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**HEALTH GAINS FROM NURSING INTERVENTIONS
IN THE TELEPHONE FOLLOW-UP
OF ADULT PATIENTS WITH CARDIAC PATHOLOGY
SYSTEMATIC REVIEW OF LITERATURE**

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ABSTRACT

Aim: To identify the health gains related to nursing interventions in the telephone follow-up of adult patients with cardiac pathology.

Methodology: Systematic literature review by research in EBSCO, (CINAHL and MEDLINE) in the publication time interval between January 2012 and October 2017, using the PICO method. Elected 8 articles for analysis.

Results: Health Gains were identified related to: symptomatic control, management of the therapeutic regimen, use of health services, safety/adverse events and quality of life.

Conclusions: The telephone follow-up contributes to optimize the follow-up to the patient, translating into health gains sensitive to nursing care.

Implication to professional practice: In the contexts of nursing practice for adult patients with cardiac pathology, telephone follow-up proves to be an intervention to be taken into account, translating into gains in health, promoting patient follow-up, improving training in disease management.

Keywords: Tele-nursing; counseling; nursing; cardiac patient.

INTRODUCTION

Heart failure (HF) is a syndrome with high prevalence, morbidity and mortality, which represents a great economic and social overload⁽¹⁾.

It is estimated that 20 million people worldwide have the diagnosis of HF⁽²⁾. Cardiovascular diseases account for more than 4 million deaths in Europe, 2.2 million, 55% of women and 1.8 million, 45% of men⁽³⁾.

In Portugal, HF affects around 400,000 Portuguese individuals and it is increasing. It is already the main cause of hospitalization of individuals over 65 years old. Sometimes the elderly and doctors themselves do not value these symptoms, attributing them to the aging process. Such an attitude resulting from ignorance or even forgetfulness of this pathology leads to a delay in diagnosis and treatment, with all the inherent drawbacks, namely the risk of death⁽⁴⁾.

The person hospitalized due to HF has a high cost to the National Health Service, for the great consumption of drugs, complementary means of diagnosis and medical devices. We cannot forget the physical and psychological limitations that HF entails, with loss of quality of life, with social and economic implications⁽¹⁾.

The current challenge lies in the identification of nursing interventions that translate health gains sensitive to nursing care. Such gains are directed to the needs of individuals or groups in their health and life context, and are based on organizational factors, experience and level of knowledge, with a direct impact on functional status, self-care, symptom control, disease management, safety/adverse effects, use of health services and quality of life.

The use of the interactive means of communication via telephone has as main advantages the speed of response, greater accessibility of the person to the care and of the nurse to the person, greater equity in the access to care and potential health gains over time⁽⁵⁾.

In addition to the aforementioned aspects, we consider this intervention as an added value for application in the practice of care, aiming at improving the care for the cardiac patient and improving their quality of life.

This systematic review of the literature aims to identify the health gains of nursing interventions performed in the telephone follow-up of adult patients with cardiac pathology.

CONCEPTS

The results sensitive to nursing care can be defined as all those relevant, based on nursing domain and intervention, for which there is empirical evidence linking the nurse's input and the outcome of the intervention⁽⁶⁾. While the indicators sensitive to nursing care are the information elements that are collected and analyzed to identify sensitive results to nursing care⁽⁶⁾.

Several national and international studies were carried out with the aim of making measurable or visible the health outcomes sensitive to nursing care⁽⁶⁾. These authors identify functional status, self-care, symptom management, pain, safety/adverse effects control, effective coping strategies, satisfaction with care, mortality and use of health services.

HF is a clinical syndrome characterized by typical symptoms (e.g.: dyspnea, malleolar edema and fatigue) that may be accompanied by signs (e.g.: jugular engorgement, pulmonary fever, and peripheral edema) caused by structural and/or functional cardiac anomaly, resulting in reduced cardiac output and/or elevated intracardiac pressure at rest or during exercise⁽⁴⁾.

METHODOLOGY

At first, the following initial question was formulated in PICO format (Population, Intervention, Comparison and Outcome)⁽⁸⁾ respectively: **What are the health gains (O) of the nursing interventions in the telephone follow-up (I) to the adult patient with heart disease (P)?**

The electronic database used focused on EBSCO (*MEDLINE with Full TEXT, CINAHL, Plus with Full Text*), retrospectively from January 2012 to October 2017. The descriptors were validated in MeSH (*Medical Subject Headings*) and searched in the following order: ["nursing" OR "nursing care" OR "nursing intervention"] AND ["heart failure" OR "coronary disease" OR "heart diseases" OR "heart"] AND ["telenursing" OR "after care" OR "counseling"], the words were searched in full text, resulting in a total of 117 articles.

