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Fear of Cancer Recurrence in AYA Caregivers: Emotional Needs and Family Strength

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Resumo

O Medo da Recorrência do Cancro (FCR) caracteriza-se como um fenómeno associado a pior ajustamento psicológico, níveis elevados de stress e à redução da qualidade de vida de sobreviventes e seus cuidadores. Apesar da elevada prevalência, poucos estudos têm explorado FCR em cuidadores de pacientes oncológicos adolescentes e jovens adultos (AYA), que enfrentam desafios desenvolvimentais e familiares únicos desta faixa etária. Embora se saiba que as necessidades psicossociais não atendidas e as dinâmicas familiares influenciam o bem-estar do cuidador, seu papel específico no FCR em cuidadores de AYA permanece pouco documentado. A fim de preencher esta lacuna, o presente estudo visa investigar de que forma as necessidades emocionais não atendidas e os recursos familiares contribuem para o FCR em cuidadores de AYAs. Este estudo quantitativo, transversal, incluiu 65 cuidadores portugueses, que preencheram questionários de autorrelato. Foi conduzida uma regressão linear múltipla hierárquica em dois blocos: no bloco 1 foi incluída a idade do cuidador, seguida, no bloco 2, das necessidades emocionais não atendidas e dos recursos familiares. O modelo de regressão revelou-se significativo, explicando 22,7% da variância do FCR. As necessidades emocionais mostraram uma associação positiva com FCR, enquanto os recursos familiares apresentaram associação negativa, mas não significativa. Cuidadores mais jovens relataram níveis mais elevados de FCR. Os nossos resultados contribuem para a compreensão das experiências dos cuidadores de AYAs, destacando a relevância do suporte emocional e enfatizam a importância de intervenções que atendam às necessidades emocionais não atendidas, promovam os recursos familiares e proporcionem suporte integrativo aos cuidadores.

Palavras-chave: Medo da Recorrência do Cancro; Cuidadores; Cancro em Adolescentes e Jovens Adultos; Necessidades Emocionais Não Atendidas; Recursos Familiares

Abstract

Fear of Cancer Recurrence (FCR) is a multidimensional phenomenon associated with poorer psychological adjustment, heightened distress, and reduced quality of life among survivors and their caregivers. Despite its prevalence, limited research has explored FCR in caregivers of adolescent and young adult (AYA) cancer patients, who face unique developmental and familial challenges. While unmet psychosocial needs and family dynamics are known to influence caregiver well-being, their specific role in shaping FCR in AYA caregivers is unclear. To address this gap, the present study investigates how unmet emotional needs, alongside family strength, contribute to FCR among caregivers of AYA cancer patients.This quantitative, cross-sectional study included 65 Portuguese caregivers who completed self-report questionnaires. Hierarchical multiple linear regression was conducted in two steps: caregiver age was entered in Block 1, followed by unmet emotional needs and family strength in Block 2. The regression model was significant, explaining 22.7% of FCR variance. Unmet emotional needs were positively associated with FCR (β = .393, p < .001). While family strength showed a non-significant negative trend (β = –.242, p > .05). Unmet emotional needs were strongly associated with higher FCR, highlighting the importance of caregiver emotional support in this context. Younger caregivers reported greater FCR, suggesting demographic factors also influence the phenomenon. Our findings contribute to the understanding of caregiver experiences in AYA oncology and emphasize the need for targeted interventions to address unmet emotional needs, enhance family resources, and provide comprehensive support for caregivers.

Keywords: Fear of Cancer Recurrence; Caregivers ; Adolescent and Young Adult (AYA) cancer; Emotional unmet needs; Family Strength

Introduction

Caregivers of Adolescent and Young Adult Patients

Informal caregivers, including parents, partners, friends and other family members who typically share a significant pre-existing relationship with the patient and assist with providing care, play a vital role in supporting cancer survivors (Kim et al., 2016). In the early stages of the illness, they provide practical help, such as accompanying patients during diagnostic procedures, together with emotional assistance in coping with uncertainty and fear. As the illness advances, their role expands to encompass daily care and psychosocial support (Romito et al., 2013). Moreover, caregivers are able to provide a level of support which would not be accessible within the formal healthcare system, assisting cancer survivors both physically and emotionally (Given, 2019).

The transition to the caregiving role is often abrupt, with little to no preparation for the change in responsibilities (Van Ryn et al., 2011). Caregiving is frequently associated with substantial challenges, as it constitutes a demanding, disruptive, and time-consuming activity (Stenberg et al., 2010). In attempting to balance caregiving duties with household and occupational demands, caregivers often report feeling overwhelmed by the extent of their responsibilities (Kim et al., 2006; Romito et al., 2013). Furthermore, they are at increased risk for psychological distress, depression, anxiety, and social isolation (Applebaum et al., 2013). Empirical evidence consistently demonstrates that caregivers face significantly higher levels of depression and anxiety than non-caregivers, reflecting the profound emotional impact of the caregiving experience (Stenberg et al., 2010).

Hodges et al. (2009) observed that psychological distress commonly arises simultaneously in both patients and their informal caregivers, with caregivers tending to experience higher anxiety levels during treatment. Similarly, Kim et al. (2012) identified a significant association between anxiety in cancer survivors and cancer-related anxiety in their caregivers (Shi et al., 2023). These results emphasize the dyadic and bidirectional dynamics of the patient–caregiver relationship, which can influence mutual psychological outcomes (Mellon

et al., 2007; Shi et al., 2023). In addition to providing direct care and psychosocial support, caregivers may also promote adaptive psychological adjustment in patients.

The caregiving role may assume particular significance for adolescent and young adult (AYA) patients. AYAs patients are defined as individuals diagnosed with cancer between the ages of 15 and 39. In addition to the stressors commonly experienced by cancer patients, this age group also faces unique challenges associated with their developmental stage of life, including social, biological, and cognitive changes (Steinberg & Morris, 2000).The developmental particularities of AYAs often contribute to more dependent dynamics with their caregivers, thereby underscoring the need to conceptualize families as systems that may require targeted supportive care (Bu et al., 2025). Accordingly, prior research has emphasized the importance of considering patients and caregivers as a unit and of delivering support that addresses the needs of both groups (Soriano et al., 2021).

