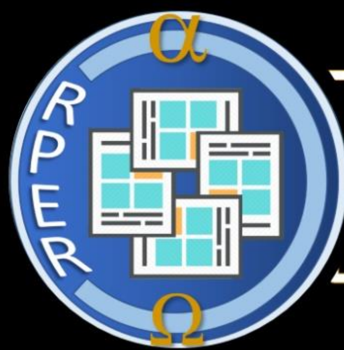

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FOREWORD

“God wants, man dreams, work is born” - *Fernando Pessoa*.

Birth requires conception, planning, hesitation, impulse, but above all, a lot of will and commitment. Nothing is born of chance, everything has a raison d'être, even if it is sometimes not noticeable.

The Portuguese Journal of Rehabilitation Nursing (*Revista Portuguesa de Enfermagem de Reabilitação* - RPER) is the result of a lot of dedication and effort by a group of people who believe. They believe in evolution. They believe in science. They believe in nursing. They believe in rehabilitation. They believe in teamwork. They believe because they believe.

This “work” could only appear at this time, paying homage to a group of colleagues who believed in APER, who gave new life to rehabilitation nursing and who are ready to continue what others started.

With Reabilidades we presented every year, for this time, with excellent moments of reflection and knowledge sharing. Therefore, RPER will have two annual editions: one in June, always with the Summer Debate Cycle; and another in December, coinciding with the International Congress.

We think it is important to create a space that allows the scientific publication of the excellent work that our colleagues do, by giving voice to the silent and valuable knowledge.

We are not always perfect but we must do it, and again, as Fernando Pessoa says “Be tolerant, because you are not sure of anything. Do not judge anyone, because you do not see the motives, but the acts. Expect the best and be prepared for the worst.”

Live life with joy, research and create. So we build and leave a legacy.

We count on your collaboration.

It is for you that we are here.

Congratulations to the Editorial Committee and thank you for accepting this challenge!

RN. Isabel Ribeiro,
Chairperson of Portuguese Association of Rehabilitation Nurses.

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Editorial

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The number zero of the journal represents a set of authors who have participated in the Portuguese Association for Rehabilitation Nursing and agreed to publish some material under study they had to publish. For this issue, we invited two reviews, national and foreign, for each article, which proceeded blindly to the analysis. The reviewers were selected according to their knowledge of nursing, particularly in the field of rehabilitation studies and with the third cycle of training. We believe that everyone who participated in this issue made an effort to do their best, so the editors are grateful for the contribution so that this dream of some is a reality for many.

We are aware that we are at the beginning of a great journey, with the objective of sharing knowledge, contributing to the development of Rehabilitation nurses and that in a reliable way is guided by the best principles to guarantee readers evidence that facilitates strategies for changing their practices, in order to guarantee the quality of assistance.

We are facing a set of articles, articulated by the context of rehabilitation. We can read studies of a different methodological nature, from literature review, original research studies, some around local samples, and others that are national and even worldwide. We identified that the authors sometimes focus on interventions that lead to rehabilitation processes, with the concern to promote a successful life for those who need this care, now they turn to looking at professionals focused on quality care, but also as representative significant areas of a specific nursing intervention area.

We cannot fail to affirm that among the rehabilitation care studied, and expressed here, they are located in contemporary and classic intervention areas (respiratory and neurological) that are valued, punctually, for self-care. We believe that in coming issues we will have other themes and innovative approaches, representative of the evolution of the work of rehabilitation nurses in Portugal.

We are opening a door to a path that we want to follow, accompanied by all those who have done studies or are going to do, where in a specific and profound way, they transform intuitive practices into knowledge, related to professional, ethical and legal responsibility. The improvement of quality, the management of care and the development of professional learning always compete to care for people with special needs, throughout the life cycle, in all contexts of care practice.

The care developed by rehabilitation nurses has evolved. And if in the sixties they were carried out based on the teachings of Nurse Sales Luís and her companions, given the strong concern of the consequences left by the war injuries, nowadays, we add value to this care. We follow the evolution of the world and are prepared to intervene in the rehabilitation processes focused on prevention, the sequelae of chronic diseases, aging and various contexts, from highly complex units such as intensive care, inside and outside hospitals, but also in health centers or in the homes of the people we care for, we believe that future articles will bring these realities to readers.

With the advances, technological, knowledge, and professions, we know that we cannot be 'islands', but we are sure that we have all the conditions to be 'bridges', and leaders in caring for the person, groups and communities that have to rebuild their life after an expected or unexpected disabling process.

We count that the number ZERO of the journal, which was carefully elaborated, is the starting point for the dissemination of the knowledge generated by the rehabilitation nurses and it is a real challenge for everyone who wants to publish about the rehabilitation.

PhD Prof. Maria Manuela Martins

Coordinating Professor at the School of Nursing. Member of the Research Group - NursID: Innovation and Development in Nursing - CINTESIS - center for health technology and services research - FMUP. Professor in the Master of Rehabilitation Nursing, Coordinator of the Master of Management and Head of Nursing Services. Member of the Scientific Committee of the PhD in Nursing Sciences of the UP.

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Breve Panorama Mundial Da Enfermagem De Reabilitação

Breve Panorama Mundial De La Enfermería de Rehabilitación

BRIEF WORLD OVERVIEW OF REHABILITATION NURSING

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RESUMO

Objetivo: descrever e analisar o panorama mundial da enfermagem de reabilitação na atualidade.

Método: estudo descritivo e retrospetivo, com pesquisa em bases de dados de sites oficiais a partir do *International Council of Nurses*.

Resultados: Dos 134 países pesquisados, 13 apresentam enfermagem de Reabilitação. Há eixos comuns entre os países e algumas diferenças, o que confere especificidades em cada país.

Discussão: a enfermagem de reabilitação tem origem nas sequelas dos soldados em guerra.

Conclusão: A enfermagem de reabilitação é uma filosofia de cuidado, com a realização de cuidados específicos e intencionalidade. Há que avançar na construção e consolidação mundial da especialidade.

Palavras chave: história da enfermagem; enfermagem de reabilitação; pessoas com deficiência

RESUMEN

Objetivo: describir y analizar el panorama mundial de la enfermería de rehabilitación de la actualidad.

Método: estudio descriptivo y retrospetivo, con investigación en bases de datos de sitios oficiales del Consejo Internacional de enfermeras.

Resultados: de los 134 países encuestados, 13 actuales de enfermería de rehabilitación. Hay ejes comunes entre los países y algunas diferencias, con especificidades en cada país.

Discusión: la enfermería de rehabilitación se origina en las secuelas de los soldados en guerra.

Conclusión: la enfermería de rehabilitación es una filosofía de atención, con la realización de cuidados específicos e intencionales. Tenemos que avanzar en la construcción global y la consolidación de la especialidad.

Palabras clave: história de la enfermería; enfermería de rehabilitación; personas con discapacidad

ABSTRACT

Aim: To describe and to analyze the world landscape of rehabilitation nursing nowadays.

Method: Descriptive and Retrospectiv study, with research into databases of official sites from the International Council of nurses.

Results: Out of the 134 countries surveyed, 13 present rehabilitation nursing. There are common axes between countries and some differences, which gives specificities in each country.

Discussion: Rehabilitation nursing stems from the sequelae of soldiers at war.

Conclusion: Rehabilitation Nursing is a philosophy of care, with the realization of specific and intentional care. We must move forward in the global construction and consolidation of the specialty.

Keywords: history of nursing; rehabilitation nursing; people with disabilities

INTRODUCTION

Modern nursing dates from less than 3 centuries, originating in the Nightingalean period, in the middle of the Crimean war, which resulted in thousands of soldiers wounded and with the consequences of these injuries. The wars of yesteryear, like the present ones, result in deaths and injuries that often become people with disabilities. We must register two issues of this origin: it is recent (we do not have 300 years of modern profession), and its beginning was predominantly in the care of injured people and the consequences of these injuries.

If modern nursing is recent, it is unnecessary to mention rehabilitation nursing, aimed at people with sequelae of wounds/injuries or chronic-degenerative diseases who, due to this, have difficulties in performing tasks considered common in everyday life, needing to relearn how to do them. Authors [(1)] attest that rehabilitation nursing has its historical origin in the two great world wars, due to the need to put wounded and disabled soldiers back into battle or back to their homes having as a central focus the physical disability and functional losses.

Rehabilitation nursing means

“A philosophy of nursing care based on rehabilitative and restorative principles. The goals of rehabilitation nursing are to maximize functional skills, optimum health and adapt to changes in lifestyle. Rehabilitation nursing is the provision of nursing care to individuals and their families, who are going through temporary, progressive or permanent health situations, which change their lives, such as chronic illness, disability, frailty and aging [(2; 1)].”

It can also be understood as

“A body of knowledge and specific procedures that focus on maintaining and promoting well-being and quality of life, restoring functionality when possible, promoting self-care, preventing complications and maximizing capabilities. (...) Rehabilitation care address the Person at all stages of the life cycle (...)”[(3; 6)].

These two views show that rehabilitation nursing is not located in a single area of health care, being a specialty that operates in all vital cycles (from birth to old age) and health-disease processes (from healthy to death). It is aimed at the person, his family, environment and communities, with the objective of promoting changes in lifestyle, in order to make people with functional deficits and their families, citizens with the ability to socially contribute, interact and live well.

This essay aims to outline a brief current overview of rehabilitation nursing, focusing on: which countries have this specialty, the relevant organizations and legislation, as well as the similarities and differences between the different locations. Hopefully, with this, to contribute to the reflection on this area of assistance, research and knowledge, and to give it a greater visibility.

