Psychology in Russia: State of the Art
Volume 9, Issue 2, 2016

Russian Psychological Society
Lomonosov Moscow State University

Strategies and resources for coping with fear of disease progression in women with reproductive-system cancer

Natalya A. Sirota[a], Denis V. Moskovchenko[a*], Vladimir M. Yaltonsky[a], Victor V. Guldan[b], Aleksandra V. Yaltonskaya[c]

[a] *Clinical Psychology Chair, Moscow State University of Medicine and Dentistry named after A. I. Evdokimov, Moscow, Russia*

[b] *Laboratory of Forensic Psychology, Moscow Regional Center for Social and Forensic Psychiatry, Moscow, Russia*

[c] *Department for Preventive Narcology, Serbsky Federal Medical Research Center of Psychiatry and Narcology, Moscow, Russia*

* Corresponding author. E-mail: xedin-90@mail.ru

Fear of disease progression is one of the most common sources of psychological distress in patients suffering from chronic diseases. Fear of disease progression is a situation-specific and fully discernible (reportable) emotion based on personal experience of a life-threatening disease. This article presents the results of a study of cancer patients' coping behavior according to the levels of fear of disease progression experienced. The presence of pronounced fear of disease progression reflects a negative cognitive-affective response to one's expectations for one's own future; this response is related to a decrease in adaptive capacity. To determine the particular characteristics of coping strategies and coping resources in women with reproductive-system cancers according to the level of fear of disease progression. A total of 177 women with reproductive-system cancers were examined, among them 59 with breast cancer and 118 with gynecological cancers. Women with reproductive-system cancers have varying sets of coping strategies and coping resources according to their level of fear of disease progression. For each of the differentiated groups, specific characteristics of the strategies of coping with difficult life situations are described, along with cognitive self-regulation strategies specific to the illness and to coping resources. The women exhibiting moderate fear of disease progression significantly more often adhered to problem-oriented strategies of coping with difficult life situations and illness and had an internal locus of control regarding treatment. Patients with a low level of fear of disease progression tended to use strategies of positive reinterpretation of difficult life situations and illness; an external locus of control regarding treatment prevailed in this group. Patients found to have a dysfunctional level of fear of disease progression displayed significantly higher rates of using cognitive-regulation strategies focused on negative aspects of illness, as well as strategies for avoiding difficult life situations. Fear of disease progression is a psychological problem in women with

ISSN 2074-6857 (Print) / ISSN 2307-2202 (Online)

doi: 10.11621/pir.2016.0202
http://psychologyinrussia.com

reproductive-system cancers. Higher levels of fear of disease progression are associated with a decrease in the psychosocial adaptation of women suffering from reproductive-system cancers.

Keywords: female reproductive-system cancers, fear of disease progression, cognitive strategies for self-regulation in illness, locus of control in illness, self-efficacy in illness and treatment

Introduction

Fear of disease progression is among the most common psychological issues in patients with chronic illness. Research among patients with rheumatoid arthritis, cancer, and diabetes has shown that fear of disease progression is one of the key causes of psychological distress (Dankert, Duran, & Engst-Hastreiter, 2003). The similarity of emotional experience concerning the inferred biological, psychological, and social consequences of the disease has allowed fear of disease progression to be differentiated as a general concept reflecting future-oriented apprehensiveness in the sick (Herschbach, Berg, Book, & Dinkel, 2011). Researchers interpret fear of disease progression as a cognitive-affective response based on personal experience of a life-threatening illness. Previous research has differentiated two levels of fear of disease progression: the mobilizing and the dysfunctional levels. The mobilizing level is defined as a reasonable response to a real threat over the period of disease diagnostics and treatment and suggests an increase in treatment adherence, resource activation, and use of more effective coping strategies. The dysfunctional subtype of fear of disease progression is, in turn, associated with psychological distress, a decrease in quality of life, and an intense cognitive-affective reaction to disease (Herschbach et al., 2010). The prevalence of the dysfunctional subtype in women with reproductive-system cancers, according to some authors, reaches up to 47%, a proportion that makes its assessment especially relevant for this group of patients (Myers et al., 2013).

Malignant tumors of the female reproductive system are an important medical, social, economic, clinical, and psychological issue: they are associated with high mortality rates because of cancer progression (Chissov, Starinskiy, & Petrova, 2012). Psychological problems associated with the process of treatment are of great concern too. Among the modern methods of female reproductive-system cancer treatment, surgery and other invasive approaches are still prevalent, although they cannot guarantee total recovery, have side effects, and can lead to functional impairment, which, in turn, increases apprehension about the disease, the treatment procedures, and the chances for disease progression (Marilova, 1984). The prevalence of psychological distress in women diagnosed with breast cancer is associated also with the presence of a visible blemish, the threat to life, the crippling character of the treatment, and the fear of losing one's femininity (Sharova, 2001). In addition, studies of emotional distress in patients undergoing chemotherapy have indicated increased levels of anxiety and depression connected with medication use (Sabbioni, Bovbjerg, Jacobsen, Manne, & Redd, 1992). A reduction in adaptive capacity in patients undergoing chemotherapy is associated with the high toxicity of this type of treatment.

