REVIEW PAPER

Anxiety self-management strategies in cancer survivors: a systematic literature review

Estratégias de autogestão da ansiedade nos sobreviventes de cancro: revisão sistemática da literatura

Estrategias de autogestión de la ansiedad en los supervivientes de cáncer: revisión sistemática de la literatura

Nuno Miguel dos Santos Martins Peixoto*; Tiago André dos Santos Martins Peixoto**; Cândida Assunção Santos Pinto***; Célia Samarina Vilaça de Brito Santos****

Abstract

Background: Anxiety is a condition that can hinder cancer survivors' capacity to adapt to the new life condition, and influence self-management and the health-illness process.
Objectives: To identify the anxiety management strategies used by cancer survivors to promote disease management after the end of treatments.
Review method: A systematic literature review was conducted based on the Joanna Briggs Institute model. Twelve of the 1,483 articles found in the databases were included.
Interpretation of results: Strategies involving physical exercise, disease perception, coping and social support, and the control of negative interactions may have positive effects in reducing anxiety levels and promoting an adequate disease management.
Conclusion: Physical activity, non-fatalistic coping strategies, coping strategies focused on positive aspects (optimism), social support (formal or informal), and strategies for reducing negative interactions may have beneficial effects in reducing anxiety.

Keywords: anxiety; cancer; survivors; self-care

Resumo

Enquadramento: A ansiedade é uma condição que pode dificultar a capacidade do sobrevivente de cancro em se adaptar à nova condição da vida, influenciar a autogestão e o processo saúde-doença.
Objetivos: Conhecer as estratégias de gestão da ansiedade utilizadas pelos sobreviventes de cancro, após o fim dos tratamentos, que favoreçam a gestão da doença.
Método de revisão: Estudo de revisão sistemática da literatura segundo o modelo do Instituto Joanna Briggs. Dos 1.483 artigos encontrados nas bases de dados, 12 foram incluídos.
Interpretação dos resultados: As estratégias relacionadas com o exercício físico, a perceção da doença, o *coping*, o apoio social e o controlo das interações negativas podem ter efeitos benéficos na redução dos níveis de ansiedade e promover uma adequada gestão da doença.
Conclusão: A prática de atividade física, as estratégias de coping menos fatalistas, as estratégias de coping focadas nos aspetos positivos (otimismo), o apoio social (formal ou informal) e as estratégias que reduzem as interações negativas podem ter efeitos benéficos na redução da ansiedade.

Palavras-chave: ansiedade; cancro; sobreviventes; autocuidado

Resumen

Marco contextual: La ansiedad es un problema que puede dificultar la capacidad del superviviente de cáncer para adaptarse a la nueva situación de la vida, así como influir en la autogestión y la transición de la salud a la enfermedad.
Objetivos: conocer las estrategias de gestión de la ansiedad utilizadas por los supervivientes de cáncer, tras finalizar el tratamiento, que favorecen la gestión de la enfermedad.
Método de revisión: Estudio de revisión sistemática de la literatura de acuerdo con el modelo del Instituto Joanna Briggs. De los 1.483 artículos encontrados en las bases de datos se incluyeron 12.
Interpretación de los resultados: Las estrategias relacionadas con el ejercicio físico, la percepción de la enfermedad, el afrontamiento (*coping*), el apoyo social y el control de las interacciones negativas pueden tener efectos benéficos en la reducción de los niveles de ansiedad y promover una adecuada gestión de la enfermedad.
Conclusión: La práctica de actividad física, las estrategias de afrontamiento menos fatalistas, las estrategias de afrontamiento enfocadas en los aspectos positivos (optimismo), el apoyo social (formal o informal) y las estrategias que reducen las interacciones negativas pueden tener efectos benéficos en la reducción de la ansiedad.

Palabras clave: ansiedad; cáncer; supervivientes; autocuidado

*MSc., Specialist Nurse in Medical-Surgical Nursing, Doctoral student, UniversidadeCatólica Portuguesa, 4202-401 Porto, Portugal [nunomiguelpeixoto@gmail.com]. Contribution to the article: literature search; data collection; data treatment; data analysis and discussion; article writing. Address for correspondence: Rua Arquiteto Lobão Vital - Apartado 2511, 4202-401, Porto, Portugal.
**MSc., Specialist Nurse in Medical-Surgical Nursing, Doctoral student, UniversidadeCatólica Portuguesa, 4202-401 Porto, Portugal [tiago.andre.peixoto@hotmail.com]. Contribution to the article: literature search; data collection; data treatment; data analysis and discussion.
***Ph.D., Professor, Nursing School of Porto, 4200-072, Porto, Portugal [candida@esenf.pt]. Contribution to the article: data analysis and discussion.
****Ph.D., Professor, Nursing School of Porto, 4200-072, Porto, Portugal [celia@esenf.pt]. Contribution to the article: data analysis and discussion.

