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Fear of cancer recurrence: An exploratory study on its impact on quality of life and emotional distress in patients undergoing systemic cancer therapy

Federica Andreis, M.SC. PSYD.[1], Mara Mirandola, M.SC. PSYD.[1], Chiara Deori, M.SC. PSYD.[1], Clarissa Ferrari, M.SC. BIOSTAT.[2], Fausto Meriggi, M.D.[1] and Alberto Zaniboni, M.D.[1]

[1]Oncology Department, Istituto Ospedaliero Fondazione Poliambulanza, Brescia, Italy and [2]Scientific Management, Istituto Ospedaliero Fondazione Poliambulanza, Brescia, Italy

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Corresponding author: Federica Andreis; Email: federica.andreis@poliambulanza.it

Abstract

Objective. Fear of cancer recurrence (FCR), defined as worry about cancer progression or return, is a common concern among patients and survivors. This study aims to identify factors influencing the onset of FCR and to evaluate its impact on emotional distress and quality of life (QoL) in patients undergoing systemic cancer treatment.

Methods. A sample of 175 patients undergoing systemic cancer treatment completed self-report questionnaires assessing socio-demographics, clinical factors and fear of cancer recurrence, anxiety, depression and QoL (FCRI, HADS, EORTC-QLQ-C30).

Results. Data analysis using linear and generalized linear models revealed that FCR is inversely associated with QoL and positively correlated with anxiety and depression. These associations were independent of socio-demographic and clinical variables, with anxiety and depression fully mediating the FCR-QoL relationship. Gender and time since diagnosis emerged as significant predictors, with an increase in FCR at 12 months post-diagnosis.

Significance of the results. Our results indicate that FCR, anxiety and depression linked, are present after several months post-diagnosis, suggesting that FCR tends to intensify over time. These findings carry important psychological implications, highlighting the need to support patients in recognizing and managing their fear and emotional distress. Implementing a psychoeducational counseling approximately six months after diagnosis – engaging oncologists, psycho-oncologists, and patients within a "stepped-care" framework – may be effective in mitigating FCR and its emotional consequences.

Introduction

A cancer diagnosis is a profoundly disruptive event that can significantly impact a person's physical and psychological well-being. It is often accompanied by a sense of vulnerability and fear of the future (Borreani et al. 2020). In recent decades, advancements in oncology, including novel treatment strategies and early detection methods, have led to increased survival rates, even for patients with advanced or metastatic disease (Bergerot et al. 2022). However, despite these positive developments, cancer survivors frequently experience significant psychological distress, particularly fear of cancer recurrence (FCR) (Butow et al. 2019; SL et al. 2008). FCR, characterized by worry about the return or progression of cancer, is a common concern among both patients in active treatment and survivors (Borreani et al. 2020; NM et al. 2019). It can range from a normal and adaptive response to a debilitating condition, affecting emotional well-being, quality of life (QoL), and daily functioning (Llewellyn et al. 2008; Myers et al. 2013; Simard et al. 2013). High levels of FCR have been associated with increased anxiety, hopelessness, hypervigilance, and disruptive behaviours, such as avoidance and post-traumatic stress symptoms (Llewellyn et al. 2008; SL et al. 2008). Given its prevalence and far-reaching impact, addressing FCR has become a primary concern in cancer care. This study aims to identify the factors influencing the onset of FCR and to assess its impact on emotional distress and QoL. The findings of this study will guide the development and implementation of an intervention focused on managing FCR.

Methods

Participants

This observational cross-sectional study was conducted in Oncology Department between August 2023 and February 2024. A sample of 175 eligible cancer patients was selected.

Inclusion criteria were: a confirmed cancer diagnosis, being undergoing systemic cancer treatment, at least 18 years old or older, able to read and understand Italian language and the protocol purpose, no evidence of cognitive and psychiatric diseases. Exclusion criteria included previous diagnosis of dementia or psychotic disorders based on the DSM-5. Patients with severe psychiatric disorders that could interfere with study participation (e.g., active psychosis, acute suicidality) were excluded. However, individuals with stable mood or anxiety disorders under treatment were not excluded, in order to reflect the typical psychosocial profile of the clinical population.

