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Non-adaptive reaction to disease – coping, demographic variables and trauma symptoms in cancer patients

Agnieszka Laskowska

Faculty of Psychology, University of Warsaw

Summary

Aim. The aim of the presented study was to determine the relations of styles and strategies of coping with stress and demographic variables with the intensity of PTSD symptoms in persons diagnosed with cancer. The study tried to determine which style of coping with stress is the best predictor of posttraumatic symptoms in the tested group.

Methods. This study was conducted on the group of 150 patients (55 females and 95 males) that were treated for cancer. Polish version of the Mini-Mental Adjustment to Cancer Scale – mini-MAC – was used to study styles of coping with stress. PTSD Inventory (PTSD-C) allowing for the quantitative estimation of the symptoms was used to measure the intensity of PTSD symptoms. Additionally, a demographic questionnaire containing the questions about the age, sex, education, and the time since the diagnosis was employed for the benefits of this study.

Results. The results of the study indicate non-adaptive function of destructive style. In the situation of being subjected to a traumatic event this style is propitious to the development of the symptoms of posttraumatic stress disorder. The individual strategies of coping, sex and age are correlated with higher intensity of posttraumatic symptoms in sick persons.

Conclusions. Destructive style, of coping with stress is less beneficial for the adaptation to a cancerous disease. It may significantly influence the development of pathological symptoms characteristic to PTSD.

Key words: PTSD, coping styles and strategies, cancer

Introduction

The discovery of a life-threatening disease is a potentially traumatizing factor for a person. Reaction to a strong trauma may lead to development of PTSD symptoms. Those symptoms include persistent trauma experiencing, repetitive, unsettling dreams,

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returning memories, reliving an intense stress in case of an encounter with a stimulus similar to a trauma. Moreover, avoidance of trauma related situations, emotional numbing, increased physiological arousal are also characteristic [1].

In spite of the difficulties in clear identification of PTSD symptoms in cancerous diseases, being the result of psychological reaction of a person subjected to a stressor, and not from the side effects of the treatment, or the trauma itself, it has been attempted to diagnose this condition [2, 3]. Therefore, the attempt to identify the factors of risk of development of stress disorders in somatic diseases is well justified [4–6].

The increased susceptibility to the development of PTSD symptoms is observed in persons with depressive tendencies. Previous difficult situations, especially a subsequent experience of PTSD symptoms determine the personal susceptibility to a strong trauma experience [7–9]. Styles and strategies for coping with stress are among the factors responsible for the creation of posttraumatic diseases. According to Endler and Parker [9] a style of coping with stress is a stable in time way of behaving in stressful situations, characteristic to a person. Besides the styles themselves there are strategies of coping with stress. In the literature the difference between styles and strategies of coping is heavily accentuated. The latter is considered to be situational conditioning [10, 11]. The styles and strategies of coping that are concentrated on emotions are considered to be negative [12].

The severity of the disease, type of treatment, time from the diagnosis and the demographic variables, such as sex, age or education are significant for the development of the disorder. However, the information is not unambiguous [4, 7, 8, 13].

Aim

The aim of the study was to determine the relations between styles and strategies of coping with stress with the increase of posttraumatic stress disorders in the population of Polish adult patients with cancerous disease. The type of cancerous disease was not differentiated as it was considered to be a factor of universal stress inducing character. Because of the fact that the results of research in the literature were not clear, the researchers tried to explain the differences between sexes concerning the scope of PTSD symptoms, styles and strategies of coping with the disease, as well as the connection between demographic variables (age, education, time from the diagnosis) and PTSD symptoms.

On the basis of the above-mentioned data the following hypotheses has been made:

1. Styles and strategies of coping with stress concentrated on experiencing negative emotions are correlated with high intensity of posttraumatic stress disorder.
2. Styles of coping with stress, especially destructive style, can be considered as a predictor of the development of PTSD symptoms in the group of diagnosed persons.
3. There are differences concerning the intensity of posttraumatic stress disorder and the styles and strategies of coping with stress between men and women diagnosed with malignant tumour.
4. There is a relation between the intensity of posttraumatic stress disorder and age, education and the time from the diagnosis.