As inclusion criteria, articles in the English, Spanish and Portuguese languages were favored, with a focus on the nursing intervention through telephone contact to the adult cardiac patient, using quantitative and/or qualitative methodology and/or systematic review of the literature, to clarify its advantages in the application of clinical practice and its impact on health outcomes.

As exclusion criteria, articles with ambiguous methodology, repeated in the databases, dating prior to 2012 and all those without correlation with the object of study, editorials and comments, were eliminated. There was a total of 8 articles.

In order to evaluate the levels of evidence of the articles, we used the contributions of Melnyk and Fineout-Overholb⁽⁸⁾ that define six levels of evidence: *Level I* - Systematic reviews or good practice guidelines based on relevant randomized controlled trials (RCTs); *Level II* - Evidence obtained from at least one well-designed RCT; *Level III* - Evidence obtained from a well-designed, randomized, quasi-experimental controlled study; *Level IV* - Evidence obtained from a cohort study and well-designed case-control; *Level V* - Evidence obtained from descriptive and qualitative studies; *Level VI* - Evidence of only a descriptive or qualitative study; *Level VII* - Evidence from recognized entities and/or expert panel reports (Table 1).

Table 1 – Process of research and selection of articles.

Identification	No. of articles identified in the database (MEDLINE and CINAHL) - 727
Selection	No. of articles excluded - 392
	Full text articles - 335
	Time limit (2012-2017) - 117
Eligibility (through full reading)	Repeated excluded articles - 104
	Articles without inclusion criteria - 96
Inclusion	Articles with inclusion criteria - 8
	Articles included for analysis - 8
	Level II - 1; Level III - 3; Level V - 1 Level VI - 2; Level VII - 1.

RESULTS

The information resulting from the critical analysis of the set of selected articles was tabled, in order to facilitate its systematization and presentation. These articles contributed to answer the initial question, since, explicitly or implicitly, they address the telephone follow-up to the patient with cardiac pathology (Table 2).

Table 2 – Results.

Author	Objective	Results	Level of Evidence
<p>Author: Arredondo-Holguín et al. (2012). Methodology: Experimental study. Participants: 29 patients aged >30 years old with HF.</p>	<p>To evaluate the improvement in behaviors at the level of self-care (pharmacological and non-pharmacological adherence: adaptation to the disease and request for help), after educational nursing intervention in patients with HF.</p>	<p>Nursing educational intervention had beneficial effects in the majority of self-care behaviors evaluated. Since several intervention strategies were evaluated (group educational sessions, home visits and telephone follow-up and supporting documentation) it is not possible to indicate which one is the most efficient, which makes it necessary to do other studies to compare specific strategies.</p>	V
<p>Author: Rojas et al. (2013). Methodology: Quasi-experimental study Participants: 21 users, mean age 67 years old.</p>	<p>To determine whether the motivational interview as a nursing intervention is a self-care promoter (therapeutic compliance: ability to adapt to the disease and search for help before exacerbation of symptoms) in patients with HF.</p>	<p>The nursing intervention that uses as a strategy the telephone follow-up as a support to the motivational interview contributes to improve the self-care of the patient with HF.</p>	III
<p>Author: Hobbs et al. (2016). Methodology: Systematic review of literature. Articles: 7</p>	<p>To determine if the intervention performed (telephonic follow-up, tele-monitoring, interprofessional interventions) to the patient with HF, through telephone contact, reduces their re-hospitalization within 30 days after discharge, compared to those who are not submitted to this intervention.</p>	<p>The multidisciplinary programs are effective in reducing the hospital readmission in the period studied in patients with HF.</p>	VI
<p>Author: Arredondo-Holguín et al. (2014). Methodology: Descriptive research. Participants: 31 patients with HF.</p>	<p>To describe the difficulties found in telephone follow-up related to self-care (adherence to non-pharmacological treatment) in patients with HF.</p>	<p>Nursing education programs through telephone follow-up to HF patients have been effective in improving adherence to therapy, resulting in better disease control.</p>	VI
<p>Author: Rodríguez-Gázquez et al. (2012). Methodology: Clinical, randomized, non-blinding trial. Participants: 33 patients in the study group and 30 in the control group.</p>	<p>To evaluate the efficiency of an educational nursing program for the improvement of self-care behaviors (pharmacological and non-pharmacological adherence: adaptation to the disease, request for help and empowerment).</p>	<p>The educational intervention of nursing studied has a beneficial effect on the self-care behaviors of people with HF.</p>	II

Table 2 – Results.