The patients who agreed to participate were asked to complete the battery of questionnaires in paper and pencil format during their attendance in Oncological Department. The Institutional Research Ethics Board approved the study and eligible patients signed an informed consent form before entering the study.

Measures

Socio-demographic and clinical variables

Sociodemographic characteristics, including gender, age, marital status, parenthood, educational level, and engagement in an active psychological support program, were collected using a specific socio-demographic questionnaire. Furthermore, patients' medical records were consulted to determine site and stage of disease, first or recurrence diagnosis and time since diagnosis of eligible participants. The variable "time since diagnosis" was calculated starting from the date of the initial cancer diagnosis. Patients undergoing systemic treatment for either a first diagnosis or a recurrence were eligible. Data on treatment intent (curative vs. palliative) were not available for all participants and were therefore not analyzed. Table 1 shows demographic and clinical data.

Table 1. Summary of the demographic and clinical data

		N	%
Gender	Male	64	36.6
	Female	110	62.9
	Other	1	0.6
Age	Mean (SD)	60.8 (11.0)	–
	Median	62.0 [29.0–89.0]	–
Education	Primary school	14	8
	Middle school	57	32.6
	High school	66	37.7
	University	30	17.1
	Not response	1	0.6
Marital status	Single	15	8.6
	Married	118	67.4
	Live together	11	6.3
	Separated	7	4
	Divorced	11	6.3
	Widowers	9	5.1
Parenthood	Minor children	24	13.7
	Adult children	114	65.1
Occupation	Employed	74	42.3
	Retired	71	40.6
	Not employed	27	15.4
Psychological support	Yes	21	12
	No	153	87.4
Disease stage	Local	85	48.6
	Metastatic	90	51.4
Site of disease	Breast	50	28.6
	Gastrointestinal (esophagus, stomach, intestine, pancreas, biliary, and hepatic tracts)	77	44
	Head-neck	1	0.6
	Lung	6	3.4
	Gynecological	17	9.7
	Urogenital	17	9.7
	Soft issue	7	4
Diagnosis	First	143	81.7
	Recurrence	32	18.3
Time since diagnosis	<3 months	37	21.1
	4–6 months	50	28.6
	7–12 months	30	17.1
	13–24 months	32	18.3
	>24 months	26	14.9

Fear of Cancer Recurrence Inventory (FCRI)

We used the Italian Version of Fear of Cancer Recurrence Inventory (FCRI) (Borreani et al. 2020; Lebel et al. 2016), which is composed of 42 items on a Likert scale ranging from 0 ("not at all" or "never") to 4 ("a great deal" or "all the time"). The FCRI has seven dimensions: Triggers composed by 8 items (Cronbach's alpha = 0.925) to examine psychological situations perceived as indicative of cancer recurrence and the extent to which they are typically avoided; Severity composed by 9 items, (Cronbach's alpha = 0.873) to assess the presence, frequency, intensity, and duration of thoughts related to FCR, perceived risk of recurrence, and beliefs about being healed; Psychological distress composed by 4 items (Cronbach's alpha = 0.879) to examine the intensity of four emotional responses elicited by thoughts related to FCR; Coping strategies composed by 9 items (Cronbach's alpha = 0.839) referring to approaches used to deal with FCR; Functioning impairment composed by item 6 items (Cronbach's alpha = 0.960) to explore areas of functioning that may be disrupted by FCR; Insight composed by 3 item (Cronbach's alpha = 0.853) to evaluate the extent to which patients perceive their FCR as excessive or unreasonable, including the belief that they worry excessively about recurrence; Reassurance composed by 3 item (Cronbach's alpha = 0.560) to explore some reassuring behaviors implemented and specific for FCR. A score can be obtained for each of these subscales and for the global scale (total score, Cronbach's alpha = 1.33) by the calculation of the mean. A higher score indicates higher levels of FCR.