Introduction

Cancer is seen as a terrible and fearful disease. It is estimated that, in 2012, 14.1 million new cases of cancer were diagnosed worldwide. However, cancer can no longer be seen as an invariably fatal disease, since it is estimated that over 32 million living adults have been diagnosed with cancer in the past 5 years (International Agency for Research on Cancer, 2013).

Given the technological and scientific advances in the treatment and *cure* of cancer resulting from constant scientific innovations, cancer is no longer considered as an incurable disease, rather as a chronic disease (Aziz & Rowland, 2003).

As a chronic disease, cancer triggers a set of symptoms that go beyond the biological dimension and that constantly threat patients' health. Cancer disease has a major emotional impact and leads to severe psychological problems, such as depression, anxiety, stress, confusion, and anguish (Bayés, 2008). Anxiety is a disorder that emerges in response to a threat and cancer is necessarily threatening (Stark et al., 2002).

Anxiety is often characterized by a number of symptoms such as palpitation, sweating, nervousness, restlessness, apprehension, worry, poor concentration, muscle tension, and fatigue (Stark & House, 2000). Anxiety is a multifaceted and complex behavioral pattern that produces an internal (cognitive) and external (environmental) response that can be expressed through three channels: the physiological channel (e.g., concern, restlessness), the cognitive channel (e.g., tachycardia, agitated breathing, muscle tension), and the behavioral channel (e.g., palpitation; Baptista, 2000; Bernstein, 1981). People with anxiety usually have excessive and persistent negative emotions, tend to use suppression more often, and have a greater tendency to perceive their emotions as negative and unacceptable (Campbell-Sills, Barlow, Brown, & Hofmann, 2006).

In cancer, anxiety characterizes the human response to the health-illness transition. It emerges from the life-threatening condition imposed by the diagnosis and may prevail throughout the disease process. In the survival stage, after the end of treatments, the joy of being alive collides with the constant fear of recurrence (Mullan, 1985), and anxiety can result from this fear of recurrence (Vacek, Winstead-Fry, Secker-Walker, Hooper, & Plante, 2003), feelings of uncertainty about the possibility of having another cancer (Mckenzie & Crouch, 2004), the lack of a sense of control over the disease provided by the treatments (Pinto, 2007), and the hypervigilance conditioned by the disease (Dow & Loerzel, 2005).

The anxiety management process must be dynamic, that is, it must be managed in accordance with the various stages of the lifecycle of those who had or have cancer. One of those stages is to stop being a *patient* and becoming a *survivor*. According to Mullan (1985), being a survivor certainly goes beyond a mere binary issue in which one day you are a patient and in the next day a survivor; it is therefore, a health-illness transition with no clearly defined timeframe. Among the many definitions of survivor found in the literature, the more consensual and current one defines a survivor as anyone who, having been diagnosed with a cancer disease, has already completed treatment with curative intent (Feuerstein, 2007).

Nurses, since they are the largest group of health professionals and have greater interaction with the patients throughout the health-illness process, have a specific role among cancer survivors (Pinto, 2007). Nursing, as part of its social mandate, focuses on helping people to manage their transition processes along the lifecycle (Meleis, Sawyer, Messias, & Shumacher, 2000). In general, nurses' intervention is vital in assisting people who have had cancer, because, more than any other group of professionals, they can promote the effective management of health-illness processes.

Thus, and taking into account the complexity inherent to the process of living beyond cancer, a systematic literature review (SLR) was conducted on cancer survivors' anxiety self-management strategies with the purpose of enhancing the theoretical knowledge and its transferability to clinical practice.

The SLR was developed in six stages: formulation of the starting question, definition of

inclusion and exclusion criteria of the studies, identification and selection of studies, appraisal of the methodological quality of the studies, data extraction, and interpretation and discussion of data. The starting question was formulated based on the PICO methodology: Which are the anxiety management strategies used by cancer survivors that promote disease self-management?.

This study falls within the scope of the Research and Development (R&D) project Chronic disease self-management, developed by the Research Unit of the Nursing School of Porto (UNIESEP). This project aims at identifying the anxiety management strategies used by cancer survivors for managing their disease after the end of treatments.