There is some controversy regarding studies of coping behavior. Researchers point out that such coping styles as helplessness and hopelessness are associated

with the more severe courses of breast cancer (Morris, Pettingale, & Haybittle, 1992). At the same time, the maintenance of problem-oriented behavior modes in women at advanced stages of cancer favors a decrease in symptoms of anxiety and depression and contributes to their "fighting spirit" (Hislop, Waxler, Coldman, Elwood, & Kan, 1987). Many researchers share the opinion that coping processes are influenced mainly by emotionally tinged subjective theories of disease (Taylor, Lichtman, & Wood, 1984).

Modern research in the field of clinical psychology has proved that the symptoms of post-traumatic stress disorder predominantly include those featuring "intrusive thoughts," both as memories of surgical and conservative treatment and as fear of possible disease progression in the future (Tarabrina, Vorona, Kurchakova, Padun, & Shatalova, 2010), as well as affective disorders of various types and severity in women with reproductive-system cancer (Monasypova, 2012).

As a rule, in cases of illness, customary inferences of the integrity and firmness of one's self are prone to alteration, one's customary system of senses and values is destabilized, and one's behavior changes as well (Nikolayeva, 1987; Tkhostov, 2002). Because fear of disease progression reflects patients' inferences about the possible future consequences of their illness, measures to control anxiety via the activation of strategies and behavioral resources gain in importance.

Method

Study design

Our research objective was to study the coping behavior of women with reproductive-system cancer with respect to the level of fear of disease progression. Based on this objective, a special set of research materials was established:

To evaluate the severity of fear of disease progression, we used the Short Form of the Fear of Progression Questionnaire by Mehnert, Berg, Henrich, and Herschbach (2009), Russian-language version by Sirota and Moskovchenko (2014).

To study the processes of cognitive-stressor assessment and the processes of coping with the disease, we used the Illness Cognition Questionnaire by Evers et al. (2002), Russian-language version by Sirota and Moskovchenko (2014).

To study the strategies of coping with difficult life situations, we used the questionnaire Assessing Coping Strategies by Carver, Scheier, and Weintraub (1989), Russian-language version by Rasskazova, Gordeeva, and Osin (2013).

The study of locus of control was carried out using the Locus of Disease Control Questionnaire, by Bevz (1998). This technique helps determine the patient's position regarding his/her somatic illness within a range from active (internal) to passive (external). The questionnaire includes 18 statements, each with 6 possible answers. According to the instructions, the options are: 0 – totally disagree, 1 – disagree, 2 – somewhat disagree, 3 – somewhat agree, 4 – agree, 5 – fully agree.

To study the connection between perceived apprehension about disease progression and perceptions of the amount of support provided by patients' families and friends, we used the Multidimensional Scale of Perceived Social Support Questionnaire by Zimet (1988), as adapted by Sirota and Yaltonsky (1994).

The confidence of the research subjects in their abilities and capacities to cope with illness and to adhere to medical advice was studied using the Questionnaire of Self-Efficacy in Illness and Treatment, a means suggested by Tkhostov (2002) and Rasskazova (2010). In this model, self-efficacy means confidence in one's ability to reach set goals. The scale includes eight items and is designed to measure confidence in having the capabilities and opportunities to overcome a disease, to adhere to medical recommendations, and to be cured.

Sample

Study subjects included 177 women with reproductive-system cancer, mean age 54.66±6.86. All examined patients had been admitted to the in-patient unit at the N. A. Semashko Central Clinical Hospital #2 of JSC Russian Railway in Moscow. Among the examined patients, 59 had breast cancer; 21 of them were early-stage patients, and 38 were advanced-stage patients. Other study subjects included 59 who were suffering from uterine cancer; of these 42 were early-stage patients and 17 were advanced-stage patients. The third group included 59 women with ovarian cancer; among them 24 were early-stage and 35 were advanced-stage patients.

Table 1. Clinical data on patients with a mild level of fear of disease progression (group A), a moderate level of fear of disease progression (group B), and a severe level of fear of disease progression (group C).