Method

The study was individual and anonymous. The studied persons were recruited from the group of patients of two oncology wards of Military Institute of Medicine

Participants

The study was conducted on a group of 150 people, 55 females and 95 males. The mean age in the group was M = 49.5, standard deviation SD = 13.95 (in the group of women M = 48.3, SD = 10.68, and in the group of men M = 50.2, SD = 15.50). In the group of subjects prevailed secondary and primary education, 55 and 38 people accordingly (36.67% and 25.33%). 34 people had university degree (22.67%). The smallest number of people in the group had postsecondary level of education and vocational training, 15 and 8 people accordingly (10% and 5.33%). The time after the diagnosis was considered to be an important factor in the research. The mean time in months after diagnosis was M = 4.01, standard deviation SD = 1.29 (for women the mean time was M = 3.3, SD = 1.33, for men M = 4.35, SD = 1.14).

Tools

The Scale of Mental Adaptation to Cancerous Disease – Mini-MAC (Mental Adjustment to Cancer Scale) of Watson et al. [14] was used to measure styles and strategies of coping with stress. Mini-MAC enumerates two styles (constructive and destructive – passive) and four strategies to cope with stress (the fighting spirit, positive reevaluation, helplessness-hopelessness, anxiety preoccupation) [14].

The accuracy of the Mini-MAC tool is good (the Cronbach's alpha coefficient is between $\alpha = 0.70$ and $\alpha = 0.92$) [14].

The factorial version of the PTSD Inventory (PTSD-C1) by Strealau, Zawadzki, Oniszczenka and Sobolewski was used to measure the symptoms of PTSD. It allows for quantitative diagnosis of the main dimensions of PTSD: Intrusion/Hyperarousal (I/H) and Avoidance/Numbing (A/N) as well as the general diagnosis of the disorder [15].

PTSD – C1 is characterized by a high accuracy of the measurement. The Cronbach's alpha coefficient for the General Scale and for its two subscales is between $\alpha = 0.90$ and $\alpha = 0.97$ [15].

In a short demographic questionnaire the study subjects answered questions concerning their age, sex, education, domicile, and time from the diagnosis.

Results

Table 1 presents correlation coefficients between the increase in posttraumatic stress symptoms and the increase of styles and strategies of coping with stress.

Table 1. **Pearson's r correlation between styles and strategies of coping with stress and the increase in PTSD symptoms (N = 150)**

	I/H	A/N	PTSD General scale
Destructive style	0.67**	0.62**	0.70**
Anxiety preoccupation	0.64**	0.43**	0.59**
Helplessness-Hopelessness	0.58**	0.70**	0.69**
Constructive style	-0.08	-0.30**	-0.20*
Positive reevaluation	0.03	-0.19*	-0.08
Fighting spirit	-0.18*	-0.35**	-0.29**

I/H – Intrusion/Hyperarousal; A/N – Avoidance/Numbing; * $p < 0.05$; ** $p < 0.01$

The increase of PTSD symptoms is correlated with nearly all dimensions of coping with stress. Those correlations are statistically significant. Destructive style and its strategies of helplessness-hopelessness and anxiety preoccupation are quite highly correlated with the intensity of PTSD symptoms. It has been proven that the constructive style and the strategy of fighting spirit has a low negative correlation with the general intensity of PTSD symptoms. There was no correlation for the positive reevaluation with the general PTSD scale.

Table 2 shows regression coefficients for the model that used the severity of the PTSD symptoms as a criterion; the styles of coping with the disease were used as predictors.

