

Telephone follow-up as a nursing intervention for patients receiving outpatient chemotherapy: integrative review

Acompanhamento por telefone como intervenção de enfermagem a pacientes em quimioterapia ambulatorial: revisão integrativa

Seguimiento por teléfono como intervención de enfermería en pacientes en quimioterapia ambulatorial: revisión integrativa

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ABSTRACT

Objective: To identify the scientific production about telephone follow-up by nurses to oncological patients undergoing chemotherapy in an outpatient clinic.

Method: Integrative review of articles available in the LILACS and BDNF/BVS, MEDLINE/PubMed, CINAHL and Scopus databases, using the following descriptors: "Drug Therapy", "Antineoplastic protocols", "Antineoplastic agents", "Telemedicine", "Telenursing", "Telephone" and variations in the CINAHL and Scopus bases, published in the last 5 years.

Results: In this review, 19 studies were identified and grouped in the following topics: Management and control of symptoms; Health-related quality of life assessment; Self-efficacy; Emotional support, Caregiver stress, and Patient satisfaction.

Conclusions: Strategies and methods of follow-up of patients in outpatient chemotherapy are feasible and effective, being widely used, mainly in the United States and Asia. Nurses should identify compatible and patient-centered methods according to their institutional profile.

Keywords: Antineoplastic protocols. Telemedicine. Telephone. Oncology nursing.

RESUMO

Objetivo: Conhecer a produção científica sobre o acompanhamento por telefone feito pelo enfermeiro junto a pacientes oncológicos em quimioterapia ambulatorial.

Método: Revisão integrativa de artigos disponíveis nas bases de dados LILACS e BDNF/BVS, MEDLINE/PubMed, CINAHL e Scopus utilizando os descritores: "Drug Therapy", "Antineoplastic protocols", "Antineoplastic agents", "Telemedicine", "Telenursing", "Telephone" e variações, nas bases CINAHL e Scopus, publicados nos últimos 5 anos.

Resultados: Foram identificados 19 artigos com as seguintes temáticas: Gerenciamento e controle dos sintomas; Avaliação da qualidade de vida relacionada à saúde; Capacidade de autoeficácia; Apoio emocional, Estresse do Cuidador e Satisfação do paciente.

Conclusões: Estratégias e métodos de acompanhamento de pacientes em quimioterapia ambulatorial são viáveis e efetivos, sendo amplamente utilizados, principalmente nos Estados Unidos da América e na Ásia. O enfermeiro deve identificar métodos compatíveis e centrados no paciente de acordo com sua realidade institucional.

Palavras-chave: Protocolos antineoplásicos. Telemedicina. Telefone. Enfermagem oncológica.

RESUMEN

Objetivo: Conocer la producción científica sobre el seguimiento por teléfono por el enfermero a pacientes oncológicos en tratamiento quimioterápico ambulatorial.

Método: Revisión integrativa de artículos disponibles en las bases de datos LILACS y BDNF/BVS, MEDLINE/PubMed, CINAHL y Scopus utilizando descriptores: "Drug Therapy", "Antineoplastic protocols", "Antineoplastic agents", "Telemedicine", "Telenursing", "Telephone" y variaciones en CINAHL y Scopus, publicado en los últimos 5 años.

Resultados: Se identificaron 19 estudios analizados en temáticas: Gestión y control de los síntomas; Evaluación de la calidad de vida relacionada con la salud; Capacidad de Autoeficacia; Apoyo emocional, Estrés del cuidador y Satisfacción del paciente.

Conclusiones: Estrategias y métodos de seguimiento de pacientes en quimioterapia ambulatorial son viables y efectivos, siendo ampliamente utilizados, principalmente en los Estados Unidos de América y en Asia. El enfermero debe identificar métodos compatibles y centrados en el paciente de acuerdo con su realidad institucional.

Palabras clave: Protocolos antineoplásicos. Telemedicina. Teléfono. Enfermería oncológica.

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INTRODUCTION

The chemotherapy treatment for oncological patients that was once delivered only in hospital environments has changed over the years and is now administered primarily in outpatient environments, through the Outpatient Specialized Care (AAE) or Day clinic⁽¹⁻⁴⁾. This change is the result of efforts to develop a more efficient and cost-effective way of meeting the growing needs for chemotherapy treatment⁽⁵⁾. Chemotherapy is a systemic therapy for cancer that uses drugs (chemotherapeutic agents) that, alone or in combination with other drugs, act systemically at the cellular level, specifically in cells undergoing cell division, interfering with their growth and division. The main toxicities caused by chemotherapy are myelosuppression, nausea and vomiting, fatigue, alopecia, changes in bowel motility, loss of appetite and mucositis. More modern therapies, such as immunotherapy and targeted therapies, have also been widely used for the treatment of several types of cancer, either alone or in combination with conventional chemotherapy, and it is known that the toxicities caused by these therapies also require greater attention and control by health professionals⁽⁶⁾.

Studies have shown that poor management and early detection of the adverse effects of chemotherapy treatment in cancer patients lead to increased use of health services, morbidity and mortality, as well as health costs^(5,7-8). Therefore, other ways of ensuring continuity of care for these patients outside the hospitals or clinics should be devised, in order to improve the quality of care provided.

The main goal of nursing is the care of human beings throughout their life process, through continuous assessment and focused on their needs and choices. Therefore, nurses have been playing a leading role in the management of care for cancer patients through follow-up methodologies⁽⁹⁾.

Telehealth is a modality of care that allows interaction between healthcare professionals or between a patient and a healthcare professional, which has expanded in many countries. Its main intervening factors are concern with the reduction of healthcare costs, epidemiological factors and geographical barriers⁽¹⁰⁾. Fixed or mobile phones are used by most of the population, increasing the individuals' access to healthcare, and have proven to be a convenient method to support healthcare services⁽¹¹⁾. According to the Nursing Interventions Classification (NIC), telephone follow-up is defined as providing results or evaluating a patient's response and determining potential for problems as a result of previous treatment, examination or testing, over the telephone⁽¹²⁾.