Variable	Mild fear of disease progression Group A	Moderate fear of disease progression Group B	Severe fear of disease progression Group C
Allocation results for levels of fear of disease progression	78	60	39
Level of fear of disease progression	20.66±4.26	32.56±3.67	46.02±5.17
Diagnosis	Ovarian cancer – 30.9% Uterine cancer – 33.3% Breast cancer – 35.8%	Ovarian cancer – 40% Uterine cancer – 46.66% Breast cancer – 13.3%	Ovarian cancer – 35.8% Uterine cancer – 12.8% Breast cancer – 51.2%
Disease stage	I, II – 54% III, IV – 46%	I, II – 55% III, IV – 45%	I, II – 30.7% III, IV – 69.4%
Type of treatment	Chemotherapy – 46.6% Surgery – 53.3%	Chemotherapy – 46.6% Surgery – 53.3%	Chemotherapy – 76.9% Surgery – 24%
Progression according to RECIST 1.1 criteria	21%	26%	35%

All study subjects were divided into three groups according to their exhibited level of fear of disease progression. To operationalize such a division, we used the Short Form of the Fear of Progression Questionnaire. Table 1 shows the clinical features of the sample with a description of the levels of fear of disease progression.

As can be seen in Table 1, the majority of patients demonstrating severe fear of disease progression had been diagnosed with breast cancer and ovarian cancer, while women diagnosed with uterine cancer demonstrated less apprehension about the likelihood of cancer recurrence in the future. The majority of patients with severe fear of disease progression were those assessed at the advanced stage of cancer and those undergoing chemotherapy. In group C, the highest rate of cancer progression, according to RECIST 1.1 criteria, was registered.

Table 2 presents sociodemographic data for the study subjects.

Table 2. Sociodemographic data on patients with a mild level of fear of disease progression (group A), a moderate level of fear of disease progression (group B), and a severe level of fear of disease progression (group C).

Variable	Mild fear of disease progression Group A	Moderate fear of disease progression Group B	Severe fear of disease progression Group C
Age, years (M±SD)	53.02±7.57	55.38±6.81	54.06±6.45
Education	University graduates – 26.6% College graduates – 60.1% High school graduates – 13.3%	University graduates – 26.6% College graduates – 56.6% High school graduates – 13.3%	University graduates – 46.1% College graduates – 38.46% High school graduates – 12.8%
Marital status	Married – 82% Divorced – 10.1% Widowed – 8.8%	Married – 72% Divorced – 13.3% Widowed – 15%	Married – 64.1% Divorced – 25.6% Widowed – 10.3%
Work status	Continued to work at examination – 33.3%	Continued to work at examination – 28.3%	Continued to work at examination – 46.1%

Note. M – mean value; SD – standard deviation

Results

The study of coping strategies showed significant differences among the groups of women with varying levels of fear of disease progression. Data summarizing the results of our study of coping strategies are presented in Table 3.

The women with a pronounced fear of disease progression significantly more often resorted to coping strategies such as "focus on and venting of emotions" (11.76±2.20), "mental disengagement" (9.79± 2.60), and "behavioral disengagement" (10.71±3.11). Notably, the patients with a dysfunctional fear of disease progression significantly more rarely adopted coping strategies such as "positive reinterpretation and growth" (8.61±2.48), "use of instrumental social support" (9.64±2.75), and "active coping»" (8.97±2.45).

Table 3. Coping strategies according to COPE Questionnaire in patients with a mild level of fear of disease progression (group A), a moderate level of fear of disease progression (group B), and a severe level of fear of disease progression (group C).

Coping strategies	Group A	Group B	Group C	Significance of differences, Mann-Whitney U-Criterion		
	M (SD)	M (SD)	M (SD)	P_{a-b}	P_{a-c}	P_{b-c}
Positive reinterpretation and growth	11.05 (2.45)	9.78 (2.40)	8.61 (2.48)	0.05	0.04	–
Mental disengagement	7.37 (2.74)	6.60 (2.47)	9.79 (2.60)	–	0.03	0.02
Focus on and venting of emotions	9.35 (2.75)	10.36 (3.33)	11.76 (2.20)	–	0.05	0.03
Use of instrumental social support	11.06 (2.08)	12.30 (2.72)	9.64 (2.75)	–	0.05	0.05
Active coping	10.95 (2.15)	11.91 (3.06)	8.97 (2.45)	–	0.04	0.05
Denial	9.23 (2.02)	8.41 (2.58)	8.38 (2.26)	–	–	–
Religious coping	12.79 (1.76)	11.81 (1.69)	12.61 (1.71)	–	–	–
Humor	7.56 (2.16)	7.06 (1.61)	6.97 (1.82)	–	–	–
Behavioral disengagement	7.56 (1.82)	7.15 (2.95)	10.71 (3.11)	–	0.04	0.04
Restraint	6.87 (1.78)	6.85 (1.70)	7.28 (2.11)	–	–	–
Use of emotional social support	12.83 (1.54)	12.55 (1.68)	12.35 (1.61)	–	–	–
Substance use	5.64 (1.55)	5.83 (1.49)	6.15 (1.88)	–	–	–
Acceptance	12.83 (2.39)	11.96 (2.46)	10.84 (2.70)	–	0.04	–
Suppression of competing activities	10.31 (2.03)	11.28 (2.53)	9.89 (1.80)	–	–	–
Planning	10.53 (1.84)	11.32 (2.53)	10.38 (2.28)	–	–	–

Note. M – mean value; SD – standard deviation

The women with a moderate level of disease progression showed a significant trend toward using such strategies as “active coping” (11.91±3.06) and “use of instrumental social support” (12.30±2.72). Least represented in this group were strategies aimed at avoiding difficult life situations. Of note, the patients with a low level of fear of disease progression, as compared with the other patients, were

significantly more likely to turn to the coping strategy "positive reinterpretation and growth" (11.05±2.45).