Author	Objective	Results	Level of Evidence
<p>Author: Kim et al. (2014). Methodology: Longitudinal and almost experimental design. Participants: 61 patients with cardiac pathology.</p>	<p>To develop a comprehensive program of cardiac rehabilitation (teaching, documentation, support, telephone follow-up) that considers the learning needs of cardiac patients in their cultural context in Korea. To verify the effects of the program on physiological and psychosocial factors and recurrent symptoms or cardiac events.</p>	<p>The results showed that the participants in the program had lower body mass index and abdominal perimeter, as well as improved the left ventricular diastolic function and improved quality of life related to heart disease.</p>	<p>III</p>
<p>Author: McCarthy <i>et al.</i> (2015). Methodology: A descriptive pilot study. Participants: 20 participants.</p>	<p>To describe the results of counseling evaluation process on exercise and symptom management using the motivational interview.</p>	<p>There are changes in beneficial behaviors with motivational interviews.</p>	<p>VII</p>
<p>Author: Dunbar et al. (2015) Methodology: Randomized controlled trial. Participants: 134 mens.</p>	<p>To test an integrated self-care intervention (functional capacity, physical activity and quality of life) in patients concomitantly with HF (HF) and diabetes mellitus (DM).</p>	<p>Improvement of the functional capacity and quality of life in patients with HF.</p>	<p>III</p>

DISCUSSION

Through the analysis of the results, it is possible to identify that the educational intervention of nursing has a beneficial effect on the self-care behaviors of people with HF. It is important to emphasize that the educational activities included group educational sessions, information flyers, home visit and telephone follow-up⁽²⁾.

Increased knowledge and increased compliance regarding the management of the non-pharmacological therapeutic regimen on salt intake, weight control, urine measurement, fluid restriction, lower limb elevation, influenza prevention, physical activity, adequacy of ADLs to the effort and reduction of alcohol and tobacco consumption are identified⁽¹²⁾.

The telephone intervention is considered a good strategy in the education of the patient and for the continuity of care related to the evaluation of the adherence to the behaviors of self-care. During the telephone sessions conducted in this study, there was an improvement in the interest of the patients in knowing more about the disease and for altering inappropriate behaviors⁽¹¹⁾.

In another study, the health gains obtained with the teachings made are reinforced, namely, improvement of weight control and fluid intake, elevation of the lower limbs in the sitting position, physical exercise⁽¹¹⁾, performance of rest periods when^(13,14) and reducing dietary salt intake⁽¹⁰⁾.

It was verified that nursing education programs carried out through telephone follow-up to patients with HF contribute to increase the knowledge about the therapeutic regime by the patient/family member⁽¹⁰⁾. The active participation of the patient in the therapeutic plan is fundamental so that there is effective adherence in the management of the therapeutic regime⁽¹¹⁾. Strategies such as the implementation of the list of medicines contributed to maintain or improve the therapeutic compliance on the part of the patient⁽¹⁵⁾. In fact, motivational interviews over the phone reinforce the teachings carried out in face-to-face sessions⁽¹⁴⁾.

Regarding symptom control and based on the studies analyzed, it is concluded that the use of strategies, such as distributing activities throughout the day in order to manage the effort, decrease fatigue⁽¹¹⁾ and adjust the activities to the effort^(9,11) contribute to the improvement of daily physical activity tolerance⁽¹⁴⁾. Other gains have been identified for the patient, such as a decrease in body mass index and abdominal perimeter⁽¹²⁾.

One of the articles analyzed indicates that the management of multidisciplinary programs are effective in reducing the re-hospitalization of the patients with HF, namely, the intervention of a HF specialist nurse and the intervention through the telephone follow-up⁽²⁾. The use of the health services was described by three authors when patients are looking for health care and seeking in the phase of exacerbation of the disease^(10,11,14).

Regarding safety and adverse effects, the analyzed articles found an improvement in the adaptability to the disease^(2,15), improvement of the perception about the health status, namely the modification of self-concept and self-acceptance, learning to live with HF and the effects of the treatment⁽¹²⁾, and reduction of complications at the HF level⁽⁸⁾. Strategies have been developed to prevent adverse events, such as staying away from people who are constipated⁽¹¹⁾ and adopting measures to prevent influenza⁽¹¹⁾.

