Self-efficacy and fear of cancer progression during the year following diagnosis of breast cancer

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Abstract

***Objective*: The aim of this study was to investigate fear of disease progression (FoP) during the year following diagnosis of breast cancer and its association with general self-efficacy (SE).**

***Methods*: In a prospective study, 118 breast cancer patients were recruited shortly after diagnosis disclosure (response rate: 54%) and at 1-year follow-up (follow-up rate: 90%). Participants completed self-report measures of general self-efficacy (General Self-Efficacy Scale) and fear of progression (short form of the Fear of Progression Questionnaire).**

***Results*: Cross-sectional regression analysis revealed that high FoP is significantly associated with low SE, even when controlling for demographic and medical characteristics (total $R^2 = 0.17$). Having children and a relatively short time since diagnosis also significantly predicted higher FoP. Longitudinal analyses showed that FoP decreased significantly over time ($p = 0.001$; $d = 0.25$), but a significant decrease was only observed for patients with high initial FoP ($p < 0.001$; $d = 0.74$) and not for those with low initial FoP ($p = 0.688$; $d = 0.08$). SE was not a significant predictor of FoP at follow-up when controlling for initial FoP and other patient characteristics (incremental $R^2 = 0.001$; $p = 0.674$; total $R^2 = 0.47$). Overall, only initial FoP significantly predicted FoP at follow-up ($p < 0.001$; $\beta = 0.671$).**

***Conclusion*: Findings that low SE is associated with high FoP can help to improve the treatment of dysfunctional fears in breast cancer patients. As FoP changes only slightly over time, treatment to enhance SE and reduce FoP should be initiated soon after disease disclosure.**

Keywords: fear of progression; anxiety; self-efficacy; cancer; oncology

Introduction

Breast cancer is the most prevalent cancer among women in developed countries and leads to severe physical and emotional distress [1,2]. Although research has focused on the evaluation and improvement of psychosocial treatments for breast cancer, anxiety and mood disturbances are still often undertreated in cancer care [3–5]. Anxiety and fear are among the most prevalent psychological symptoms and the most important causes of distress in cancer patients [6,7]. Prevalence rates of anxiety disorders range from 0.9% to 49% in cancer populations [8,9]. Although several studies focus on anxiety after the diagnosis of cancer and during the further course of the disease [9–14], to date little is known about the nonpsychiatric part of anxiety: a realistic reaction of fear to a threatening life event. One concept regarding the fear of recurrence and progressive course of chronic diseases is *fear of disease progression* (FoP) [15]. In contrast to the diagnosis of an anxiety disorder, as defined in the ICD-10 and the DSM-IV, FoP describes an adequate and realistic response to an extraordinary life event, such as the threatening diagnosis of cancer [16]. In a sample of 1721 cancer patients, FoP was found to be the most important psychological distress [17]. When FoP becomes severe, it becomes dysfunctional and affects well-being and quality of life [18–21]. In this case, FoP becomes a clinically important problem and should be addressed in psychosocial treatment [18]. However, only in recent years, studies have focused on the detection, evaluation, and treatment of this specific type of disease-related fear. In a large representative sample based on a German cancer register, moderate to high levels of FoP were found in 24% of breast cancer patients [22]. In a Dutch study, more than half of the patients (56%) reported moderate to high levels of fear of disease recurrence [21]. Despite this variability in prevalence rates, they nonetheless underscore the importance of FoP in cancer patients. In both studies, FoP was significantly associated with age, indicating a decrease of fear associated with older age [21–23]. Furthermore, having children, cancer recurrence, disease progression, and chemotherapeutic treatment were also related to higher FoP. Predictor analyses for the time since initial diagnosis have revealed inconsistent results,

possibly because of varying time periods used in these studies [15,21,22]. Furthermore, Mehnert *et al.* [22] found FoP to be positively associated with posttraumatic stress disorder symptoms, such as intrusive cognitions, avoidance, and hyperarousal symptoms, as well as with active problem-oriented and depressive coping.

A small number of studies investigated the course of FoP under routine treatment conditions and suggest that FoP slightly decreases over time [16,23]. However, one study examining a special treatment for FoP showed that FoP only decreased in the intervention group, whereas patients in the control group (treatment as usual) relapsed to their initial level of fear or even showed slightly increased fear at a 1-year follow-up [16].