As previously noted, despite the recognized importance of caregivers for oncology patients, particularly those supporting AYAs, their psychological well being and experiences remain insufficiently researched. This gap limits a comprehensive understanding of their challenges, the psychosocial impact of caring for young adults with cancer, and the development of innovative and effective strategies to provide support across different phases of treatment and throughout survivorship.

Fear of Cancer Recurrence in Caregivers

Both cancer survivors and their caregivers experience multiple challenges that may compromise their overall well-being and quality of life. Notably, fear of cancer recurrence (FCR) is recognized as a particularly significant source of psychological distress (Shi et al., 2023).

FCR is defined as fear, worry, or concern relating to the possibility that cancer will come back or progress (Lebel et al., 2016). This phenomenon is multidimensional and integrates an array of psychological processes alongside physiological reactions. FCR may appear immediately after cancer diagnosis or treatment and has been shown to remain stable for years (Simard & Savard, 2009).Fear of cancer recurrence has been linked to poorer psychological adjustment, increased emotional distress and lower quality of life outcomes for survivors (Vickberg, 2003) and their family members (Mellon et al., 2006).

A meta-analysis by O'Rourke et al. (2021) found that caregivers worry about cancer recurrence as much as the survivors themselves. Webb et al. (2023) reported substantial levels of FCR among caregivers, with 48% scoring in the clinical range. Beesley et al. (2020) revealed statistically significant and sizable associations between caregiver FCR and depression and anxiety, mirroring relationships observed among survivors.

Although patients and caregivers face cancer together and are technically coping with the same illness, they may experience distinct illness-related psychological reactions (Ben-Zur et al., 2001). Patients and caregivers can integrate and process information from various aspects of the illness in unique ways, thereby attributing their own meaning to it (Leventhal et al., 1980). A systematic review suggests that while caregivers share some similar FCR experiences with cancer survivors, such as persistent feelings of uncertainty and fear of death years after diagnosis (Balfe et al., 2016; as cited in Webb et al., 2022), there are also aspects unique to their role. For instance, caregivers often feel a strong need to protect the survivor from both cancer-related triggers and their own anxieties about recurrence. Moreover, caregivers frequently hesitate to express their personal worries or concerns, fearing that it might increase patient's distress (Catania et al., 2019 as cited in Webb et al., 2022)

While FCR in caregivers has been previously studied, research specifically focusing on caregivers of adolescent and young adult survivors remains limited. The unique characteristics of caregivers of AYA survivors shape experiences of cancer and FCR in ways that differ from those in other age groups. For instance, Mellon et al. (2007) found that as the age of the partner decreased, both the survivor's and caregiver's fear of cancer recurrence increased. That is, survivors with younger caregivers and caregivers with younger survivors could experience heightened fear. This finding suggests that providing care for AYA patients may involve particular vulnerabilities, placing their caregivers at an increased risk of experiencing FCR.

Caregivers Unmet Needs and FCR

The caregiving role presents a multitude of challenges that can significantly impact caregivers' mental and physical well-being. Unmet needs exacerbate this challenging process, amplifying feelings of helplessness and distress. A caregiver's need is defined as 'unmet' when an action or resource is needed to attain optimal well-being but is not satisfied (Skelenorova et al., 2015). In adults, research indicates a consistent association between unmet psychosocial needs during the survivorship phase and negative mental health outcomes for caregivers (Kim

et al., 2010). Recognizing and addressing these needs early on in the cancer patient's treatment journey are crucial steps in providing effective support to caregivers (Yang et al., 2021).

In a study with AYA patients and their caregivers, Cheng et al. (2022) reported that nearly all caregivers (98.9%) experienced at least one unmet need, most frequently related to worries about the future and information. Moreover, personal and emotional needs, together with healthcare access and continuity, were strongly associated with higher anxiety and depression levels, whereas personal, emotional, and financial needs were linked to poorer quality of life.

Unmet informational needs, across different age groups, have been consistently documented in literature (Cheng et al., 2022; McCarthy et al., 2017). However, Sklenarova et al. (2015) highlighted that emotional needs are equally critical in shaping caregivers' experiences and coping strategies. Specifically, the authors observed that a considerable proportion of caregivers reported moderate to high levels of unmet needs concerning emotional support, maintenance of their own health, and the balance between personal demands and caregiving responsibilities. Moreover, they further demonstrated that caregiver anxiety is strongly associated with higher levels of unmet needs, particularly within the domains of emotional and psychological support, communication, and family-related issues. The needs often involve managing emotional distress, providing patients with emotional support, and coping with limited personal time and reduced social engagement (Lambert et al., 2012). Sklenarova et al. (2015) findings also revealed that fears and distress represent central concerns, with many caregivers reporting the need for support in coping with anxiety about disease progression or cancer recurrence.

Family Functioning and FCR

Family functioning is a critical factor in the caregiving process, particularly in the context of AYA patients and their caregivers. AYA patients are typically still dependent and living with their primary caregivers, often a parent or legal guardian. Consequently, family functioning represents a key psychosocial determinant for understanding how families adapt and cope with the challenges of cancer and its treatment. Family caregivers may experience difficulties in managing their own fear of cancer recurrence, and if left unaddressed, these fears can significantly affect their long-term quality of life as well as their role functioning within the family (Mellon et al., 2007)

To our knowledge, to date, there have been no studies investigating the contribution of family functioning in the fear of cancer recurrence of AYAs caregivers. However, parallels can be drawn from research on other age groups. Regarding pediatric cancer patients, Van Schoors et al. (2019) found that both family functioning and cancer appraisal matter for patients', parents' and siblings' quality of life when facing childhood cancer. Moreover, more emotional closeness within the family was associated with lower levels of loneliness in all family members. In other words, when a family member perceived their family as warm and loving, open to talk about experiences and emotions and there were little conflicts, they reported feeling less lonely. This is in line with the idea that family functioning is important for the adjustment of children and parents when facing childhood cancer (Van Schoors et al., 2017).