Health is not the only factor that influences the quality of life; however, it has a central role. In the analysis of the articles studied, it was verified that two authors identified health gains related to the improvement of the quality of life^(2,9).

The authors argue that the support network and the family favor the promotion of self-care⁽¹³⁾, which may contribute to improve the quality of life of the patient.

The follow-up telephone consultation and the daily register made by the patient increase the knowledge about the disease and its management^(9,11,14).

Table 3 – Signs of Severity according to Committed Consistency.

Variables of results sensitive to nursing (Doran, 2011)	Health gains in the follow-up of the adult patient with care cardiac pathology
Symptoms control	<p>Improvement of physical activity tolerance</p> <ul style="list-style-type: none"> • Kim et al.⁽¹³⁾ - Level of evidence – III; • Dunbar et al.⁽¹⁵⁾ - Level of evidence – III; • Arredondo-Holguín et al. (2014) - Level of evidence – V. <p>Distribution of activities throughout the day in order to manage effort and decrease fatigue</p> <ul style="list-style-type: none"> • Arredondo-Holguín et al.⁽⁹⁾ -Level of evidence – V. <p>Adequacy of activities to effort</p> <ul style="list-style-type: none"> • Arredondo-Holguín et al.⁽⁹⁾ - Level of evidence – V; • Arredondo-Holguín et al.⁽¹¹⁾ - Level of evidence – V. <p>Elevation of the lower limbs in the sitting position</p> <ul style="list-style-type: none"> • Arredondo-Holguín et al.⁽⁹⁾ - Level of evidence – V. <p>Periods of rest when tired</p> <ul style="list-style-type: none"> • Arredondo-Holguín et al.⁽⁹⁾ - Level of evidence – V; • Rojas et al.⁽¹⁰⁾ - Level of evidence – III. <p>Reduction of salt consumption</p> <ul style="list-style-type: none"> • Rojas et al.⁽¹⁰⁾ - Level of evidence – III. <p>Improvement in the weight control</p> <ul style="list-style-type: none"> • Arredondo-Holguín et al.⁽⁹⁾ - Level of evidence – V. <p>Improvement in liquid intake control</p> <ul style="list-style-type: none"> • Arredondo-Holguín et al.⁽⁹⁾ - Level of evidence – V. <p>Performance of physical exercise</p> <ul style="list-style-type: none"> • Arredondo-Holguín et al.⁽¹¹⁾ - Level of evidence – V. <p>Decrease of the body mass index</p> <ul style="list-style-type: none"> • Kim et al.⁽¹³⁾ - Level of evidence – III. <p>Decrease of the abdominal perimeter</p> <ul style="list-style-type: none"> • Kim et al.⁽¹³⁾ - Level of evidence – III. <p>Increased knowledge about the disease and its management</p> <ul style="list-style-type: none"> • McCarthy et al.⁽¹⁴⁾ - Level of evidence – VII; • Dunbar et al.⁽¹⁵⁾ - Level of evidence – III; • Hobbs et al.⁽²⁾ - Level of evidence – VI.

Table 3 – Signs of Severity according to Committed Consistency.