Systematic review method

In the evolution of nursing, it is essential to understand that the research carried out by nurses is based on the search for the essence of the discipline itself and the construction of nurses' core expertise. Therefore, we conducted a SLR, which is the highest level of the hierarchy of evidence pyramid since it aims at analyzing the scientific evidence found in the literature. SLR focuses on a single research question and is a current and suitable method for integrating and synthesizing data from separate studies under the same intervention/exposition.

A research protocol was initially developed to detail the methodological steps to be taken based on the methodological principles of a SLR set out in the Joanna Briggs Institute Reviewers' Manual (Joanna Briggs Institute [JBI], 2011). The protocol was previously published in PROSPERO - International prospective register of systematic reviews of the Center for Reviews and Dissemination, University of York.

Taking into account the study population (P), we included studies individuals aged over 18 years, in the post- cancer treatment stage (surgery, radiotherapy, chemical), that is, cancer survivors, regardless of the anatomical site of the cancer. With regard to the intervention (I), we included studies that addressed anxiety management strategies. As for the outcomes (O), we included studies that addressed the issue of disease self-management. With regard to the type of study, we included primary studies (empirical studies; randomized controlled trials; cohort studies; case-control studies; quasi-experimental studies; descriptive studies) available in full-text, written in Portuguese or English, and published between 1 January 2009 and 31 January 2015.

Search strategy and identification of studies

With regard to the identification and selection of studies, two databases were searched: MEDLINE (Medical Literature Analysis and Retrieval System Online - US National Library of Medicine's) and CINAHL Plus (Cumulative Index to Nursing and Allied Health Literature plus addicional resources – EBSCO). The following search phrases were used in MEDLINE with Full Text: *"((("Oncolog* Patient") OR ("Cancer Surviv*") OR ("Cancer Patient*") OR ("Malignant* tumor*") OR (MH "Neoplasm") OR ("Cancer*")) AND ((MH "Anxiety") OR (MH "Anxiety Disorders") OR ("Anxiety Management")) AND ((MH "Quality of Life") OR (MH "Self Care") OR (MH "Self efficacy") OR ("Self-control") OR (MH "Self concept") OR ("Self-regulation") OR ("Patient autonomy*") OR (MH "Patient Compliance") OR (MH "Health behavior") OR ("Health attitude") OR ("Illness attitude") OR ("Patient attitude*") OR (MH "Choice behavior") OR (MH "Illness behavior") OR ("Self management") OR (MH "Adaptation, Psychological") OR (MH "Adjustment Disorders") OR ("Adjustment*") OR (MH "Disease Management")))"*.

The following search phrases were used in CINAHL Plus with Full Text: *"((("Oncolog* Patient") OR (MH "Cancer Survivors") OR (MH "Cancer Patients") OR ("Malignant* tumor*") OR (MH "Neoplasms") OR ("Cancer*")) AND ((MH "Anxiety") OR (MH "Anxiety Disorders") OR (MH "Anxiety control (Iowa NOC)") OR ("Feelings of threat*") OR ("Anxiety Management")) AND ((MH "Quality of Life") OR (MH "Self Care") OR (MH "Self-efficacy") OR (MH "Self-Control (Iowa NOC) (Non-Cinahl)") OR (MH "Self concept") OR (MH "Self regulation") OR (MH "Patient autonomy*") OR (MH "Patient*

Compliance") OR (MH "Health behavior") OR (MH "Attitude to health") OR (MH "Attitude to illness") OR (MH "Patient attitudes") OR (MH "Behavior")))".

With regard to the outcomes, specifically disease self-management, we used MeSH search terms that could identify articles associating anxiety management with the disease self-management process, namely quality of life, among others.

The search and identification of studies for the SLR was performed independently by two members of the research team of the project Chronic disease self-management of the Research Unit of the UNIESEP in March 2015.

Appraisal of the methodological quality of the studies

The methodological quality of the included studies was independently assessed by two UNIESEP researchers. The researchers decided that only studies with a high methodological quality would be included, that is, studies that scored 7, 8, or 9 in the "MAStARI critical appraisal tool for Descriptive/Case Series Studies" (JBI, 2011, p. 153) and the "MAStARI critical appraisal tool for Comparable Cohort/Case Control Studies" (JBI, 2011, p. 152), and 8, 9, or 10 in the MAStARI critical appraisal tool for Randomised Control/ Pseudo-randomised trial (JBI, 2011, p. 151) of the Joanna Briggs Institute.

