has been shown to be associated with CV response and might serve as a moderator between conflict and health outcomes [19].

However, an active style of coping with stress and focus on the task is associated with a lower neuroendocrine reactivity [17]. Active coping has been shown to act as a buffer against socio-economic status and cortisol. Seeking social support and coping by problem engagement have been associated with lower daily cortisol output [20]. At the same time, cop-

**Table 4.** Analysis of the level of certain styles of coping with stress, depending on the dimension of Negative Emotionality (NE) and gender.

		NE > 10		NE < 10		t	p
		Average	SD	Average	SD		
TOC	Sten	4.71	2.02	3.92	1.88	1.951	> 0.05
	Raw score	50.38	10.83	49.22	9.60	0.541	> 0.05
EOC	Sten	5.44	1.72	3.54	2.18	4.831	0.000005
	Raw score	41.62	11.25	43.67	10.00	-0.918	> 0.05
AOC	Sten	5.89	2.16	4.97	2.07	2.075	0.040631
	Raw score	44.87	10.71	43.81	8.32	0.518	> 0.05
D	Sten	6.14	1.78	5.27	1.88	2.313	0.022793
	Raw score	20.11	5.13	21.16	10.03	-0.693	> 0.05
SoD	Sten	5.38	1.85	5.24	1.92	0.354	> 0.05
	Raw score	16.25	3.86	16.35	3.39	-0.127	> 0.05
<b>Men</b>							
TOC	Sten	4.82	2.03	3.81	1.79	-2.103	0.039171
	Raw score	50.98	10.12	49.46	6.94	-0.675	> 0.05
EOC	Sten	5.50	1.47	3.61	2.00	-4.520	0.000025
	Raw score	41.07	10.76	44.04	9.03	1.182	> 0.05
AOC	Sten	6.20	2.25	5.15	1.97	-1.975	> 0.05
	Raw score	45.52	11.30	43.46	6.75	-0.844	> 0.05
D	Sten	6.41	1.73	5.38	1.60	-2.45967	0.016454
	Raw score	20.64	5.13	20.15	4.77	-0.390	> 0.05
SoD	Sten	5.57	1.81	5.08	1.87	-1.083	> 0.05
	Raw score	16.50	3.86	16.08	2.88	-0.484	> 0.05
<b>Woman</b>							
TOC	Sten	4.47	2.04	4.18	2.14	-0.371	> 0.05
	Raw score	49.00	12.53	48.64	14.53	-0.072	> 0.05
EOC	Sten	5.32	2.24	3.36	2.66	-2.151	0.040242
	Raw score	42.89	12.53	42.82	12.46	-0.016	> 0.05
AOC	Sten	5.16	1.80	4.54	2.34	-0.804	> 0.05
	Raw score	43.37	9.33	44.64	11.59	0.328	> 0.05
D	Sten	5.52	1.81	5.00	2.49	-0.669	> 0.05
	Raw score	18.89	5.03	23.54	17.21	1.111	> 0.05
SoD	Sten	4.95	1.93	5.64	2.06	0.920	> 0.05
	Raw score	15.68	3.90	17.00	4.47	0.844	> 0.05

Abbreviations as in Table 1

ing with the stress associated with positive emotions causes a faster return to resting level of activation of the CV system and facilitates the flexible use of a wider range of strategies to cope with a stressful situation [21]. The study also found that seeking social support in a stressful situation (as an element of style that focuses on emotions) reduces the activity of neuroendocrine, which is associated with a decrease in blood pressure and heart rate, lower levels of catecholamines, and the use of coping strategies that have a positive impact on the immune system. It can be assumed that if active forms

of coping can reduce cortisol output, it is possible that this strategy may also reduce the likelihood of CAD.