Previous research has indicated that the cancer experience, along with the associated caregiving demands, may exacerbate pre-existing family conflicts and generate additional challenges to family functioning (Segrin et al., 2018; Wang et al., 2021). Similarly, Clavarino et al. (2002) observed compromised family functioning in areas such as problem-solving, communication, and social role performance. Moreover, a study of ninety families affected by cancer revealed that more than half demonstrated signs of dysfunction and insufficient resources (Panganiban-Corales & Medina, 2011). Under these circumstances, the notion of family strength becomes particularly relevant. Family strength refers to the capacity of family members to engage collectively in family matters and mobilize coping strategies based on cohesive and resilient bonds (Lee & Han, 2024). Together, these qualities allow families to respond constructively to difficulties and stressful situations.

Understanding the various determinants of FCR is crucial not only for comprehending the phenomenon itself but also for designing effective interventions, especially given its substantial impact on the mental health and quality of life of both cancer survivors and their caregivers. Addressing caregivers' fears regarding the potential return of the patient's cancer may yield benefits for both parties. Caregivers of young adult cancer patients, in particular, exhibit distinctive patterns of illness adaptation, shaped by the critical developmental stage shared by both patients and caregivers. FCR of AYA caregivers remains insufficiently studied, in particular, whether and how unmet needs and family-related dynamics influence FCR of AYA caregivers, is largely unknown. A better understanding of these influences could inform the development of targeted interventions to support caregivers and, indirectly, the patients themselves.

Study Objectives

In the current study, we aimed to analyze the role of unmet emotional needs, family strength on fear of cancer recurrence (FCR) among caregivers of adolescent and young adult (AYA) cancer patients, while controlling for caregiver age. We expected that high scores on unmet emotional needs would be associated with higher FCR. We also anticipate that higher levels of family strength would be associated with lower FCR.

Method

The present study is integrated into the Sem Medos project, approved by the Ethics Committee of the institutions where data collection is implemented. Detailed references to the approvals as follows: IPOP: Ref. CES. 196/023; IPOL: UIC/1580; CHUC: OBS.SF.085-2023; CHUSJ: CE-102-23; FPCEUP: Refª 2023/03-15. This project aims to collect data on Portuguese AYA cancer patients and their caregivers, with the primary objective of advancing a comprehensive understanding of Fear of Cancer Recurrence within this population.

Participants

The participants in the study were 65 caregivers of AYA cancer patients. The inclusion criteria required participants to be the primary caregiver of a patient who met the following criteria: (a) received cancer diagnosis between the ages of 15 and 25 and (b) being currently at any treatment phase and time since diagnosis. The exclusion criteria was not being fluent in Portuguese.

The average age of the sample was 46.92 years (range: 19 to 76 years; SD = 11.503), with 80.3% being female (n = 53). A variety of educational levels were reported, including 43.1% with primary education (primary school, lower middle school and middle school, n = 28), 33.8% with high school education (n = 22), 12.3% with a bachelor's degree (n = 8), 9.2% with master's degree (n = 6), and 1.5% with a doctoral degree (n = 1). Regarding current occupational status, 63.6% of the sample reported being a full-time employee (n = 42), while

19.7% were unemployed (n = 13). Other categories included students (3%; n=2), part-time employees (3%; n=2), and individuals on medical leave (6.1%; n=4). Moreover, the caregivers in this sample were primarily relatives or family members (87.9%), including 44 mothers (66.7%), 7 fathers (10.6%), 4 siblings (6.1%), 1 cousin (1.5%) and 2 grandparents (3%). Other types of caregivers, such as romantic partners accounted for 12.1% of the sample (n=8). Additionally, 89.4% of the caregivers reported currently living with the AYA patient they provide care for (n = 59).

Measures

All the data was collected through a self-report questionnaire. The socio demographics and clinical information gathered were: age, gender, marital status, occupational status, level of education, degree of kinship, health issues and previous access to psychological or psychiatric support.

The Portuguese adaptation of the Systemic Clinical Outcome and Routine Evaluation (SCORE-15; Stratton et al., 2010; Vilaça et al., 2014) was employed to assess key aspects of family functioning. This self-report questionnaire was developed to measure indicators sensitive to therapeutic change, including everyday challenges perceived by family members. The instrument consists of fifteen items rated on a five-point Likert scale, ranging from 1 ("Describes us very well") to 5 ("Describes us very poorly"). Higher scores indicate greater difficulties in family functioning, whereas lower scores reflect more positive functioning. In addition to the total SCORE-15 score, the instrument provides three subscale scores, each comprising five items: Family Communication, Family Difficulties, and Family Strengths. In the current study we only analyzed the "Family Strengths" subscale. The Family Strengths subscale assesses the family's available resources and adaptive capacity (e.g., "When one of us is upset or distressed, they receive support from the family") and demonstrates good internal consistency ($\alpha = .84$).

The Fear of Cancer Recurrence Scale (FCR7; Humphris et al., 2018), adapted for the Portuguese population (Neves et al., 2025) was applied to assess participants' current fear. The scale consists of seven items. The first six items (e.g., "To what extent did you worry about the possibility of your young family member having cancer again?") are rated on a five-point Likert scale, ranging from 1 (never) to 5 (always). The seventh item ("To what extent does concern about my young family member having cancer again interfere with or intrude upon your

thoughts and activities?") is rated on a ten-point Likert scale, ranging from 1 (not at all) to 10 (very much). The overall scale demonstrated satisfactory internal consistency, with a Cronbach's alpha of .87.