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Hospital Anxiety and Depression Scale (HADS)

The Hospital Anxiety and Depression Scale (HADS) is a widely used self-report screening tool designed to identify symptoms of anxiety and depression in medical patients. It consists of 14 items divided into two subscales: 7 items assess anxiety (HADS-A) and 7 items assess depression (HADS-D) (HAD-D, Cronbach's alpha = 0.751; HAD-A, Cronbach's alpha = 0.867). Each item is scored on a 4-point Likert scale, providing a maximum score of 21 for each subscale. The questionnaire has been already validated in Italian language (Costantini et al. 1999).

European Organization for Research and Treatment of Cancer Quality of Life Core Questionnaire (EORTC-QLQ-C30)

European Organization for Research and Treatment of Cancer Quality of Life Core Questionnaire (EORTC-QLQ-C30) was used to measure the QoL of cancer patients. The questionnaire has been already validated in Italian language (Apolone et al. 1998) and is based on patient self-assessment and consists of 30 items. The first 28 items have four possible response modes (1 = not at all, 2 = a little, 3 = quite a bit, 4 = very much); the last two, however, have a 7 step Likert scale response mode (1 = very poor; 7 = excellent). Raw scores are linearly transformed to a 0–100 scale. Higher scores indicate better functioning for the functional and global health scales, and greater symptom burden for the symptom scales.

Statistical analyses

Socio-demographic and clinical characteristics of the sample were analyzed in terms of descriptive statistics: mean, median and measure of variability (standard deviation; SD) for quantitative variables; in terms of frequency and percentage for categorical variables. Linear and generalized linear models were applied to assess the relationships among endpoints. In details, linear models were applied to assess the relationship among socio-demographic and clinical features (as predictors) and FCR (as outcome). In addition, the FCR measures (both in terms of total score and subscales) were assessed as potential predictors of QoL total score (and its subscales). Similarly, FCRI total score and subscales were considered as measured potentially affecting Anxiety and Depression domains of the HADS. Additional linear models were applied for evaluating potential confounding effect of socio-demographic and clinical features on the relationship FCR-QoL, and FCR-HADS scales. Results were presented in terms of regression beta coefficients corresponding 95% confidence intervals.

Finally, two mediation models (following the mediation model hypothesis testing described in Baron, Kenny (1986), were assessed in order to highlight the mediation effect of anxiety and depression (tested respectively in two different mediation model) on the relationship between FCR and QoL.

The analyses were performed using R software (R Core Team, 2020, version 3.6.3). Type I error was set at $p < 0.05$.

Results

Sociodemographic and clinical characteristics

Questionnaires were proposed to 200 patients. 175 participants returned their questionnaires, 13 people declined to participate in the study, and 12 questionnaires were incomplete, making them unsuitable for the research. The characteristics of the sample are listed in Table 1.

FCR in cancer patients

Participants reported a high level of FCR, with a mean FCRI total score of 71.6. The different dimensions that make up FCRI were then analyzed. The severity of FCR was notable ($M = 17.1$), and triggers were rated as highly impactful ($M = 13.4$). Common triggers included physical discomfort or illness and exposure to cancer-related content in the media (e.g., TV programs or news articles). Participants showed moderate insight into their fear ($M = 2.42$), recognizing it as somewhat excessive or irrational. The emotional distress associated with FCR was substantial ($M = 7.14$), predominantly involving worry, anxiety, sadness, frustration, and anger.

FCR was found to cause meaningful functional impairment ($M = 10.1$), particularly in psychological well-being, social and recreational activities, interpersonal relationships, and future planning.

Despite this, participants largely employed adaptive coping strategies ($M = 19.0$). The most frequent included positive reframing, self-reassurance (e.g., "everything will be fine"), and distraction through daily activities like reading, working, or watching TV. Reassurance-seeking behavior was moderate ($M = 2.60$), with a preference for consulting healthcare professionals (e.g., calling doctors or attending follow-up exams), while self-examination was less commonly reported.