METHODOLOGY

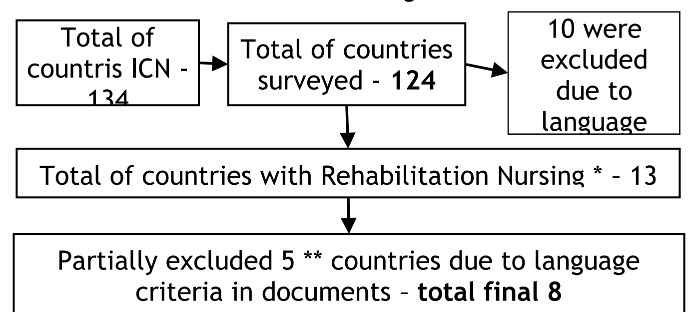
It is a descriptive and retrospective study, with research in databases of official websites, carried out from the eduroam network, as it allows to access to several recognized databases. The wealth of information available is unquestionable, which makes it necessary to use new methodologies in order to investigate the advancement of knowledge in the various areas. The bibliographic review, provided it is based on scientific criteria of reproducibility, is a recent tool that helps researchers to know and to analyze trends in knowledge [(4)].

The data were collected from February 2 to March 31, 2018. The entities associated with the International Council of Nursing - ICN were researched. The ICN dates from 1899, is based in Geneva, Switzerland, and is considered to be the world nursing representation body. Its objectives are to defend nurses, to advance the profession and to influence health and training policies [(5)].

From this website, all countries (134) associated with the International Council were investigated on their websites of the Ministry of Health, Ministry of Education, Nursing legislation, Universities with postgraduation degrees in nursing, associations and professional organizations (Councils or Orders) , in addition to the website indicated in the ICN.

This presents 134 countries whose representative nursing entities are linked to it. From this, the following words related to each country were searched: "nursing", "nursing legislation", "rehabilitation nursing", in Portuguese, English and Spanish. Countries that did not contain information in these languages were excluded. The data were organized by folders with the name of each country and all material (legislation, public policies focused on the area, associative entities and competences and supervision of the area) were classified. The flowchart below shows the data search:

Figure 1 *- Flowchart of the data collection strategy on countries with Rehabilitation nursing.*



Source: The authors

* Countries with legislation recognizing the specialty were considered, regardless of whether or not they work in rehabilitation or postgraduate training centers.

** Respectively: France, Holland, Russia, Seychelles and Switzerland. France presented some documents in Spanish and/or English, which made it possible to analyze them.

Then, in each country, professional orders, rehabilitation nursing associations, congresses and meetings in the area and policies aimed at training nurses and people with disabilities were investigated.

RESULTS

124 countries were surveyed in the places previously described, and, out of these, 111 countries do not have rehabilitation nursing as a legally recognized profession, as shown in the map below.

Figure 2 *– World map showing which countries * have rehabilitation nursing as a specialty.*

Source: the authors

* Only countries with proven legislation in the mentioned languages were assessed. The authors consider the possibility of other countries whose legislation is not available.

The countries with rehabilitation nursing found were: Australia, Canada, The United States of America, France, Guatemala, England, Mexico, Holland, New Zealand, Portugal, Russia, Seychelles and Switzerland. Russia and Seychelles were subsequently withdrawn for failing to meet the language criteria in official documents. France presented abundant material related to the meetings of the specialty, which is why it was mentioned later.

The data were read exhaustively, at first from each country individually, and at a second moment, resulting from this first, divided into the following themes in rehabilitation nursing: **legislation and government policies, associative entities, professional skills.**

Table 1 *- Countries with Rehabilitation Nursing according to the Human Development Index (HDI), life expectancy at birth and decade of creation of the specialty.*

Country[6]	Continent	HDI	Life expectancy at birth / years	Decade of creation of Reab. Nurs.
Australia	Oceania	0,939	82	1990
Canada	N. America	0,920	82	2000
United States of America	N. America	0,920	80	1970
Guatemala	C. America	0,640	73	2000
France	Europe		82	Unknown
England	Europe	0,910	81	1950
Mexico	N. America	0,762	76	2000
Holland	Europe	0,924	81	Unknown
New Zealand	Oceania	0,915	81	1990
Portugal	Europe	0,843	79	1970
Russia	Asia/Europe	0,804	71	Unknown
Seychelles	Africa	0,782	75	Unknown
Switzerland	Europe	0,939	83	Unknown

Source: the authors

Out of the 13 countries found, 5 were excluded for not meeting the language criteria. Even so, the HDI and Life Expectancy data were considered for further analysis.

The investigated countries have entities representing the specialty and hold meetings with specific themes, as shown in Table 2.

Table 2 *- Meetings in the area from 2010 * to 2017.Table 2*

YEAR	RESPONSABLE	CENTRAL THEME
2017	Portugal - APER - Portuguese Association of	• Accessibility in Health: ensuring quality of life

Year	Country / Entity	Theme
	Rehabilitation Nursing	
	Brazil - III SIAER/ International Seminar on Current News in Rehabilitation Nursing - Brazil	• Autonomy, technology and participation
	France - AIRR - Association of nurses in re-education and rehabilitation	• Polytrauma: from rupture to…
	United States of America - ARN – Association of Rehabilitation Nursing	• Cognitive Rehabilitation in the New Millennium: teaching people to fish
	Australia - ARNA - Australian Rehabilitation Nursing Association	• Co-presented by the Minnesota section of the Rehabilitation Nursing Association.
2016	ESENFC - Nursing School of Coimbra - Portugal	• The Person, Function and Autonomy: Rehabilitate in the Life Cycle Transition Processes
	Portugal / Brazil - APER / II SIAER	• Add Quality of Life: Rehabilitation and chronicity
	Canada - OARN - Ontario Rehabilitation Nurses Association	• Partnerships with patients and families - Leading the way in nursing rehabilitation
	France - AIRR	• Added value of nurses in physical medicine and rehabilitation
	United States of America - ARN - Philadelphia	• Competency Assessment: Standdize, Individualize and Build Accountability
	Australia - ARNA	• Hands, hearts and minds: capturing the essence of rehabilitation
2015	Brazil - I SIAER	• Autonomy, independence, care
	Portugal - APER	• Professional and personal development
	Canada - CARN - Canadian Association Rehabilitation Nurses Conference	• Illuminating the future!
	France - AIRR	• • Head injuries
	United States of America - NRA - Minnesota section	• • 13 annual reailitation nursing seminar: building excellence in rehabilitation
	Australia - ARNA	• • Receiving everyone on board
2014	Portugal - ESENFC	• • The person, function and autonomy - rehabilitate in the transition processes
	Portugal - APER	• • Brain, Cerebral Plasticity and Global Rehabilitation
	Canada - OARN	• • Team Canada at the Sochi 2014 Paralympic Winter Games
	France - AIRR	• • Disability Ideas and Beliefs
	United States of America - NRA - Minnesota section	• A comprehensive review of rehabilitation nursing
	Australia - ARNA	• 12 annual rehabilitation nursing seminar: past, present and future
2013	Portugal - APER	• The Culture of Rehabilitation
	Canada - CARN - Biennial	• SELF-CARE. The Essence of
	Conference	Rehabilitation Nursing
	France - AIRR	• Power of one ... Power of all
	United States of America - ARN - 39 National Education Conference	• Partnerships - perseverance - positivity
2012	Portugal - APER	• Stroke: from re-education to readaptation
	United States of America - ARN	• The care continuum: navigating the road to recovery
2011	Portugal - APER	• For an Active Aging
	Canada - CARN	• Rehabilitation nursing and the
	OARN - Annual General Meeting	• Compassion to care: notes for success
	France - AIRR	• Add Quality of Life
	United States of America - ARN - 37 National Education Conference	• Chronicity and complexity: the best practices to face the challenges in rehabilitation nursing
2010	Canada - OARN	• Rehabilitation and Nursing: integrated partnership
2010	Toronto - Canada Rehab	• 4th National Conference on spinal cord injury
2010	United States of America - ARN 36th annual educational conference	• The art, science and magic of nursing rehabilitation
2010	Canada - OARN - Education Day	• Nurses contributing to the patient's successful rehabilitation
2010	France - AIRR	• Disability and Sexuality

Source: The authors

* Despite many previous meetings, only those ones that occurred after 2010 were considered.

No specific events were found in Mexico, Guatemala, Holland, the United Kingdom, Seychelles and Switzerland. There are countless meetings, worldwide, aimed at rehabilitation - with the title of "physical medicine and rehabilitation" or physiotherapy. However, the table above shows which ones were specific to the rehabilitation nursing specialty. In those countries with the specialty and without representative entities of rehabilitation nursing, no specific events were found.

The United Kingdom has a Rehabilitation Council, formed by those interested in the field (from professional associations to users) created in 2008 and with the financial support of the Department of Labor and Pensions and the Scottish Center for Healthy Working Lives. Its purpose is to guarantee access to quality rehabilitation. Nursing entities in the United Kingdom are an integral part of this Council [(7)].

There is also an international entity of spinal cord injury nurses, called the International Spinal Cord Society (ISCoS), a spinal cord injury nursing network, whose aim is to "link nurses globally, working in the spinal cord injury specialty, [through] improvement of holistic care provided to men, women, boys and girls, their caregivers and families, with spinal cord injury [(8)]". On the four international meetings mentioned, specific topics on spinal cord injury were discussed,

including neurogenic bladder and intestine, skin care and sexuality. ISCoS does not aim at rehabilitation, only specific care.