In Brazil, policies aimed to prioritize incentives to research, development and an evaluation of health technologies that include cancer among the Chronic Non-communicable Diseases (CNCD) are being implemented, priority line of research in the National Agenda of Priorities in Health Research (ANPPS)⁽¹³⁾, in the National Agenda of Research Priorities of the Ministry of Health (APPMS), recently disseminated⁽¹⁴⁾, and also in the Nursing⁽¹⁵⁾ field.

The present study aims to gain knowledge on the scientific production on telephone follow-up conducted by nurses with oncology patients in outpatient chemotherapy treatment.

METHOD

Integrative review that met the following six previously established steps⁽¹⁶⁾: 1) selection of the guiding question; 2) definition of the characteristics of the primary surveys of the sample; 3) selection of the surveys that composed the review sample; 4) analysis of the findings of the articles included; 5) interpretation of results; and 6) review report, providing a critical examination of the findings. This review aims to answer the following question: What is the evidence of the use of the nursing intervention through telephone follow-up of oncology patients receiving outpatient chemotherapy?

The following databases were searched for the selection of the studies: Literatura Latino-Americana e do Caribe em Ciências da Saúde (LILACS) and Banco de Dados em Enfermagem (BDENF) via Biblioteca Virtual em Saúde (BVS), *Medical Literature Analysis and Retrieval System Online (MEDLINE)*, via *PubMed e Cumulative Index to Nursing and Allied Health Literature (CINAHL)*, e *Scopus*, via Portal de Periódicos Capes. At first, the descriptors in Health Sciences (DeCS) were accessed at Biblioteca Virtual em Saúde (BVS), at the Medical Subject Headings (MeSH), at the National Library and at the titles at CINAHL. The controlled descriptors: "Drug Therapy", "Antineoplastic protocols", "Antineoplastic agents", "Telemedicine", "Telenursing" and "Telephone" were used with Boolean operators "OR" and "AND". The variations of each database were considered, and some changes in the search strategies in CINAHL and Scopus were performed according to Chart 1.

The search for studies in the databases was performed in September-October 2018. The following filters were used: a five-year period (the past 5 years) and the English, Portuguese and Spanish languages. The justification for the selection of this period is the National Policy for the Prevention and Control of Cancer in the Health Care Network targeted to Individuals with Chronic Diseases within the Unified

Databases	Search Strategy
LILACS and BDEF/BVS	((<i>"Drug therapy"</i> OR <i>"Tratamento farmacológico"</i> OR <i>"Antineoplastic protocols"</i> OR <i>"Protocolos antineoplásicos"</i> OR <i>"Antineoplastic agents"</i> OR <i>"Agentes antineoplásicos"</i>)) AND ((<i>Telemedicine</i> OR <i>Telemedicina</i> OR <i>Telephone</i> OR <i>Telefone</i> OR <i>Telenursing</i> OR <i>Telenfermagem</i>))
MEDLINE/PubMed	((<i>"Drug Therapy"</i> [Mesh] OR (<i>"Antineoplastic Protocols"</i> [Mesh] OR (<i>"Antineoplastic Agents"</i> [Mesh]))) AND ((<i>"Telemedicine"</i> [Mesh] OR (<i>"Telenursing"</i> [Mesh] OR (<i>"Telephone"</i> [Mesh]))))
CINAHL	((MH <i>"Drug Therapy"</i>) OR (MH <i>"Chemotherapy, Cancer"</i>) OR (MH <i>"Antineoplastic Agents"</i>) AND ((MH <i>"Telemedicine"</i>) OR (MH <i>"Telehealth"</i>) OR (MH <i>"Telenursing"</i>) OR (MH <i>"Telephone"</i>) OR (MH <i>"Telephone Consultation (Iowa NIC)"</i>))
SCOPUS	TITLE-ABS-KEY(<i>"Drug therapy"</i> OR <i>"Antineoplastic agents"</i> OR <i>"Cancer chemotherapy"</i>) AND TITLE-ABS-KEY(<i>"Telehealth"</i> OR <i>"Telemedicine"</i> OR <i>"Telenursing"</i> OR <i>"Telephone"</i>)

Chart 1 – Search strategies in databases
 Source: Research data, 2018.

Health System (SUS)⁽¹⁷⁾. The following inclusion criteria were adopted: original studies that address as a theme the nursing intervention through telephone follow-up of the patient under treatment with outpatient antineoplastic chemotherapy. The exclusion criteria adopted were studies that addressed this intervention used in the follow-up of patients on oral or intraperitoneal chemotherapy and pediatric patients.

Thus, according to these parameters, the search in the databases resulted in the identification of 896 articles. After exclusion of duplicated articles, titles and abstracts, and evaluation of full-text articles, 19 studies were selected for inclusion (Figure 1). To ensure the validity of the review, the studies were selected and analyzed in detail, with focus on the adequacy of the methodology used.

The methodological rigor of the studies was evaluated and classified, through the classification of the levels of evidence (LE), through an instrument based on the Rating System for the Hierarchy of Evidence for Intervention/Treatment Question⁽¹⁸⁾.

For the interpretation of the results and presentation of the review, the findings were analyzed based on the critical evaluation of the themes related to the research question of the study. The synthesis of the results was analyzed according to the following themes, which emerged from the results: Management and control of symptoms, Health-related quality of life assessment, Self-efficacy capacity, Emotional support, Caregiver stress, and Patient satisfaction.