Predictors of FCR

Among socio-demographic and clinical variables, only gender and time since diagnosis (variable dichotomized into two categories: ≤12 months, >12 months) emerged as significant predictors of FCR. Women reported significantly higher FCR scores than men ($p = 0.008$, $\beta = 12.2$, 95%CI [2.9–19.7]), with an average increase of 12.2 points. Similarly, FCR levels increased approximately 12 points after at least 12 months post-diagnosis ($p = 0.020$, $\beta = 11.9$, 95%CI [2.4–27.4]).

Psychological distress in cancer patients

Participants did not report clinically significant levels of anxiety ($M = 6.80$) or depression ($M = 6.16$), suggesting relatively low psychological distress overall.

Quality of Life (QoL) in cancer patients

The sample demonstrated good overall QoL ($M = 60.6$), supported by high scores on functional subscales and low scores on symptom-related subscales.

Effect of FCR on quality of life

Regression analysis revealed a significant inverse association between FCR and QoL ($p = 0.001$, $\beta = -0.20$), indicating that higher FCR is associated with lower QoL (Table 2). Further analysis of FCRI subscales showed that higher scores in Triggers, Severity, Insight, Distress, and Functional Impairment were linked to reduced functioning and increased symptoms – including

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Table 2. Effect of FCR on QoL

	QoL_tot		
Predictors	Estimates beta coefficients	CI	*p*
(Intercept)	68.28	61.51–75.04	<0.001
TRIGGERS	−0.57	−1.01 to −0.13	0.012
SEVERITY	−0.73	−1.14 to −0.32	0.001
DISTRESS	−1.04	−1.76 to −0.33	0.005
FUNCTIONING IMPAIRMENTS	−0.89	−1.34 to −0.44	<0.001
INSIGHT	−2.75	−4.21 to −1.30	<0.001
REASSURANCE	−0.89	−2.09 to 0.32	0.148
COPING	0.01	−0.40 to 0.41	0.973
FCRI tot	−0.20	−0.31 to −0.08	0.001

Table 3. Effect of sociodemographic and clinical variables on the relationship FCR-QoL

	QoL		
Predictors	Estimates	CI	*p*
(INTERCEPT)	61.56	21.74–101.38	0.001
FCRI TOT	−0.20	−0.33 to −0.06	**0.005**
GENDER	0.16	−7.74–8.06	0.968
AGE	0.03	−0.49–0.55	0.910
CIVIL STATUS	18.56	−5.25–42.37	0.120
AGE CHILD	−5.28	−17.69–7.12	0.401
EDUCATION	−7.97	−21.23–5.29	**0.007**
OCCUPATIONAL STATUS	−8.40	−18.34–1.55	0.246
(INTERCEPT)	69.18	49.84–88.53	<0.001
FCRI TOT	−0.18	−0.31 to −0.05	**0.005**
PSYCHOLOGICAL SUPPORT	−0.03	−10.61–10.56	0.617
STAGE	4.01	−3.25–11.26	0.277
SITE	−4.61	−13.05–3.83	0.620
RELAPSE	−2.04	−11.13–7.05	0.659
TIME TO DIAGNOSIS	13.48	4.27–22.69	**0.041**

p indicated p-value (statistical significance)

fatigue, insomnia, appetite loss, and financial concerns. A multiple regression analysis showed no significant effects of sociodemographic variables as potential confounders in the relationship between FCR and QoL. However, the clinical variable "time since diagnosis" had a significant impact ($p = 0.041$, $\beta = 13.48$) on this relationship (Table 3). In the multiple regression model, receiving psychological support within the last year was not significantly associated with FCR (FCRI total score) ($\beta = -0.03$, 95% CI: −10.61 to 10.56, $p = 0.617$). The coefficient was close to zero, and the wide confidence interval crossing zero indicates the absence of a meaningful association between psychological support and FCR levels in this sample. These findings suggest that, in this cohort, having received psychological support did not correspond to lower levels of FCR.