Perceived self-efficacy (SE) is one personality construct assumed to impact coping with cancer, given its role in regulating a person's thoughts, behavior, and coping strategies. This central construct of Bandura's social cognitive theory describes positive beliefs on the basis of personal judgment of one's own ability to control challenging environmental demands and to achieve a successful outcome by taking adaptive action [24,25]. High perceived general SE affects both initiation and persistence of coping behavior and thus enables patients with physical diseases to achieve better psychological adjustment [26]. Research on cancer patients has shown that higher SE leads to better coping and, consequently, increases quality of life [27,28], improves emotional well-being [29], and reduces depression and anxiety [30,31], even in 1-year follow-up measures [29]. Thus, general SE can be seen as a personal resource factor in coping with cancer and its treatment [32,33].

However, to what extent general SE is associated with fear of cancer progression and how SE affects the change of FoP over time has not yet been studied. Therefore, the aim of this prospective study was to analyze the relationship between SE and the course of FoP over a 1-year period after diagnosis.

(1) Our first hypothesis predicted that general SE is significantly related to FoP. We expected that patients with high dispositional SE have lower rates of fear directly after diagnosis as a result of having better resources for managing and coping with uncontrollable and threatening situations. A significant negative association between SE and FoP was also hypothesized, even after controlling for demographic and medical characteristics.
(2) Second, we hypothesized that FoP is significantly higher directly after diagnosis disclosure than at a 1-year follow-up. Expecting patients to have a better understanding and adjustment to the disease with time, we predict FoP to decline with a small effect size on average. The course of FoP was analyzed separately for high and low initial FoP in an exploratory manner.
(3) Finally, if FoP changes as we expected with hypothesis 2, we expect that general SE is significantly associated with the course of FoP. Patients with high SE were expected to show a greater decrease in FoP over time than patients with low SE.

Results should help improve psychosocial treatment for cancer patients by advancing our understanding of how and when treatable cancer-related fears occur and our knowledge of the extent to which SE plays a role in the development and persistence of FoP.

Methods

Study design and participants

This study is part of a research project investigating the effectiveness of a case management (CM) program following acute inpatient treatment for women with breast cancer [34]. The research question was carried out in a quasi-experimental design with the CM program as the experimental condition and treatment as usual as the control condition. Patients in the CM group were recruited by their intention to treat. To prevent any potential treatment effect confound in our analysis, we only included patients in the control group in the present study. The study was approved by the ethics committee of the responsible German medical association.

Over a period of 23 months, a consecutive sample of newly diagnosed breast cancer patients was recruited from an acute hospital for breast cancer treatment in southern Germany (Mammazentrum Klinikum Deggendorf). All patients underwent routine treatment, and most of them had recently received breast cancer surgery. Inclusion criteria for all study patients were the following: (i) 18 years or older; (ii) a diagnosis of breast cancer; and (iii) a basic knowledge of the German language. Patients with severe physical or cognitive disabilities or emotional crises were excluded. Additionally, we excluded all patients receiving the CM program from our analyses.

Eligible patients were informed about the study and asked to participate after a minimum of 10 days subsequent to diagnosis disclosure. For all patients who agreed to participate, written informed consent was obtained. The baseline measure consisted of self-report questionnaires. Twelve months later, the participants were asked to complete follow-up measures via mail. A reminder letter was sent after 4 weeks.

Of the 258 eligible patients, 139 agreed to participate (response rate of 54%). Representativeness analyses revealed no significant differences in almost all demographic and medical characteristics listed in Table 1, except age. Specifically, the responding women were significantly younger ($M = 54.2$; $SD = 9.9$) than nonresponders ($M = 58.6$; $SD = 11.1$) ($p < 0.001$; $d = 0.40$). At follow-up, 125 (90%) patients continued to participate in the study. Of these, seven patients had to be excluded afterwards because of more than 30% missing values in FoP and/or SE measures. Dropout analyses between 118 patients with complete data and 21 patients