Special attention should be paid to the results of the study of the process of cognitive-disease assessment and means to overcome its negative consequences. Table 4 shows the results from the Illness Cognition Questionnaire.

Table 4. Results of the Illness Cognition Questionnaire in patients with a mild level of fear of disease progression (group A), a moderate level of fear of disease progression (group B), and a severe level of fear of disease progression (group C).

Cognitive assessment processes and means to overcome the negative consequences of illness	**Group A**	**Group B**	**Group C**	**Significance of differences, Mann-Whitney U-Criterion**		
	M (SD)	**M (SD)**	**M (SD)**	**P_{a-b}**	**P_{a-c}**	**P_{b-c}**
Cognitive strategies mediating the negative meaning of the stressful event	18.54 (3.12)	16.33 (5.03)	12.53 (4.10)	–	0.05	0.04
Cognitive strategies reflecting the positive reinterpretation of the illness situation	15.46 (4.20)	12.80 (4.59)	10.48 (2.99)	0.04	0.001	0.03
Cognitive strategies highlighting the negative meaning of the disease	9.33 (2.80)	12.16 (4.26)	16.30 (4.19)	–	0.05	0.05

Note. M – mean value; SD – standard deviation

Table 5. Results gained from the Locus of Disease Control Questionnaire in patients with a mild level of fear of disease progression (group A), a moderate level of fear of disease progression (group B), and a severe level of fear of disease progression (group C).

Locus of control in disease	**Group A**	**Group B**	**Group C**	**Significance of differences, Mann-Whitney U-Criterion**		
	M (SD)	**M (SD)**	**M (SD)**	**P_{a-b}**	**P_{a-c}**	**P_{b-c}**
Fatalistic	10.91 (2.26)	11.61 (1.08)	14.02 (2.69)		0.04	0.05
Medical	14.74 (1.66)	13.81 (2.42)	12.87 (2.71)	–	–	–
Independent	10.53 (1.96)	14.20 (2.48)	10.32 (2.20)	0.03	–	0.03
Self-condemning	10.39 (2.07)	11.01 (2.60)	12.87 (2.23)	–	–	–

Note. M – mean value; SD – standard deviation

The women with a pronounced fear of disease progression significantly more often used cognitive strategies highlighting the negative meaning of the disease (16.30±4.19). In the women with a moderate fear of disease progression, the leading coping strategy of self-regulation regarding the disease was that encompassing cognitive strategies mediating the negative meaning of the stressful event (16.33±5.03). The women with a low level of fear of disease progression also resorted to cognitive strategies reflecting the positive reinterpretation of the illness situation (15.46±4.20).

Regarding the locus of control, statistically significant differences among the three groups were demonstrated as well. Data obtained are presented in Table 5.

The prevailing type of locus of control for the women with a pronounced fear of disease progression was the fatalistic one (14.02±2.69). In the women with a moderate fear of disease progression, the independent locus of control predominated. (14.20±2.48). Women with a low fear of disease progression were characterized by the prevalence of the medical locus of control (14.74±1.66).

The results of the study of self-efficacy in illness and treatment are presented in Table 6.

Table 6. Results gained with the Self-Efficacy in Illness and Treatment Questionnaire in patients with a mild level of fear of disease progression (group A), a moderate level of fear of disease progression (group B), and a severe level of fear of disease progression (group C).

Assessment criteria	Group A	Group B	Group C	Significance of differences, Mann-Whitney U-Criterion		
	M (SD)	M (SD)	M (SD)	P_{a-b}	P_{a-c}	P_{b-c}
Level of self-efficacy in illness and treatment	40.44 (9.42)	37.36 (6.51)	36.89 (8.03)	0.04	0.03	–

Note. M – mean value; SD – standard deviation

Regardless of the level of fear of disease progression, all patients demonstrated a moderate level of self-efficacy. However, the females with a high level of fear of disease progression displayed less confidence and less ability to overcome the consequences of disease and treatment (36.89±8.03). The highest level of self-efficacy was registered in the women with a low level of fear of disease progression (40.44±9.42).

The study of the level of perceived social support demonstrated that the presence or absence of perceived apprehension about disease progression had no effect on the perception of the amount of support provided by patients' families, friends, and significant others. The results obtained are shown in Table 7. In patients demonstrating mild or no fear of disease progression, a higher level of perceived social support from significant others was registered; however, no relevant variations in these terms were indicated between the groups.