The Short-Form Survivor Unmet Needs Survey (SF-SUNS; Campbell et al., 2014), adapted for the Portuguese population by Sousa et al. (2021), was used to assess caregivers' emotional unmet needs. The instrument evaluates needs over the one-month period preceding questionnaire administration. Items are rated on a five-point Likert scale ranging from 0 (all needs met) to 4 (high level of unmet needs) - for example, a score of 4 indicates that the participant required significant assistance but was unable to obtain it. The SF-SUNS comprises four dimensions: "Informational Unmet Needs," "Financial and Occupational Unmet Needs," "Unmet Medical Care Needs," and "Emotional Needs, Sharing, and Problem-Solving." For the purposes of this study, only the latter subscale was included in the analyses. The Emotional Needs, Sharing, and Problem-Solving subscale consists of nine items (e.g., "Expressing my emotional feelings to others"). This subscale demonstrated good internal consistency ($\alpha = .89$).

Procedure

The present study methodology is quantitative and cross-sectional. The data were gathered employing a hybrid methodology, encompassing both online and in-person modalities. Participant recruitment took place at several Portuguese institutions providing AYA cancer treatments, including São João Hospital in Porto, Porto Portuguese Oncology Institute (IPOP), Lisbon Portuguese Oncology Institute Francisco Gentil (IPO) and University Hospital Center of Coimbra - Pediatric Hospital (CHUC). Data collection at the Porto institutions was conducted predominantly in face-to-face settings. A member of the research team was present to administer paper questionnaires and address participants' questions, following referral by healthcare staff who informed potential participants about the study and assessed their interest in taking part. In contrast, at the Lisbon and Coimbra institutions, data collection occurred mainly online, through digital questionnaires shared by the institutions and the attending medical teams. Overall, data collection took place over a 20 month period, from June 2023 to February 2025.

Data analysis

To address the research objectives, the present study utilize the Statistical Package for Social Sciences (SPSS, 25.0) software. From the initial sample (n = 71), inclusion criteria for the study were verified, leading to the exclusion of six participants who did not meet the established criteria, as they were caregivers of patients diagnosed prior to the age of 15.

As part of the preliminary analyses, outlier detection was performed using Z-scores for univariate outliers and Mahalanobis distance for multivariate outliers. The results indicated no presence of outliers. The normality of the sample distribution was assessed through skewness and kurtosis analyses, with the cutoff point (-2 and +2) defined according to (Gravetter & Wallnau, 2024). Descriptive analyses of the sample were performed, encompassing measures of central tendency (mean), dispersion (standard deviation), and frequency distributions. The internal consistency of the measures were also assessed using Cronbach's alpha. Additionally, we conducted correlation analyses to explore associations among the study variables. Moreover, we conducted a hierarchical multiple linear regression analysis to examine the role of caregiver age, unmet emotional needs, and family strength to fear of cancer recurrence (FCR) among caregivers of adolescent and young adult cancer patients. In Block 1, we introduce the caregiver age. In Block 2, the caregiver age, Unmet Emotional Needs, and Family Strengths dimension were included.

Results

Pearson’s correlation matrix for the main study variables is presented in Table 1. A significant negative correlation was observed between age and fear of cancer recurrence (FCR-7; $r = –.25$, $p < .05$), indicating that younger caregivers tended to report higher levels of fear. In addition, a positive correlation was found between FCR-7 and the unmet emotional needs (SF-SUNS; $r = .37$, $p < .01$), suggesting that greater fear of cancer recurrence was associated with higher levels of unmet emotional needs. No significant correlations were observed between family strengths (SCORE-15) and demographic variables or other study measures.

Table 1. Correlations between caregivers demographic variables and measures

-	1	2	3	4	5	6	7
1. Caregiver's Age	-						
2. Caregiver's Sex	-.18	-					
3.Caregiver's Educational levels	-.04	.02	-				
4.Caregiver's Occupational status	.07	-.00	-.04	-			
5. Emotional Needs Caregiver	-.11	-.32**	-.04	.07	-		
6. FCR Caregiver	-.25*	-.22	-.00	.05	.37**	-	
7.Family Strength	-.11	-.07	.14	.06	.21	-.05	-
M	46.8	1.18	3.69	2.77	1.03	3.99	1.75
SD	11.58	.39	1.27	1.26	1.02	1.24	.68

Note. 1. Caregiver age; 2. Sex; 3. Educational Level; 4. Occupational status; 5. Emotional unmet need (SF-SUNS); 7. Fear Of Cancer Recurrence (FCR-7); 8. Family Strengths (Score-15); M= Mean; SD= Standard Deviation;

** Correlation is significant at the 0.05 level, ** Correlation is significant at the 0.01 level.*

Hierarchical Multiple Linear Regression

We conducted a hierarchical multiple linear regression to examine the role of caregiver age, unmet emotional needs, and family resources to fear of cancer recurrence (FCR) among caregivers of adolescent and young adult cancer patients (see Table 2). In the first block, caregiver age was entered and accounted for 6.9% of the variance in FCR, $F_{(1, 62)} = 4.58$, $p<.05$. In the second block, caregiver age, unmet emotional needs, and family resources were included. The overall model was statistically significant, $F_{(3, 60)} = 5.86$, $p < .001$, explaining 22.7% of the variance in FCR. A significant positive association was found between FCR and unmet emotional needs ($\beta = .39$, $p < .001$), indicating that caregivers with higher levels of unmet emotional needs reported greater fear of recurrence. Although the Family Strengths dimension showed a negative association with FCR (β = –.24); while this association was not statistically significant *(*$p > .05$), it was close to reaching significance ($p = .10$)

Table 2. Hierarchical Multiple Linear Regression for Fear of Cancer Recurrence

Fear of Cancer Recurrence	**R^2**	**R^2 Change**	**B**	**SE**	**β**	***p***
Block 1	.069	.069				
Caregiver's age			-.028	.013	-.262	**.036**
Block 2	.227	.158				
Caregiver's age			-.026	.012	-.242	**.039**
Caregiver's Emotional Unmet Needs			.479	.143	.392	**.001**
Family Strength			-.365	.219	-.195	.101

Discussion

The present study aimed to examine the contribution of unmet emotional needs and family strength to FCR among caregivers of AYA cancer patients. The findings underscore the significant role of unmet needs related to emotional support, sharing, and problem-solving in elevating levels of FCR. These results are consistent with previous literature, which has emphasized the importance of addressing caregivers' needs as essential for reducing stress and improving the well-being of both caregivers and cancer survivors (Chen et al., 2009; Maguire et al., 2017). Moreover, consistent with previous literature, caregivers often face difficulties in managing their own emotions and communicating their challenges, partly because they tend to shield their loved ones from their fears and consistently prioritize patients' needs over their own (Lamarche et al., 2025) Insufficient attention to caregivers' mental health may, in turn, exacerbate their anxiety levels (Sklenarova et al., 2015), compromise overall quality of life (Christophe et al., 2022), and, as demonstrated in our study, heighten fear of cancer recurrence.