Effect of the FCR on psychological distress

A regression analysis was conducted to assess the relationship between FCR and anxiety and depression. FCR was found to be significantly associated with anxiety ($p < 0.001$, $\beta = 0.08$), with higher levels of FCR leading to increased anxiety. All FCRI subscales were significantly related to anxiety, except for the Coping subscale, which showed no significant association ($p = 0.544$, $\beta = 0.02$). FCR was significantly positively associated with depression ($p < 0.001$, $\beta = 0.06$), indicating that higher FCR levels corresponded to greater depressive symptoms. Most FCRI subscales were significantly related to depression, except for Coping ($p = 0.632$, $\beta = -0.02$) and Reassurance ($p = 0.127$, $\beta = 0.17$), which did not show significant associations. A multiple regression analysis confirmed that these relationships were not influenced by sociodemographic or clinical variables (Table 4).

Mediation models

Two mediation models were tested to explore whether anxiety and depression mediated the relationship between FCR and QoL (Fig. 1). In both models, anxiety and depression acted as full mediators. When anxiety was included as a mediator, the direct effect of FCR on QoL was no longer significant ($\beta = -0.02$, $p = 0.770$), indicating that FCR impacts QoL indirectly through anxiety (Fig. 1, Panel A). Similarly, when depression was tested as the mediator, the direct effect of FCR on QoL also lost significance ($\beta = -0.03$, $p = 0.655$) (Fig. 1, Panel B). In detail, FCR was positively associated with both anxiety ($\beta = 0.08$, $p < 0.001$) and depression, which in turn were significantly and negatively associated with QoL. These results suggest that the negative impact of FCR on QoL operates primarily through heightened emotional distress. In conclusion, the data analysis revealed that FCR is inversely related to QoL and positively correlated with both anxiety and depression.

Moreover, a significant association has emerged between the time since the diagnosis and FCR ($p = 0.020$, $\beta = 11.9$). Specifically, the analysis of the data shows that the FCR increases on average by about 12 points a year after diagnosis.

In conclusion, data analysis showed that FCR is inversely related to QoL and positively correlated with anxiety and depression. It also emerged that these significant associations are not influenced by socio-demographic or clinical variables related to cancer. Regarding predictive factors, gender and time since diagnosis were identified as significant predictors of FCR.

Discussion

FCR is recognized as one of the most common psychological experiences and among the greatest unmet needs reported by cancer patients, whether diagnosed with localized or metastatic disease (Nilsson et al. 2021). This study aimed to explore the impact of FCR on emotional distress and QoL in patients undergoing systematic cancer treatment.

Consistent with previous research, our analysis revealed that higher levels of FCR are significantly associated with increased symptoms of depression and anxiety, both of which negatively affect overall QoL (Simard and Savard 2015). Moreover, FCR

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Table 4. Effect of FCR on anxiety and depression

	HADS_ANXIETY			HADS_DEPRESSION		
Predictors	Estimates	CI	*p*	Estimates	CI	*p*
(Intercept)	3.16	1.98–4.33	<**0.001**	3.45	2.27–4.63	<**0.001**
TRIGGERS	0.27	0.19–0.35	<**0.001**	0.20	0.12–0.28	<**0.001**
SEVERITY	0.31	0.24–0.38	<**0.001**	0.26	0.19–0.33	<**0.001**
DISTRESS	0.46	0.35–0.58	<**0.001**	0.37	0.25–0.49	<**0.001**
FUNCTIONING IMPAIRMENTS	0.32	0.25–0.40	<**0.001**	0.30	0.23–0.37	<**0.001**
INSIGHT	0.88	0.63–1.12	<**0.001**	0.78	0.54–1.03	<**0.001**
REASSURANCE	0.26	0.03–0.48	**0.024**	0.17	−0.05–0.39	0.127
COPING	0.02	−0.05–0.10	0.544	−0.02	−0.09–0.06	0.632
FCRI tot	0.08	0.06–0.10	<**0.001**	0.06	0.05–0.08	<**0.001**

p indicated p-value (statistical significance)

showed an inversed correlation with several QoL domains, including physical, emotional/mental, role, social, and cognitive functioning (Simard et al. 2013). These findings provide empirical support for the hypothesis that FCR contributes to the deterioration of psychological well-being, which subsequently impairs broader aspects of functioning and perceived QoL.

