



Systematic Review

The Experiences of Cancer-Related Fatigue among Adult Cancer Patients: A Systematic Review

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ABSTRACT

Introduction: Cancer-related fatigue (CRF) is one of the symptoms commonly experienced and it is a subjective feeling felt by cancer patients. The aim of this systematic review was to summarize how fatigue has been described from the perspective of adult cancer patients, the impact of fatigue on their quality of life, what the patient reported as contributing factors and potential coping strategies to reduce fatigue.

Methods: A systematic review is in line with PRISMA guidelines. Five databases were systematically searched (Scopus, PubMed, Springerlink, ProQuest and Science Direct) from January 2009 to February 2019 for qualitative studies describing the experience of adult cancer patients using a predefined search strategy and any relevant keywords.

Results: In total, 13 out of 4692 studies were included. The ages of the included patient cancer ranged from 26 to 84 years. The majority of studies used in-depth interviews and semi-structured interviews to elicit the participant's experiences of fatigue. Four themes were identified: the perception of cancer-related fatigue, the etiology of cancer fatigue, impact and coping strategies.

Conclusion: Fatigue is impactful on quality of life from the perspective of cancer patients. Future research should focus on the prospective exploration of the impact of fatigue on woman's and men's health and identifying approaches to reduce fatigue.

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INTRODUCTION

A cancer diagnosis has a significant impact on the patient causing significant life disruptions often associated with cancer treatments, treatment-induced side effects, social consequences, and financial toxicity (Al-Azri et al., 2014; Hopewood & Milroy, 2018; Tran & Zafar, 2018). However, the burden of the disease and the intensive nature of cancer therapy is related to acute toxicity and chronic life-threatening health conditions (Hudson et al., 2013). One of the common symptoms experienced by cancer patients is cancer-related fatigue (CRF) (Berger, Gerber, & Mayer, 2012). CRF often causes a disruption of function and it has a negative impact on

quality of life significantly (Bower, 2014; Saligan et al., 2015).

The prevalence of CRF ranges from 70% -100% during active treatment (Ripamonti et al., 2018) and about 30% of patients will experience post-treatment fatigue (Bower, 2014). Severe fatigue is more common in patients receiving chemotherapy (Abrahams et al., 2016; Karthikeyan, Jumrani, Prabhu, Manoor, & Supe, 2012).

However, although CRF can be experienced in all phases of the disease, it is often not reported by the patients, resulting in poor treatment (Giacalone et al., 2013; Howell et al., 2013; Ripamonti et al., 2018). The inadequate dialogue about CRF in clinical practice may occur because it is not fully understood (Morrow

et al., 2007). Although the diagnostic criteria is established, there are several definitions and subcategories proposed and there is a debate about whether CRF is a symptom, side effect, syndrome or disorder (Jakobsson, Taft, Östlund, & Ahlberg, 2013). At present, CRF is considered to be a multidimensional construction that includes physical, emotional, and cognitive fatigue (Scott, Lasch, Barsevick, & Piault-Louis, 2011).

Qualitative research can provide a detailed insight into the beliefs and experiences of individuals with cancer and it could be very valuable as a means of investigating the impact and interrelationship between CRF and some of the coexisting factors, which can be used to shape clinical care and research (Weber & O'Brien, 2017). A systematic review and synthesis of the published qualitative studies to examine CRF's effects on patients with cancer through verbatim quotations has been done as several previous reviews have pointed out, but it hasn't explained the factor correlates of cancer-related fatigue (Scott et al., 2011). A quantitative systematic review of cancer-related fatigue in adolescent and young adults has already been done

(Nowe et al., 2017). However, a specific systematic review of adult cancer patients has never been done.

The aims of this systematic review was to summarize how fatigue has been described from the perspective of adult cancer patients, including the impact of fatigue on quality of life, what the patient reported as being the contributing factors and the potential coping strategies to reduce fatigue. This review will enable the practitioners to understand the scope of the problem and to potentially identify patients for screening and appropriate support.