In the current study, we designated the strategies of coping with difficult life situations, cognitive self-regulation techniques in illness, and coping resources (lo-

Table 7. Results gained from the Multidimensional Scale of Perceived Social Support in patients with a mild level of fear of disease progression (group A), a moderate level of fear of disease progression (group B), and a severe level of fear of disease progression (group C).

Perceived social support	Group A	Group B	Group C	Significance of differences, Mann-Whitney U-Criterion		
	M (SD)	M (SD)	M (SD)	P_{a-b}	P_{a-c}	P_{b-c}
Family	3.56 (1.59)	3.66 (0.50)	3.61 (0.49)	–	–	–
Friends	2.33 (1.47)	2.35 (1.48)	2.38 (1.67)	–	–	–
Significant others	3.81 (1.63)	2.79 (1.71)	2.84 (1.51)	–	–	–

Note. M – mean value; SD – standard deviation

cus of control in illness, self-efficacy in illness) as predictors of the efficacy of overcoming fear of disease progression. To test the hypothesis, we applied a multiple linear regression with a stepwise integration of variables in the regression model. The results of this regression analysis of the strategies of coping with difficult life situations and of cognitive self-regulation techniques are presented in Table 8.

Table 8. Regression analysis of coping strategies and of fear of disease progression in women with reproductive-system cancer.

	Fear of disease progression	R^2	F	p
Positive reinterpretation and growth	β = –0.18	0.34	12.72	0.001
Active coping	β = –0.21			
Cognitive strategies mediating the negative meaning of illness	β = –0.16	0.44	46.07	0.001
Cognitive strategies reflecting the positive reinterpretation of illness	β = –0.25			
Cognitive strategies highlighting the negative meaning of illness	β = 0.39			

As can be seen from the table, the choice of cognitive strategies highlighting the negative meaning of illness was likely to augment fear of disease progression, while choosing strategies downgrading the negative meaning of the event and strategies reflecting the positive reinterpretation of the illness situation tended to diminish the degree of fear of disease progression. Such strategies of coping with difficult life situations as "positive reinterpretation and growth," as well as "active coping," also contributed to the modulation of fear of disease progression.

The results of the regression analysis of coping resources are summarized in Table 9.

Table 9. Regression analysis of coping resources and of fear of disease progression in women with reproductive-system cancer.

	Fear of disease progression	R^2	F	p
Fatalistic locus of control	β = 0.20	0.33	21.58	0.001
Medical locus of control	β = –0.14			
Independent locus of control	β = –0.31			
Self-efficacy in illness and treatment	β = –0.24			

The fatalistic locus of control with regard to the causes of illness had an impact on the degree of fear of disease progression. Such control options as medical control and self-control contributed to the modulation of fear of disease progression. Self-efficacy in disease and treatment also contributed to the modulation of fear of disease progression.

Discussion

Future-oriented fear of disease progression is one of the major causes of psychological distress in women with reproductive-system cancer. According to international data, a high level of anxiety about possible disease progression is reported in 9% to 34% of patients, mostly in women diagnosed with cancer, particularly breast cancer (Deimling, Wagner, & Bowman, 2006).

In our study, the women with the dysfunctional type of fear of disease progression were significantly more likely to resort to strategies directed at problem avoidance. These patients used various types of activities to distract themselves from unpleasant thoughts associated with the problem, but at the same time they were more likely to give up on treatment aims and to decrease their efforts to interact with the stressor. In addition, patients in this group showed a significantly higher tendency to focus on negative emotions and to continuously turn the affective aspects of the negative events over in their minds. They were also likely to resort to such means of self-regulation as self-accusation and accusation of others. The results obtained are consistent with those reported in a number of studies of fear of disease progression (Koch, Jansen, Brenner, & Arndt, 2013). The avoidance of stressful life situations by patients with a high level of disease progression could be accounted for by the narrowing of their motivational sphere: with health and life preservation seen as the key target, all other motives are comprehended as subordinate to it; this perception leads to the narrowing of patients' interests and the generation of self-limiting behavior (Sokolova & Nikolaeva, 1995).