Interestingly, this relationship does not appear to be influenced by sociodemographic factors such as gender, age, education, marital status, or occupation. Similarly, clinical variables – including disease site, disease stage, and the number of cancer diagnoses – did not significantly alter the association between FCR and QoL.

Recent studies suggest that anxiety related to one's clinical condition, particularly FCR, often manifests as emotional distress regardless of cancer stage, type of treatment, or time since diagnosis (Hedman et al. 2017). In our study, no significant differences in FCR were observed between patients with localized disease and those with advanced disease when analyzing the "stage of disease" variable. According to Leventhal's Self-Regulation Model, this finding could be explained by individual differences in illness perception and awareness of treatment goals, which shape the subjective experience of FCR. Supporting this view, other research has shown that patients who perceive their illness as chronic tend to report higher levels of FCR, regardless of objective indicators of disease progression (Götze et al. 2019).

Time since diagnosis also emerged as a significant predictor of FCR. Our results showed a 12-point increase in FCR one year after diagnosis, suggesting that while FCR is present throughout the treatment journey, it tends to intensify over time. We hypothesize that FCR may be substantially influenced by the presence of physical symptoms, which can create feelings of vulnerability and trigger fear of recurrence. Symptoms such as fatigue, insomnia, and appetite loss may be interpreted differently by patients – some view them as side effects of treatment, while others fear they are signs of disease recurrence (Crist and Grunfeld 2013; Lebel et al. 2013).

This trend may reflect a shift in patients' interpretation of physical symptoms: in the early months after diagnosis, symptoms are often seen as treatment-related, while over time, they may be increasingly perceived as signs of recurrence or disease progression. Patients still undergoing treatment a year after diagnosis may experience heightened uncertainty about their prognosis and treatment efficacy, leading to increased fear about the future. This trend appeared independent of disease site and stage, echoing patterns observed in much of the existing literature (Galica et al. 2021).

Another noteworthy predictor of FCR that emerged from our study is gender. Consistent with prior research (Koch-Gallenkamp et al. 2016; Simard and Savard 2015), our analysis revealed that women tend to report higher levels of FCR than men. Several possible explanations have been proposed in the literature. One perspective highlights the concept of illness intrusiveness – the extent to which cancer disrupts key life domains – including aspects related to identity, body image, reproductive health, and long-term life planning, which may be particularly salient for women (Lebel et al. 2013). Additionally, previous studies have found that women, on average, may exhibit higher baseline levels of anxiety and depressive symptoms than men during and after cancer treatment (Linden et al. 2012), which could contribute to heightened FCR. Sociocultural factors might also play a role: women are often positioned as caregivers and central figures in family systems, and this relational orientation may increase concerns not only about their own prognosis, but also about the impact of a potential recurrence on loved ones (Thewes et al. 2013).

Our findings show that anxiety and depression related to FCR persist throughout the course of systemic cancer treatment, with important clinical implications. As FCR appears to primarily elicit emotional distress, interventions should target specific mechanisms such as intrusive thoughts, intolerance of uncertainty, and illness-related worry. Given the mediating role of emotional distress between FCR and QoL, integrated, transdiagnostic approaches addressing both FCR and mood symptoms may be most effective. Additionally, the link between time since diagnosis and increased FCR highlights the need for ongoing psychological monitoring. Overall, these results underscore the complex relationship between cognitive fears, emotional well-being, and QoL, supporting the development of personalized, multifaceted psychosocial interventions.