MATERIALS AND METHODS

A systematic review was performed in line with the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analysis) statement and checklist (Liberati et al., 2009; Moher, Tetzlaff, Altman, Liberati, & Group, 2009). The focus was on primary English-language qualitative studies exploring the experience of adult cancer patients (>18 years) on cancer-related fatigue. Cancer type and disease trajectory were not considered to be the inclusion criteria. Five databases were systematically searched (Scopus, PubMed, Springerlink, ProQuest, Science

Table 1. Summary of the findings

Author, Year, Journal and Country	Setting of study	Aim/Research questions	Methodology	Major findings relevant for review
Rosman (2009) European Journal of Cancer Care, Netherlands	12 former cancer patients suffering from extreme fatigue 7-10 years after their illness was treated. 12 females	To demonstrate how this symptom can be experienced as problematic and to detail the coping strategies that the individuals use in order to live with it.	Qualitative exploratory study based on semi-structured interviews. Thematic analysis using a grounded theory approach.	From normal to pathological fatigue; individual action: developing individually adjusted strategies; working towards the legitimization of fatigue; the role of the cancer and fatigue working group in the search for legitimizing; collective action, the legitimization of fatigue and negotiating for disability status.
Blaney et al. (2010) Physical Therapy Journal United Kingdoms	26 Patient who were recently diagnosed (n=4), undergoing treatment (n=10) and survivors of cancer (n=12). >18 years of age. 16 females, 10 males	To explore the barriers to and facilitators of exercise among a mixed sample of patients with CRF	An exploratory, descriptive, qualitative design based on focus group discussions. Analyzed using a grounded theory approach	Exercise barrier: additional side effects of treatment, physical deconditioning, the environmental factors and difficulty establishing routine, timing of introduction to exercise; Exercise facilitators: supervised, individualized, group-based exercise program; Motivator exercise perceived benefits of exercise
Tsai, Lin, Chao, & Lin (2010) Journal of Clinical Nursing Taiwan	15 woman, aged 65-82, with breast cancer.	To explored the fatigue experiences in older Taiwanese women with breast cancer	A qualitative design based on In-depth with semi-structure interviews. Analyzed using content analysis.	Factors related to fatigue, interpretation of fatigue, ways to deal with fatigue.
Molassiotis, Lowe, Blackhall, & Lorigan, (2011) Lung Cancer UK	17 patients with inoperable primary lung cancer and their principal caregivers. The patient sample had a mean age of 66.7 years (range= 48-93) Caregiver were at a mean age of 60.4 years (range= 40-81) 5 females; 12 males	To explore the symptom experience of patients with cancer over a 1-year period both the patient ad informal caregiver perspective.	Interpretative Phenomenology Analysis with semi-structure interviews	The breath and dynamic nature of the patient's symptom experience; symptom interrelationship; symptom identification.

Table 1. Summary of the findings (Continue)