Behavior during illness varied among the differentiated groups. Patients with the dysfunctional type of fear of disease progression were more likely to resort to cognitive strategies, thereby highlighting the negative meaning of the disease; this path led to their focusing mainly on the negative aspects of the illness as an uncontrollable, unpredictable, and immutable condition that consists in experiencing helplessness and hopelessness. This association between the helplessness-hopelessness construct and a decrease in psychological and physical well-being in various

chronic diseases has been shown in several international studies (DeVellis & Blalock, 1992; Everson et al., 1996). Patients demonstrating moderate fear of disease progression tend to use cognitive strategies aimed at decreasing the negative meaning of the stressful event. The use of this kind of a psychological self-regulation strategy involves the acceptance of the need to adapt to chronic disease and the capacity to withstand the unpredictable, uncontrollable character of the illness and to overcome its aversive meaning. The positive impact of the inferences associated with the acceptance of illness consists in processing stress-associated information on the cognitive level; such processing facilitates the activation of problem-solving behavior (Li & Moore, 1998). In our study, cognitive strategies reflecting the positive reinterpretation of the illness situation were more common in the group with a mild level of fear. Such techniques of cognitive regulation in a situation of uncontrollable stress are based in a change in life priorities and personal aims, with patients pointing out positive changes in their personality and interpersonal relationships.

The women with the dysfunctional type of fear of disease progression were significantly more likely to associate disease onset with hereditary factors and destiny, and they were convinced of their own inability to exert a sufficient impact on the course of treatment. The women with a moderate fear of disease progression were oriented toward active participation in the course of treatment and independent coping with the disease. Patients with a mild or no fear of disease progression were more oriented on medical aid, which includes delegating the responsibility for their course of treatment to medical personnel.

A number of studies have used the concepts of locus of control in relation to the causes of disease and locus of control in relation to treatment (Tashlykov, 1984). Based on the results shown in Table 5, dysfunctional patients with fear of disease progression have an external (fatalistic) locus of control regarding the causes of the disease and the treatment. Patients with a moderate or mild fear of disease progression have a mixed locus of control regarding the causes of the disease; such a locus indicates ambivalence, with judgment determined mainly by a particular situation. Table 10 shows possible variations in the locus of control depending on the degree of fear of disease progression.

Table 10. Possible variations in the locus of control in patients with a mild level of fear of disease progression (group A), a moderate level of fear of disease progression (group B), and a severe level of fear of disease progression (group C).

Locus of control variations	**No fear of disease progression Group A**	**Constructive (i.e., functional) fear of disease progression Group B**	**Dysfunctional fear of disease progression Group C**
Locus of control regarding treatment	External control	Internal control	External control
Locus of control regarding the causes of illness	Mixed control	Mixed control	External control

A number of international researchers have pointed out that an internal locus of control regarding treatment is associated with the adaptational coping style "fighting spirit" in patients suffering from breast cancer and causes a decrease in the level of anxiety and depression (Watson, Greer, & Rowden, 1991). Thus, a moderate level of fear helps patients adhere to problem-oriented modes of behavior.

In our study, patients with moderate and severe fear of disease progression had a moderate level of self-efficacy in illness and treatment, whereas patients with no or mild fear felt more confident about their capacity to overcome the disease and follow all medical advice. A higher level of self-efficacy in the group of patients showing no fear of disease progression might reflect the tendency to underestimate the severity of the illness, while the tendency to demonstrate a lower level of self-efficacy in the women with moderate and severe fear of disease progression might have various causes. The patients with the dysfunctional type of fear were less likely to believe in their ability to overcome the disease and to adhere to medical advice because of their overestimation of the possible consequences of the illness; this overestimation reflected their hypernosologic reactions. At the same time, in those with a moderate fear of disease progression, their lower level of self-efficacy was due to their rational health assessment and the real possibility of future disease recurrence.

Regarding apprehension about possible disease progression in the future, the results obtained could be interpreted as the search for a functional means for preventing possible recurrence by finding solutions to everyday problems and relying on one's own resources; such a means is relevant for patients with a moderate fear of disease progression. Patients demonstrating no or mild fear of disease progression tended to overcome their perceived apprehension by concentrating on the positive consequences of the illness situation and, in turn, on positive changes in their personality. Patients with the dysfunctional type of fear were inclined to use feelings of hopelessness and helplessness as a means of self-regulating their condition; this course of action can be interpreted as a reflection of the patients' apprehension about their loss of autonomy, intense emotional reactions to treatment, and fears concerning the future of their family.

Conclusion

Fear of disease progression is in general an adequate response to a real threat in the course of disease diagnostics and treatment; such apprehension may vary in severity from functional (i.e., mobilizing) to dysfunctional. Exaggerated fear about the likelihood of disease progression, with all the biological, psychological, and social consequences it entails, reduces the patient's adaptive capacity, thereby contributing to the avoidance of certain types of coping strategies in order to minimize the apprehension associated with the illness.

It is important to determine psychotherapeutic targets for patients with the dysfunctional type of fear of disease progression. According to the results of the study, the following psychotherapeutic targets can be established:

- Overcoming the restrictive model of illness by increasing acceptance of illness.

- Cognitive restructuring of inferences about the randomness of disease outcomes, with the occurrence of the disease attributed to hereditary factors or destiny and perceived as independent of the patient.
- Generating an internal locus of control regarding treatment.
- Increasing self-efficacy in disease and treatment.