While previous research has acknowledged the importance of unmet needs in cancer caregiving, the focus has largely remained on informational needs related to treatment and the healthcare system (Cheng et al., 2022; McCarthy et al., 2017). Our results, however, draw attention to emotional needs as a noteworthy factor that should be explored in future studies. This is particularly relevant for caregivers of AYA patients, who often encounter distinct challenges shaped by the developmental stage of the individuals they care for. Similarly, Almeida et al. (2019) highlighted the emotional dimensions of FCR in their meta-analysis of qualitative studies with cancer survivors. Their findings noted that the emotional, perceptual, cognitive, bodily, and behavioral dimensions of human experience collectively support the understanding of FCR as a multidimensional construct. Furthermore, they also emphasized the need for continued research aimed at developing and evaluating multidimensional interventions for clinical FCR, increasing attention toward aspects that remain relatively underexplored in the literature, particularly emotional and bodily components.

When considering family strength, although this variable did not reach statistical significance, its inclusion in the analysis improved the overall model and produced relatively high B and beta values. These findings suggest that family strength may hold potential relevance

in this context, pointing to the need for further research to clarify its association with fear of cancer recurrence. It is possible that lower levels of perceived family strength are linked to higher FCR, implying that stronger family resources might function as a protective factor. Mellon et al. (2007), for instance, observed that both survivors and caregivers who experienced greater family-related distress and derived less meaning from the illness experience reported heightened levels of FCR. Considering that the family is widely recognized as a central social system and frequently represents the primary source of support for individuals (McCubbin et al., 1980), its role may be particularly relevant for AYA populations and their caregivers, though additional studies are required to substantiate this relationship.

Regarding caregiver age, the results revealed that younger caregivers reported higher levels of FCR, consistent with previous studies associating caregiver's younger age with increased FCR (Mellon et al., 2007; Simard et al., 2013). Nevertheless, the literature on this association remains inconclusive, as more recent findings suggest that older caregivers may experience greater cancer-related worry (Maguire et al., 2017).While caregiver age emerged as a significant predictor of FCR in our analyses, the addition of unmet emotional needs and family strength dimensions significantly improved the model. This finding suggests that emotional factors and family support play a crucial role in shaping the experience of fear of recurrence among caregivers, independent of age.This aligns with a substantial body of literature showing that individuals' subjective perceptions or cognitive appraisals frequently have a greater impact on fear of recurrence than clinical or demographic factors (Llewellyn et al., 2008).

Limitations

It is important to acknowledge several limitations of the present study, the most prominent being its relatively small sample size. Although the sample was relevant given the specificity of the population, larger and more representative samples would allow for more precise analyses and support a more comprehensive understanding of the multifaceted nature of fear of cancer recurrence in caregivers of AYA patients. Specifically, such samples would allow different statistical analyses, such as moderation analyses, to elucidate the complex interactions among the different dimensions of this phenomenon.

Moreover, the sample in this study consisted predominantly of female caregivers (80%). It is therefore crucial to examine gender differences in the manifestation of the phenomenon

and to determine whether these findings hold in a more gender-balanced sample. This is particularly important given that multiple studies have reported that female caregivers tend to experience higher levels of fear of recurrence compared to their male counterparts (Mellon et al., 2007; Matthews, 2003), with some evidence suggesting that women are at greater risk of experiencing FCR.

Additionally, it is essential to explore how this phenomenon manifests across diverse cultural contexts,particularly given that the data in the present study were gathered exclusively from a Portuguese sample. In their systematic review, Mikołaj et al. (2023) identified several key factors influencing caregivers' motivation and willingness to provide care, including cultural norms and belief systems, encompassing the ethnocultural context of caregiving, spiritual and cultural traditions, as well as socialization processes and value frameworks that shape and regulate caregiving responsibilities, among other influences. Therefore, cultural aspects can shape individuals' responses to the demands they face and, consequently, influence their motivations to engage in informal caregiving (Dilworth-Anderson et al., 2005).

Conclusion

The current study aimed to examine the contributions of unmet needs and family strengths to fear of cancer recurrence (FCR) among caregivers of adolescents and young adults (AYA) cancer patients in a Portuguese sample. The results demonstrated that a considerable proportion of FCR is associated with unmet emotional needs and family strengths, regardless of caregiver age. In particular, unmet emotional needs showed strong statistical relevance, indicating that insufficient emotional support may contribute to higher levels of FCR. This suggests that caregivers who perceive a lack of emotional support are more vulnerable to experiencing heightened fears, thereby emphasizing the centrality of emotional well-being in caregiving contexts. Furthermore, caregiver age emerged as a relevant demographic factor, with younger caregivers reporting significantly higher levels of FCR. This result underscores the importance of considering age-related differences in the caregiving experience and their influence on psychological outcomes.

These findings contribute to the understanding of FCR in caregivers of AYA cancer patients, expanding the current body of literature on caregiving experiences in oncology and highlighting the importance for further research into the role of demographic and psychosocial factors in shaping caregivers' fears and coping strategies. Gaining deeper insights into these dimensions would allow healthcare institutions and professionals to better assess the specific challenges faced by caregivers and to implement more targeted, effective interventions. Ultimately, integrating these considerations into clinical practice is essential for promoting comprehensive, holistic care approaches that address both medical and psychosocial dimensions of the cancer experience.