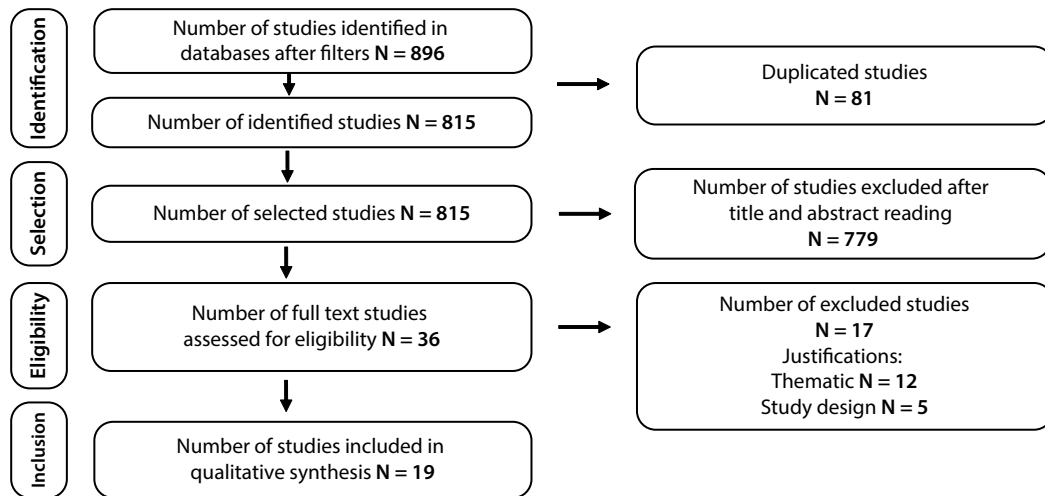


Figure 1 – Flowchart of the search and selection of studies
 Source: Research data, 2018¹
¹Adaptation of PRISMA Recommendation⁽¹⁹⁾

RESULTS

An instrument containing the following information: authors/year/country, objectives of the study, telephone follow-up intervention and the main results found was elaborated for the characterization of the studies (Chart 2).

Study	Objectives	Telephone follow-up intervention	Main results
E1 ⁽²⁰⁾ Ferreira et al. (2017) Brazil	Monitor the adverse effects of antineoplastic chemotherapy and describe the telephone follow-up as a comfort promotion strategy.	Weekly, lasting 7 weeks.	Facilitated the discussion of strategies of health education, coping and management of adverse effects with the purpose of promoting comfort to the patient, through relief, peace or even transcendence during a telephone follow-up intervention.
E2 ⁽²¹⁾ Cruz, Ferreira, Reis (2014) Brazil	Gain insight on the patients' views about the weekly telephone follow-up provided by the nursing team.	At the end of the seventh week of telephone follow-up for satisfaction assessment	All the respondents said they were satisfied with the telephone follow-up intervention, particularly because of the direct contact with nursing professionals, the building of confidence and improved control of the treatment.
E3 ⁽²²⁾ Nejad et al. (2016) Iran	To determine and compare the levels of stress of informal caregivers of breast cancer patients.	Start after 48 hours of face-to-face education with weekly follow-up, for a total of 4 weeks.	The levels of stress of caregivers decreased significantly in the intervention group after patient-caregiver's education, while in the control group there was no change.
E4 ⁽²³⁾ Hinstistan et al. (2017) Turkey	To determine the therapeutic effects of telephone follow-up by the nurse to patients with lung cancer.	One phone call during the week after each chemotherapy session - 6 phone contacts were made.	It had impact on the reduction of the side effects of chemotherapy compared to the control group. There was an improvement in the social function regarding quality of life compared to the control group.
E5 ⁽³⁾ Mooney et al. (2014) USA	Evaluate the effectiveness of an automated telephone monitoring system.	Use of an automated system. Beginning 24 hours after the second chemotherapy session, with an average of 45 days per participant.	Despite the use of a daily symptom monitoring system by patients and the fact that they were informed on unmitigated symptoms of moderate to severe intensity, oncology physicians and nurses did not contact the patients to improve symptom management, nor did the symptoms improved. Patients reported great satisfaction and said the automated system was easy to use.
E6 ⁽²⁴⁾ Mooney et al. (2017) USA	Test the effectiveness of an automated symptom management system to determine if there is a reduction in chemotherapy-related symptoms.	Use of the Symptom Care at Home (SCH) automated system daily until completion of the chemotherapy course or for 6 months.	All individual symptoms, except for diarrhea, were significantly less severe in the participants in the intervention group. These results demonstrate that the symptoms can be mitigated through automated home monitoring and follow-up to improve the management of poorly controlled symptoms.

Study	Objectives	Telephone follow-up intervention	Main results
E7 ⁽²⁵⁾ Underhill, Chicko, Berry (2015) USA	Evaluate the implementation process of a structured assessment led by nurses (nurse-led) and a follow-up intervention by telephone.	After 24 and 72 hours (plus or minus 24-48 hours, depending on the day of the week) post-chemotherapy treatment.	The frequencies of reports of Chemotherapy-induced Nausea and Vomiting (CINV) decreased from 24 to 72 hours after treatment. Most participants had nausea, particularly during the first 24 hours. In about half of the participants, the physicians changed the standard antiemetic regimen based on information from the check list of risk factors in the pre-assessment performed by nurses.
E8 ⁽²⁶⁾ Sajjad et al. (2016) Pakistan	To determine the effect of individualized education of patients on the emotional support to the quality of life (QoL) of patients with breast cancer under chemotherapeutic treatment.	Telephone follow up for at least twice a week during the 6 weeks of treatment.	The tests revealed a significant improvement in overall quality of life, breast cancer subscale scores, physical and emotional well-being of the intervention group compared to the control group. The intervention was effective in improving the patients' quality of life.
E9 ⁽⁴⁾ Kondo et al. (2015) Japan	To investigate the use of the telephone consultation service available to patients and their caregivers for counseling and control of Adverse Events (AEs) and complications arising from cancer treatment.	344 telephone consultations of patients receiving outpatient chemotherapy between August 2011 and August 2012.	The use of a telephone service can prevent symptoms from becoming unmanageable and avoids unnecessary and expensive visits to the hospital. In addition, this telephone service can be used to monitor adverse events, evaluate the effectiveness of the treatment, and increase overall patient satisfaction.
E10 ⁽²⁷⁾ Zhang et al. (2014) China	To test the effects of an intervention by telephone follow-up by the nurse to improve self-efficacy in patients with colorectal cancer.	Telephone follow-up of 4 monthly health-coaching sessions (20-40 min each session) during 6 months.	Patients in the intervention group had a reduction in the severity of symptoms, a significant improvement in their self-efficacy, anxiety and depression at three and six months, compared to the control group. No statistically significant major effect was observed in the perception of quality of life between the two groups.
E11 ⁽²⁸⁾ Ream et al (2015) United Kingdom	Adaptation and evaluation of Beating Fatigue - a telephone-administered psychological intervention.	3 calls from the third cycle of chemotherapy.	In all outcome variables measured, except for one (depression), the intervention group showed improvement over time compared to the control group. It reduced the intensity and suffering associated with fatigue. Reduced anxiety and improved self-efficacy in fatigue control.