DISCUSSION

Most countries establish that professional nursing practice aims to “promote health, to prevent disease, to intervene in treatment, rehabilitation and health recovery (9; 62).” Despite this, there are few in which the word rehabilitation materializes as an area of knowledge and professional performance. And even less, those who have some legislation about the objectives, training and performance of Rehabilitation Nursing. This is what rehabilitation nursing refers to nursing care aimed at the rehabilitation of people, therefore, care aimed at a therapeutic purpose in addition to the care itself.

“In the context of rehabilitation, the concept of care is omnipresent in the nurse's approach to the patient. This environment is conducive to caring individuals, and a humanistic approach to providing this care contributes to the promotion and preservation of human dignity [1; 9]. ”

A brief analysis of the countries with the specialty of rehabilitation nursing shows that it is not the population aging that determines its existence, nor the social development (here verified by the HDI), or even the time of creation of the profession. These are other reasons, which some articles partially highlight, but which, at a global level, need further study and evidence a gap in the knowledge of the history of the nursing profession.

According to several authors [1, 10-12], rehabilitation nursing is closely linked to the World Wars, when the objective was restorative so that wounded soldiers would be able to, or return to battle, or home. This statement is common in several studies, in numerous countries. Even the origin of modern nursing itself was in the care of soldiers wounded in war, in Crimea, in the middle of 1820. Initially, rehabilitation nursing was directed to the care of young and still productive people, with injuries and sequelae due to trauma.

The same fact did not happen in Portugal, whose reason for awakening the need for rehabilitation nursing arose from two events: firts, there was the case of Salazar chauffer (The Prime Minister), whose treatment was carried out in Germany; and second, the soldiers with consequences of the overseas war (Guinea, Angola, Mozambique, Timor, São Tomé and Príncipe and Cape Verde). After that, the Portuguese Government opened the first Rehabilitation Center in Portugal, in Lisbon, and the nurses responsible were to learn the specialty in the United States. Two nurses attended the specialty there and, when they returned, implemented in Portugal a specialization course in the area, along the lines of theoretical, theoretical-practical content and internships, as in effect until the present day. At the time, the intention of the course was to cover “all age groups with disabilities and imposed action initiated in the acute phase and continued in outpatient treatment in the community [13; 13].”

The data show that the origin of rehabilitation nursing can be from England and the United States, which can be verified in the specialty distribution map. Despite this common origin, there are also some differences between countries, which will be dealt below.

England called disability nursing, instead of nursing rehabilitation, a fact that cannot go unnoticed, even if it is not deepened. The countries of England, Australia and New Zealand have a very important focus on nursing care for people with intellectual/cognitive disabilities, which is slightly different in Portugal, United States and Canada. In Canada and United States, there are many rehabilitation nursing companies focused on long-term home care. These differences and similarities must be investigated.

There is a consensus that rehabilitation nursing adds care to the intention of maximizing independence and functionality. In this sense, rehabilitation nursing pays attention to the other, inserting them into their daily lives, which is outside of the very place where care is performed. This is evident in the themes of professional meetings, which deal with the identity of this care and the relationship that must be established between professional and person for it to be carried out. Such relationship is essentially educational, as the professional shares with the subject being cared for, forms of this, being able to live in daily life with greater independence.

Gradually, the theme of chronicity and aging has emerged in the meetings, a fact justified by the change in the epidemiological and demographic profile. This will also determine changes in professional practice, which should adapt to this demand.

In general, the meetings reflect on the philosophy, principles, purposes and techniques of rehabilitation nursing, in addition to who is the patient to be cared for by the rehabilitation nurse and his participation in this process. Canada associates rehabilitation with parasports, which has not been seen in other countries. Two trends were also observed worldwide: the incipient discussion of the term autonomy, as the empowerment of the person to be rehabilitated, and the role of nurses in chronic diseases and aging. Both of them still have strong demarcation due to body functionality, which is contrary to the purpose of comprehensive care.

Regarding representative entities, the United States and Canada have similar entities, with a national organization and sections in each state. The relationship of the Portuguese Rehabilitation Association has a history of close proximity to the Ordem dos Enfermeiros (Nurses Order).

The Australian nursing code of ethics states that “The role of the nurse includes health promotion and maintenance and disease prevention for individuals with physical or mental illness, disability and/or rehabilitation needs, as well as the relief of pain and

suffering in the end of life [14: 1]." It is reiterated that in Australia the specialty is called disability nursing.

In the countries surveyed, it is the competence of nurses to care for the promotion, protection, recovery and rehabilitation. In those professionals who do not have the specialty of rehabilitation nursing, partial nursing care actions are carried out in rehabilitation centers, especially bladder and bowel reeducation for people with spinal cord injury and stump dressing for the amputees, in addition to general skin care on both. There was no evidence of differentiated nursing care actions in other people with disabilities (physical or intellectual/cognitive). They are always care actions, without the intention to rehabilitate.

In the United States, "Preparing for advanced rehabilitation nursing practice requires a graduate degree in nursing, preferably with a concentration on the concepts of rehabilitation nursing [15; 2]." The same happens in all countries who have the specialty. In all, additional training is required for professional practice.

Countries that have the specialty work on the principle that rehabilitation nursing is a philosophy of care, and not a specific area where it should be performed. In this philosophy of care, there is the approach of different, but not excluding, aspects in the different countries, in which: Portugal establishes as one of the skills of the Rehabilitation Nurse "Promotes mobility, accessibility and social participation [3]", whose performance is strongly influenced, with the performance of rehabilitation nurses with government agencies for architectural and attitudinal accessibility. The United States establishes competencies in four axes: bed bound care, interprofessional work, successful promotion of life and leadership [16].

It should also be noted that the origin of rehabilitation nursing, as seen in the readings, is english (from England), especially in the countries colonized by them and North America (United States of America), in neighboring countries geographically. It is still necessary to deepen this statement and investigate which paths and, if, it really happened.

CONCLUSION

This article aimed to show a brief world overview of the specialty in rehabilitation nursing. It was noticed that although recent, the specialty is already consolidated in some countries, with systematic meetings between peers to reflect on the practice, the object of study, scope and objectives. There is a consensus of gaps in the field of knowledge, which are gradually filled with research and innovations in practice.

Even so, there are few countries with this specialty. Rehabilitation nursing has specific competencies, focused on nursing care with the intention that the cared subject can build alternatives to live with independence and autonomy. It has an interface with the work of several professionals in the area, including common actions and skills.

The challenge is, to collectively, unify the different movements, representative entities and practices, in order to reflect on the scope, purpose of the rehabilitation nurse's work and the necessary principles and actions, in order to build and collectively consolidate the specialty (at the level of countries that already have and those that do not yet have it). This is part of the recent demands for rehabilitation associated with chronic and degenerative diseases and communicable diseases, in addition to trauma.

APER, as a representative and strengthened entity of the specialty, plays an essential role in this articulation.

This study opened many gaps in the knowledge of the specialty's history, managing to answer a few proposed questions. Its limitations were that the existing material was scarce, which made it difficult to know countries whose language the authors are unaware of. On the other hand, it showed that the field of rehabilitation nursing is a field with specific performance and knowledge construction.

Websites:

In addition to the government sites, the sites below were searched:

http://carn.ca/

http://icn-apnetwork.org/

http://instituciones.sld.cu/feppen/

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Impacto De Um Programa De Reabilitação Respiratória Nos Autocuidados Higiene, Vestir-Se/Despir-Se E Andar Avaliados Pela Escala London Chest Of Daily Living Em Pessoas Com Doença Respiratória Crónica

Impacto De Rehabilitación Respiratoria En Autocuidados Higiene, Vestir/Despir Y Andar En Personas Con Enfermedad Respiratoria Crónica

The Impact Of Pulmonary Rehabilitation On Self-Care Hygiene, Dressing/Undressing And Walking In Patients With Chronic Respiratory Disease

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RESUMO

As pessoas com doença respiratória crónica (DRC) apresentam compromissos do processo respiratório, com elevado impacto no autocuidado, designadamente devido a dispneia e cansaço decorrente da imobilidade induzida pela doença. Torna-se, assim relevante conhecer qual o impacto dos programas de reabilitação respiratória (PRR) nos autocuidados higiene, vestir/despir-se e andar.

Trata-se de um estudo quasi-experimental, que incluiu pessoas com DRC admitidas para PRR, sendo o impacto da DRC nos autocuidados avaliado no inicio e no final do PRR.

Foram incluídas 38 pessoas (71,9% homens), mediana de idades 67 anos (±15.6) e FEV1% mediano de 39,51%.

Encontradas melhorias estatística (p<0,001) e clinicamente significativas nos autocuidados estudados.

Os dados deste estudo permitem-nos concluir que este programa de RR melhora a independência funcional para os Autocuidados Higiene, Vestir-se/Despir-se e Andar avaliadas pela Escala London Chest Activity of Daily Living em pessoas com DRC.

Palavras chave: enfermagem de reabilitação; reabilitação respiratória; autocuidado

RESUMEN

Las personas con enfermedad respiratoria crónica (ERC) presentan compromisos del proceso respiratorio, con impacto elevado en el autocuidado, en particular debido a disnea y fatiga debido a la inmovilidad inducida por la enfermedad. Esta investigación se vuelve relevante en el sentido de conocer cuál es el impacto de los programas de rehabilitación pulmonar (PRP) en los autocuidados higiene, vestir / desvestirse y andar.