Data extraction

Prior to data extraction, as established by the JBI (2011), the researchers adapted and built a data extraction form and a standardized data documentation table based on JBI data extraction tools (2011; which includes information about each study: title, authors, year, location, methodological orientation, objectives, participants' characteristics, ethical aspects, statistical tests, level of evidence, main results, and researchers' observations), in order to ensure the reproducibility of the review.

Data were independently extracted between April and June 2015 by two UNIESEP researchers. The feasibility of the instruments was initially tested based on the starting question. The researchers pre-tested the form and the table in a randomized pilot study.

Data synthesis

Data were synthesized between June and July 2015 using two tables which were developed with the purpose of summarizing the data narrative: one table described the included studies by title, country, year, journal, and institution of origin; and the other table synthesized the results found in the studies under analysis, taking into account the sample, the intervention, the objectives, the assessment, and the results.

The synthesis tables were designed by both researchers and data were independently synthesized by two UNIESEP researchers.

Presentation of results

As shown in the diagram of Figure 1, 1,483 articles were found: 1,054 in MEDLINE with Full Text (EBSCOhost® VIA ESEP) and 429 in CINHAL Plus with Full Text (EBSCOhost® via ESEP). Of these, 249 were removed because they were duplicates, 94 passed the Relevance Test I (that assessed the potential interest after title and abstract reading), 17 passed the Relevance Test II (after full-text reading), and 12 were included in the review after appraisal of their methodological quality using the instruments recommended by the JBI.
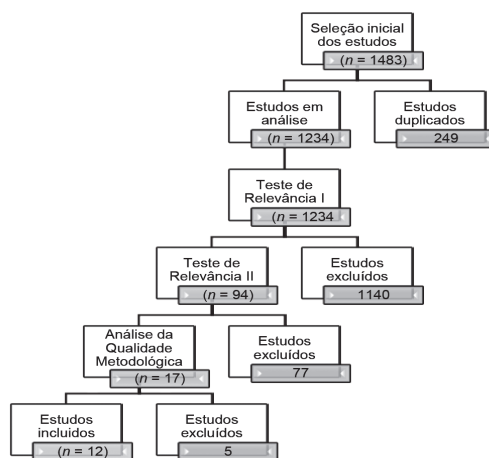

Figure 1. Diagram of the selection process.

The fiveexcluded studies had lower methodological quality scores than the ones previously defined forhigh methodological quality.

The 12 included articles were written in English and published between 2009 and 2013. Three studies were published in the United States of America and two in The Netherlands. The remaining studies were published in Canada, Northern Ireland, France, Belgium, Germany, Taiwan, and Turkey. All studies mentioned and complied with the ethical requirementsfor the research conducted. With regard to the types of studies, all of them are quantitative studies: eight are descriptive and four are comparative studies. Most data were collected through questionnaires (10 studies). Table 1shows the studies included in this SLR,as well as the information of each study - title and author, objectives, and main findings related to cancer survivors' management of anxietyand chronic disease.