References

Almeida, S. N., Elliott, R., Silva, E. R., & Sales, C. M. D. (2019). Fear of cancer recurrence: A qualitative systematic review and meta-synthesis of patients' experiences. *Clinical Psychology Review, 68,* 13–24. https://doi.org/10.1016/j.cpr.2018.12.001

Applebaum, A. J., & Breitbart, W. (2013). Care for the cancer caregiver: A systematic review. *Palliative & Supportive Care, 11*(3), 231–252. https://doi.org/10.1017/S1478951512000594

Balfe, M., O'Brien, K., Timmons, A., Butow, P., O'Sullivan, E., Gooberman-Hill, R., & Sharp, L. (2016). The unmet supportive care needs of long-term head and neck cancer caregivers in the extended survivorship period. *Journal of Clinical Nursing, 25*(11–12), 1576–1586. https://doi.org/10.1111/jocn.13140

Beesley, V. L., Hughes, M. C. B., & Smithers, B. M. (2020). Anxiety and depression after diagnosis of high-risk primary cutaneous melanoma: A 4-year longitudinal study. *Journal of Cancer Survivorship, 14*(5), 712–719. https://doi.org/10.1007/s11764-020-00885-9

Ben-Zur, H., Gilbar, O., & Lev, S. (2001). Coping with breast cancer: Patient, spouse, and dyad models. *Psychosomatic Medicine, 63*(1), 32–39. https://doi.org/10.1097/00006842-200101000-00004

Bu, X., Jiang, L., & Leung, D. Y. P. (2025). Family involvement interventions on fear of cancer recurrence management among women with breast cancer and their caregivers: A systematic review and meta-analysis. *Journal of Clinical Nursing.* Advance online publication. https://doi.org/10.1111/jocn.17790

Campbell, H. S., Hall, A. E., Sanson-Fisher, R. W., Barker, D., Turner, D., & Taylor-Brown, J. (2014). Development and validation of the Short-Form Survivor Unmet Needs Survey (SF-SUNS). *Supportive Care in Cancer, 22*(4), 1071–1079. https://doi.org/10.1007/s00520-013-2061-7

Catania, A. M., Sammut Scerri, C., & Catania, G. J. (2019). Men's experience of their partners' breast cancer diagnosis, breast surgery and oncological treatment. *Journal of Clinical Nursing, 28*(9-10), 1899-1910. https://doi.org/10.1111/jocn.14800

Chen, S. C., Tsai, M. C., Liu, C. L., Yu, W. P., Liao, C. T., & Chang, J. T. (2009). Support needs of patients with oral cancer and burden to their family caregivers. *Cancer Nursing, 32*(6), 473–481. https://doi.org/10.1097/NCC.0b013e3181b14e94

Cheng, Q., Ng, M. S. N., Choi, K. C., & So, W. K. W. (2022). Unmet needs, anxiety, depression, and quality of life among caregivers of adolescents and young adults with cancer: A cross-sectional study. *Asia-Pacific Journal of Oncology Nursing, 9*(10), 100108. https://doi.org/10.1016/j.apjon.2022.100108

Christophe, V., Anota, A., Vanlemmens, L., et al. (2022). Unmet supportive care needs of caregivers according to medical settings of cancer patients: A cross-sectional study. *Supportive Care in Cancer, 30,* 9411–9419. https://doi.org/10.1007/s00520-022-07379-7

Clavarino, A. M., Lowe, J. B., Carmont, S. A., & Balanda, K. (2002). The needs of cancer patients and their families from rural and remote areas of Queensland. *Australian Journal of Rural Health, 10*(4), 188–195. https://doi.org/10.1046/j.1440-1584.2002.00422.x

Dilworth-Anderson, P., Brummett, B. H., Goodwin, P., Williams, S. W., Williams, R. B., & Siegler, I. C. (2005). Effect of race on cultural justifications for caregiving. *Journals of Gerontology: Series B, 60*(5), S257–S264. https://doi.org/10.1093/geronb/60.5.S257

Given, C. W. (2019). Family caregiving for cancer patients: The state of the literature and a direction for research to link the informal and formal care systems to improve quality and outcomes. *Seminars in Oncology Nursing, 35*(4), 389–394. https://doi.org/10.1016/j.soncn.2019.06.014

Gravetter, F. J., & Wallnau, L. B. (2014). *Statistics for the behavioral sciences* (9th ed.). Belmont, CA: Wadsworth.

Humphris, G. M., Watson, E., Sharpe, M., & Ozakinci, G. (2018). Unidimensional scales for fears of cancer recurrence and their psychometric properties: The FCR4 and FCR7. *Health and Quality of Life Outcomes, 16,* 30. https://doi.org/10.1186/s12955-018-0850-x

Hodges, L. J., & Humphris, G. M. (2009). Fear of recurrence and psychological distress in head and neck cancer patients and their carers. *Psycho-Oncology, 18*(8), 841–848. https://doi.org/10.1002/pon.1346

Kim, Y., Baker, F., Spillers, R. L., & Wellisch, D. K. (2006). Psychological adjustment of cancer caregivers with multiple roles. *Psycho-Oncology, 15*(9), 795–804. https://doi.org/10.1002/pon.1013

Kim, Y., Kashy, D. A., Spillers, R. L., & Evans, T. V. (2010). Needs assessment of family caregivers of cancer survivors: Three cohorts comparison. *Psycho-Oncology, 19*(6), 573–582. https://doi.org/10.1002/pon.1597

Kim, Y., Carver, C. S., Spillers, R. L., Love-Ghaffari, M., & Kaw, C. K. (2012). Dyadic effects of fear of recurrence on the quality of life of cancer survivors and their caregivers. *Quality of Life Research, 21*(3), 517–525. https://doi.org/10.1007/s11136-011-9953-0

Kim, Y., Shaffer, K. M., Carver, C. S., & Cannady, R. S. (2016). Quality of life of family caregivers 8 years after a relative's cancer diagnosis: Follow-up of the National Quality of Life Survey for Caregivers. *Psycho-Oncology, 25*(3), 266–274. https://doi.org/10.1002/pon.3843