Study	Objectives	Telephone follow-up intervention	Main results
E12 ⁽²⁹⁾ Traeger et al. (2015) USA	Evaluate whether the standard care allied to the intervention led to a lower burden of symptoms reported by the patient, greater satisfaction with care, and a lower probability of depression and anxiety symptoms compared to standard care.	2 calls during the first week after the first 2 cycles of chemotherapy.	Fatigue was the most reported symptom. The proactive intervention provided by the patient's oncology team provided security, but did not statistically improve the burden of symptoms, satisfaction with the care or likelihood of anxiety and depression symptoms during the first two cycles of chemotherapy.
E13 ⁽³⁰⁾ Vaz, Silva, Silva (2016) Brazil	To identify the most prevalent symptoms during chemotherapy treatment in women with breast cancer.	Weekly, after chemotherapy session for 8 cycles of chemotherapy	It proved to be an effective means to monitor patients' needs throughout the chemotherapy treatment and brought health professionals and patients closer. Moreover, it was an important instrument in the identification and evaluation of the adverse effects of treatment and, where possible, its control.
E14 ⁽²⁾ Lai et al. (2015) China	To assess the effect of this nurse-led specialist care program on cancer patients receiving treatment at a day care center.	One phone call during the week after the first two cycles of chemotherapy.	After two cycles, the most common symptoms were alopecia, fatigue, change in appetite and weight change. For the reported pre- and post-test symptoms, incidence and pain levels did not differ significantly. Small changes were observed, but not significant in relation to quality of life and self-efficacy. All 5 subjects were very pleased with the service.
E15 ⁽¹⁾ Breen et al (2017) Australia	To evaluate the acceptability, usability and feasibility of the ASyMS-H Application (The Advanced Symptom Management System-Haematology	Use of the ASyMS-H application during a chemotherapy cycle 2 times a day or when needed. Alerts were sent via SMS to the nursing staff when symptoms were poorly controlled.	Perceived benefits: reaffirmation; empowerment; increased health awareness / adherence to self-care; promotion of timely clinical intervention and better recall of side effects and communication with professionals/family/friends. The system was more beneficial for those experiencing more numerous side effects.
E16 ⁽³¹⁾ Boardman, Wilkinson, Board (2015) United Kingdom	Evaluate the usefulness of follow-up calls made from the nurse's helpline and complete a patient satisfaction survey.	The telephone satisfaction survey was conducted with patients eligible to collect information about their proactive call experience.	The audit has shown that proactive phone calls after chemotherapy were associated with high levels of patient satisfaction Proactive telephone follow-up is considered an effective and acceptable method that improves the quality of care.

Study	Objectives	Telephone follow-up intervention	Main results
E17 ⁽³²⁾ Yount et al. (2014) USA	To assess the effectiveness of technology-based symptom monitoring and reporting in reducing the burden of symptoms in patients with advanced lung cancer	Use of telephone-based interactive voice response (IVR) technology. Weekly follow-up for 12 weeks.	It failed to demonstrate the effectiveness of symptom monitoring and reporting on the mitigation of symptoms compared to symptom monitoring alone in patients with advanced lung cancer. Health-related quality of life (HRQL) decreased by 12 weeks in both groups. Satisfaction was high in both groups, but at week 12, satisfaction with treatment was higher in the control group than in patients in the intervention group. There were no differences over time or between groups in self-efficacy or perceived barriers.
E18 ⁽⁸⁾ Hoverman et al. (2014) USA	To assess the impact of the Innovent Oncology Program - Level I Pathway and Patient Support Services (PSS) and to measure the rate and costs associated with emergency room visits related to chemotherapy and hospital admissions	One phone call before the beginning of chemotherapy and throughout the treatment according to the chemotherapy protocol, patient comorbidities and risk of adverse effects.	Of the 221 patients in the Innovent Program, 81% enrolled in the PSS, with 1,118 calls made. Of these, 26% (n = 64) responded to the satisfaction survey related to PSS and 83% of them reported being satisfied with the telephone call interventions. The Innovent Oncology Program (Level I Pathway and PSS) contributed to reduce the number of visits to the ER and hospital admissions, shorter hospital stay, lower overall costs, and a greater probability of evidence-based treatment to the patients.
E19 ⁽³³⁾ Kolb et al. (2016) USA	To determine the association between the symptoms of peripheral neuropathy induced by chemotherapy (NPIQ) and the risk of falls in patients receiving neurotoxic chemotherapy.	Automated telephone system (Symptom-Care @ Home). First day of the first cycle and then daily by a chemotherapy protocol.	It has been shown that patients with persistent numbness and tingling are at a substantially higher risk of falling, or near fall, than those without these symptoms. This study demonstrates the usefulness of a new telephone-based system to track the symptoms of neuropathy. The results provide information on fall risk factors, mechanisms and possible mitigation strategies

Chart 2 - Characteristics of the Telephone follow-up intervention presented in the studies

Source: Research data, 2018.