Table 1

Summary of the studies included in the SLR

Study/Citation	Objectives	Mainfindings
S112 Blacklock, R., Rhodes, R., Blanchard, C.,& Gaul, C. (2010). Effects of exercise intensity and self-efficacy on state anxiety with breast cancer survivors. *Oncology Nursing Forum,* 37(2), 206-212. doi: 10.1188/10.ONF.206-212	To determine whether exercise reduces state anxietyin breast cancer survivors when compared towomen without a cancer diagnosis; To explore the association between perceived self-efficacy for exercise and state anxiety.	Lightand moderateintensity exercise decreases state anxiety in breast cancer survivors but also in women without a cancer diagnosis;Anxiety decreases depending on the duration of physical exercise ($p<.01$); No differences were found in the changes of anxiety in the group of survivors and in the control group ($p<.05$).
S262 Dempster, M., McCorry, N., Brennan, E., Donnelly, M., Murray, L.,& Johnston, B. (2012). Psychological distress among survivors of esophageal cancer: The role of illness cognitions and coping. *Diseases of the Esophagus,* 25(3), 222-227. doi:10.1111/j.1442-2050.2011.01233.x	Toexamine whether illness perceptions and coping strategies are related to levels of psychological distress among esophageal cancer survivors.	Illness perceptions and coping strategies contributed to the variance in psychological distress found in this study; Regression analysis showed that the medical and demographic variables explained 16.5% of variance in anxiety, the illness cognition variablesexplained 22% of variance and the coping variables explained 12% of variancepositive focus coping strategies need to be facilitated,and reflection and diversionary coping strategies should be discouraged, because they express avoidance.
S274 Dolbeault, S., Cayrou, S., Bredart, A., Viala, A. L., Desclaux, B., Saltel, P., … Dickes, P. (2009). The effectiveness of a psycho-educational group after early-stage breast cancer treatment: Results of a randomized French study. *Psychooncology,* 18(6), 647-656. doi:10.1002/pon.1440	To evaluate the effects of a psycho-educational group intervention in the anxiety, mood, coping, and quality of life of female breast cancer survivors.	The psycho-educational group intervention in breast cancer survivors proved to have a positive effect in reducing the levels of anxiety in the treatment group, namely in theState-Trait Anxiety Inventory (STAI). The intervention explained 6% and 4% of the variance in the state anxiety and trait anxiety scores, respectively; With regard to the Profile of Mood States (POMS), changes were found in the levels of anxiety (the programme explained 8% of this variance).
S439 Hanssens, S., Luyten, R., Watthy, C., Fontaine, C., Decoster, L., Baillon, C., …Gréve, J. (2011). Evaluation of a comprehensive rehabilitation program for post-treatment patients with cancer. *OncologyNursingForum,*38(6), E418-424. doi:10.1188/11.ONF.E418-E424	To evaluate the effects of a rehabilitation program on quality of life, fatigue, fear of movement (kinesiophobia), distress, anxiety, depression, and physical conditionin cancer survivors.	The results obtained through a generic scale (RAND 36-Item Short Form Health Survey Questionnaire) are in line with those obtained in the specific scale (European Organisation for Research and Treatment of Cancer - Quality of Life Questionnaire-C30): physical functioning ($p=.000$), social functioning ($p=.001$), vitality (p = .001), pain ($p=.017$), mental health ($p=.035$), global health status ($p=.014$),and change in health (p=.000); No changes were found in the fear of movement, distress, and anxiety ($p=.101$), which was explained by the fact that the authors believed that kinesiophobia and anxiety require a more intense and comprehensive intervention than the one being offered

E619

Korstjens, I., Mesters, I., May, A. M., Weert, E., Hout, J. H., Ros, W., … Borne, B. (2011). Effects of cancer rehabilitation on problem-solving, anxiety and depression: ARCT comparing physical and cognitive-behavioural training versus physical training. *Psychology & Health*,26(Sup. 1), 63-82. doi:10.1080/08870441003611569

To assess the effects of a rehabilitation program (physical training[PT]and cognitive-behavioral problem-solving training [CBT]) in cancer self-management (problem-solving, anxiety and depression).

Participants in PTand CBT reported significant changes in problem-solving, anxiety, and depression when compared to participants in PT, and these effects were maintained at 3- and 9-month follow-up after intervention;
After the rehabilitation program, anxiety improved significantly, although the combination ofPT plus-CBT added no benefits for participants with higher levels of distress.

E752

Mehnert, A., Lehmann, C., Grae-fen, M., Huland, H.,& Koch, U. (2010). Depression, anxiety, post-traumatic stress disorder and health-related quality of life and its association with social support in ambulatory prostate cancer patients. *European Journal of Cancer Care,* 19(6), 736-45. doi:10.1111/j.1365-2354.2009.01117.x

To identify anxiety, depression, and post-traumatic stress disorder in prostate cancer patients;
To investigate the association between social support and health-related quality of life in prostate cancer survivors.

The perceived threat of disease is inexistent or mild, and only a few survivors (6.7%) characterized it as quite a bit or very much threatening;
With regard to distress, 16% of survivors showed-increased levels of distress and 6% showedhaving psychiatric disorders. However, no differences were found in anxiety and depression levels when compared to a population group within the same age group. Negative interactions have a particular effect that can lead to increased anxiety levels.

E904

Amstel, F., Berg, S., Laarhoven, H., Gielissen, M., Prins, J.,&Otte-vanger, P. (2013) Distress screening remains important during follow-up after primary breast cancer treatment. *Support Care Cancer,* 21(8), 2107-2115. doi:10.1007/s00520-013-1764-0

To describe the prevalence of distress in breast cancer survivors;
To investigate the association between demographic, treatment, and psychosocial variables and distress and the most commonly reported problems;
To monitor the quality of life of breast cancer survivors who requested additional professional support.