Table 1. Sample characteristics ($n = 118$)

	n	(%)
Mean age in years (SD, range)	54.2 (±9.9, 26–85)	
Marital status		
Married/partnership	87	75.0
Not in partnership	7	6.0
Divorced	4	3.4
Widowed	18	15.5
Children: yes	97	86.6
Educational level		
Secondary general school[a]	62	53.9
Intermediate secondary school[b]	37	32.2
University entrance diploma[c]	16	13.9
Employment status		
Retired	15	12.9
Employed	48	41.4
Housewife	37	31.9
Unemployed/others	16	13.8
Disease phase		
First-time appearance	107	95.5
Disease stage at diagnosis (TNM)		
I	5	4.4
IIA	32	28.1
IIB	53	46.5
IIIA	16	14.0
IIIB	1	0.9
IIIC	2	1.8
IV	5	4.4
Time since initial diagnosis		
Mean months (SD, range)	1.1 (±1.8, 0–7)	
Same month	65	56.0
1 month	29	25.0
2–7 months	22	19.0
Surgery and primary treatment		
Breast surgery	105	89.0
Chemotherapy	41	34.7
Radiotherapy	31	26.3
Both chemotherapy and radiotherapy	11	9.3
Hormone therapy	18	15.3
Study measures		
Mean SE score (SD, range)	28.59 (±5.47, 10–40)	
Mean FoP baseline score (SD, range)	34.88 (±9.21, 17–59)	
Mean FoP follow-up score (SD, range)	32.50 (±9.82, 12–55)	

[a]German: Hauptschule (9 years of education).
[b]German: Realschule (10 years of education).
[c]German: Gymnasium (13 years of education).

who dropped out revealed no systematic differences in terms of all assessed demographic and medical variables.

Measures

Demographic and medical characteristics were measured by patient self-report. Additional clinical variables (TNM disease stage and surgery) were obtained from therapist ratings.

Fear of disease progression was measured by the short form of the Fear of Progression Questionnaire (FoP-Q-SF; [15,35]). The FoP-Q-SF is a self-report questionnaire comprising 12 items related to the following four dimensions: affective reaction, partnership/family, occupation, and loss of autonomy. These consist of Likert scales ranging from 1 (never) to 5 (very often), with possible total scores ranging from 12 to 60 points. Higher sum scores represent a higher level of fear. The FoP-Q has demonstrated a good convergent validity and is able to discriminate between cancer patients with varying illness durations and illness behaviors (e.g., time for being on sick leave) [15]. Internal consistency of the FoP-Q-SF has been shown to be high (Cronbach's $\alpha = 0.87$), which also applies to convergent and discriminative validity [35]. The correlation between the long and the short form was $r = 0.92$.

Self-efficacy was evaluated at baseline with the German version of the General Self-Efficacy Scale [36], which covers a self-estimation of general competence to deal effectively with stressful situations. The questionnaire includes 10 items (e.g., 'Thanks to my resourcefulness, I can handle unforeseen situations') with response Likert scales ranging from 1 (not at all true) to 4 (exactly true). Summative score ranges from 10 to 40 points, with higher scores indicating higher levels of SE. The questionnaire has shown to have high reliability, stability, and construct validity across contexts and cultures (e.g., [37–39]).

Statistical analyses

All statistical procedures were performed with SPSS version 15.0 (SPSS Inc., Chicago, IL, USA). Preliminarily, missing data of less than 30% over all standardized measures were imputed using an expectation-maximization algorithm.

(1) To test the predictive value of SE on FoP (hypothesis 1), we used a two-step strategy. First, univariate comparisons between patients with high and low FoP (median split) were conducted for all demographic and medical characteristics using *t*-tests for metric variables and chi-squared tests for categorical variables. Second, a stepwise hierarchical regression analysis was conducted with baseline FoP as the dependent variable. Demographic and medical variables, which had previously found to distinguish significantly between high and low FoP, were entered into the first two blocks of the regression analysis. Finally, SE was included as a third block to calculate its incremental contribution to explained variance in FoP.

(2) To test the second hypothesis, we calculated analysis of change in FoP over time with a paired samples *t*-test. Additionally, we compared courses of FoP across patients with high and low baseline FoP. A repeated-measures ANOVA was conducted across two time points, with baseline FoP as a between-subject factor (high and low levels).

(3) To test the third hypothesis of the predictive value of SE on the course of FoP, we conducted a stepwise hierarchical regression analysis similar to the one used to test hypothesis 1, where patients' characteristics were controlled in the first steps and SE was included as the final step. The dependent variable was the FoP score at follow-up. To control for effects of the initial level of FoP, we also entered baseline FoP as a predictor in the block of medical characteristics.