Regarding the characteristics of the studies, the country with the highest number of studies on the theme was the United States n = 7 (36.8%), followed by Asian countries n = 5 (26.3%), Brazil n = 3 (15.7%), UK n = 2 (10.5%), Turkey and Australia n = 1 (5.2%). Regarding the study design, the following results were obtained: randomized controlled trials^(3,27,29,32) n = 4; randomized trials^(22,24) n = 2; quasi-experimental^(2,23,26) n = 3; observational^(4,8,33), descriptive^(20,25,30) n = 3; qualitative^(1,21,31) n = 3; and mixed⁽²⁸⁾ n = 1. Thus, the studies were classified according to levels of evidence: six with LE 2; three with LE 3; three with LE 4; and six with LE 6. However, one of the studies had an approach not included in the system of classification of the levels of evidence.

Therefore, the authors decided to classify as LE 5 (mixed study). The studies were conducted in the following years: 2014 (n = 5), 2015 (n = 6), 2016 (n = 4) and 2017 (n = 4).

Regarding the diagnosis of cancer of the samples, the following results were obtained: multiple diagnoses of cancer n = 8 (42%); breast n = 7 (36.8%); colorectal n = 4 (21%); lung n = 4 (21%), hematological n = 2 (10.5%) and ovary n = 1 (5.2%) cancers.

The telephone follow-up interventions occurred predominantly at the beginning and throughout the treatment for a maximum of six months, with the first call made during or at the end of the first week after treatment, or daily through the automatic call distribution systems. Two

studies were program evaluation audits^(8,31) and there was a retrospective study on a telephone triage system⁽⁴⁾. In 13 studies (68.42%) nurses were the leaders of the telephone follow-up program, and in the other six (31.5%), nurses were part of the oncology team, characterizing a multidisciplinary intervention. Among the studies led by nurses, six (46.1%) used theoretical foundations to guide and support the objectives of their intervention through nursing theorists and professionals of other areas.

Instruments for assessing the effects caused by the follow-up methodology were widely used, and most included scales and questionnaires, except for a Brazilian study⁽³⁰⁾. Among the results of the intervention, the most predominant were effects related to management and control of symptoms $n = 14$ (73.6%), specifically: nausea and vomiting: ($n = 1$); fatigue ($n = 1$); neurotoxicity ($n = 1$) and set of symptoms ($n = 11$), followed by Patient Satisfaction $n = 8$ (42.1%); Health-related quality of life assessment $n = 5$ (26.3%); Self-efficacy capacity $n = 4$ (21%); Emotional support (anxiety and depression) $n = 3$ (15.7%); and Caregiver stress $n = 1$ (5.2%).

DISCUSSION

Most studies on telehealth are conducted by developed countries, corroborating the findings of this review. Among these countries, it is worth mentioning the United States and Australia, as their studies evaluate follow-up methodologies that use modern technology, such as automatic call distribution systems^(3,24,33), automated calls via an Interactive Voice Response System (IVR)⁽³²⁾ and real-time health monitoring applications⁽¹⁾. In Australia, the main motivation for the studies was the country's geographical context. As for the United States, it has historically made major investments in telemedicine: it was the first country to establish a national telemedicine association, the American Telemedicine Association (ATA)⁽¹⁰⁾.

In the last five years, particularly in 2015, there has been much research related to this topic, indicating that remote monitoring of patients is a current and relevant topic in the area of Oncology. Breast cancer was the most common diagnosis in the studies, except for those that did not specify a specific diagnostic criterion. The justification for this finding is the worldwide impact of breast cancer and the fact that chemotherapy treatment in these cases is often performed on an outpatient basis. It is the most frequent cancer among women, impacting 2.1 million women each year and also causes the greatest number of cancer-related deaths among women⁽³⁴⁾.

The present study found that the most frequent themes addressed were the telephone follow-up methodology regarding the management and control of symptoms, evaluation of health-related quality of life, self-efficacy and emotional support, which are critical topics for patients who undergo oncological treatment for the following reasons: clinical manifestations of the disease itself, toxicities related to the treatment, changes in daily routine and their impacts on quality of life⁽³⁵⁾. There was also a growing use of instruments and measurement scales in the studies. The recent technological advances have also benefited the health care segment, with many instruments and scales developed, translated, adapted, validated and applied to measure and/or identify situations that can be approached more scientifically and effectively, also in the research field⁽³⁶⁾.

Telephone intervention as a management and symptom control strategy was predominant in the studies analyzed. Among the symptoms, fatigue was the most reported. It is a very common symptom in chronic diseases such as cancer, with a prevalence of 80-90% among patients who underwent chemotherapy and/or radiation therapy⁽³⁷⁾. Moreover, fatigue is a subjective symptom, difficult to control, as it can be caused by multiple factors, and is associated with a decrease in the quality of life of oncological patients undergoing chemotherapy⁽³⁵⁾. The motivational psychological intervention by telephone showed encouraging preliminary data on the reduction of intensity and improvement of fatigue self-efficacy, and may be a viable alternative for the control of this and other symptoms⁽²⁸⁾.

A recent study concluded that a care program that includes nurse-led telephone follow-up may be useful in managing the levels of suffering associated with oral problems, fatigue, peripheral neuropathy and other suffering that cause agony to patients, as well as having an impact on quality of life, self-efficacy and confidence of some patients⁽³⁸⁾. This result is repeated in randomized controlled trial studies with theoretical foundations that support the intervention by telephone, through which positive results in the control of symptoms related to the disease, emotional suffering and health-related quality of life are more evident⁽⁹⁾.

In this review, the intervention also had an impact on the overall quality of life of breast cancer patients⁽²⁶⁾, providing physical and emotional well-being - and improving the social function of patients with lung cancer⁽²³⁾. An integrative review study with meta-analysis of the effects of telephone intervention on breast cancer survivors reported a positive and statistically significant effect on quality of

life, thus demonstrating an acceptable and effective intervention as a follow-up methodology⁽³⁹⁾.

Another finding was the use of this intervention as a strategy to improve self-efficacy, that is, to increase the perception of one's own ability to perform activities and make decisions regarding self-care. Therefore, this method is a sort of mediator or moderator of self-care actions⁽⁴⁰⁾. In this regard, health-coaching sessions for colorectal cancer patients resulted in a significant improvement in self-efficacy⁽²⁷⁾.