References

Bevz, I. A. (1998). *Vnutrennyaya pozitsiya patsiyenta po otnosheniyu k bolezni i vybor strategii meditsinskogo povedeniya (na modeli ishemicheskoy bolezni serdtsa)* [The internal position of the patient in relation to the disease and the choice of a strategy for health behavior (on the model of ischemic heart disease)] (Unpublished doctoral dissertation). Moscow: Lomonosov Moscow State University.

Carver, C. S., Scheier, M. F., & Weintraub, J. K. (1989). Assessing Coping Strategies: A theoretically based approach. *Journal of Personality and Social Psychology*, *56*, 267–283. doi: 10.1037/0022-3514.56.2.267

Chissov, V. I., Starinskiy, V. V., & Petrova, G. V. (2012). *Sostoyaniye onkologicheskoy pomoshchi naseleniyu Rossii v 2011* [The state of cancer care for the population of Russia in 2011]. Moscow: Department of Surgery of the Herzen Moscow Cancer Research Institute of Medical Technologies of Russia.

Dankert, A., Duran, G., & Engst-Hastreiter, U. (2003). Fear of progression in patients with cancer, diabetes mellitus and chronic arthritis. *Rehabilitation, 42*, 155–163.

Deimling, G. T., Wagner, L. J., & Bowman, K. F. (2006). Coping among older-adult, long-term cancer survivors. *Psycho-Oncology*, *15*, 143–159. doi: 10.1002/pon.931

DeVellis, B. M., & Blalock, S. J. (1992). Illness attributions and hopelessness depression: The role of hopelessness expectancy. *Journal of Abnormal Psychology*, *101,* 257–264. doi: 10.1037/0021-843X.101.2.257

Evers, A.W.M., Kraaimaat, F. W., van Lankveld, W., Jongen, P.J.H., Jacobs, J.W.G., & Bijlsma, J.W.J. (2002). Beyond unfavorable thinking: The Illness Cognition Questionnaire for chronic diseases. *Journal of Consulting and Clinical Psychology*, *69*(6), 1026–1036. doi: 10.1037/0022-006X.69.6.1026

Everson, S. A., Goldberg, D. E., Kaplan, G. A., Cohen, R. D., Pukkala, E., Tuomilehto, J., & Salonen, J. T. (1996). Hopelessness and risk of mortality and incidence of myocardial infarction and cancer. *Psychosomatic Medicine*, *58*, 113–121. doi: 10.1097/00006842-199603000-00003

Herschbach, P., Berg, P., Book, K., & Dinkel, A. (2011). Fear of progression in chronic diseases: Psychometric properties of the Fear of Progression Questionnaire. *Journal of Psychosomatic Medicine and Psychotherapy, 61*, 32–37.

Herschbach, P., Book, K., Dinkel, A., Berg, P., Waadt, S., Duran, G., … & Henrich, G. (2010). Evaluation of two group therapies to reduce fear of progression in cancer patients. *Support Care Cancer*, *18*(4), 471–479. doi: 10.1007/s00520-009-0696-1

Hislop, T. G., Waxler, N. E., Coldman, A. J., Elwood, J. M., & Kan, L. (1987). The prognostic significance of psychosocial factors in women with breast cancer. *Journal of Chronic Diseases*, *40*(7), 729–735. doi: 10.1016/0021-9681(87)90110-X

Koch, L. Jansen, L., Brenner, H., Arndt, V. (2013). Fear of recurrence and disease progression in long-term (≥ 5 years) cancer survivors – a systematic review of quantitative studies. *Psychooncology 22(1),*1-11. doi: 10.1002/pon.3022

Li, L., & Moore, D. (1998). Acceptance of disability and its correlates. *Journal of Social Psychology*, *138*, 13–25. doi: 10.1080/00224549809600349

Marilova, T. Yu. (1984). *Osobennosti motivatsionnoy sfery u onkologicheskikh bol'nykh (rak molochnoy zhelezy)* [Features of the motivational sphere in cancer patients (breast cancer)] (Unpublished doctoral dissertation). Moscow: Lomonosov Moscow State University.

Mehnert, A., Berg, P., Henrich, G., & Herschbach, P. (2009). Fear of cancer progression and cancer-related intrusive cognitions in breast cancer survivors. *Psycho-Oncology, 18*(12), 1273–1280. doi: 10.1002/pon.1481

Monasypova, L. I. (2012). *Psikhicheskiye rasstroystva u zhenshchin s onkologicheskoy patologiyey reproduktivnoy sistemy* [Mental disorders in women with cancer pathology of the reproductive system] (Unpublished doctoral dissertation). Moscow: Serbsky Federal Medical Research Center of Psychiatry and Narcology.