Author, Year, Journal and Country	Setting of study	Aim/Research questions	Methodology	Major findings relevant for review
Borneman <i>et al.</i> , (2012) Clin J OncolNurs USA	A total 280 participant, 252 participants provide responses to the open-ended questions. Patients with breast, lung, colon and prostate cancers were recruited from the Medical Oncology Adult Ambulatory Care Clinic at an NCI-designated comprehensive cancer centre 171 females; 109 males	To describe patient's perceptions of the causes, relief, related symptoms, meaning, and suffering secondary to cancer-related fatigue (CRF).	Mix method. Quasi-experimental study and qualitative (content analysis with open-ended questions)	Causes of CRF; Relief of CRF; Description of CRF; Meaning of CRF; Suffering from CRF; Other Related Symptoms.
Siegel, Lekas, & Maheshwari (2012) J Pain Symptom Manage USA	35 adult patients with advanced cancer who reported experiencing fatigue in the 30 days prior to the interview and their caregivers. 19 females; 16 males	To examine the attributions patients 55 or older with advanced cancer made for their fatigue and how they arrived at these attributions; understand how patients' attributions affect how they contend with fatigue, including communication with health care providers.	Qualitative in-depth interview, thematically coded and analyzed using content analysis.	Cancer-related treatment was the master and often the sole attribution patients made for their fatigue; Multiple causes of fatigue, typically a combination of cancer, treatment and non-threatening causes
Spichiger, Rieder, Müller-Fröhlich, & Kesselring (2012) European Journal of Oncology Nursing Switzerland	19 patients with lymphomas, breast, lung or colorectal cancer participated concurrently with treatment at a Swiss tertiary care hospital's oncology outpatient clinic 11 females; 8 males	To explore patients' fatigue-related interactions with professionals during chemotherapy, patients' strategies to deal with the symptom and the perceived outcomes of their self-care activities.	A qualitative study with grounded theory semi-structure interview	Being informed about fatigue; Experiencing fatigue; Enduring fatigue; Experiencing fatigue in relation to life and illness circumstances; Experiencing or lacking support; Fatigue-related self-care; Handling fatigue in the absence of advice from health professionals.
Pertl, Quigley, & Hevey (2014) Psychology & Health Ireland and UK	73 fatigued cancer patients and survivors. 58 females; 14 males	To examined the factors that contribute to the absence of a discourse of CRF.	A thematic discourse analysis.	Between sickness and survivorship 'CRF falls into a discursive limbo': 1) Restitution vs. chaos: CRF is at odds with cancer 'survivorship', No symptoms, no cause, no cure: 2) CRF is excluded from discourses of illness. Hierarchy of illness 'CRF is invalidated by cancer': 1) Cancer overshadows CRF, 2) Cancer uses up the 'illness quota'.

Direct) from January 2009 to February 2019 for qualitative studies describing the experience of adult cancer patients.

The search terms used were 'qualitative' AND 'patient' AND 'experience' AND 'cancer-related fatigue' OR 'fatigue' OR 'weakness' OR 'tiredness' AND 'cancer' OR 'carcinoma' OR 'neoplasm'. The protocol standard for selecting the research studies was as suggested in the PRISMA method for systematic reviews followed by screening to remove the duplicates. Three reviewers then selected the titles, abstracts and keywords before deleting irrelevant quotes according to the selection criteria. The

reviewers noted the reasons for choosing the research studies including the selection of the inclusion data. The selection of the research studies was recorded by two reviewers and they were then compared to one another to be adjusted for feasibility with the criteria set. Second, to minimize the risk of incorrect study entries in the selection, there were several research studies that had been applicable or that could be applied in a review by one or two reviewers in the next review stage. The full text of the articles was obtained if the title and abstract meet the inclusion criteria or if the feasibility study was clearly resolved by a joint discussion between the reviewers.

Table 1. Summary of the findings (Continue)