Se trato de un estudio quase-experimental, que incluyo personas con DRC admitidas para PRP, siendo el impacto de la DRC en los autocuidados evaluado al inicio y al final del PRP.

Se incluyeron 38 personas (71,9% hombres), mediana de edades 67 años (± 15.6) y FEV1% medio del 39,51%.

Se encontraron mejoras estadísticas (p < 0,001) y clínicamente significativas en los autocuidados estudiados.

Los datos de esta investigación permiten concluir que este programa de RR mejora la independencia funcional para los Autocuidados Higiene, Vestir / Despirarse y Andar evaluados por la Escala London Chest Activity of Daily Living en personas con DRC.

Palavas clave: reabilitacion pulmonar; autocuidado

ABSTRACT

Patients with chronic respiratory disease (CRD) have impaired respiratory process, with a high impact on self-care, caused by dyspnea and fatigue due to immobility induced by the disease. The relevance of this study is to know the impact of pulmonary rehabilitation programs (PRP) on self-care hygiene, dressing/undressing and walking.

This is a quasi-experimental study that included CRD patients admitted to PRP and the impact of CRD on self-care was assessed at the beginning and at the end of the PRP.

Thirty eight patients were included in the study (71.9% men), median ages 67 years-old (± 15.6) and FEV1% median of 39.51%.

Statistical improvements (p < 0.001) and clinically significant were found in all self-care studied.

The data from this study allow us to conclude that this PRP improves functional independence for the self-care of Hygiene, Dressing/Undressing and Walking evaluated by the London Chest Activity Scale of Daily Living in CRD patients.

Keywords: rehabilitation nursing; pulmonary rehabilitation; self-care.

INTRODUCTION

Structuring reference in the clinical and conceptual practice of Nursing, Dorotheia Orem's Self-Care Theory is based on the assumption that the person has the capacity to take care of himself by performing activities and behaviors to stay healthy [1-2].

Defined by the International Council of Nurses (ICN) as "an activity carried out by itself with the specific characteristics: to deal with what is necessary to maintain itself, to remain operational and dealing with basic and intimate individual needs and activities of daily living" [3] the concept of self-care appears in the context of people with chronic respiratory disease (and especially with Chronic Obstructive Pulmonary Disease (COPD)~~COPD~~) that is often compromised.

Functional dependence due to the symptomatic impact limits acts as simple as taking care of hygiene, dressing or undressing and walking, conditioning the dignity of the person whose daily life is affected by the functional limitation in their basic activities.

In this context, intolerance to exercise, or to physical activity, does not result only from the loss of lung function, but from alterations in gas exchange and peripheral muscle deconditioning; being the two main reasons for the reduction or cessation of activity the dyspnea and muscle fatigue in the lower limbs.

This impairment of the physical domain, in addition to limiting people in their self-care, also limits their family, social and professional interaction with serious repercussions on quality of life.

In this sense, the therapeutic intervention of Rehabilitation Nurses should aim at increasing tolerance to physical activity in order to maintain or resume functional independence, prescribing, implementing and evaluating a set of interventions that enhance respiratory and muscle function, and promote training and behavioral change [1-4].

Respiratory Rehabilitation (RR) is the non-pharmacological treatment indicated for people with chronic respiratory disease [4]. Performed by a multidisciplinary team, includes physical exercise, education and behavioral change as foundation stones [4-5]. Designed to improve physical and emotional condition, and to promote prolonged adherence to health behaviors, these programs reduce dyspnea and increase tolerance to physical exercise, improving cardiorespiratory and musculoskeletal function, aerobic capacity with gains in quality of life, thus promoting self-care [1,4-5].

METHOD

The starting question that guided this investigation was: What is the impact of a respiratory rehabilitation program on Self-Care Hygiene, dressing/undressing and walking?

This study included people with chronic respiratory disease admitted to a respiratory rehabilitation program in the Kinesitherapy and Respiratory Rehabilitation Sector of the Centro Hospitalar de São João.

Inclusion criteria were considered to be over 18 years-old, communicational ability, not to be incapable of practicing physical exercise or severe cognitive impairment, and the exclusion criteria used were non-compliance with the respiratory rehabilitation program, and hypoxia induced by effort refractory to oxygen.

This study was conducted in accordance with the required ethical imperatives, having been guaranteed all deontological assumptions inherent to the ethics of the investigation.

Study Design

It is a quasi-experimental study, in which the respiratory rehabilitation program (table 1) lasted 13 weeks, 3 times a week with sessions of high intensity exercise training and respiratory functional re-education whenever indicated, especially mobilization and secretions drainage. In addition to the physical component, it also included an educational component.

The impact of the respiratory rehabilitation program on the studied self-care was assessed using the London Chest Activity of Daily Living (LCADL) questionnaire, which assesses the effect of dyspnea on activities of daily living, in the answers to the questions "Bathing" and "Washing the head", for hygiene self-care,"Dressing the upper part of the torso" and "Putting on shoes and/or socks" for Dressing/Undressing self-care, and in relation to Walking self-care:" Walking at home "and" Going up stairs ". Variations after clinical intervention equal to or greater than 2 points in the answer to each question reflect clinical improvement [6-8].

***Table 1**: Respiratory Rehabilitation Program*

RESPIRATORY REHABILITATION PROGRAM	
PHYSICAL COMPONENT	**EDUCATIONAL COMPONENT**
Muscle Strength Training (30 minutes)	*Educational session (60 minutes)*
Upper limbs • Bicipede • Tricipede • Deltoide Lower limbs • Quadricipede • Hamstring • Twin • Large breastplate • • Great dorsal	• Changes in the Respiratory Process • Benefits of physical exercise and the maintenance of regular physical activity • Management of the therapeutic regimen • Inhalation therapy • Oxygen therapy • Energy Conservation Techniques • Controlled ventilation techniques • Prevention and early treatment of exacerbations
Endurance training (30 minutes) • Upper and lower limb cycle ergometer.	
Functional Respiratory	

Re-education (SOS).	

Sample

The sampling technique used was non-probabilistic for convenience and consisted of people with chronic respiratory disease who completed the respiratory rehabilitation program.

Statistical analysis

The Statistical analysis was performed using the IBM® SPSS® Statistics version 23.0 program. All data were expressed with median values with a level of statistical significance of 0.05 for all statistical tests.

The statistical treatment was performed using a non-parametric test for 2 related samples due to the small sample size (Wilcoxon signed-rank test).

RESULTS

The study included 38 people (71.9% men) with a median age of 67 years-old (± 15.6 years-old) with FEV1% median of 39.51% (table 2).

Regarding Self-Care Hygiene, Dressing/Undressing and Walking, there was a statistically significant improvement ($p < 0.001$) in all questions formulated with a median variation of 2 points in the LCADL (except for the question "Putting on shoes and/or socks" on those the variation was 1 point).

In all studied self-care, there was a clinically significant improvement. (Table 3).

***Table 3:** Results related to Hygiene, Walking and Dressing/Undressing Self-Care*

London Chest Activity of Daily Living (LCADL) Scale				
	Before	After	Value p	Variation
Hygiene Self-care *To have a bath* Median Interquartil 25-75	3 2-3	1 1-2	0,000*	2**
To wash their head Median Interquartil 25-75	3 2-3	1 1-2	0,000*	2**
Walking Self-care *Walking at home* Median Interquartil 25-75	3 2-3	1 1-2	0,000*	2**
Climbing the stairs Median Interquartil 25-75	3 2-3	1 1-2	0,000*	2**
Dressing/undressing Self-care *Dressing the upper torso* Median Interquartil 25-75	3 2-3	1 1-2	0,000*	2**
Putting on shoes / socks Median Interquartil 25-75	2 2-3	1 1-2	0,000*	1

* statistically ** clinically significant

***Table 2:** Sample characterization*

N		38
Gender	Male	28
	Female	10
	Age (median)	67 years-old
	FEV1% (median)	39,51%
	Residual volume (median)	200
Diagnostics	DPOC	25
	Bronchiectasis	10
	Cystic Fibrosis	3
	Six-minute Walk Test Initial minutes	320,8 meters

DISCUSSION

This study aimed to assess the impact of a respiratory rehabilitation program on hygiene, walking and dressing/undressing self-care.

Approximately 40% of people with CRD report disability in activities of daily living (ADL) and 68% lose the ability to perform at least one relevant ADL due to dyspnea and muscle fatigue [8-9].

For Velloso et al. [10] during ADL tasks that frequently involve the use of upper limbs repeatedly or shoulder flexion above 90 degrees are frequently affected due to the use of accessory muscles of breathing.

Miravitlles et al. [11] established a direct relationship between daily walking time and functional status, confirming that muscle deconditioning and poor health status are factors that contribute to the reduction in walking time.

In fact, compared to healthy people, the time taken to perform ADL is longer and causes a significant increase in dyspnea due to the lack of ventilatory reserve, decreased inspiratory reserve volume, dynamic hyperinflation and increased oxygen consumption, changes so far attributed only to people with COPD but present in other chronic respiratory diseases. [4]

Spruit et al. [4] in the latest guidelines for respiratory rehabilitation relates physical inactivity with increased dyspnea, corroborated by Pitta et al. [12] which established a positive correlation between dyspnea (assessed by the mMRC scale) and physical inactivity.

In this sense, the impact of dyspnea on the performance of ADL and therefore on self-care should be lesf to description as possible [13-14], with the option for the LCADL Questionnaire to the detriment of the mMRC scale being quite consensual since it has a degree of specification much larger, it is a valid and robust instrument and is sensitive to different

therapeutic approaches such as respiratory rehabilitation [8,15].