Lamarche, J., Ajmera, F., Avery, J., Sehabi, G., Lebel, S., & Nissim, R. (2025). The relational experience of fear of cancer recurrence in family caregivers: A reflexive thematic analysis study. *Current Oncology, 32*(4), 209. https://doi.org/10.3390/curroncol32040209

Lambert, S. D., Harrison, J. D., Smith, E., Bonevski, B., Carey, M., Lawsin, C., Paul, C., & Girgis, A. (2012). The unmet needs of partners and caregivers of adults diagnosed with cancer: A systematic review. BMJ Supportive & Palliative Care, 2;(3), 224–230. https://doi.org/10.1136/bmjspcare-2012-000226

Lebel, S., Ozakinci, G., Humphris, G., et al. (2016). From normal response to clinical problem: Definition and clinical features of fear of cancer recurrence. *Supportive Care in Cancer, 24*(8), 3265–3268. https://doi.org/10.1007/s00520-016-3272-5

Lee, S. Y., & Han, K. S. (2024). Family strength: A concept analysis. *Journal of Korean Academy of Psychiatric and Mental Health Nursing, 33*(2), 124–137. https://doi.org/10.12934/jkpmhn.2024.33.2.124

Leventhal, H., Meyer, D., & Nerenz, D. (1980). The common sense model of illness danger. In S. Rachman (Ed.), *Medical psychology* (Vol. 2, pp. 7–30). Pergamon.

Llewellyn, C. D., Weinman, J., McGurk, M., & Humphris, G. (2008). Can we predict which head and neck cancer survivors develop fears of recurrence? *Journal of Psychosomatic Research, 65*(6), 525–532. https://doi.org/10.1016/j.jpsychores.2008.03.014

Matthews, B. A. (2003). Role and gender differences in cancer-related distress: A comparison of survivor and caregiver self-reports. *Oncology Nursing Forum, 30*(3), 493–499. https://doi.org/10.1188/03.ONF.493-499

McCarthy, M. C., McNeil, R., Drew, S., Orme, L., & Sawyer, S. M. (2017). Information needs of adolescent and young adult cancer patients and their parent-carers. *Supportive Care in Cancer, 25*(10), 3317–3326. https://doi.org/10.1007/s00520-017-3984-1

McCubbin, H. I., Joy, C. B., Cauble, A. E., Comeau, J. K., Patterson, J. M., & Needle, R. H. (1980). Family stress and coping – A decade review. *Journal of Marriage and the Family, 42*(4), 855–871. https://doi.org/10.2307/351322

Mellon, S., Kershaw, T. S., Northouse, L. L., & Freeman-Gibb, L. (2007). A family-based model to predict fear of recurrence for cancer survivors and their caregivers. *Psycho-Oncology, 16*(3), 214–223. https://doi.org/10.1002/pon.1074

Mellon, S., Northouse, L. L., & Weiss, L. K. (2006). A population-based study of the quality of life of cancer survivors and their family caregivers. *Cancer Nursing, 29*(2), 120–131. https://doi.org/10.1097/00002820-200603000-00007

Mikołaj Zarzycki, V., Morrison, V., Bei, E., & Seddon, D. (2023). Cultural and societal motivations for being informal caregivers: A qualitative systematic review and metasynthesis. *Health Psychology Review, 17*(2), 247–276. https://doi.org/10.1080/17437199.2022.203225

Maguire, R., Hanly, P., Balfe, M., Timmons, A., Hyland, P., O'Sullivan, E., & Sharp, L. (2017). Worry in head and neck cancer caregivers. *Nursing Research, 66*(4), 295–303. https://doi.org/10.1097/nnr.0000000000000223

Neves, M. C., Sales, C. M. D., Oliveira, J., Bártolo, A., Prins, J. B., & Monteiro, S. (2025). Assessing fear of cancer recurrence among adolescents and young adults: The Portuguese validation and psychometric assessment of the "Fear of Cancer Recurrence 7" scale. *Acta Médica Portuguesa, 38*(3), 148–159. https://doi.org/10.20344/amp.22085

O'Rourke, L., Fisher, P. L., Campbell, S., Wright, A., & Cherry, M. G. (2021). Factors associated with fear of cancer recurrence in family caregivers of cancer survivors: A systematic review. *Frontiers in Psychology, 12,* 625654. https://doi.org/10.3389/fpsyg.2021.625654

Panganiban-Corales, A. T., & Medina, M. F. Jr. (2011). Family resources study: Part 1: Family resources, family function and caregiver strain in childhood cancer. *Asia Pacific Family Medicine, 10*(1), 14. https://doi.org/10.1186/1447-056X-10-14

Reuvers, M. J. P., Gedik, A., Way, K. M., Elbersen-van de Stadt, S. M., van der Graaf, W. T. A., & Husson, O. (2023). Caring for adolescents and young adults (AYA) with cancer: A scoping review into caregiver burdens and needs. *Cancers, 15*(12), 3263. https://doi.org/10.3390/cancers15123263

Romito, F., Goldzweig, G., Cormio, C., Hagedoorn, M., & Andersen, B. L. (2013). Informal caregiving for cancer patients. *Cancer, 119*(Suppl 11), 2160–2169. https://doi.org/10.1002/cncr.28057

Segrin, C., Badger, T. A., & Sikorskii, A. (2018). A dyadic analysis of stress processes in Latinas with breast cancer and their family caregivers. *Psycho-Oncology, 27*(2), 838–846. https://doi.org/10.1002/pon.4523

Shi, Y., Dai, J., Kuai, B., Su, X., Yang, R., Gong, S., & Guo, Y. (2023). Impact of fear of recurrence in patients with cancer on caregivers' psychological health: A meta-analysis. *Asia-Pacific Journal of Oncology Nursing, 10*(10), 100299. https://doi.org/10.1016/j.apjon.2023.100299

Simard, S., & Savard, J. (2009). Fear of Cancer Recurrence Inventory: Development and initial validation of a multidimensional measure of fear of cancer recurrence. *Supportive Care in Cancer, 17*(3), 241–251. https://doi.org/10.1007/s00520-008-0444-y