Author, Year, Journal and Country	Setting of study	Aim/Research questions	Methodology	Major findings relevant for review
Cordero, Dimsdale, & Navarro (2015) Journal of Applied Biobehavioral Research US-Mexico	Twenty-two female and thirteen male Latino cancer patients participated in one of seven focus groups that took place in the southern California USA-Mexico border region.	To describe fatigue and the utility of the Multidimensional Fatigue Symptom Inventory-Short Form (MFSI-SF) to assess fatigue among Latino cancer patients.	Content analysis, focused group discussion	Describing fatigue: fatigue as physical, fatigue as nonphysical, fatigue interferes with life roles; Attribution of fatigue to cancer/treatment.
Hodge, Itty, Cadogan, Martinez, & Pham (2015) Support Care Cancer USA	One hundred and thirty-two (132) American Indian adult cancer survivors and their family members participated in 13 focus group discussions on cancer symptom management. (95 females, 37 males)	To explore the experience of CRF as reported by American Indian cancer survivors in the Southwest	Grounded Theory analytical, focused group discussion, with open-ended discussion.	Etiology, experience, and presentation effect of CRF.
Charalambous & Kouta (2016) BioMed Research International Cyprus	15 patients diagnosed with advanced prostate cancer were randomly selected from the sample of 148 patients to be interviewed.	To explore CRF that patients with advanced prostate cancer experience during their chemotherapy treatment as well as its impact on the overall QoL of these patients.	Mix methods: Quantitative (A cross-sectional descriptive study); Qualitative (thematic content analysis, in-depth with open-ended structured interviews).	Dependency on others; loss of power over decision making; daily living disruption
Watson & Van Kessel, (2016) Cancer Nursing New Zealand	15 recent blogs written by cancer survivors who specifically discussed their post cancer fatigue 11 females; 4 males	To explore post cancer Fatigue from the perspective of cancer survivors via online blogs, with a focus on their experiences and personal explanations of post cancer Fatigue	Thematic analysis: analyze blog content	Experience of post cancer fatigue: Physical and mental fatigue, unpredictability, preventing normality, managing expectations, coping strategies; Explanation of post-cancer fatigue: existential anxiety and fear, Processing the trauma, outcome of other side effects.
Levkovich, Cohen, & Karkabi (2017) Behavioral Medicine Israel	13 breast cancer patients stage I-III, aged 34-67, who were up to one year after the termination of chemotherapy	To explore the experience of fatigue, its effects and ways of coping with fatigue and the role of family and social support among breast cancer patients.	The qualitative-phenomenological, In-depth, semi-structured interviews	Being imprisoned in the body of an 80-year-old: the overwhelming effect of fatigue on every aspect of the participant's life; The bear-hug of the family: the role of the environment in coping with fatigue

The following data was extracted: author, year, journal, country, setting, the aim of the study, the research questions, the type of study, sampling methods, key findings or if there were any relevant secondary outcomes. Three authors (IKLTA, PSE, and NPDA) were involved in the data extraction, and after organizing the results in the table, the findings were discussed and reviewed again. One review author extracted the following data from the included studies and the other author checked the extracted data. Any disagreement was resolved by a discussion between the authors.

The information was extracted from each included study on (1) the identity of the study (including author name, year of publication and the origin of the

study), (2) the setting of the study or the characteristics of the participants (including age, gender, cancer type and disease trajectory), (3) the aim/research questions, (4) the methodology (including data collection method, type of interview and analysis) and (5) any major findings relevant for review. Although not used as an inclusion criterion, the methodological quality of the reviewed studies was assessed. The framework of Consolidated Criteria for Reporting Qualitative Research was used for the assessment. The criteria consisted of 32 items grouped into three main categories: research team and reflexivity, study design, data analysis and reporting (Tong, Sainsbury, & Craig, 2007). Due to the methodological diversity of the studies included and

the limited number of studies specifically addressing the objectives set for this review, descriptive synthesis was considered to be the most appropriate analytical method (Shuster, 2011).

RESULTS

The search yielded 4692 records. After the removal of 187 duplicates, 4505 records remained; 4443 did not meet the inclusion criteria after screening the titles, abstract and description. Sixty-two full text articles were assessed for eligibility, and 49 did not meet the inclusion criteria. Thirteen papers were included in the systematic review (See Figure 1).

Four studies employed grounded theory, a method using inductive reasoning that emphasizes

the generation of theory based on the observation of patterns in qualitative data (Blaney et al., 2010; Hodge, Itty, Cadogan, Martinez, & Pham, 2016; Rosman, 2009; Spichiger, Rieder, Müller-Fröhlich, & Kesselring, 2012). Two studies used phenomenology, which is a qualitative approach that aims to understand the participants' experiences as they perceive and interpret them (Levkovich, Cohen, & Karkabi, 2017; Molassiotis, Lowe, Blackhall, & Lorigan, 2011). Content analysis was the primary analytic method in the studies (n=6) (Borneman et al., 2012; Charalambous & Kouta, 2016; Cordero, Dimsdale, & Navarro, 2015; Siegel, Lekas, & Maheshwari, 2012; Tsai, Lin, Chao, & Lin, 2010; Watson & van Kessel, 2016). Two studies using a