Morris, T., Pettingale, K., & Haybittle, J. (1992). Psychological response to cancer diagnosis and disease outcome in patients with breast cancer and lymphoma. *Psycho-Oncology*, *1*, 105–114. doi: 10.1002/pon.2960010207

Myers, S. B., Manne, S. L., Kissane, D. W., Ozga, M., Kashy, D. A., Rubin, S., … & Graff, J. J. (2013). Social-cognitive processes associated with fear of recurrence among women newly diagnosed with gynecological cancers. *Gynecologic Oncology*, *128*(1), 120–127. doi: 10.1016/j.ygyno.2012.10.014

Nikolayeva, V. V. (1987). *Vliyaniye khronicheskoy bolezni na psikhiku* [Impact of chronic disease on the psyche]. Moscow: Moscow University Press.

Rasskazova, E. I. (2010). Samodeterminatsiya kak faktor otnosheniya k zdorov'yu i bolezni: Aprobatsiya metodiki prinyatiya resheniya v otnoshenii lecheniya [Self-determination as a factor in health and disease: Testing techniques for making decisions in relation to medical treatment]. *Psikhologicheskaya Diagnostika [Psychological Diagnostics], 2,* 112–135.

Rasskazova, E. I., Gordeeva, T. O., & Osin, E. N. (2013). Koping-strategii v strukture deyatel'nosti i samoregulyatsii: psikhometricheskiye kharakteristiki i vozmozhnosti primeneniya metodiki COPE [Coping strategies in the structure of activity and self-regulation: Psychometric properties and applications of the COPE Inventory]. *Psychology. Journal of Higher School of Economics*, *10*(1), 82–118.

Sabbioni, M. E., Bovbjerg, D. H., Jacobsen, P. B., Manne, S. L., & Redd, W. H. (1992). Treatment related psychological distress during adjuvant chemotherapy as a conditioned response. *Annals of Oncology*, *3*, 393–398.

Sharova, O. N. (2001). Osobennosti psikhicheskikh rasstroystv u zhenshchin posle radikal'nogo lecheniya raka molochnoy zhelezy i formirovaniye pri nikh mekhanizmov psikhologicheskoy zashchity [Features of mental disorders in women after radical treatment for breast cancer and their formation in the presence of psychological defense mechanisms]. *Palliativnaya Meditsina i Reabilitatsiya [Palliative Medicine and Rehabilitation], 2*, 56–59.

Sirota, N. A., & Moskovchenko, D. V. (2014). Psikhodiagnostika strakha progressirovaniya zabolevaniya: rezul'taty aprobatsii russkoyazychnoy versii oprosnika [Psychodiagnostics of the fear of disease progression: Results of testing the Russian version of the questionnaire]. *Obozreniye Psikhiatricheskoy i Meditsinskoy* Psikhologii [Review of Mental Health and Medical Psychology], *4*, 86–91.

Sirota, N. A., & Yaltonsky, V. M. (1994). Koping – povedeniye i psikhoprofilaktika psikhosotsial'nykh rasstroystv u podrostkov [Coping – behavior and the psychoprophylaxis of psychosocial distress in teenagers]. *Obozreniye Psikhiatricheskoy i Meditsinskoy Psikhologii [Review of Mental Health and Medical Psychology], 1*, 63–64.

Sokolova, E. T., & Nikolaeva, V. N. (1995). *Osobennosti lichnosti pri pogranichnykh rasstroystvakh i somaticheskikh zabolevaniyakh* [Personality traits in borderline disorders and somatic diseases]. Moscow: SvR-Argus.

Tarabrina, N. V., Vorona, O. A., Kurchakova, M. S., Padun, M. A., & Shatalova, N. E. (2010). *Onkopsikhologiya* [Oncopsychology]. Moscow: Institute of Psychology of the Russian Academy of Sciences.

Tashlykov, V. A. (1984). *Psikhologiya lechebnogo protsessa* [Psychology of the treatment process]. Saint Petersburg: Meditsina.

Taylor, S. E., Lichtman, R. R., & Wood, J. V. (1984). Attributions, beliefs about control, and adjustment to breast cancer. *Journal of Personality and Social Psychology, 46*, 489–502. doi: 10.1037/0022-3514.46.3.489

Tkhostov, A. Sh. (2002). *Psikhologiya telesnosti* [Psychology physicality]. Moscow: Smysl.

Watson, M., Greer, S., & Rowden, L. (1991). Relationships between emotional control adjustment to cancer and depression and anxiety in breast cancer patients. *Psychological Medicine, 21*, 51–57. doi: 10.1017/S0033291700014641

Zimet, G.D., Dahlem, N.W., Zimet, S.G. & Farley, G.K. (1988). The Multidimensional Scale of Perceived Social Support. *Journal of Personality Assessment. 52*, 30-41. doi: 10.1207/s15327752jpa5201_2

Original manuscript received March 20, 2015
Revised manuscript accepted December 07, 2015
First published online June 30, 2016