Study limitations

Several limitations of this preliminary study should be acknowledged. A key limitation of the present study is its cross-sectional design, which inherently restricts the ability to draw conclusions about the temporal persistence of FCR. Examining the causal and temporal dynamics of FCR over time through a longitudinal study design will be the topic of our future study.

The sample's representativeness is limited, as it includes only patients receiving systemic therapy. This may reduce the

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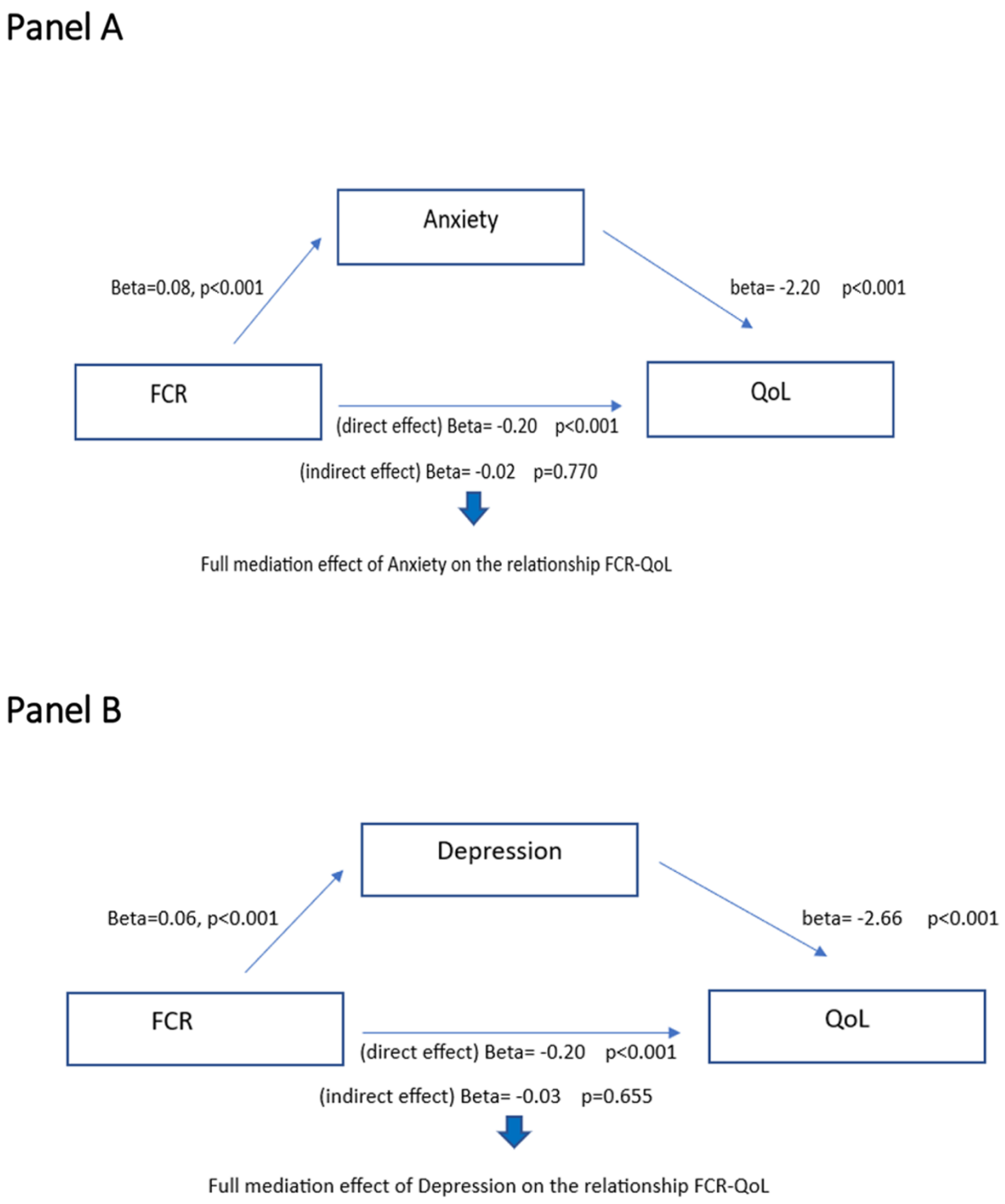

Figure 1. Mediation effect of anxiety and depression on the relationship FCR-QoL.

generalizability of findings to other cancer populations, such as those treated with surgery alone or under active surveillance. Future research should include more diverse treatment groups.