Table 2. Qualitative assessment using the Consolidated Criteria for Reporting Qualitative Research

Reporting criteria	No (%)	Studies reporting each criteria
Domain 1: Research team and reflexivity		
Personal characteristics		
Interviewer/facilitator	38.46% (5 of 13)	(Borneman et al., 2012; Cordero et al., 2015; Molassiotis et al., 2011; Spichiger et al., 2012; Tsai et al., 2010)
Credentials		
Occupation		
Gender		(Borneman et al., 2012; Tsai et al., 2010)
Experience and training	15.38% (2 of 13)	
		(Tsai et al., 2010)
Relationship with participants		
Relationship established	7.69% (1 of 13)	(Cordero et al., 2015; Molassiotis et al., 2011; Rosman, 2009; Tsai et al., 2010)
Participant knowledge of the interviewer	30.77% (4 of 13)	
Interviewer characteristics	23.08% (3 of 13)	
		(Pertl et al., 2014; Rosman, 2009; Tsai et al., 2010)
Domain 2: Study Design		
Theoretical framework		
Methodological orientation and Theory	100%	(Blaney et al., 2010; Borneman et al., 2012; Charalambous & Kouta, 2016; Cordero et al., 2015; Hodge et al., 2015; Levkovich et al., 2017; Molassiotis et al., 2011; Pertl et al., 2014; Rosman, 2009; Siegel et al., 2012; Spichiger et al., 2012; Tsai et al., 2010; Watson & van Kessel, 2016)
Participant selection		
Sampling	53.85% (7 of 13)	
Method of approach	61.54% (8 of 13)	
Sample size	100%	
Non-participation	38.46% (5 of 13)	
Setting		
Setting of data collection	69.23% (9 of 13)	(Blaney et al., 2010; Charalambous & Kouta, 2016; Molassiotis et al., 2011; Rosman, 2009; Siegel et al., 2012; Spichiger et al., 2012; Tsai et al., 2010)
Presence of non-participants	0%	
Description of sample	100%	(Blaney et al., 2010; Cordero et al., 2015; Molassiotis et al., 2011; Pertl et al., 2014; Rosman, 2009; Siegel et al., 2012; Spichiger et al., 2012; Tsai et al., 2010)
Data collection		
Interview guide	69.23% (9 of 13)	
Repeat interviews	7.69% (1 of 13)	
Audio/visual recording	69.23% (9 of 13)	
Field notes	7.69% (1 of 13)	
Duration	61.54% (8 of 13)	
Data saturation	38.46 (5 of 13)	
Transcripts returned	7.69 (1 of 13)	
Domain 3: Analysis and Findings		
Data analysis		
Number of data coders	53.85% (7 of 13)	(Blaney et al., 2010; Borneman et al., 2012; Charalambous & Kouta, 2016; Cordero et al., 2015; Hodge et al., 2015; Levkovich et al., 2017; Molassiotis et al., 2011; Pertl et al., 2014; Rosman, 2009; Siegel et al., 2012; Spichiger et al., 2012; Tsai et al., 2010; Watson & van Kessel, 2016)
Description of the coding tree	15.38% (2 of 13)	
Derivation of themes	100%	
Software	30.77% (4 of 13)	
Participant checking	0%	
Reporting		
Quotations presented	100%	
Data and findings consistent	100%	(Borneman et al., 2012; Molassiotis et al., 2011; Pertl et al., 2014; Siegel et al., 2012; Spichiger et al., 2012)
Clarity of major themes	100%	
Clarity of minor themes	7.69% (1 of 13)	

mixed method design (quantitative and qualitative) (Borneman et al., 2012; Charalambous & Kouta, 2016). Face-to-face interviews (n=7), focus group discussions (n=3), patient completed instruments (n=2) and blog content (n=1) were used to collect the data (See Table 1).