With regard to distress, 36% of the participants experienced distress, particularly in the first two years; 69% of distressed survivorsrequested or considered requesting professional support.
The results indicated that reduced quality of life, reduced cognitive function, and fatigue were the major predictors of distress;in turn, survivors with the highest levels of distress also had the highest levels of anxiety. An effective distress management can reduce survivors' anxiety levels.

E1028

Shields, C., Ziner, K, W., Bourff, S. A., Shilling, K., Zhao, Q., Monahan, P., … Champion, V.(2010) An intervention to improve communication between breast cancer survivors and their physicians. *Journal of Psychosocial Oncology,* 28(6), 610-629. doi:10.1080/07347332.2010.516811

To compare the effectiveness of a coaching intervention(by assessing the questions women planned to discuss with the healthcare professional) with the traditional approach in improving the communication between cancer providers and survivors about their concernsat this stage.

The results showed that 45% of the survivors in the intervention group used notes previously takenat least once during the visit, and that 95% of them had the notes with them during the visit. The analysis of the effectiveness of the intervention showed a significant improvement in perceived self-efficacy which, in turn, led to an improvement in depression and anxiety. Communication was indirectly measured, because the authors only assessed the questions women planned to discuss with the healthcare professional.

E1130

Vaidya, R., Sood, R., Karlin, N.,&Ja-toi, A. (2011) Benzodiazepine use in breast cancer survivors: Findings from a consecutive series of 1,000 patients. *Oncology*, 81(1), 9-11. doi:10.1159/000330814

To identify the percentage of breast cancer survivors receiving benzodiazepines after completing their therapy;
To describe the types of benzodiazepines prescribed and the circumstances surrounding their use.

The analysis of the 1,000 prescriptions to women with breast cancer showed that 7.9% of them were prescribed benzodiazepines, which is higher than the percentage found in the general population (3%).This medication was initiallyprescribed for one or more of the following symptoms: anxiety (*n*=34), insomnia (*n*=12), muscle spasms (*n*=6), restlessness (*n*=5);
The prescription of benzodiazepines was continued for one or more of the following reasons: anxiety (*n*=51), insomnia (*n*=10), muscle spasms (*n*=6),and restlessness (*n*=6).

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E1170		
Wang, W., Tu, P., Liu, T., Yeh, D.,& Hsu, W. (2013) Mental adjustment at different phases in breast cancer trajectory: Re-examination of factor structure of the Mini-MAC and its correlation with distress. *Psychooncology*, 22(4), 768-774. doi:10.1002/pon.3065	To assess the differences in the correlations between coping strategies and distress in newly diagnosed and long-term survival patients.	Both groups (newly diagnosed and long-term survival patients) had similar anxiety levels and depression symptoms; The most commonly used coping strategies by survivors were anxious preoccupation (10.55), fighting spirit(7.92), cognitive avoidance (6.45), helplessness/hopelessness; (6.09), and fatalism(4.53); The results showed that the association between coping strategies and distress varied across disease stages. The fighting spirit was negatively correlated with anxiety and depression in newly diagnosed patients but not in long-term survival patients. Problem management at this stage requires other adaptive strategies.
E1208		
Yavuzsen, T., Karadibak, D., Cehreli, R., &Dirioz, M. (2012). Effect of group therapy on psychological symptoms and quality of life in Turkish patients with breast cancer. *Asian Pacific Journal of Cancer Prevention,*13(11), 5593-5597.	To evaluate the effects of group therapy on cancer survivors'psychological symptoms and quality of life.	The results point to the effectiveness of the intervention program in reducing anxiety, depression, and distress.
E1231		
Ziner, K., Sledge, G., Bell, C, Johns, S., Miller, K.,& Champion, V. (2012). Predicting fear of breast cancer recurrence and self-efficacy in survivors by age at diagnosis. *Oncology Nursing Forum,* 39(3), 287-295. doi:10.1188/12.ONF.287-295	To determine the effect that age at diagnosis has on fear of breast cancer recurrence; To identify the predictors of fear of recurrence using self-efficacy as a mediator.	Women diagnosed with breast cancer at a younger age have higher fear of recurrence, and higher worries for health, role, womanhood, death, and parenting; The results showed that self-efficacy has a protective effect for survivors who are younger at diagnosis and have higher perceived risk of recurrence and for those who have higher trait anxiety.