For the two-tailed significance tests, an alpha level of $p < 0.05$ was chosen. Results with $p < 0.10$ were defined as 'trends' and were also reported. Additionally, effect sizes according to Cohen [40] were calculated (d, η^2, Φ) to assess the extent of group differences.

Results

Sample characteristics

Table 1 shows the demographic and medical characteristics of the sample. The mean age was 54.2 (SD = 9.9) years, ranging from 26 to 85 years. Most of the women were married or had partners (75%) and had at least one child (87%). Less than half of the sample (41%) was employed. For most participants, this was their first diagnosis of cancer. Regarding time since initial diagnosis, 56% had received the diagnosis in the same month, whereas 25% had been notified 1 month before. The maximum duration since diagnosis disclosure was 7 months. Most of the participants had already undergone surgery (89%), whereas 35% had started with chemotherapy treatment and 26% with radiotherapy.

Self-efficacy and fear of disease progression: cross-sectional analyses

Mean FoP-Q-SF and SE scores are shown in Table 1. We compared FoP-Q-SF mean scores with a reference value obtained from the large registry-based breast cancer sample analyzed by Mehnert *et al.* [22]. Baseline mean FoP-Q-SF was significantly higher in this sample (M = 34.88; SD = 9.21) than the reference value (M = 31.5; SD = 10.2) (one-sample t-test: $p < 0.001$; $d = 0.33$).

A significant moderate negative correlation was found between FoP and SE ($r = -0.36$; $p < 0.001$). After dividing the sample into patients with high and low FoP, we tested all demographic and medical characteristics for statistical differences. Of all variables, only 'having children', 'time since diagnosis', and 'disease stage at diagnosis (TNM)' revealed a trend towards statistically significant differences between high and low FoP. Specifically, nearly one-third of the high-fear group (28%) ($n = 16$) had TNM stage of IIIA or higher, whereas only 14% ($n = 8$) were found to have TNM stage IIIA or higher in the low-fear group ($p = 0.065$; $\Phi = 0.163$). Women who completed the questionnaire directly after diagnosis (in the same month) had higher levels of FoP than women whose diagnosis took place several months before (1–7 months) ($p = 0.049$; $\Phi = 0.172$). In the high-fear group, nearly all women had children (93%) ($n = 51$), whereas in the subsample of low FoP, there were comparably less women with children (81%) ($p = 0.055$; $\Phi = 0.177$). No significant differences were found for any other of the demographic and medical characteristics. Mean SE scores were significantly different between high (M = 26.7; SD = 4.9) and low FoP (M = 30.5; SD = 5.4). High levels of fear were associated with low SE ($t = 3.942$; $p < 0.001$) ($d = 0.78$).

To control for multivariate interactions, we conducted a regression analysis with FoP measures as criterion and SE as predictor. To control for confounding variables, we included the three characteristics for which we found differences in the two-group analysis ('having children', 'disease stage (TNM)', and 'time since diagnosis'). Although age was not significantly associated with FoP in our sample ($r = -0.07$; $p = 0.48$), we entered age as a confounding variable because of the results of previous studies [21–23]. The results of the hierarchical linear regression analysis are listed in Table 2.

The predictor variables 'having children' and 'age' were entered into the first step of regression analysis and did not significantly predict initial FoP ($R^2 = 0.04$; $p = 0.107$). In the second step, additional disease variables were entered. Disease stage and time since diagnosis together yielded no significant incremental contribution to variance in initial FoP (incremental $R^2 = 0.02$; $p = 0.30$). The inclusion of SE in the third step was found to significantly increase the explained variance of initial FoP (incremental $R^2 = 0.11$; $p < 0.001$). SE accounts for 11% of the total 17% explained variance in the full model. Accordingly, regarding the beta coefficients of each variable, SE had the strongest predictive value in the full model ($\beta = -0.332$; $p < 0.001$). The

Table 2. Hierarchical regression analysis of baseline FoP ($n = 107$)

	Predictor variable	β^a	SE[a]	Significance [a]	ΔR^{2b}	Significance
1	Demographic measures					
	Age	−0.127	0.089	0.192		
	Children: yes	0.159	2.422	0.089		
					0.042	0.107
2	1. Additional medical measures					
	Disease stage (TNM high/low)	0.116	2.075	0.219		
	Months since diagnosis	−0.135	2.934	0.172		
					0.022	0.298
3	2. Additional self-efficacy					
	Self-efficacy	−0.332	0.156	<0.001***		
					0.108	<0.001***

Total $R^2 = 0.173$. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

[a]Regression coefficients and significance are based on the full model after inclusion of step 3.