The included studies involved 659 participants, with 65,31% being females and 34,69% being males. With the exception of four studies with large sample sizes (exceeding 50 patients), the average sample size was 20 patients per study (range = 12-35 patients per study). Most of the patients studied were diagnosed with breast cancer, although lung, prostate, colorectal, lymphoma, ovarian and the other cancers were also represented in some studies. The patient in the studies were in different phases of the cancer trajectory; there were patients who were recently diagnosed, those who were undergoing treatment and those who were the survivors of cancer. The origin of the studies was mainly from the USA (5) and the UK (3). The remaining studies came from the Netherlands, Taiwan, Switzerland, Cyprus, New Zealand and Israel (See Table 1).

Based on the Consolidated Criteria for Reporting Qualitative Research Criteria, the quality of the qualitative studies was assessed as being good. Most of the qualitative studies were lacking in the "research and reflexivity" domain of the Consolidated Criteria for Reporting Qualitative Research Criteria, which may affect the credibility of the findings (see Table 2).

The limitations for the qualitative studies were identified in terms of clarifying who undertook the interview (5 out of 13) and participant checking and reporting (0%). Adequate information was provided on the data collection about the methodological orientation and framework (13 of 13), sample size (13 of 13), the description of the sample (13 of 13), the derivation of the themes (13 of 13), the quotations presented (13 of 13), the data findings that were consistent (13 of 13), the clarity of the major themes, the setting of the data collection (9 of 13), the interview guide (9 of 13) and audio/visual recording (9 of 13).

Seven out of the 13 articles reviewed explored the patients' perceptions of cancer-related fatigue (Borneman et al., 2012; Cordero et al., 2015; Hodge et al., 2016; Levkovich et al., 2017; Spichiger et al., 2012; Tsai et al., 2010; Watson & van Kessel, 2016). The majority of the articles illustrate that CRF is a different experience for each individual. CRF is described as a normal reaction that is unavoidable (Tsai et al., 2010), fluctuating, prolonged, never ending (Borneman et al., 2012; Hodge et al., 2016) and unpredictable (Watson & van Kessel, 2016). CRF is also described as either a physical or non-physical symptom. CRF is described as physical fatigue such as feeling weak, tired, sick, and as a lack of energy that forces them to lie down and rest (Borneman et al., 2012; Cordero et al., 2015; Levkovich et al., 2017; Spichiger et al., 2012). CRF is described as non-physical fatigue such as being emotionally unstable

and depressed, feeling lethargic, worthless, forgetful, having a lack of motivation and initiative, losing interest in pleasant things, the inability to function at normal levels, causing a lack of enthusiasm to participate in physical activity (Borneman et al., 2012; Cordero et al., 2015; Levkovich et al., 2017). Furthermore, the patients describe fatigue as a sign that they have not succeeded in recovering from cancer or that their cancer has returned (Levkovich et al., 2017). Fatigue may be troublesome, but it is good to suffer through the chemotherapy in order to be cured (Spichiger et al., 2012).

Seven out of the 13 articles reviewed said that the patients spoke about the causes of fatigue experienced (Borneman et al., 2012; Cordero et al., 2015; Hodge et al., 2016; Molassiotis et al., 2011; Siegel et al., 2012; Tsai et al., 2010; Watson & van Kessel, 2016). The majority of the articles reveal the cause of CRF as being an effect of the cancer treatment (including chemotherapy and radiotherapy) (Borneman et al., 2012; Cordero et al., 2015; Hodge et al., 2016; Siegel et al., 2012; Tsai et al., 2010). CRF is caused by the cancer itself including related symptoms such as pain, vomiting and nausea, a lack of appetite, a lack of sleep at night and anemia (Borneman et al., 2012; Hodge et al., 2016; Molassiotis et al., 2011; Siegel et al., 2012; Tsai et al., 2010). CRF is also as a result of negative emotions such as unhappiness, discomfort, depression, the failure to deal with trauma and emotional stress (Borneman et al., 2012; Hodge et al., 2016; Tsai et al., 2010; Watson & van Kessel, 2016). Four articles reported that fatigue occurs because of a physical imbalance caused by activity levels, not enough rest, not exercising, and not eating healthy (Borneman et al., 2012; Cordero et al., 2015; Hodge et al., 2016; Siegel et al., 2012).