Variables of results sensitive to nursing (Doran, 2011)	Health gains in the follow-up of the adult patient with care cardiac pathology
Safety/adverse reactions	Stay away from people who are constipated <ul style="list-style-type: none"> • Arredondo - Holguín et al.⁽⁹⁾ - Level of evidence - V. Prevention of influenza <ul style="list-style-type: none"> • Arredondo- Holguín et al.⁽¹¹⁾ - Level of evidence - V. Improvement of the ability to adapt to disease <ul style="list-style-type: none"> • Arredondo Holguín et al.⁽¹¹⁾ - Level of evidence - V. Decreased complications at the HF level <ul style="list-style-type: none"> • Dunbar et al.⁽¹⁵⁾ - Level of evidence - III. Perception of the health status <ul style="list-style-type: none"> • Rodriguez-Gázquez et al. (2012) - Level of evidence - II.
Use of health services	Reduction of re-hospitalization rates <ul style="list-style-type: none"> • Hobbs et al.⁽²⁾ - Level of evidence - VI. Reduction of HF re-hospitalization rate <ul style="list-style-type: none"> • Dunbar et al.⁽¹⁵⁾ - Level of evidence - III. Seeking health care assistance <ul style="list-style-type: none"> • Rojas et al.⁽¹⁰⁾ - Level of evidence - III. • Rodriguez-Gázquez et al.⁽¹²⁾ - Level of evidence - II. • Arredondo Holguín et al.⁽¹¹⁾ - Level of evidence - V.
Management of the therapeutic regimen	Active participation in the therapeutic/empowerment plan <ul style="list-style-type: none"> • Rojas et al.⁽¹⁰⁾ - Level of evidence - III. Increased knowledge about the therapeutic regime by the patient/family member <ul style="list-style-type: none"> • Rodriguez-Gázquez et al.⁽¹²⁾ - Level of evidence - II. Maintaining adherence to the pharmacological treatment <ul style="list-style-type: none"> • Arredondo-Holguín et al.⁽⁹⁾ - Level of evidence - V. Improvement in therapeutic compliance <ul style="list-style-type: none"> • Arredondo-Holguín et al.⁽¹¹⁾ - Level of evidence - V. Drug list implementation <ul style="list-style-type: none"> • Arredondo-Holguín et al.⁽⁹⁾ - Level of evidence - V. Reduction of salt in the diet <ul style="list-style-type: none"> • Arredondo-Holguín et al.⁽¹¹⁾ - Level of evidence - V. Greater adherence to self-care practices <ul style="list-style-type: none"> • Arredondo-Holguín et al.⁽⁹⁾ Level of evidence - V. Inclusion of significant other/family nucleus <ul style="list-style-type: none"> • Rodriguez-Gázquez et al.⁽¹²⁾ - Level of evidence - II. Increased knowledge of the non-pharmacological therapeutic regimen <ul style="list-style-type: none"> • Arredondo-Holguín et al.⁽¹¹⁾ - Level of evidence - V. Improvement of adherence to the non-pharmacological therapeutic regimen <ul style="list-style-type: none"> • Arredondo-Holguín et al.⁽¹¹⁾ - Level of evidence - V. Motivational interviews via telephone reinforce the lessons learned in face-to-face consultations <ul style="list-style-type: none"> • McCarthy et al.⁽¹⁴⁾ - Level of evidence - VII.

Table 3 – Signs of Severity according to Committed Consistency.

Variables of results sensitive to nursing (Doran, 2011)	Health gains in the follow-up of the adult patient with care cardiac pathology
Quality of Life	<p>Improvement of self-care behaviors</p> <ul style="list-style-type: none"> • Rodriguez-Gázquez et al.⁽¹²⁾ - Level of Evidence - II. • Rojas et al.⁽¹⁰⁾ - Level of Evidence - III; • Arredondo-Holguín et al.⁽⁹⁾ - Level of Evidence - V. <p>Improvement of the quality of life</p> <ul style="list-style-type: none"> • Kim et al.⁽¹³⁾ - Level of Evidence - III. • McCarthy et al.⁽¹⁴⁾ - Level of Evidence - VII. <p>Increased ability to adapt to disease</p> <ul style="list-style-type: none"> • Rojas et al.⁽¹⁰⁾ - Level of Evidence - III. <p>Resource for strategies to adapt to disease</p> <ul style="list-style-type: none"> • Arredondo-Holguín et al.⁽⁹⁾ - Level of Evidence - V. <p>Family participation in favor of self-care practices</p> <ul style="list-style-type: none"> • Rojas et al.⁽¹³⁾ - Level of Evidence - III.

CONCLUSION

The nursing intervention that uses as a strategy the telephone follow-up as a support to the motivational interview contributes to improve the self-care of the HF patient.

It is fundamental that the nurse uses the motivational interview complemented with the telephone follow-up as a tool to promote self-care in HF patients and simultaneously uses a work of articulation with other professionals.

Multidisciplinary programs are effective in reducing hospital readmissions in patients with HF.

It is recommended that health education programs for HF users include telephone follow-up as a strategy for improving adherence to treatment.

The telephone follow-up, associated to other nursing interventions, contribute to optimize the patient follow-up (knowledge about the disease, behavioral changes, motivation, symptoms management, complication prevention, management of the use of health services, management of the therapeutic regimen and improvement of quality of life), translating into health gains sensitive to nursing care.

Implications in Professional Practice

Due to evident health gains, the telephone follow-up should be considered in the care of patients with heart disease in different contexts, promoting patient follow-up, improving their capacity to manage the heart disease.

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