Garrod et al. [13] in a sample of 59 people with CRD who underwent a 6-week PRP proved that there was a reduction in the impact of dyspnea on all LCADL issues including those related to Hygiene, dressing/undressing and walking self-care.

Muller et al. [16] found the same results in a sample of 26 people with CRD on a list for lung transplantation.

Sciriha et al. [17] in an 8-week respiratory rehabilitation program that included training of the inspiratory muscles and muscle strengthening of the upper limbs, concluded that when people with COPD perform unsupported activities of the upper limbs, such as in ADL, there is contraction of the accessory muscles of breathing together with passive stretching of the thoracic grid. This fact leads to a loss of effectiveness of the accessory muscles of breathing with the consequent increase in respiratory rate and the establishment of inadequate response patterns, progressing to dyspnea. Strengthening the muscles of the upper limbs in terms of muscle strength and endurance prevents this phenomenon and helps people to adopt adequate breathing patterns, reducing dyspnea.

Our sample consists of people with severe obstruction (FEV1% 39.41%), with hyperinflation and with significant inability to perform ADL that involve the use of upper and lower limbs, as is the case with hygiene, dressing and undressing, and walking self-care.

In our investigation, clinical gains occurred in all studied self-care (except in the question “Putting on shoes / socks”), which goes against the state of the art.

The median differential of the 6-minute walking test, performed at the beginning and at the end of the respiratory rehabilitation program to objectify the functional capacity, was 40.03 meters, higher than the minimum clinically significant distance.

CONCLUSION

This study concluded that this respiratory rehabilitation program increased tolerance to activity, reduced dyspnea thus improving functional independence for hygiene, dressing/undressing and walking Self-Care, assessed by the London Chest Activity of Daily Living Scale in people with illness chronic respiratory.

It is now commonly accepted that increased physical activity and exercise training can decrease dyspnea in people with CRD [4-5,11,19], we cannot (and should not) forget the fundamental role that education, always with objective of behavioral change, represents in the reduction of dyspnea, in the increase tolerance to effort and in the management of daily energy.

As the object of the Nursing discipline is the human responses to the different transitions experienced throughout life and with chronic respiratory diseases becoming more and more frequent and disabling, the conclusions of this study are fundamental to the daily practice of rehabilitation nurses in the promotion of self-care.

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Intervenções De Enfermagem De Reabilitação Na Prevenção Das Hérnias Paraestomais

Intervenciones De Enfermería De Rehabilitación En La Prevención De Las Hermias Paraestomales

Nursing Rehabilitation Interventions In The Prevention Of Parastomal Hernias

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RESUMO

A Cirurgia abdominal e a confeção de um estoma provocam um trauma na musculatura abdominal.

A qualidade de vida e a adaptação da pessoa com ostomia estão condicionadas pelas complicações que eventualmente possam surgir no período pós-operatório. Entre as complicações das ostomias, as hérnias paraestomais são as que apresentam uma maior incidência, tornando-se assim essencial o desenvolvimento de intervenções direcionadas especificamente para a sua prevenção.

Grande parte das complicações podem ser evitadas com a execução de um programa de exercícios de fortalecimento da musculatura abdominal e pélvica previamente, principalmente nas pessoas com ostomias definitivas estes tipos de exercícios poderão proporcionar melhor qualidade de vida e, desta forma, diminuir as taxas de complicações e os dias de internamento.

A Associação de Enfermeiras de Estomaterapia do Reino Unido em 2016(1) recomendou que os ostomizados fossem sujeitos a um programa de exercício abdominal apropriado após a cirurgia para fortalecer a musculatura abdominal e reduzir o risco de hérnia.

O processo de ensino/aprendizagem do ostomizado deve começar no pré-operatório, com a finalidade de este conseguir uma adaptação mais célere às mudanças necessárias no seu do estilo de vida, assegurando assim uma gestão mais eficaz do seu regime terapêutico e, consequentemente, uma melhor qualidade de vida.

Palavras chave: estomia; hérnia incisional; terapia por exercício; enfermagem de reabilitação

RESUMEN

La cirugía abdominal y la confección de un estoma provocan un trauma en la musculatura abdominal.

La calidad de vida y la adaptación de la persona con ostomía están condicionadas por las complicaciones que puedan surgir en el periodo posquirúrgico. Entre las complicaciones de las ostomías, las hernias paraestomales son las que presentan una mayor incidencia, por lo que es esencial el desarrollo de intervenciones dirigidas específicamente a su prevención.

La UK Association the Stoma Care Nurses, en 2016(1), recomendó que los ostomizados fueran sujetos a un programa de ejercicio abdominal apropiado después de la cirugía para fortalecer la musculatura abdominal y reducir el riesgo de hernia.

El proceso de enseñanza / aprendizaje del ostomizado debe empezar en el periodo posquirúrgico, a fin de lograr una adaptación más rápida a los cambios necesarios en su estilo de vida, asegurando así una gestión más eficaz de su régimen terapéutico y, consecuentemente, una mejor calidad de vida.

Palabras clave: estomía; hernia incisional; terapia por ejercicio; enfermería de rehabilitación

ABSTRACT

Abdominal surgery and the stoma creation causes trauma to the abdominal muscles.

The quality of life and the adaptation of the person with ostomy are conditioned by complications that may arise in the postoperative period. Among the complications of ostomies, parastomal hernias are those with a higher incidence, making it essential to develop specifically targeted interventions for their prevention.

The UK Association of Stoma Care Nurses in 2016(1) recommended that patients with a stoma were subjected to an appropriate abdominal exercise program after surgery to strengthen the abdominal muscles and reduce the risk of hernia.

The teaching / learning process of the patients with a stoma should begin in the preoperative period, in order to achieve a faster adaptation to lifestyle modifications, ensuring a more effective management of the therapeutic regimen and, consequently, a better quality of life.

Keywords: ostomy; incisional hernia; exercise therapy; rehabilitation nursing

INTRODUCTION

Rolstad and Boarini (1996) cited by Bland et al (2015) [(2)] define parastomal hernia as “a bulging of the stomach skin, indicating the passage of one or more bowel cycles through a fascia flaw around the stoma and subcutaneous tissue”. According to these authors, parastomal hernia represents the most common complication associated with the creatoin of intestinal stomas.

Abdominal surgery and the creation of a stoma cause trauma to the anterior abdominal muscles. The Association of Stoma Care Nurses of the United Kingdom (ASCN-UK) in 2016 [(1)], recommended that all people with an ostomy be subjected to an appropriate abdominal exercise program after surgery, to strengthen the abdominal muscles and the floor pelvic in order to reduce the risk of developing hernias.

The present work has as objectives:

- Raise awareness of parastomal hernias;
- Identify strategies that allow the person with an ostomy to reduce the likelihood of developing parastomal hernias in the postoperative period;
- Contribute to the improvement of nursing care in the prevention of parastomal hernias;
- Promote quality of life for people with ostomy;
- Contribute to the development of Rehabilitation Nursing practice;
- Contribute to the development of stoma therapy nursing practice.

METHOD

It is a simple review of the existing literature on the topic, using Boolean research, due to the difficulty in finding literature on the subject, based on the keywords: parastomal hernia, guidelines, person with ostomy, published between January 2009 and October 2017.

RESULTS

Despite technological and scientific advances in the surgical area, postoperative complications continue to exist and constitute one of the main barriers to the adaptation of the person to the new transition processes that surgeries implie.

In the area of stomatherapy, complications can occur in the first days after surgery (early or immediate complications) or a few weeks/months later (late complications). Therefore, the recognition of the signs and symptoms of complications, as well as the implementation of interventions as early as possible, are essential to ensure a more effective adaptation of the person to the ostomy with a consequent improvement in their quality of life.

According to a study carried out on patients at a University Hospital in Switzerland by Carlsson et al (2016) [(3)], parastomal hernia was the most common surgical complication (20%), and significantly more in women (69%) and in emergency surgeries, occurring in patients with colostomy and ostomy ≤ 5 mm.

In a study carried out at the Centro Hospitalar e Universitário de Coimbra by Melo et al (2014) [(4)], the incidence of parastomal hernia was 40.6% and other complications 6.25% (infection of the surgical wound, stoma stenosis, or others).

According to the data previously presented, parastomal hernias appear as the main late complication after the construction of an ostomy. According to Devlin (1983) cited by Târcoveanu et al (2014) [(5)], there are 4 types of parastomal hernia: interstitial, in which one or more cycles of the herniated intestine occur next to the stoma, penetrating between the intermuscular planes; subcutaneous, the most common, appears in the same way as the previous one but affects the subcutaneous tissue; intraestomal (usually occurs in ileostomy) that occurs along the intestine towards the stoma; peristomal where the stoma is prolapsed and cycles of the herniated intestine appear through the stoma.

According to ASCN-UK (2016) [(1)], paraestomal hernias have a multifactorial etiology. However, there are some risk factors that healthcare professionals should be aware of:

- Type, location and size of the stoma;
- Obesity (high body mass index);
- Lifting weights in professional practice;
- Multiple abdominal surgeries;
- Type of surgery (emergent or scheduled);
- Infection of the surgical wound;
- Pathologies that trigger an increase in abdominal pressure (ascites, prostate hypertrophy, etc.);
- Advanced age;
- Chronic cough or vomiting;
- Constipation;
- Lifestyle (smoking or sedentary lifestyle).