Five out of the 13 articles reviewed illustrated the impact of CRF on the patients' daily lives (Borneman et al., 2012; Charalambous & Kouta, 2016; Hodge et al., 2016; Levkovich et al., 2017; Watson & van Kessel, 2016). The majority of the articles explain the effects of physical, emotional and social fatigue. The physical effects of fatigue experienced by the patients include decreased physical well-being (Hodge et al., 2016), the inability to carry out daily activities (including fun activities), being unable to live productive lives, finding it difficult to concentrate (Borneman et al., 2012; Charalambous & Kouta, 2016; Watson & van Kessel, 2016) and often needing to rest (Levkovich et al., 2017). The emotional impact of CRF is a lack of hope, depression, a loss of purpose in life, a deep sense of loss associated with changes in the body or a loss of time, not wanting to do anything, having a lack of interest in recreation, irritability, and feeling uncomfortable, upset and frustrated with their limitations (Borneman et al., 2012; Hodge et al., 2016; Levkovich et al., 2017). The social impact of CRF is a lack of interaction with other people, employment issues, marriage failure, dependence on others, a loss of power over decision making and limitations in

terms of their social activities (Borneman et al., 2012; Charalambous & Kouta, 2016; Levkovich et al., 2017).

Six out of the 13 articles reviewed describe the coping strategies used to deal with cancer-related fatigue (Blaney et al., 2010; Borneman et al., 2012; Levkovich et al., 2017; Rosman, 2009; Spichiger et al., 2012; Tsai et al., 2010). Physical coping strategies such as adjusting their lifestyle and creating a comfortable environment can help to control fatigue (Rosman, 2009; Tsai et al., 2010). Increasing the frequency of resting as needed, even limiting or even avoiding activities that cause energy loss, are the most frequently mentioned coping strategies (Borneman et al., 2012; Rosman, 2009; Spichiger et al., 2012; Tsai et al., 2010). A better diet, relaxation and exercise are appropriate and have been described as helping to control CRF (Borneman et al., 2012). Running a hobby as a distraction helps in reducing CRF (Borneman et al., 2012; Spichiger et al., 2012). However, some patients say that the possible side effects (such as making them more tired) make the patient afraid to exercise or to do other activities (Blaney et al., 2010; Borneman et al., 2012).

Psychological coping strategies are also considered to be helpful in dealing with CRF. Psychological adjustments include overcoming the disease with an optimistic, positive and open-minded attitude (Tsai et al., 2010). Understanding that fatigue comes from outside their abilities, not against them, and just resting and waiting for it to pass can be an alternative strategy for dealing with CRF (Levkovich et al., 2017).

Support systems are also be considered important for cancer patients, referring to both support systems that are outside and inside of themselves (Levkovich et al., 2017; Spichiger et al., 2012; Tsai et al., 2010). Support from one's family, friends and neighbors is very relevant to patient fatigue management. Support is focused primarily on the daily activities but it naturally includes moral support and encouragements (Spichiger et al., 2012). Prayers and blessings from God are effective methods to relieve CRF (Borneman et al., 2012).

DISCUSSION

The aim of this systematic review was to explore the experience of cancer-related fatigue among adult cancer patients. The review revealed the limited available research in this field of study, identifying only 13 relevant studies.