While we identified some clinical and demographic factors linked to FCR, these account for only a limited portion of its variability – consistent with previous research. No significant differences in FCR were found based on disease site or stage, suggesting a similar level of fear across patient subgroups.

Nonetheless, further investigation into cancer-related clinical variables – particularly disease site, stage, and recurrence location – is warranted.

Furthermore, information regarding the intent of treatment (curative vs. palliative) was not systematically collected and could not be included in the analysis. This represents a potential limitation, as patients' psychological responses, including FCR and perceived QoL, may differ based on treatment goals and prognosis.

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Future research should explore patients' awareness of their disease stage and therapeutic goals, as these may influence FCR levels. It would also be valuable to examine whether FCR differs based on the site of recurrence – comparing recurrences at the primary site versus distant locations.

This study was conducted within Italy's public healthcare system, which ensures universal access to oncological treatments, though psycho-oncological support remains inconsistently available across regions. Cultural factors – such as attitudes toward illness, medical authority, and information-seeking behaviors – may also influence experiences of uncertainty and FCR. These contextual elements should be considered when interpreting the findings and evaluating their generalizability. Understanding these dynamics can guide the development of more targeted, phase-specific psychoeducational interventions to reduce FCR and support emotional adjustment throughout the cancer care continuum.

Conclusion

These findings carry important psychological implications, highlighting the need to support patients in recognizing and managing their fear and emotional distress – both widely acknowledged as unmet needs in oncology care (NM et al. 2019; Simard et al. 2013).

Given the observed rise in FCR around 12 months post-diagnosis, introducing a psychoeducational intervention approximately six months after diagnosis may be beneficial. FCR tends to persist across the full duration of the chemotherapy treatment trajectory and is often triggered by body symptoms and disease-related information from non-medical sources such as media and the internet (Galica et al. 2021; Götze et al. 2019).

Although oncology teams typically provide basic information about diagnosis, treatment, and side effects, our findings suggest that this support alone appears insufficient to address the psychological burden of FCR. From our point of view patients may benefit from structured interventions targeting the emotional and cognitive dimensions of FCR. A promising approach is the stepped care model, offering low-intensity interventions to all patients, with stepped access to individual psychological therapy for those with persistent or severe FCR. Programs integrating psychoeducation with metacognitive and cognitive-behavioral strategies, such as ConquerFear Program (Pn et al. 2017), have shown efficacy and could be considered for early implementation in cancer care pathways. This, in turn, can support functional adaptation, enhance coping strategies, and improve QoL by helping patients resume daily routines and reconnect with meaningful life experiences (Hedman et al. 2017; Luigjes-Huizer et al. 2022). From our perspective, psychological interventions should be structured to enhance patients' awareness and understanding of the mechanisms underlying anxiety activation, with the aim of collaboratively developing evidence-based strategies for cognitive and emotional regulation. This integrative and anticipatory approach may be crucial for reducing the emotional impact of FCR and supporting long-term psychological well-being. Overall, the study offers new insights into the timing, psychological mechanisms, and clinical significance of FCR in patients undergoing active treatment. It highlights the importance of implementing structured, anticipatory interventions within a stepped-care framework to effectively address the psychological burden of FCR.

Supplementary material. The supplementary material for this article can be found at https://doi.org/10.1017/S1478951525101016.

Data availability statement. The data that support the findings of this study are available from the corresponding author upon reasonable request.

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Competing interests. The authors declare none.

Ethical approval. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. The present study was approved by the Ethics Committee of Brescia, Italy, approval No. 5911.

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