According to Meleis et al. (2000) [(6)], “all transitions trigger change and to understand it, is essential to identify the effects and their meanings. These must be explored according to their nature, temporality, severity and personal, family and social expectations. The change may be related to critical events or imbalances that lead to changes in ideals, perceptions, identities, relationships and routines”.

The teaching-learning process of the person with ostomy must start in the preoperative period, with the purpose of achieving a faster adaptation to the changes that might be necessary in their lifestyle, without forgetting the help in raising their health status and supporting the transition conditions.

Therefore, and taking into account the main risk factors for the development of previously identified

parastomal hernias, there are several Nursing interventions that can be implemented at the level of teaching/instruction/training of the person with ostomy, with a view to their recovery as early as possible.

Preoperative Nursing Interventions

• Marking the stoma location within the rectus muscles (ASCN-UK, 2016) [1];

• Encouraging smoking cessation before surgery (ASCN-UK, 2016) [1];

• Encouraging losing excess weight (ASCN-UK, 2016) [1].

Postoperative Nursing Interventions

- Teach/instruct/train care for stoma and peristomatic skin;
- Teach how to support the abdominal area when coughing or sneezing, during the postoperative period;
- Advise the use of a brace, at least 3 months after surgery, without hole (ASCN-UK, 2016) [1];
- Avoide lifting weights (more than 2.5 kg) during the first 6 to 8 weeks after surgery;
- Promote the resumption of physical exercise 6 weeks after surgery and after indication by the multidisciplinary team (ASCN-UK, 2016) [1];
- Promote adequate hydration and nutrition, adjusted to the type of ostomy and the specific characteristics of the person with an ostomy (ASCN-UK, 2016) [1];
- Teach/instruct/train exercises to strengthen the abdominal muscles and pelvic floor, as well as to maintain the correct body posture, with body alignment (ASCN-UK, 2016) [1];
- Teach how to identify signs and symptoms indicative of paraestomal hernia: decreased stool output, pain, colic, nausea or vomiting, change in stoma color.

With regard to physical activity, in 2005 and again in 2007, Thompson and Trainer [7], two nurses specialized in stomatherapy in Ireland, implemented in consultation a program of exercises and care in the prevention of parastomal hernias, before and after surgery, as well as healthy lifestyle advice. This program focused on 3 topics: awareness of the potential development of parastomal hernias, abdominal exercises to strengthen the muscles and the use of abdominal support belts for lifting heavy objects for 1 year after surgery. These authors found that most hernias occurred in the first months after the stoma was made. Patients' quality of life was monitored at the time: at discharge, after 3 months, 6 months and 1 year.

Other authors such as Williams (2003), Harris et al (2004), Cottam and Richards (2006) cited by Varma (2009) [8], found that after implementing an abdominal exercise program and advise on the use of clothing or abdominal support seat belts, there was a reduction in the incidence of parastomal hernia from 28% to 15%.

For García et al (2016) [9], the incidence of parastomal hernias can be reduced through the implementation of a non-invasive prevention program that includes the reduction of maneuvers that increase abdominal pressure (coughing, carrying weights) during the three first months of the immediate postoperative period. Subsequently, hypopressive abdominal exercises should be performed to strengthen the abdominal muscles and the use of clothing and / or devices that help to homogenize abdominal pressure (such as the abdominal belt) from the immediate postoperative period.

DISCUSSION

Health education is a teach/instruct/train process that nurses do with users, with the aim of providing them with strategies that can help to minimize the impact that the transition processes have on their daily lives, contributing to their recovery and well-being, trying to identify the value they attach to the situation and the response patterns for assessing their involvement.

With the accomplishment of this work was verified the existence of little literature and research studies on this theme. Thus, it becomes pertinent to implement training and research in this area, given the increased incidence of people with ostomy in younger and more active age groups.

According to the literature review previously carried out, performing exercises to strengthen the abdominal muscles before surgery is one of the most important interventions to reduce the risk of developing parastomal hernia. These must be started after an evaluation by the multidisciplinary team and carried out daily. In the first 6 weeks, the exercises should be smooth and maintained according to the person's physical capacity.

Thus, in collaboration with the specialist nurses in rehabilitation and taking into account the recommendations of the international experts obtained through the consulted literature, it was possible for us to develop some practical exercises for later teaching to the person with an ostomy, in order to reduce the incidence of parastomal hernias in the institution where we develop our professional activity.

Exercise program to strengthen the abdominal and pelvic muscles

Abdominal exercise (lying with head supported on a pillow)

With hands gently resting on belly, inhale through the nose and when exhaling, gently pull your belly down towards the spine. As you feel that the muscles are contracted, hold for 3 seconds and then exhale normally.

Pelvic tilt (lying with head supported on a pillow)

Place your hands behind your lower back. Contract your belly muscles as in the previous exercise and with the help of your hands raise your hips for 3 seconds and then breathe out normally.

Lumbar-sacred rotation (lying with head supported on a pillow)

Contract your belly muscles like in the previous exercises. With the legs flexed and feet flat on the floor, rotate the lumbar-sacred region and legs to one side and the other. Slowly return to the starting position and relax.

Abdominal exercise (standing)

Standing and with your back against the wall and your feet as well, contract your belly muscles and keep your back in contact with the wall. Hold for 3 seconds and relax.

According to ASCN-UK (2016) [1], maintaining the exercise plan for at least 12 weeks after surgery reduces the risk of developing parastomal hernias.

CONCLUSION

Parastomal hernia continues to be a concern for healthcare professionals and the person with an ostomy. The weakening of the abdominal muscles increases the risk of hernia formation; therefore strengthening it with a specific exercise program seems to be the best option.

The non-invasive prevention program includes reducing maneuvers that increase abdominal pressure during the first three months of the immediate postoperative period. Subsequently, abdominal exercises should be performed to strengthen the abdominal muscles and the use of clothing and/or devices which help to homogenize abdominal pressure.

If the person with an ostomy is cognitively capable, teach/instruct/train exercises should be carried out regularly to strengthen and maintain the strength of the abdominal muscles. The exercises are easy, comfortable and without added costs, without the need for additional support (straps or underwear for support).

These exercises, in addition to reducing the risk of parastomal hernia, optimize biomechanical and postural problems, balance and coordination; increase the capacity to support intra-abdominal pressure, well-being and confidence.

Given the lack of bibliography and research in this area, studies that support the implementation of this specific care in consultation, directed to the person with ostomy, are emerging.

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O Contributo Dos Enfermeiros Especialistas Em Enfermagem De Reabilitação Para A Qualidade Dos Cuidados

La Contribución De Los Enfermeros Especialistas En Enfermería De Rehabilitación Para La Calidad Del Cuidado

The Contribution Of Nurses Specialists In Rehabilitation Nursing To Quality Of Care

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RESUMO

Objetivo: Compreender a perceção dos enfermeiros especialistas em enfermagem de reabilitação, quanto à concretização dos padrões de qualidade no contexto hospitalar. Método: Estudo quantitativo, descritivo-exploratório, realizado em 36 instituições hospitalares, com a participação de 306 enfermeiros. Para a colheita de dados utilizou-se um questionário de autopreenchimento.

Resultados: A maioria dos participantes concretiza *às vezes* e *sempre* as atividades que contribuem para a qualidade dos cuidados. Da análise efetuada, as atividades das dimensões prevenção de complicações, bem-estar e autocuidado, readaptação funcional e responsabilidade e rigor são aquelas que os enfermeiros percecionam como mais executadas. Por outro lado, as atividades menos concretizadas, referem-se às incluídas nas dimensões satisfação do cliente, organização dos cuidados de enfermagem e, essencialmente, promoção da saúde.

Conclusão: Os dados deixaram claro que o contributo dos enfermeiros especialistas em enfermagem de reabilitação para a qualidade dos cuidados está especificamente centrado nos enunciados descritivos bem-estar e autocuidado e readaptação funcional.

Palavras chave: enfermagem; enfermagem em reabilitação; garantia da qualidade dos cuidados de saúde; hospitais

RESUMEN

Objetivo: Comprender la percepción de los enfermeros especialistas en enfermería de rehabilitación, en cuanto a la concreción de los patrones de calidad en el contexto hospitalario. Método: Estudio cuantitativo, descriptivo-exploratorio, realizado en 36 instituciones hospitalarias, con la participación de 306 enfermeros. Para la recolección de datos se utilizó un cuestionario de auto-llenado.

Resultados: La mayoría de los participantes concreta a las veces siempre las actividades que contribuyen a la calidad del cuidado. En el análisis efectuado, las actividades de las dimensiones prevención de complicaciones, bienestar y autocuidado, readaptación funcional y responsabilidad y rigor son aquellas que los enfermeros perciben como más ejecutadas. Por otro lado, las actividades menos concretizadas, se refieren a las incluidas en las dimensiones satisfacción del cliente, organización de los cuidados de enfermería y, esencialmente, promoción de la salud.

Conclusión: Los datos dejaron claro que la contribución de los enfermeros especialistas en enfermería de rehabilitación para la calidad del cuidado está específicamente centrada en los enunciados descriptivos de bienestar y autocuidado y readaptación funcional.

Palabras clave: enfermería; enfermería en rehabilitación; garantía de la qalidad de la atención de salud; hospitales

ABSTRACT

Objective: To understand the perception of nurses who are specialists in rehabilitation nursing, regarding the achievement of quality standards in the hospital context. Method: A quantitative, descriptive-exploratory study conducted in 36 hospital institutions, with the participation of 306 nurses. A self-filling questionnaire was used to collect data.