Research carried out by our team did not show that patients with CAD explicitly preferred a specific style of coping with stress. This is consistent with studies of Kubica et al. [22], who also did not observe one dominant style of coping with stress in patients with acute MI. For comparison, the studies of other authors indicate that patients with diseases of the CV system preferred a style focused on the task [23], or a style focused on emotions [24]. Studies show that patients after MI, who



**Table 5.** Correlation between type D personality and styles of coping with stress in patients with coronary artery disease

	Type D	D_SI	D_NE	TOC	EOC	AOC	D	SoD
Type D	r	0.70	0.80	-0.06	-0.11	0.05	0.04	0.02
	p	< 0.05	< 0.05	SIN	SIN	SIN	SIN	SIN
D_SI	r	0.70	0.38	-0.12	-0.19	-0.08	-0.05	-0.04
	p	< 0.05	< 0.05	SIN	SIN	SIN	SIN	SIN
D_NE	r	0.80	0.38	0.08	-0.07	0.06	0.03	0.01
	p	< 0.05	< 0.05	SIN	SIN	SIN	SIN	SIN
TOC	r	-0.06	-0.12	0.08	0.51	0.40	0.24	0.50
	p	SIN	SIN	SIN	< 0.05	< 0.05	< 0.05	< 0.05
EOC	r	-0.11	-0.19	-0.07	0.51	0.37	0.34	0.21
	p	SIN	SIN	SIN	< 0.05	< 0.05	< 0.05	< 0.05
AOC	r	0.05	-0.08	0.06	0.40	0.37	0.79	0.72
	p	SIN	SIN	SIN	< 0.05	< 0.05	< 0.05	< 0.05
D	r	0.04	-0.05	0.03	0.24	0.34	0.79	0.42
	p	SIN	SIN	SIN	< 0.05	< 0.05	< 0.05	< 0.05
SoD	r	0.02	-0.04	0.01	0.50	0.21	0.72	0.42
	p	SIN	SIN	SIN	< 0.05	< 0.05	< 0.05	< 0.05

Type D — type D personality; D\_SI — Social Inhibition; D\_NE — Negative Emotionality; TOC — Task-Oriented Coping; EOC — Emotion-Oriented Coping; AOC — Avoidance-Oriented Coping; D — Distraction; SoD — Social Diversion; r — Spearman's correlation coefficient; SIN — statistically insignificant

apply a style focused on the task, adapt better to the situation of the disease than patients using emotion-focused style [25].

### CONCLUSIONS

Type D personality is present in 52% of patients with CAD. Distribution of type D and non-type D did not differ in women and men. There was no evidence that patients with CAD preferred particular styles of coping with stress; however, men seem to be more likely to use TOC and women seem to be more likely to use EOC and AOC. The results regarding the relationship between coping style preference and type D personality do not give conclusive results, but it seems that men with type D personality often use the TOC and EOC than men without type D personality. There was no evidence that women with type D personality prefer a specific style of coping with stress.

In men the relationship between type D personality and TOC and EOC was associated particularly with high scores on the NE scale, while in women a high score on the scale NE was associated with greater use of EOC but not TOC.

The obtained results allow us to conclude that patients responding to stressful situations with an emotional style may have type D personality traits that significantly worsens the prognosis. Therefore, these patients should especially receive psychological care, in order to strengthen their health competences, which promotes choices effective ways of coping with the disease.

**Conflict of interest:** none declared

### References

- Ikeda A, Iso H, Kawachi I et al. Type A behaviour and risk of coronary heart disease: the JPHC Study. *Int. J Epidemiol*, 2008; 37: 1395–1405. doi: 10.1093/ije/dyn124.
- Kobasa SC. Personality and resistance to illness. *Am. J Comm Psychol*, 1979; 7: 413–423.
- Watson D, Pennebaker JW. Health complaints, stress, and distress: exploring the central role of negative affectivity. *Psychol. Rev*, 1989; 96: 234–254. doi.org/10.1037/0033-295X.96.2.234.
- Asendorpf JB. Social inhibition: a general-developmental perspective. In: Traue C, Pennebaker JW eds. *Emotion, inhibition, anti health*. Hogrefe & Huber, Seattle, NVA 1993: 80–99.
- Gest SD. Behavioral inhibition: stability and associations with adaptation from childhood to early adulthood. *J Pers Soc Psychol*, 1997; 72: 467–475.
- Łosiak W, Nikiel J. Posttraumatic growth in patients after myocardial infarction: the role of cognitive coping and experience of life threat. *Health Psychol Report*, 2014; 2: 1–7. doi: 10.5114/hpr.2014.45894.
- Kubzansky LD, Kawachi I. Going to the heart of the matter: do negative emotions cause coronary heart disease? *J Psychosom Res*, 2000; 48: 323–337. doi: 10.1016/S0022-3999(99)00091-4.
- Denollet J, Martens EJ, Nyklicek I et al. Clinical events in coronary patients who report low distress: adverse effect of repressive coping. *Health Psychol*, 2008; 27: 302–308. doi: 10.1037/0278-6133.27.3.302.
- Denollet J, Van Heck GL. Psychological risk factors in heart disease: what Type D personality is (not) about. *J Psychosom Res*, 2001; 51: 465–468.
- Ogińska-Bulik N, Juczyński Z. Type D personality in Poland: Validity and application of the Polish DS14. *Pol Psychol Bull*, 2009; 40: 130–136. doi: 10.2478/s10059-009-0029-8.
- Strelau J, Jaworowska A, Wrześniewski K, Szczepaniak P. CISS — Kwestionariusz Radzenia Sobie w Sytuacjach Stresowych. Podręcznik. Pracownia Testów Psychologicznych, Warszawa 2007.