Simard, S., Thewes, B., Humphris, G., Dixon, M., Hayden, C., Mireskandari, S., & Ozakinci, G. (2013). Fear of cancer recurrence in adult cancer survivors: A systematic review of quantitative studies. *Journal of Cancer Survivorship, 7*(3), 300–322. https://doi.org/10.1007/s11764-013-0272-z

Sklenarova, H., Krümpelmann, A., Haun, M. W., Friederich, H.-C., Huber, J., Thomas, M., et al. (2015). When do we need to care about the caregiver? Supportive care needs, anxiety, and depression among informal caregivers of patients with cancer and cancer survivors. *Cancer, 121*(9), 1513–1519. https://doi.org/10.1002/cncr.29223

Smith, A., Wu, V. S., Lambert, S., Lamarche, J., Lebel, S., Leske, S., & Girgis, A. (2021). A systematic mixed studies review of fear of cancer recurrence in families and caregivers of adults diagnosed with cancer. *Journal of Cancer Survivorship, 16*(6), 1184–1219. https://doi.org/10.1007/s11764-021-01109-4

Soriano, E. C., Otto, A. K., LoSavio, S. T., Perndorfer, C., Siegel, S. D., & Laurenceau, J. P. (2021). Fear of cancer recurrence and inhibited disclosure: Testing the social-cognitive processing model in couples coping with breast cancer. *Annals of Behavioral Medicine, 55*(3), 192–202. https://doi.org/10.1093/abm/kaaa043

Sousa, M., Barreto Carvalho, C., Moreira, H., & Canavarro, M. C. (2021). Versão portuguesa da escala de avaliação de necessidades de sobreviventes: Propriedades psicométricas numa amostra de sobreviventes de doença oncológica dos Açores. *Psychologica, 64*(1), 69–87. https://doi.org/10.14195/1647-8606_64-1_4

Steinberg, L., & Morris, A. (2000). Adolescent development. *Annual Review of Psychology, 52,* 83–110. https://doi.org/10.1146/annurev.psych.52.1.83

Stenberg, U., Ruland, C. M., & Miaskowski, C. (2010). Review of the literature on the effects of caring for a patient with cancer. *Psycho-Oncology, 19*(10), 1013–1025. https://doi.org/10.1002/pon.1670

Stratton, P., Bland, J., Janes, E., & Lask, J. (2010). Developing an indicator of family function and a practicable outcome measure for systemic therapy and couple therapy: The SCORE. *Journal of Family Therapy, 32*(3), 232–258. https://doi.org/10.1111/j.1467-6427.2010.00507.x

Van Ryn, M., Sanders, S., & Kahn, K. (2011). Objective burden, resources, and other stressors among informal cancer caregivers: A hidden quality issue? *Psycho-Oncology, 20*(1), 44–52. https://doi.org/10.1002/pon.1703

Van Schoors, M., Caes, L., Knoble, N. B., Goubert, L., Verhofstadt, L. L., & Alderfer, M. A. (2017). Systematic review: Associations between family functioning and child

adjustment after pediatric cancer diagnosis: A meta-analysis. *Journal of Pediatric Psychology, 42*(1), 6–18. https://doi.org/10.1093/jpepsy/jsw070

Van Schoors, M., De Paepe, A. L., Norga, K., Cosyns, V., Morren, H., Vercruysse, T., Goubert, L., & Verhofstadt, L. L. (2019). Family members dealing with childhood cancer: A study on the role of family functioning and cancer appraisal. *Frontiers in Psychology, 10,* 1405. https://doi.org/10.3389/fpsyg.2019.01405

Vickberg, S. M. (2003). The Concerns About Recurrence Scale (CARS): A systematic measure of women's fears about the possibility of breast cancer recurrence. *Annals of Behavioral Medicine, 25*(1), 16–24. https://doi.org/10.1207/S15324796ABM2501_03

Vilaça, M., Silva, J. M. T., & Relvas, A. (2014). Systemic clinical outcome and routine evaluation (SCORE-15). *Revista Portuguesa de Investigação Comportamental e Social, 1*(1), 1–12. https://doi.org/10.14195/978-989-26-0839-6_1

Walker, B. L. (1997). Adjustment of husbands and wives to breast cancer. *Cancer Practice, 5*(2), 92–98. https://doi.org/10.1046/j.1523-5394.1997.1997005092.x

Wang, H., Yue, H., Ren, M., & Feng, D. (2021). Dyadic effects of family functioning and resilience on quality of life in advanced lung cancer patients and caregivers: An actor-partner interdependence mediation model. *European Journal of Oncology Nursing, 52,* 101963. https://doi.org/10.1016/j.ejon.2021.101963

Webb, K., Sharpe, L., Butow, P., et al. (2022). Toward the development of a model of caregiver-specific fear of cancer recurrence: A systematic review. *Journal of Psychosocial Oncology Research and Practice, 4*(3). https://doi.org/10.1097/or9.0000000000000082

Webb K, Sharpe L, Butow P, Dhillon H, Zachariae R, Tauber NM, O'Toole MS, Shaw J. (2023): Caregiver fear of cancer recurrence: A systematic review and meta-analysis of quantitative studies. Psychooncology. Aug;32(8):1173-1191. doi: 10.1002/pon.6176

Yang, W. F. Z., Lee, R. Z. Y., Kuparasundram, S., Tan, T., Chan, Y. H., Griva, K., et al. (2021). Cancer caregivers unmet needs and emotional states across cancer treatment phases. *PLOS ONE, 16*(8), e0255901. https://doi.org/10.1371/journal.pone.0255901

Yang, Y., Li, W., Wen, Y., Wang, H., Sun, H., Liang, W., Zhang, B., & Humphris, G. (2019). Fear of cancer recurrence in adolescent and young adult cancer survivors: A systematic review of the literature. *Psycho-Oncology, 28*(4), 675–686. https://doi.org/10.1002/pon.5013