Results: The majority of the participants always perform activities that contribute to quality of care. From the analysis performed, the activities of the dimensions of prevention of complications, wellbeing and self-care, functional readaptation and responsibility and rigor are those that the nurses perceive as more executed. On the other hand, the activities less concretized, refer to those included in the dimensions of customer satisfaction, organization of nursing care and, essentially, health promotion.

Conclusion: The data made clear that the contribution of nurses who are specialists in rehabilitation nursing for quality of care is specifically focused on the descriptive statements well-being and selfcare and functional readaptation.

Key words: nursing; nursing in rehabilitation; quality assurance of health care; hospitals

INTRODUCTION

In the national and international context, the increase in the average life expectancy and the aging of the population, the therapeutic progress, and the improvement of the socioeconomic conditions have introduced significant change in the private life and in the public life of the current populations [(1)].

Indeed, following aging and the higher prevalence of chronic diseases, the population's needs increasingly call for the intervention of specialist nurses in rehabilitation nursing [(2)].

Rehabilitation nursing is an area of specialized Nursing intervention that prevents, recovers and re-empowers people who are victims of sudden illness or decompensation of chronic pathological processes, which cause functional impairment at the cognitive, motor, sensory, cardiorespiratory level, of food, elimination and sexuality [(3)]. In this sense, rehabilitation nursing care “focuses on maintaining and promoting well-being and quality of life, restoring functionality as much as possible, through promoting self-care, preventing complications and maximization of capacities”[(3: 16656)].

Aiming at the person, at all stages of the life cycle, the excellence of the professional exercise of rehabilitation nursing, in addition to bringing gains in health in all contexts of practice, has been positively influencing the quality of nursing care.

Over the past few decades, as result of the complexity of care and the increase in citizens' expectations, topics such as quality in health were considered as priorities, and the excellence of professional practice has been encouraged, which necessarily incorporates the provision of care services congruent with the quality standards defined for each of the domains, which characterize the social mandates of each of the professions [(4,5)].

Once the challenge of quality and excellence in professional practice in the health field was launched in 2001, the Nursing Council of the Order of Nurses [(6)], having faced the challenge of defining the quality standards of nursing care, stated six categories of descriptive statements: customer satisfaction, health promotion, prevention of complications, well-being and self-care, functional readaptation and organization of nursing care.

Subsequently, in line with one of its statutory competencies, the College of Specialty in Rehabilitation Nursing defined the quality standards of specialized care in rehabilitation nursing [(7)], which after being approved, were published in Regulation 350/2015. The purpose of defining the quality standards of specialized rehabilitation nursing care was to make them “an essential tool for promoting the continuous improvement of this care and as a reference for reflection on the specialized practice of rehabilitation nursing” [(3: 16655)]. In this context, eight categories of descriptive statements were identified: customer satisfaction, health promotion, prevention of complications, well-being and self-care, functional readaptation, functional re-education, promotion of social inclusion and organization of nursing care.

Although the professional practice of rehabilitation nursing requires an action that is congruent with the specificity of the mentioned descriptive statements, in this study, we were interested in perceiving the contribution of specialist nurses in rehabilitation nursing to the quality of nursing care provided in hospital contexts. In fact, regardless of the area of specialization, portuguese nurses must implement in their professional activity, interventions proposed by the quality standards developed by the Order of Nurses in 2001 [(8)]. However, although efforts have been made over the past decade to implement the quality standards of nursing care [(6)] in hospital institutions, some weaknesses have been evident [(5)]. In this sense, based on the research “Contexts of hospital practice and nursing conceptions: views on the real quality and the ideal of excellence in the professional practice of nurses”, this study aimed to understand the perception of nurses specialized in rehabilitation nursing, regarding the implementation of the quality standards of nursing care in a hospital context.

METHOD

In order to achieve the objective stated above, we opted for a quantitative approach. The study carried out was descriptive, exploratory in nature.

Although it was planned to carry out the study in all hospital institutions, within the management model of the Public Business Entity, which at the time of data collection were 38; due to the fact that two institutions did not accept to participate, the study was carried out in 36 hospital institutions EPE of mainland Portugal. Bearing in mind the ethical-legal principles, it should be noted that in order to obtain authorization for the study, a letter was sent to all hospital institutions, addressed to the Board of Directors, making the study known and requesting participation. Although the process inherent to authorizations varied from institution to institution, in the end, the study was approved by the ethics committees and respective boards of directors of the 36 institutions involved.

Due to the impossibility of studying the entire population, a sample was created. The sampling technique used was non-probabilistic for convenience [(9)]. The inclusion criteria were defined as “be a specialist/specialized nurse in the field of rehabilitation nursing” and “exercise their professional activity in the hospital within a period of time equal to or greater than six months, in the departments of medicine and medical specialties, surgery and surgical specialties or intermediate and intensive care units ”. In this sense, all specialist nurses/specialists in rehabilitation nursing who performed functions in the services where the study was authorized and who agreed to participate, were included in the sample, which was made up of 306 specialist nurses in rehabilitation nursing. When clarifying the objectives, as well as the procedures inherent to the investigation, it was clear that their participation would be voluntary, being able to give up at any time,

without being harmed. Nurses who agreed to participate in the study were asked to sign informed consent, with confidentiality and anonymity in the use and disclosure of the information obtained. For data collection, a self-administered questionnaire was used, consisting of two parts: Part I - Characterization of the Specialist/Specialized Nurse; Part II - Scale of perception of nursing activities that contribute to the quality of care. Based on the quality standards of nursing care [6,10], this scale, built and validated in 2016 [4], presents a conceptual structure organized in 7 dimensions: customer satisfaction (3 items), health promotion (3 items), prevention of complications (3 items), well-being and self-care (4 items), functional readaptation (4 items), organization of nursing care (2 items) and responsibility and rigor (6 items). The scale of Likert-type responses varies between 1 and 4, with 1 corresponding to never, 2 to rarely, 3 to sometimes and 4 to always.

For the treatment of the data, the statistical program, Statistical Package for the Social Sciences (SPSS), version 22.0 was used.

RESULTS

Regarding the sociodemographic and professional profile of the participants, we found that of the 306 specialist/specialized nurses in rehabilitation nursing, most of them are female (71.2%). The average age is 38.4 years-old (with a standard deviation of 7.6) and the majority marital status is married (60.5%). With regard to the academic degree, the majority is a bachelor degree (74.84%), followed by a master's degree (24.84%) and a doctorate degree (0.32%).

Regarding the distribution of specialist/specialized nurses according to the regions of the regional health administration to which the hospital institutions belong, 49.3% are from the North, 21.6% from Lisboa e Vale do Tejo, 20.6% from the Centre, 5.2% from Algarve and 3.3% from Alentejo.

With regard to the context in which they exercise functions, the services of medicine and medical specialties predominated (47.1%), followed by surgery and surgical specialties (38.2%) and intermediate and intensive care units (14.7%).

As for professional practice in the specialty area, the average time was 3.7 years (with a standard deviation of 4.7), with a minimum of 0 years and a maximum of 23 years. The minimum value of 0 years is explained by the fact that 132 nurses (43.1%) with specialization courses in rehabilitation nursing, who participated in the study, do not exercise their professional activity in the specialty area. The average time of professional practice in the current service was 8.8 years (with a standard deviation of 7.0), with a maximum of 32 years and a minimum of 1 year.

Regarding training in the quality standards of nursing care, 159 specialist/specialized nurses (52.0%) reported that they performed it.

Following the application of the scale of perception of nursing activities that contribute to the quality of care[4], built on the basis of quality standards issued by the Order of Nurses[6], within the dimension of customer satisfaction (Table 1) , it was possible to verify that the *activity respects the capacities, beliefs, values and desires of individual nature of the clients in the care they provide*, "Always" was the majority answer (73.86%), followed by "Sometimes" (25, 16%) and "Rarely" (0.98%), with no answers for "Never".

Regarding the activity, *it constantly seeks empathy in interactions with customers (patient/family)*, "Always" was the majority answer (79.74%), followed by "Sometimes" (19.93%) and "Rarely"(0.33%), with no "Never "responses.

Regarding the activity, *which involves the significant companions of the individual client in the care process*, "Sometimes" was the majority answer (52.29%), followed by "Always" (42.16%) and "Rarely" (5 , 55%), with no "Never" answers.

Considering the health promotion dimension (Table 2), it was found that in the activity, *it identifies the health situations and resources of the client/family and community*, "Sometimes" was the majority answer (60.46%), followed by "Always" (33.66%), "Rarely" (5.55%) and "Never" (0.33%).

Regarding the activity that uses *hospitalization to promote healthy lifestyles*, "Sometimes" was the majority answer (54.58%), followed by "Always" (35.29%), "Rarely" (9.48%) and "Never" (0.65%).

Regarding the activity, *it provides information that generates cognitive learning and new skills by the client*, "Sometimes" was the majority answer (54.57%), followed by "Always" (37.58%), "Rarely" (7.52%) and "Never" (0.33%).