[b]R^2 values are based on incremental R^2 for steps 2 and 3.

beta coefficients of all other variables failed to reach significance except for the predictor 'having children' showing at least a tendency towards significance ($\beta = 0.159$; $p = 0.089$).

The course of fear of disease progression

The mean FoP score significantly decreased from baseline (M = 34.88; SD = 9.21) to the 1-year follow-up (M = 32.50; SD = 9.82) with a small effect size ($p = 0.001$; $d = 0.25$). Repeated-measures ANOVA yielded significant main effects for time (baseline and follow-up FoP) ($p = 0.001$; $\eta^2 = 0.093$) and group (high and low baseline FoP) ($p < 0.001$; $\eta^2 = 0.568$). Moreover, a significant effect approaching a large effect size was found for the interaction of time × group ($p < 0.005$; $\eta^2 = 0.067$). Patients with high FoP at baseline (M = 42.40; SD = 5.91) showed a greater decrease of fear at follow-up (M = 38.04; SD = 8.71) than patients with low baseline FoP (M = 27.36; SD = 4.59), who showed only a slight decrease at follow-up (M = 26.97; SD = 7.50). Paired *t*-tests for each group revealed a significant difference approaching a large effect size between baseline and follow-up for the high FoP group ($p < 0.001$; $d = 0.74$) but not for the low FoP group ($p = 0.69$; $d = 0.08$).

Self-efficacy and fear of disease progression: longitudinal analyses

Despite the minor reduction in FoP over time, we investigated the predictive value of SE on the course of FoP. The results of this stepwise hierarchical regression are shown in Table 3.

Demographics significantly predicted FoP, accounting for 6% of variance in follow-up FoP ($R^2 = 0.06$; $p = 0.047$). Of these, age made a unique contribution to the explained variance ($\beta = -0.170$; $p = 0.032$). However, having children did not significantly contribute unique predictive ability. Medical variables entered in step 2 accounted for a significant increase of 42% of explained variance (incremental $R^2 = 0.42$; $p < 0.001$). However, within this block, only initial FoP contributed significantly to the explained variance in follow-up FoP ($\beta = 0.671$; $p < 0.001$). SE entered in the third step did not contribute significantly to the explained variance (incremental $R^2 = 0.001$; $p = 0.674$). The overall model accounted for a total of 47% of variance.

Discussion

Fear of disease progression

Our study aimed at examining the relationship between SE and FoP cross-sectionally as well as longitudinally over a period of 1 year after diagnosis of breast cancer. Baseline measures of FoP and SE were assessed shortly after diagnosis disclosure and for most patients, following breast cancer surgery. In general, the women in our study showed higher initial FoP scores than a cancer registry-based sample [22]. However, this was not surprising because of the comparatively shorter time since diagnosis disclosure in our sample, where strong affective responses to the new and threatening situation are to be expected. Previous inconsistent findings on the predictive value of time since diagnosis on progression fears may refer to varying or heterogeneous intervals in different samples [15,22,35]. Our sample was highly homogenous in terms of time since diagnosis. From a clinical perspective, this indicates the need to screen for these fears and to address them in psychosocial treatment, especially in the very early stages of breast cancer.

Self-efficacy and fear of disease progression

High general SE was expected to be associated with lower FoP. This hypothesis was supported in our sample. Findings that the expectation of one's ability to manage difficult and challenging situations affects emotional responses seem to be applicable to coping with the diagnosis of breast cancer. Even when controlling for demographic and medical variables, SE remains a stable predictor of FoP. Although the association is moderate, these results may be helpful in considering techniques to enhance SE in the treatment of disease-related anxiety [41], especially in the treatment phase of diagnosis disclosure.

Table 3. Hierarchical regression analysis of follow-up FoP ($n = 107$)

	Predictor variable	β^a	SE[a]	Significance[a]	ΔR^{2b}	Significance
1	Demographic measures					
	Age	−0.170	0.078	0.032*		
	Children: yes	0.001	2.122	0.994		
					0.057	0.047*
2	1. Additional medical measures					
	Disease stage (TNM high/low)	−0.003	1.806	0.967		
	Months since diagnosis	0.006	2.558	0.939		
	Baseline FoP	0.671	0.086	<0.001***		
					0.415	<0.001***
3	2. Additional self-efficacy					
	Self-efficacy	0.033	0.143	0.671		
					0.001	0.674

Total $R^2 = 0.47$. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

[a]Regression coefficients and significance are based on the full model after inclusion of step 3.