Fatigue is a personal experience that can affect everyone (Servaes, Verhagen, & Bleijenberg, 2002). Based on the studies reviewed, CRF is described as a subjective experience that is different for each individual. Some studies consider CRF to be a normal condition even though they hope that the effects of the cancer treatment will make the fatigue disappear or they cannot see the possibility of reducing their fatigue. CRF is described as a form of fatigue that they have never felt before as it has both physical and non-physical symptoms (Cordero et al., 2015; Levkovich et

al., 2017). CRF is described as physical fatigue such as feeling weak, tired, sick, and lacking in energy which forces them to lie down and rest. CRF is described as non-physical fatigue such as being emotionally unstable and depressed, feeling lethargic, worthless, forgetful, lacking motivation and initiative, losing interest in pleasant things, and having the inability to function at normal levels, thus causing a lack of enthusiasm to participate in physical activity.

The findings of this study indicated that the factors related to fatigue arose from treatment, symptom distress, the impact of their emotions and physical imbalance. Treatment is the main factor affecting the extent of the fatigue experienced by adult cancer patients. Some researchers also explained that the physical side effects, fatigue and chemotherapy are interrelated (Horneber, Fischer, Dimeo, Ruffer, & Weis, 2012). CRF can occur before treatment and it can increase during the cancer treatment, including treatment with radiation, hormonal and biological therapy (Prue, Rankin, Allen, Gracey, & Cramp, 2006; Ripamonti et al., 2018). The factors that contribute to the occurrence of CRF are medication, pain, anemia, the level of activity, co-morbidity, nutrition, sleep disorders and emotional distress, which may also increase the extent of fatigue (Mortimer et al., 2010).

The findings of this study explain the effects of physical, emotional and social fatigue. CRF has a very negative impact on the patient's quality of life, functional status and daily activities (Karthikeyan et al., 2012). Fatigue symptoms can also increase the prevalence of depression in cancer patients (Weber & O'Brien, 2017). This is due to helplessness, a lack of control and surrender when faced with the symptoms of fatigue (Levkovich et al., 2017). The social impacts of the CRF are a lack of interaction with other people, employment issues, dependence on others, a loss of power over decision making and limitations in terms of social activities. Fatigue problems not only affect the patients but also the people around the sufferer (Horneber et al., 2012). Fatigue can cause a decrease in the independence of cancer patients. This also has an impact on the level of stress from caregivers who must provide daily care for a long time (Werdani, 2018).

This study found that, in general, using coping strategies carried out in the form of physical and psychological strategies namely through self-adjustments such as changing lifestyle, changing their eating habits, changing attitude and using a different support system, could effectively allow the participants to overcome the stresses caused by fatigue. A support system is focused primarily on daily activities but naturally it also includes moral support and encouragement. One study stated that prayers and blessings from God are effective methods to use to relieve CRF. General support treatments recommended for treating CRF are optimizing nutritional status, preventing weight loss and balancing breaks with physical activity (Balachandran, Faiz, Bashoura, & Manzullo, 2013).

CONCLUSION

There are several potential limitations associated with this systematic review. Most studies represent the experience of cancer patients treated in high-income countries so they cannot yet represent lower-income countries. The majority of the patients in this study were women with breast cancer who underwent chemotherapy as in the interviews, thus inhibiting generalization and the ability to compare the results. Therefore, generalizing this description and the effect of CF on other tumor types to men, and patients in other treatments or to those who are currently not receiving treatment is an important area for further study.

CONCLUSION

This study is an exploration of the patient experience that illustrates CF and its effects in the published literature. This review has explained the patient's perceptions regarding CRF, etiology, impact and the related coping strategies. Due to the articles in this review, the majority of the participants were women with breast cancer, so this article cannot be generalized. Further research is very important, especially related to the CRF in the men's health perspective. In addition, the research must determine whether the CF experience is the same for all types of cancer, such as whether and how the treatment history and comorbid conditions change the experience and how it makes reporting fatigue difficult, and, if possible, how CF sensations differ from the effects.

Clinically, the quality of life and the economic implications of such case definitions are very important for patients with cancer, their families and health workers when it comes to understanding fatigue in cancer patients, including the approach used when dealing with these complaints.

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