12. Denollet J, Vaes J, Brutsaert DL. 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*, 2000; 102: 630–635. doi: 10.1161/01.CIR.102.6.630.
13. van den Broek KC, Nyklicek I, van der Voort PH et al. Risk of ventricular arrhythmia after implantable defibrillator treatment in anxious type D patients. *J Am Coll Cardiol*, 2009; 54: 531–537. doi:10.1016/j.jacc.2009.04.043.
14. Pedersen SS, Lemos PA, van Vooren PR et al Type D personality predicts death or myocardial infarction after bare metal stent or sirolimus-eluting stent implantation: a Rapamycin-Eluting Stent Evaluated at Rotterdam Cardiology Hospital (RESEARCH) registry substudy. *J Am Coll. Cardiol*, 2004; 44: 997–1001. doi:10.1016/j.jacc.2004.05.064.
15. Denollet J, Pedersen SS, Ong AT et al. Social inhibition modulates the effect of negative emotions on cardiac prognosis following percutaneous coronary intervention in the drug-eluting stent era. *Eur Heart J*, 2006; 27: 171–177. doi:10.1093/eurheartj/ehi616.
16. Ogińska-Bulik N. Osobowość typu D a występowanie chorób somatycznych. *Sztuka Leczenia*, 2004; 10: 9–16.
17. Bonanno GA, Noll JG, Putnam FW et al. Predicting the willingness to disclose childhood sexual abuse from measures of repressive coping and dissociative tendencies. *Child Maltreat*, 2003; 8: 302–318. doi: 10.1177/1077559503257066.
18. Schwerdtfeger A, Schmukle SC, Egloff B. Interactive effects of avoidant coping and parental hypertension on rate pressure product reactivity in women. *Ann Behav Med*, 2005; 29: 106–115. doi: 10.1207/s15324796abm2902\_5.
19. El-Sheikh M, Harger J. Appraisals of marital conflict and children's adjustment, health, and physiological reactivity. *Dev Psychol*, 2001; 37: 875–885. doi: 10.1037//0012-1649.37.6.875.
20. O'Donnell K, Badrick E, Kumari M, Steptoe A. Psychological coping styles and cortisol over the day in healthy older adults. *Psychoneuroendocrinol*, 2008; 33: 601–611. doi: 10.1016/j.psyneuen.2008.01.015.
21. Fredrickson BL, Mancuso RA, Branigan C, Tugade MM. The undoing effect of positive emotions. *Motiv Emot*, 2000; 24: 237–258.
22. Kubica A, Magielski P, Jurek A et al. Analiza stylów radzenia sobie ze stresem u chorych z ostrym zawałem serca. *Folia Cardiologica Excerpta*, 2013; 4: 18–22.
23. Opuchlik K, Wrzesinska M, Kocur J. The assessment of the level of coping style and health locus of control in patients with coronary heart disease and hypertension. *Psychiatr Pol*, 2009; 43: 235–245.
24. van der Ree R, Schiffer AA, Rodijk E et al. Type D, coping and self-care in chronic heart failure patients. *J Preventive Cardiol*, 2013; 3: 404–411.
25. Wysocka-Pleczyk M, Słowik P. Poczucie sensu życia i style radzenia sobie u pacjentów z chorobą niedokrwinną serca. *Probl Hig Epidemiol*, 2012; 93: 771–778.