[b]R^2 values are based on incremental R^2 for steps 2 and 3.

Analyses of the predictive value of SE on FoP revealed some additional findings regarding the association of demographic and medical characteristics with progression fears. In contrast to the results of other studies [15,22,23,35], we did not detect any predictive value of patients' age, disease progress, or treatment (chemotherapy, radiotherapy, or hormone therapy) on FoP. In univariate analyses of our study, having children, higher disease stage, and a very short time since diagnosis (less than 1 month) were significantly associated with higher FoP.

The course of fear of disease progression

In general, changes in FoP over the year after diagnosis appear to be slight. Statistical analyses revealed a significant decrease of FoP, yet the effect size was small. As in previous studies, this indicates that most women retain a relatively high level of FoP [16,23]. Results highlight the need to consider realistic but dysfunctional cancer fears in psychosocial treatment for women with breast cancer [18]. Because FoP already seems to be a central issue at the very early stage of disease and fears do not decrease substantially under routine treatment conditions, special offers to treat cancer-related fears should be included early in psychosocial treatment. First approaches were developed and are under evaluation [16,18].

Whereas patients with high fears immediately after diagnosis showed a decrease over time, there were only minor changes in fear of progression in women with moderate but still substantial fear at baseline. We assume that a certain level of fear might always remain because cancer represents a realistic threat and one cannot expect patients to change to an absolutely anxiety-free level. However, another explanation for this effect might involve methodological issues, namely, that the questionnaire may not be as sensitive for low levels of fear as it is for high levels. In addition, the potential effect of statistical regression to the mean must be considered [42].

Self-efficacy and the course of fear of disease progression

No significant association between SE and the course of FoP was found. The extent of fear 1 year after diagnosis mainly depends on the severity of initial fear. Because overall FoP changes only slightly, these findings are not unexpected. The patients in our sample varied in their perceived general SE, and SE was found to be negatively associated with initial FoP. However, general SE was not able to serve as a resource for changes of FoP and coping with breast cancer in the long term, contrary to our hypothesis. The remaining extent of dysfunctional progression-related fear 1 year after diagnosis mainly depends on the magnitude of fear arising shortly after diagnosis disclosure. These results once again highlight the need for attention to cancer-related fears, especially in the early phase after diagnosis disclosure, as focusing on these concerns in psychosocial treatment can mitigate persisting fears [18]. These results can help improve psychosocial treatment of breast cancer and develop specific offers to enhance coping with cancer-related fears. SE may become a predictor for coping and reducing FoP if a special treatment for FoP is offered that integrates the patient's resources such as SE. A new finding from our study indicates the positive impact of SE in initial FoP. To reduce FoP soon after disease disclosure, interventions to foster SE and adaptive coping with FoP should be developed and investigated, possibly in an integrated approach.

Although our findings have important practical implications, some limitations of our study must be considered. First, a causal interpretation is not possible because the analyses of the association between SE and FoP were cross-sectional. The assumption that SE affects FoP is based on theoretical considerations. Nevertheless, a reverse relationship is also conceivable. Second, to take multivariate associations into account, we statistically controlled for several patient characteristics. However, other clinical or personality-related variables may moderate the association between SE and FoP as well (e.g., coping style). Third, given the modest sample size of the study and the relatively low response rate of 54%, representativeness of our sample could be questioned. However, patients were included consecutively, and representativeness analyses revealed no systematic effects apart from an age effect. Furthermore, patients were recruited from only one inpatient unit. As such, our results need replication in larger samples from multicenter studies.

Despite these limitations, the findings have some important implications for the treatment of breast cancer. Psychosocial treatment should address these progression-related fears, especially in the very first phase after diagnosis disclosure, and should aim to enhance women's SE to cope with FoP. Future research should also address the mechanisms underlying the relation between FoP and SE and incorporate related characteristics, such as coping strategies. Moreover, the course of fears should be analyzed over time and for different treatment conditions. By knowing when FoP arises, how these fears change over time, and how we can support women to deal with these fears, psychosocial treatment for breast cancer patients can be optimized.

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