Table 2. **Regression model for PTSD symptoms – All study participants (N = 150)**

Model	R	R^2	F	df	P	Beta
	0.70	0.50	72.39	2/147	0.000	
Destructive style						0.69***
Constructive style						-0.05

R – multiple correlation; R^2 – quantity of explained variance; F – value of test ; df – degrees of freedom; p – significance of F test; Beta – Beta weights of linear regression; ** $p < 0.01$; *** $p < 0.001$

The analyzed model was statistically important. Destructive style was a statistically important predictor of the increase in PTSD symptoms. The destructive style of coping with stress explains 50% of the variance in general symptoms of PTSD. The higher the level of the destructive style, the higher the level of PTSD symptoms.

Table 3 shows a comparison between the mean value of PTSD symptoms indicators and the styles and strategies of coping with stress in the group of women and men. This comparison was supplemented by Student's t-test for independent trials. Statistically significant differences were found.

Table 3. **Mean values of PTSD symptoms severity and intensity of styles and strategies of coping with stress in the tested group (N = 150)**

	M (N = 96)		W (N = 54)			
	M	SD	M	SD	T	P
Intrusion/Hyperarousal	16.64	9.92	23.63	8.70	– 4.33	0.000***
Avoidance/Numbing	14.36	8.81	16.20	9.34	-1.20	0.232
PTSD General scale	31.00	17.41	39.83	16.27	-3.05	0.003**
Destructive style	29.61	8.73	33.57	8.08	-2.74	0.007**
Anxiety preoccupation	16.53	4.86	19.43	4.56	-3.58	0.000***
Helplessness-Hopelessness	13.08	4.51	14.15	4.70	-1.37	0.174
Constructive style	45.16	6.53	42.00	5.87	2.94	0.004**
Positive reevaluation	21.94	3.59	20.44	3.63	2.44	0.016*
Fighting spirit	23.22	3.68	21.56	3.22	2.78	0.006**

M – men; W – women; T – Student's t-test value; df – degrees of freedom; p – asymptotic statistical significance ; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

There were important statistical differences between groups concerning the severity of Intrusion/Hyperarousal and the general score of PTSD. The mean values of both of those indicators are higher in the group of women than in the group of men.

There were also important statistical differences between groups concerning destructive style and anxiety preoccupation as well as constructive style with the fighting spirit and positive reevaluation. The mean values of anxiety preoccupation and destructive style are higher in the group of women. However, the values of fighting spirit, positive reevaluation and constructive style are higher in the group of men.

Table 4 presents correlation coefficients between the age of the studied persons, the time from the diagnosis and the indicators of increase in posttraumatic stress symptoms severity.

Table 4. **Pearson's r correlation between the age of the patients, time from the diagnosis and PTSD**

	Age	Time from the diagnosis
Intrusion/Hyperarousal	0.06	-0.13
Avoidance/Numbing	0.17*	-0.07
PTSD General Scale	0.13	-0.12

* $p < 0.05$

There was a statistically significant correlation between the age of the studied group and the increase in Avoidance/Numbing.

Table 5 presents the mean values of results in the scales of PTSD symptoms intensity.

There were no statistically significant differences between groups concerning the occurrence of PTSD.

Table 5. **Mean values of PTSD symptoms severity in relation to the level of education in the studied group (N = 150)**

		P/V (N = 49)	S (N = 55)	U (N = 46)	F	p
Intrusion/Hyperarousal	M	19.61	19.98	17.67	0.73	0.482
	SD	10.01	9.23	11.04		
Avoidance/Numbing	M	14.22	15.04	15.87	0.39	0.677
	SD	9.33	8.47	9.42		
PTSD General scale	M	33.84	35.02	33.54	0.10	0.903
	SD	17.44	16.20	19.25		

P/V – primary school/vocational training; S – secondary education; U – University degree; F – test statistics; p – asymptotic statistical significance; * $p < 0.05$