---

W dniu 18 czerwca 2015 roku nominację profesorską  
z rąk Prezydenta RP Bronisława Komorowskiego otrzymał:

**Prof. dr hab. n. med. Artur Mamcarz**  
(Warszawski Uniwersytet Medyczny)

Panu Profesorowi,  
naszemu wielokrotnemu autorowi i recenzentowi,  
Przewodniczącemu-Elektowi Sekcji Farmakoterapii Sercowo-Naczyniowej PTK  
serdeczne gratulacje i okolicznościowe życzenia składają:  
Redaktor Naczelny oraz Rada Redakcyjna i Naukowa „Kardiologii Polskiej”

# Ocena poziomu stylów radzenia sobie ze stresem i osobowości typu D u pacjentów ze stabilną chorobą wieńcową

Joanna M. Moryś<sup>1, 2</sup>, Jerzy Bellwon<sup>2</sup>, Maria Jeżewska<sup>3</sup>, Katarzyna Adamczyk<sup>1</sup>, Marcin Gruchała<sup>2</sup>

<sup>1</sup>Zakład Psychologii Klinicznej, Gdański Uniwersytet Medyczny, Gdańsk

<sup>2</sup>I Katedra i Klinika Kardiologii, Gdański Uniwersytet Medyczny, Gdańsk

<sup>3</sup>Klinika Chorób Zawodowych i Wewnętrznych, Gdański Uniwersytet Medyczny, Gdańsk

## Streszczenie

**Wstęp:** Związek między depresją a chorobami serca jest bardzo złożony. W grupie pacjentów z depresją często obserwuje się czynniki ryzyka choroby wieńcowej (CAD) związane ze stylem życia: brak aktywności fizycznej, palenie tytoniu, nadciśnienie tętnicze i cukrzycę. Od wielu lat przedmiotem zainteresowania naukowców jest związek między osobowością a skłonnością do zaburzeń somatycznych. Wynikiem tych badań było stworzenie koncepcji osobowości typu D, na którą składają się dwa wymiary: negatywna emocjonalność i zahamowanie społeczne. Cechy te mają swoje odzwierciedlenie w wielu aspektach życia, w tym w reagowaniu w sytuacjach stresowych.

**Cel:** Głównym celem badania była ocena częstości występowania osobowości typu D i dominujących stylów radzenia sobie ze stresem u pacjentów z CAD, a także określenie korelacji między obecnością osobowości typu D i stylem radzenia sobie ze stresem w badanej grupie.

**Metody:** Badaną próbę stanowiło 100 pacjentów (70 mężczyzn i 30 kobiet) z CAD. Pacjenci zostali zbadani za pomocą skali DS14 i Kwestionariusza Radzenia Sobie w Sytuacjach Stresowych (CISS).

**Wyniki:** Osobowość typu D stwierdzono u 54% mężczyzn i 47% kobiet. Rozkład osobowości typu D nie różni się dla kobiet i mężczyzn. Analiza korelacji między stylem radzenia sobie w trudnych sytuacjach a osobowością typu D nie wykazała, aby pacjenci z osobowością typu D znacznie częściej wybrali określony styl radzenia sobie.

**Wnioski:** Pacjenci z osobowością typu D nie wykazują preferencji w zakresie określonego stylu radzenia sobie ze stresem.

**Słowa kluczowe:** style radzenia sobie, osobowość typu D, choroba wieńcowa

Kardiologia 2015; 73, 7: 557–566

## Adres do korespondencji:

dr Joanna M. Moryś, Zakład Psychologii Klinicznej, Gdański Uniwersytet Medyczny, ul. Tuwima 15, 80-210 Gdańsk, tel: +48 58 349 17 92, faks: +48 58 349 17 92, e-mail: jmmorys@gmail.com

Praca wpłynęła: 15.07.2014 r.

Zaakceptowana do druku: 29.01.2015 r.

Data publikacji AoP: 23.02.2015 r.