It should be stressed that the effect of self-care capacity obtained the best result in a meta-analysis of the effects of a telephone intervention led by nurses to cancer patients⁽⁹⁾. In another study, it was inferred that mobile technology offers many opportunities for cancer patients to obtain information and self-care skills aimed to improve their communication with health providers and manage their treatment⁽⁴¹⁾.

Regarding emotional support, two studies detected continuous improvement of the symptoms of anxiety, in the comparison between the groups⁽²⁷⁻²⁸⁾, and in one study⁽²⁹⁾ there was a decline in anxiety symptoms, which, however, was not significant compared to data from the control group. A recent experimental study concluded that the telephone intervention performed by a nurse during a 15-day follow-up proved to be an effective strategy to reduce anxiety levels in patients undergoing radiation therapy⁽⁴²⁾. On the other hand, regarding depression, only one study showed continuous improvement in the symptoms⁽²⁷⁾.

The symptoms of anxiety and depression reduce physical, mental, social and existential well-being, increase physical and emotional symptoms and are associated with a lower health-related quality of life⁽⁴³⁾. These symptoms are not easily controlled and not isolated. Therefore, if they are not detected on an early basis, evaluation and support can be difficult. This may explain why the effect related to the reduction of emotional distress was small compared to the control group in the meta-analysis of this intervention in cancer patients⁽⁹⁾.

Only one study evaluated the levels of stress of caregivers of breast cancer patients⁽²²⁾. It found a significant decrease in these levels compared to the control group. Experiencing the diagnosis of cancer in a family member or a friend is a situation that causes emotional exhaustion. Some measures that tend to reduce the stress experienced by these families in their daily life are ensured by the presence of a support network that assists in the delivery of healthcare and early identification of the disease through the use of assessment tools⁽⁴⁴⁾.

Patient satisfaction with the care provided through telephone follow-up was addressed in eight studies^(1-3,8,21,29,31-32) and all evaluations obtained a high level of satisfaction. However, in three experimental studies there was no statistically significant improvement in the comparison between the groups^(3,29), or satisfaction with treatment was higher in the control group than in the intervention group in the last week of follow-up⁽³²⁾.

A systematic review study addressed the acceptability of telephone support by cancer patients and concluded that this type of evidence related to patient perception is increasing. However, interpretation of the results is limited because of the instruments selected for the quantitative assessment of patient satisfaction, which do not always reflect patient-centered priorities emerging from qualitative data⁽¹¹⁾.

■ CONCLUSIONS

The incorporation of new strategies and methods of follow-up by nurses of cancer patients in outpatient chemotherapy treatment has been increasingly used in several countries, mainly in the United States and Asia. However, despite the representativeness of studies conducted in Brazil, the quality of the evidence is low and indicates poor coordination among nurses in the research area. There was a tendency to use this intervention as part of a program or protocol led by nurses, as a practice based on theoretical foundations. However, the use of these interventions, especially those of greater technological development, as a multidisciplinary protocol of patient care in which nurses are part of the Oncology team was evident.

Based on this study, nurse-led telephone follow-up interventions were found to be a viable and effective strategy for patients on outpatient cancer chemotherapy, particularly because of the evidence related to the management and control of symptoms, health-related quality of life, and self-efficacy. Regarding the management and control of symptoms, it is an important tool for care management and the foundation for building care and management indicators, as well as improving the quality of care and improving safety in the care process.

Another effect identified, and which has been explored, is the emotional support provided to both the patient and the caregiver. The intervention brings professionals/health institution and patients and their caregivers closer.

Innovations are essential for the improvement of the quality of care during outpatient chemotherapy treatment, and it is up to nurses to identify consistent patient-centered follow-up strategies that are also adequate to their

institutional reality. Brazilian oncological nursing should be aware of this new scenario and include the new technologies available in their practices, while keeping the focus on humanization of care, which is essential in patient care. One possible limitation of this study is the fact that only controlled descriptors were used in search strategies, which may have led to the non-inclusion of some relevant studies.