Interpretation of results

The analysis showed a high heterogeneity among the studies included concerning their objectives, methodology, type of sample, and how they analyzed anxiety in cancer survivors. Anxiety is a somewhat subjective concept, and studies associate it mostly with depression and distress. With regard to the type of cancer, we found a predominance of studies with breast cancer survivors (eight studies: S112, S274, S904, S1028, S1170, S1208, and S1231). We also found that the management of the disease, after its active stage, focuses on a biomedical perspective, in the search for recurrence, without paying particular attention to the psychological morbidity which is often associated with it.

This review identified an association between higher levels of anxiety and aspects such as young age (S262, S752), lower social support (not being married, not living with a partner; S262, S752), lower levels of self-efficacy (S112, S1028, S1231), higher fear of recurrence (S1231), the use of coping strategies such fatalism, helplessness/hopelessness, anxious preoccupation, and cognitive avoidance (S1170), negative perspective of the problem (S619), and less time elapsed since the end of treatment (S904).

With regard to cancer survivors' anxiety management strategies, we identified six themes: physical exercise/physical activity, illness perception, coping style, subjective cancer threat, social support, and fear of recurrence.

With regard to physical exercise/physical activity, S112 highlights that low - and moderate - intensity physical exercise reduces anxiety among breast cancer survivors and improves disease self-management by increasing survivors' perceived self-efficacy. S619 reported benefits in the process of cancer self-management after a group rehabilitation program that included physical training (PT), with a positive influence on cancer survivors' anxiety ($p < .001$). The effectiveness of the program was visible in the reduction of anxiety to levels

similar to those of the general population and their maintenance up to 3 and 9 months after the program ($p < .005$).

The American College of Sports Medicine (ACSM) corroborates this idea and recommends that cancer survivors should avoid inactivity and return to their normal active life, as quickly as possible. Thus, they recommend that adults aged between 18 and 65 years, in the survival phase, should have at least 150 minutes of moderate physical exercise per week or 75 minutes of intense physical exercise (Shmitz et al., 2010).

We found that physical exercise strategies adopted by cancer survivors decrease anxiety levels and improve disease self-management. As such, nurses should recommend physical exercise to cancer survivors, after listening to their motivations and perceived difficulties for a better adherence.

With regard to strategies focused on illness perception, S262 emphasizes that esophageal cancer survivors' personal beliefs play a significant role in their adaptation of the condition of survival. In the same study, survivors improved their psychological health when they understood their clinical situation, allowing them to perceive the consequences from their condition as less severe.

These results point to the importance of cognitive interventions, that is, information about the disease, its symptoms, and treatment, empowering cancer survivors to better manage the health-illness process. However, cancer is still regarded with fatalism, which leads to the prevalence of negative perceptions. However, the authors of S262 argue that illness perception can be modified, and that interventions properly planned by healthcare professionals can have beneficial effects on the cancer survivors' quality of life. Providing clear and consistent information about cancer can be an important protective factor of psychological problems, namely anxiety.

In line with the findings of S262, the data analyzed by the authors of S752 and S619 allowed them to infer that the perceived threat of cancer is a predictor of psychological comorbidities (anxiety and depression; $p < .001$). S619 showed a direct association between a more negative perspective of the problem and higher levels of anxiety.

With regard to the association between coping strategies and anxiety management in cancer survivors, although Petticrew, Bell, and Hunter (2002) stated that there is little empirical evidence that coping strategies can be a determining factor for the survivor's recovery and highlighted that people with cancer should not feel pressured to adopt specific coping styles to improve survival, it seems that some strategies are more associated with lower levels of anxiety than others among the populations studied.

The analysis of the articles showed that interpersonal coping strategies (looking for the support of close relatives/friends to cope with the problem), reflection, relaxation, passive disease acceptance, diversion, and planning strategies (S262), helplessness, anxious preoccupation, fatalism, and cognitive avoidance (S1170) were considered to be poorly adaptive or associated with higher levels of anxiety.

In turn, positive emotion-focused coping strategies (optimism; S262) and fighting spirit (S1170) seem to be the most beneficial strategies for cancer survivors to manage their anxiety and disease. However, in the long term, the results show little consistency for survivors who use the fighting spirit strategy, because it seems that they no longer have to face the challenges imposed by the treatments and the disease, rather to make adjustments to future issues in their own lives.

The interpretation of these results leads us to infer that the adaptability of cancer survivors' coping strategies stems from personal, contextual, or social factors, or even from the stage in the disease course. Thus, some strategies can be adaptive for some patients but not for others. In this context, nurses have to help the individual to identify the best strategies to achieve better health outcomes and optimize the effectiveness of disease management.