Result discussion

The research showed that there is a correlation between PTSD and the styles and strategies of coping with stress. There was a strong positive correlation in the case of the destructive style of coping with stress, as well as average and low positive correlations (statistically significant) that were observed in the case of its two components: the strategy based on anxiety preoccupation and helplessness-hopelessness with PTSD symptoms. It is congruent with the previous supposition that destructive style characterized by emotionally experiencing the situation of being ill may be related with PTSD. As it was shown in the previous research, emotional coping will accompany symptoms of posttraumatic stress disorders and increase their severity [16, 17]. The fact of being ill provokes death related thinking. In order to detach from unwanted thoughts, a sick person activates defence mechanisms. The attempts to detach from unwanted thoughts increases their availability in persons who tend to react emotionally, which may induce fear and anxiety [18]. It explains a paradoxical effect described by Wagner et al. [19]. In cancerous disease, where the risk of trauma related to the awareness of the inevitability of death is particularly high, thoughts of death and dying may still be active, which translates to worsening of emotional and mental functionality. It is different in the case of constructive style which has a weak negative correlation with PTSD. The preferences for this style are correlated with low intensity of the general level of PTSD. The constructive style, characterized by strategies based on fighting spirit and positive reevaluation of trauma inducing situation is connected with resilience construct that has been described in the related works. The aforementioned resilience is viewed as a predictor of positive changes defined as posttraumatic growth protecting from strong negative experiencing of the disease [20, 21].

Regression analysis showed, that styles of coping with stress may be treated as the predictors of PTSD. Destructive style explains 50% of the variance in the symptoms of

this disorder. It is probable that experiencing strong negative emotions in the situation of being ill, surrendering to the disease, helplessness against cancer, experiencing anxiety and fear are correlated with more intense feeling of distress. Styles and strategies of coping with stress based on emotions favour the appearance of PTSD symptoms.

The research showed the existence of differences between sexes concerning the level of PTSD intensity in people diagnosed with cancer. The intensity of Intrusion/Hyperarousal as well as the general intensity of PTSD is higher in females than in males. As it is shown in the literature, women are characterized by a higher intensity of PTSD than the opposite sex [22–24]. It is commonly thought that they are more expressive and emotional [25]. Matsushita, Matsushima and Maruyama [26] show that women in stressful situations are more likely to employ their emotional resources than the cognitive ones. The results seem to corroborate these information. The mean values of anxiety preoccupation and destructive style were higher in the group of women, while the mean values of fighting spirit, positive reevaluation and constructive style were higher in the group of men.

The other demographic values are correlated with only one dimension of PTSD. The increase in age is correlated with the increase of the symptoms of posttraumatic stress disorder in the dimension of Avoidance/Numbing. It is partially congruent with the research cited earlier showing that there is a higher intensity of PTSD in older persons [27]. The age may play a very important role in the negative outlook on the situation. Older people who fight cancerous diseases may experience more pain. They also may feel more constrained by the problems related to the limited possibilities of independent functioning or the lower level of cognitive and motor skills. This may cause the reactions of emotional numbing and avoidance, The therapy may also increase the natural processes of ageing, having even a greater negative effect on the quality of life of older persons [28].

There were no significant differences concerning the severity of post traumatic stress symptoms in the studied group where the education level is considered to be a factor. One of the assumptions of the research was that people with lower education level may experience a higher intensity of trauma symptoms. Finally, it was not confirmed [29].

This paper has some limitations concerning the control of variables such as accompanying affective disorders. The diagnosis and treatment of, for example, depression related disorders might probably significantly influence the results of the questionnaire studies. Future research should address this issue.

Conclusion

The results of the study are important for the situation of people suffering from cancerous diseases. Destructive style of coping with stress is less beneficial for the adaptation to a cancerous disease. It may significantly influence the development of pathological symptoms characteristic of PTSD. The data concerning the styles and strategies of coping with stress and individual attributes such as age or sex may be important in planning adequate psychological interventions towards persons in crisis

such as the disease and the process of treatment. Efficient psychological aid geared to the personal dispositions of the patient may positively influence their quality of life and prevent the occurrence of individual psychopathology in the later period.

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Address: Agnieszka Laskowska
Faculty of Psychology
University of Warsaw
04-141 Warszawa, Stawki Street 5/7