REFERENCES

- Breen S, Kofoed S, Ritchie D, Dryden T, Maguire R, Kearney N, et al. Remote real-time monitoring for chemotherapy side-effects in patients with blood cancers. *Collegian*. 2017;24(6):541-9. doi: <https://doi.org/10.1016/j.colegn.2016.10.009>.
- Lai XB, Wong FKY, Leung CWY, Lee LH, Wong JSY, Lo YF, et al. Development and assessment of the feasibility of a nurse-led care program for cancer patients in a chemotherapy day center: results of the pilot study. *Cancer Nurs*. 2015; 38(5):E1-12. doi: <https://doi.org/10.1097/NCC.000000000000192>.
- Mooney KH, Beck SL, Friedman RH, Farzanfar R, Wong B. Automated monitoring of symptoms during ambulatory chemotherapy and oncology providers' use of the information: a randomized controlled clinical trial. *Support Care Cancer*. 2014;22(9):2343-50. doi: <https://doi.org/10.1007/s00520-014-2216-1>.
- Kondo S, Shiba S, Udagawa R, Ryushima Y, Yano M, Uehara T, et al. Assessment of adverse events via a telephone consultation service for cancer patients receiving ambulatory chemotherapy. *BMC Res Notes*. 2015;8:315. doi: <https://doi.org/10.1186/s13104-015-1292-8>.
- Lai XB, Ching SSY, Wong FKY, Leung CWY, Lee LH, Wong JSY, et al. The cost-effectiveness of a nurse-led care program for breast cancer patients undergoing outpatient-based chemotherapy – a feasibility trial. *Eur J Oncol Nurs*. 2018;36:16-25. doi: <https://doi.org/10.1016/j.ejon.2018.07.001>.
- Bonassa EMA, Gato MIR. *Terapêutica Oncológica para enfermeiros e farmacêuticos*. 4. ed. São Paulo: Atheneu; 2012.
- Gray LM, Meyer S. Management of patients on chemotherapeutic treatment for advanced cancer with acute conditions in the emergency department. *Australas Emerg Nurs J*. 2014;17(4):146-51. doi: <https://doi.org/10.1016/j.aenj.2014.05.003>.
- Hoverman JR, Klein I, Harrison DW, Hayes JE, Garey JS, Harrel R, et al. Opening the black box: the impact of an oncology management program consisting of level I pathways and an outbound nurse call system. *J Oncol Pract*. 2014; 10(1):63-7. doi: <https://doi.org/10.1200/JOP.2013.001210>.
- Suh S-R, Lee MK. Effects of nurse-led telephone-based supportive interventions for patients with cancer: A Meta-Analysis. *Oncol Nurs Forum*. 2017;44(4):e168-84. doi: <https://doi.org/10.1188/17.ONFE168-E184>.
- Harzheim E, Katz N, Ferri C, Fernandes JG, Barbosa I. *Guia de avaliação, implantação e monitoramento de programas e serviços em telemedicina e telessaúde*. Porto Alegre: Universidade Federal do Rio Grande do Sul, Hospital Alemão Oswaldo Cruz; 2017 [cited 2018 Jul 30]. Available from: http://rebrats.saude.gov.br/images/MenuPrincipal/Guia_Avaliacao_telessaude_telemedicina.pdf.
- Liptrott S, Bee P, Lovell K. Acceptability of telephone support as perceived by patients with cancer: a systematic review. *Eur J Cancer Care (Engl)*. 2018;27(1):e12643. doi: <https://doi.org/10.1111/ecc.12643>.
- Bulechek GM, Butcher HK, Dochterman JM, Wagner CM. *NIC Classificação das intervenções de enfermagem*. 6. ed. Rio de Janeiro: Elsevier; 2016.
- Ministério da Saúde (BR), Secretaria de Ciência, Tecnologia e Insumos Estratégicos, Departamento de Ciência e Tecnologia. *Agenda nacional de prioridades de pesquisa em Saúde – ANPPS*. Brasília (DF): Ministério da Saúde; 2015.
- Ministério da Saúde (BR), Secretaria de Ciência, Tecnologia e Insumos Estratégicos, Departamento de Ciência e Tecnologia. *Agenda de prioridades de pesquisa do Ministério da Saúde – APPMS*. Brasília (DF): Ministério da Saúde; 2018.
- Oliveira DC. Prioridades de pesquisa em enfermagem e as linhas de pesquisa: dando continuidade ao debate. *Rev Enferm UERJ*. 2014;22(5):712-6. doi: <https://doi.org/10.12957/reuerj.2014.12771>.
- Whittemore R, Knafk K. The integrative review: updated methodology. *J Adv Nurs*. 2005;52(5):546-53. doi: <https://doi.org/10.1111/j.1365-2648.2005.03621.x>.
- Ministério da Saúde (BR). Portaria nº 874, de 16 de maio de 2013: institui a Política Nacional para Prevenção e Controle do câncer na rede de atenção à saúde das pessoas com doenças crônicas no âmbito do Sistema Único de Saúde (SUS). *Diário Oficial da União*. 2013 mai 17;150(94 Seção 1):129-32.
- Melnik BM, Fineout-Overholt E. *Evidence-based practice in nursing & healthcare: a guide to best practice*. 2nd ed. Philadelphia: Lippincott Williams & Wilkins; 2011.
- Galvão TF, Pansani TAS, Harrad, D. Principais itens para relatar revisões sistemáticas e meta-análises: a recomendação PRISMA. *Epidemiol Serv Saúde*. 2015 [cited 2018 Jul 30];24(2):335-42. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S2237-96222015000200335.
- Ferreira EB, Cruz FOAM, Jesus CAC, Pinho DLM, Kamada I, Reis PED. Contato telefônico como estratégia para a promoção de conforto ao paciente submetido à quimioterapia. *Rev Enferm UFPE online*. 2017 [cited 2018 Jul 30];11(5):1936-42. Available from: <https://periodicos.ufpe.br/revistas/revistaenfermagem/article/download/23343/18950>.
- Cruz FOAM, Ferreira EB, Reis PED. Consulta de enfermagem via telefone: relatos dos pacientes submetidos à quimioterapia antineoplásica. *R Enferm Cent O Min*. 2014 [cited 2018 Jul 30];4(2):1090-9. Available from: <http://www.seer.ufsj.edu.br/index.php/recom/article/view/639>.
- Nejad ZK, Aghdam AM, Hassankhani H, Sanaat Z. The effects of a patient-caregiver education and follow-up program on the breast cancer caregiver strain index. *Iran Red Crescent Med J*. 2016; 18(3):e21627. doi: <https://doi.org/10.5812/ircmj.21627>.
- Hinstistan S, Nural N, Cilingir D, Gursoy A. Therapeutic effects of nurse telephone follow-up for lung cancer patients in Turkey. *Cancer Nurs*. 2017;40(6):508-16. doi: <https://doi.org/10.1097/NCC.0000000000000461>.
- Mooney KH, Beck SL, Wong B, Dunson W, Wujcik D, Whisenant M, et al. Automated home monitoring and management of patient-reported symptoms during chemotherapy: results of the symptom care at home RCT. *Cancer Med*. 2017;6(3):537-46. doi: <https://doi.org/10.1002/cam4.1002>.
- Underhill ML, Chicko L, Berry DL. A nurse-led evidence-based practice project to monitor and improve the management of chemotherapy-induced nausea and vomiting. *Clin J Oncol Nurs*. 2015;19(1):38-40. doi: <https://doi.org/10.1188/15.CJON.38-40>.
- Sajjad S, Ali A, Gul RB, Mateen A, Rozi S. The effect of individualized patient education, along with emotional support, on the quality of life of breast cancer patients – a pilot study. *Eur J Oncol Nurs*. 2016;21:75-82. doi: <https://doi.org/10.1016/j.ejon.2016.01.006>.