Cancer chronicity is associated with the actual or potential effects resulting from the disease and its treatments, which poses some threats to cancer survivors' well-being and quality of life. S904 analyzed the prevalence of distress among breast cancer survivors and found a prevalence of 36%, which is correlated with quality of life, illness cognition, anxiety, and depression. In S619, cancer survivors with higher stress levels had a negative problem orientation, as well as higher depression and anxiety levels.

Anxiety self-management strategies in cancer survivors: a systematic literature review

In fact, it is clear that the distress caused by the subjective threat of cancer is a concrete condition, experienced by most cancer survivors and highly associated with anxiety levels. Managing the subjective threat of cancer may be an important strategy for reducing distress and managing anxiety, but further research is needed to obtain more robust results capable of demonstrating the scientific evidence and its applicability in clinical settings.

Healthcare professionals should give more attention to the problems and threats imposed by the disease and to patient distress. The guideline for screening psychosocial distress of the Dutch Association of Comprehensive Cancer Centers (2010) emphasizes the importance of the nurses' role in accessing and discussing distress due to their availability and close contact with survivors.

As for social support, the literature indicates that, after the end of treatments, cancer survivors must be able to count on the support of family and friends, and have someone to discuss their fears, concerns, and uncertainties, and receive impartial feedback (Jones, Hadjistavropoulos, & Sherry, 2012).

In S904, the authors found that survivors with higher levels of distress reported more often the need for social support from a health professional. According to these authors, the post-treatment phase can be a phase of disruption and increased distress. Survivors have to learn how to manage side effects, body changes, the fear of recurrence, and their relationship with family and friends.

As in other chronic diseases, the importance of survivors' perceived social support is highlighted. Survivors who had no one to call *caregiver* were more prone to higher levels of anxiety (S262), as well as those who were single, divorced, or widowed (S752). In fact, anxiety levels improve with increased perceived support and less negative interactions (S752).

In turn, according to S752, negative interactions can lead to higher levels of anxiety and distress among prostate cancer survivors. This study showed an inverse relationship between anxiety, depression, and disease-associated post-traumatic stress disorder and perceived support, and a positive association with negative interactions.

Indeed, nurses should take into account cancer survivors' search for and use of social support when delivering care. The implementation of nursing interventions focused on health education and promotion of healthy behaviors enables nurses to focus on the patients and their significant others, who are the essence of social support and consequent health-illness process management.

Anxiety is negatively associated with the fear of recurrence, and the higher the levels of anxiety, the higher will be the fear of cancer recurrence (S1231). However, there is little evidence on the strategies used for reducing the fear of recurrence in cancer survivors.

Conclusion

New healthcare needs emerge as the result of the increasing number of cancer survivors, requiring nurses to turn their attention to the health and quality of life of this population group.

With this study, we concluded on the need to produce clinical practice guidelines in order to achieve a more effective management of the psychological and social problems, as they may compromise cancer survivors' health status and quality of life.

This review has obviously some limitations. The use of only two databases with a short timeframe (between 2009 and 2015) and the lack of gray literature may have limited this study; in addition, we identified a limited number of studies with methodological differences that made the comparison of results very difficult. However, the objectives set out were achieved. Initially, we identified some aspects or characteristics of survivors that may be associated with higher anxiety levels, namely among younger survivors and survivors who had ended their treatments more recently, suggesting that nursing professionals should pay particular attention to this group with a view to minimizing comorbidities through counseling or even referral to other professionals.

However, taking into account the topic of analysis on the search for evidence on anxiety and health-illness process management, there is some consensus on the contribution of low - to moderate -intensity physical activity to disease self-management. In turn, coping strategies varied according to the individual's character-

istics and disease course. Thus, cognitive strategies that lead to a less fatalistic perception of disease, positive emotion-focused coping strategies (optimism), social support (formal or informal), and strategies that reduce negative interactions can reduce anxiety levels and facilitate the health-illness process. These findings suggest that nursing professionals should be aware of and encourage the adoption of anxiety management strategies among cancer survivors in their workplace. It is also important to provide information and teach about cancer and its chronicity. Such interventions may undoubtedly improve health outcomes for cancer survivors.

As a review, this study is an important basis for the development of studies to test the effectiveness of anxiety management strategies, but also for the gradual increase of interest in research in the field of oncology.

Thus, the phase of survival emerges as a priority area for nursing research, so that the benefits arising from a better diagnosis and more effective treatments can extend life expectancy whilst maintaining good quality of life standards.

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