27. Zhang M, Chan SWai-chi, You L, Wen Y, Peng L, Liu W, et al. The effectiveness of a self-efficacy-enhancing intervention for chinese patients with colorectal cancer: a randomized controlled trial with 6-month follow up. *Int J Nurs Stud*. 2014;51(8):1083-92. doi: <https://doi.org/10.1016/j.ijnurstu.2013.12.005>.
28. Ream E, Gargaro G, Barsevick A, Richardson A. Management of cancer-related fatigue during chemotherapy through telephone motivational interviewing: modeling and randomized exploratory trial. *Patient Educ Couns*. 2015;98(2):199-206. doi: <https://doi.org/10.1016/j.pec.2014.10.012>.
29. Traeger L, Mcdonell TM, McCarty CE, Greer JA, El-Jawahri A, Temel JS. Nursing intervention to enhance outpatient chemotherapy symptom management: Patient-reported outcomes of a randomized controlled trial. *Cancer*. 2015;121(21):3905-13. doi: <https://doi.org/10.1002/cncr.29585>.
30. Vaz DC, Silva CRL, Silva RCL. Acompanhamento presencial e telefônico dos sintomas de mulheres com câncer de mama submetidas à quimioterapia. *Rev Enferm UERJ*. 2016;24(5):e15577. doi: <https://doi.org/10.12957/reuerj.2016.15577>.
31. Boardman A, Wilkinson J, Board R. Patient satisfaction with telephone follow up after treatment. *Cancer Nurs Practice*. 2015;14(9):27-33. doi: <https://doi.org/10.7748/cnp.14.9.27.s20>.
32. Yount SE, Rothrock N, Bass M, Beaumont JL, Pach D, Lad T, et al. A randomized trial of weekly symptom telemonitoring in advanced lung cancer. *J Pain Symptom Manage*. 2014;47(6):973-89. doi: <https://doi.org/10.1016/j.jpainsymman.2013.07.013>.
33. Kolb NA, Smith G, Singleton R, Beck SL, Stoddard GJ, Brown S, et al. The association of chemotherapy-induced peripheral neuropathy symptoms and the risk of falling. *JAMA Neurol*. 2016;73(7):860-6. doi: <https://doi.org/10.1001/jamaneurol.2016.0383>.
34. Organização Mundial da Saúde (OMS) [Internet]. Geneva: WHO; c2018 [cited 2018 Dec 04]. Breast cancer; [about 1 screen]. Available from: <http://www.who.int/cancer/prevention/diagnosis-screening/breast-cancer/en/>.
35. Nicolussi AC, Sawada NO, Cardozo FMC, Andrade V, Paula JM. Qualidade de vida relacionada à saúde de pacientes com câncer em quimioterapia. *Rev Rene*. 2014;15(1):132-40. doi: <https://doi.org/10.15253/2175-6783.2014000100017>.
36. Machado RS, Fernandes ADBF, Oliveira ALCB, Soares LS, Gouveia MTO, Silva GRF. Cross-cultural adaptation methods of instruments in the nursing area. *Rev Gaúcha Enferm*. 2018;39:e2017-0164. doi: <https://doi.org/10.1590/1983-1447.2018.2017-0164>.
37. Borges JA, Quintão MMP, Chermont SSMC, Mendonça Filho HTF, Mesquita ET. Fadiga: um sintoma complexo e seu impacto no câncer e na insuficiência cardíaca. *Int J Cardiovasc Sci*. 2018 [cited 2018 Dec 30];31(4):433-42. Available from: http://www.scielo.br/pdf/ijcs/v31n4/pt_2359-4802-ijcs-31-04-0433.pdf.
38. Lai XB, Ching SSY, Wong FKY, Leung CWY, Lee LH, Wong JSY et al. A nurse-led care program for breast cancer patients in a chemotherapy day center: a randomized controlled trial. *Cancer Nurs*. 2019;42(1):20-34. doi: <https://doi.org/10.1097/NCC.0000000000000539>.
39. Zhang Q, Zhang L, Yin R, Fu T, Chen H, Shen B. Effectiveness of telephone-based interventions on health-related quality of life and prognostic outcomes in breast cancer patients and survivors - a meta-analysis. *Eur J Cancer Care (Engl)*. 2018;27(1):e12632. doi: <https://doi.org/10.1111/ecc.12632>.
40. Galvão MTRLS, Janeiro JMSV. O autocuidado em enfermagem: autogestão, automonitorização e gestão sintomática como conceitos relacionados. *Rev Min Enferm*. 2013;17(1):231-5. doi: <https://doi.org/10.5935/1415-2762.20130019>.
41. Darlow S, Wen Kuang-Yi. Development testing of mobile health interventions for cancer patient self-management: a review. *Health Informatics J*. 2016; 22(3):633-50. doi: <https://doi.org/10.1177/1460458215577994>.
42. Stamm B, Girardon-Perlini NM, Pasqualoto AS, Beuter M, Magnano TS. Telephone intervention for anxiety management in oncology patients: a randomized clinical trial. *Acta Paul Enferm*. 2018;31(2):137-43. doi: <https://doi.org/10.1590/1982-0194201800021>.
43. Hauffman A, Alfnsson S, Mattsson S, Forslund M, Bill-Axelsson A, Nygren P, et al. The development of a nurse-led internet-based learning and self-care program for cancer patients with symptoms of anxiety and depression - a part of U-CARE. *Cancer Nurs*. 2017;40(5):E9-16. doi: <https://doi.org/10.1097/NCC.0000000000000402>.
44. Oliveira WT, Benedetti GMS, Marchi JA, Cassarotti MS, Wakiuchi J, Sales CA. Eventos intensificadores e redutores do estresse em famílias de pacientes com câncer: revisão integrativa. *Rev Min Enferm*. 2013;17(3):705-12. doi: <https://doi.org/10.5935/1415-2762.20130052>.

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