Table 1 *- Numerical and percentage distribution in the activities of the Customer Satisfaction dimension*

Customer Satisfaction	Frequency									
	Never		Rarely		Sometimes		Always		Total	
	n	%	n	%	n	%	n	%	n	%
He/she respects the capacities, beliefs, values and desires of the individual nature of clients in the care they provide	0	0.0	3	0.98	77	25.16	226	73.86	306	100
He/she constantly seeks empathy in interactions with customers (patient/family)	0	0.0	1	0.33	61	19.93	244	79.74	306	100
He/she involves the individual client's significant partners in the care process.	0	0.0	17	5.55	160	52.29	129	42.16	306	100

Table 2 *- Numerical and percentage distribution in the activities of the Health Promotion dimension*

Health Promotion	**Frequency**									
	Never		Rarely		Sometimes		Always		Total	
	n	%	n	%	n	%	n	%	n	%
He/she identifies the health situations and resources of the client/family and community	1	0.33	17	5.55	185	60.46	103	33.66	306	100
He/she uses the hospitalization to promote styles of healthy life.	2	0.65	29	9.48	167	54.58	108	35.29	306	100
He/she provides information that generates cognitive learning and new skills by the client.	1	0.33	23	7.52	167	54.57	115	37.58	306	100

Within the scope of the prevention of complications dimension (Table 3), it was found that in the activity, *it identifies the potential problems of the client*, “Always” was the majority response (63.1%), followed by “Sometimes” (36.6%) and “Rarely” (0.3%), with no “Never” answers.

With regard to the activity, prescribes and implements *interventions aimed at preventing complications*, “Always” was the majority answer (65.7%), followed by “Sometimes” (34.0%) and “Rarely” (0.3%), with no “Never” answers.

Regarding the activity, it evaluates *interventions that contribute to avoiding problems or minimizing undesirable effects*, “Always” was the majority answer (60.1%), followed by “Sometimes” (38.6%) and “Rarely” (1.3%), with no “Never” answers.

Table 3 *- Numerical and percentage distribution in the activities of the Complication Prevention dimension*

Complication Prevention	**Frequency**									
	Never		Rarely		Sometimes		Always		Total	
	n	%	n	%	n	%	n	%	n	%
He/she identifies potential customer issues	0	0.0	1	0.3	112	36.6	193	63.1	306	100
He/she prescribes and implement interventions aimed at preventing customer’s complications	0	0.0	1	0.3	104	34.0	201	65.7	306	100
He/she evaluates interventions that help to avoid problems or minimize unwanted effects	0	0.0	4	1.3	118	38.6	184	60.1	306	100

With regard to the well-being and self-care dimension (Table 4), it was found that the *activity, identifies the client's problems that contribute to the well-being and performance of life activities*, "Always" was the majority answer (62, 74%), followed by “Sometimes” (35.62%), “Rarely” (1.31%) and “Never” (0.33%).

Regarding the activity that *prescribes and implements interventions that contribute to increasing the clients' well-being and performance of life activities*, “Always” was the majority answer (59.5%), followed by “Sometimes” (37.9 %), “Rarely” (2.3%) and “Never” (0.3%).

With regard to the activity, it evaluates interventions that *contribute to increasing the well-being and performance of the clients' life activities*, “Always” was the most frequent answer (55.88%), followed by “Sometimes” (39.54%), “Rarely” (4.25%) and “Never” (0.33%).

Regarding the activity referring to identified problematic situations that *contribute to the well-being and performance of the clients' life activities*, “Always” was the majority answer (50.3%), followed by “Sometimes” (45.4%), “Rarely” (3.6%) and “Never” (0.7%).

Table 4 *- Numerical and percentage distribution in the activities of the Well-being and Self-Care dimension*

Well-being and Self-care	**Frequency**									
	Never		Rarely		Sometimes		Always		Total	
	n	%	n	%	n	%	n	%	n	%
He/she identifies the client's problems that contribute to the well-being and performance of life activities	1	0.33	4	1.31	109	35.62	192	62.74	306	100
He/she prescribes and implements interventions that contribute to increasing clients' well-being and performance of life activities	1	0.3	7	2.3	116	37.9	182	59.5	306	100

To evaluate interventions that contribute to increasing well-being and the performance of life activities	1	0.33	13	4.25	121	39.54	171	55.88	306	100
He/she references identified problematic situations that contribute to the well-being and performance of the clients' life activities	2	0.7	11	3.6	139	45.4	154	50.3	306	100

Given the functional readaptation dimension (Table 5), it was observed that in the activity, *the process of providing nursing care continues*, "Always" was the majority answer (73.2%), followed by "Sometimes" (25 .5%), "Rarely" (1.0%) and "Never" (0.3%).

Regarding the *activity, it plans the discharge of clients admitted to the health institution, according to the clients' needs and community resources*, "Always" was the most frequent answer (51.0%), followed by "Sometimes" (41.8%), "Rarely" (5.9%) and "Never" (1.3%).

Regarding the activity *that optimizes the capabilities of the client and significant partners to manage the prescribed therapeutic regimen*, "Always" was the most frequent answer (51.3%), followed by "Sometimes" (40.2%), "Rarely" (8.2%) and "Never" (0.3%).

Regarding the activity teaches, *it instructs and trains the client on the individual adaptation required in the face of functional readaptation*, "Always" was the most frequent answer (54.9%), followed by "Sometimes" (37.3%), "Rarely" (7.5%) and "Never" (0.3%).

***Table 5** - Numerical and percentage distribution in the activities of the Functional Rehabilitation dimension*

Functional Rehabilitation	**Frequency**									
	Never		Rarely		Sometimes		Always		Total	
	n	%	n	%	n	%	n	%	n	%
He/she keeps the process of providing nursing care	1	0.3	3	1.0	78	25.5	224	73.2	306	100
He/she plans the discharge of patients admitted to the health institution, according to the needs of the clients and the resources of the community	4	1.3	18	5.9	128	41.8	156	51.0	306	100
He/she optimizes the capabilities of the client and significant others to manage the prescribed therapeutic regimen	1	0.3	25	8.2	123	40.2	157	51.3	306	100
He/she teaches, instructs and trains the client on the individual adaptation required in the face of functional readaptation	1	0.3	23	7.5	114	37.3	168	54.9	306	100

Regarding the dimension of organization of nursing care (Table 6), it was found that in the *activity the nursing records system dominates*, "Always" was the majority answer (53.6%), followed by "Sometimes" (41.5%), "Rarely" (4.9%), with no answers to "Never".

Regarding *the activity, knows the hospital policies*, "Sometimes" was the majority answer (53.3%), followed by "Always" (36.9%) and "Rarely" (9.8%), with no any "Never" responses.

***Table 6** - Numerical and percentage distribution in the activities of the Nursing Care Organization dimension*

Nursing care organization	**Frequency**									
	Never		Rarely		Sometimes		Always		Total	
	n	%	n	%	n	%	n	%	n	%
To master the nursing record system	0	0,0	15	4,9	127	41,5	164	53,6	306	100
To know the hospital's policies	0	0,0	30	9,8	163	53,3	113	36,9	306	100

When analyzing the dimension of responsibility and rigor (Table 7), it was possible to realize that the *activity, demonstrates responsibility for the decisions it takes, for the acts it practices and delegates, with a view to preventing complications*, "Always" was the majority answer (91 .2%), followed by "Sometimes" (8.8%), with no answers to "Rarely" and "Never".

With regard to the activity, it demonstrates responsibility for *the decisions it takes, for the acts it practices and delegates, in view of the clients' well-being and self-care*, "Always" was the majority answer (86.9%), followed by "Sometimes" (12.4%) and "Rarely" (0.7%), with no answers to "Never".

Regarding the activity, it demonstrates *technical/scientific rigor in the implementation of nursing interventions, with a view to preventing complications*, "Always" was the majority answer (82.4%), followed by "Sometimes" (17.6%), there are no answers to "Rarely" and "Never".

Regarding the *activity demonstrates technical/scientific rigor in the implementation of nursing interventions that contribute to increasing*

the well-being and performance of the clients' life activities, "Always" was the majority answer (77.5%), followed by "Sometimes" (22.2%) and "Rarely" (0.3%), there are no answers to "Never".

Regarding the activity, it refers to *problematic situations identified for other professionals, according to the social mandates*, "Always" was the majority answer (57.8%), followed by "Sometimes" (40.2%) and "Rarely" (2.0%), with no answers to "Never".

In the activity, *he/she supervises the activities that implement the nursing interventions and the activities he/she delegates*, "Always" was the majority answer (59.2%), followed by "Sometimes" (36.6%) and "Rarely" (4.2%), with no answers to "Never".

DISCUSSION

Following the analysis of sociodemographic variables, we found that most nurses who participated in the study were female (71.2%) and had a mean age of 38.4 years-old. As for the academic degree, the degree was the majority (74.84%). These results, in addition to reflecting the sociodemographic reality of nursing professionals, corroborate the data updated by the Ordem dos Enfermeiros [11] regarding the area of specialization in rehabilitation nursing. With regard to the length of professional practice in the specialty area, although it ranged between 0 and 23 years, the average time was 3.7 years. It should be noted that 43.1% of the nurses who participated in this study do not exercise their professional activity in the specialty area, which, once again, reveals the lack of use of the nurses' qualifications [5]. According to data from the Ordem dos Enfermeiros, in December 2016, 46.8% of portuguese nurses with a specialization in rehabilitation nursing exercised their professional activity within the scope of provision of general care [11], which is in line with the results obtained in this study.

Table 7 *- Numerical and percentage distribution in the activities of the Responsibility and Rigor dimension*

Responsability and Rigor	Frequency									
	Never		Rarely		Sometimes		Always		Total	
	n	%	n	%	n	%	n	%	n	%
He/she demonstrates responsibility for the decisions it takes, the acts it practices and delegates, with a view to preventing complications	0	0.0	0	0.0	27	8.8	279	91.2	306	100
He/she demonstrates responsibility for the decisions he/she makes, for the acts he/she practices and delegates, with a view to the well-being and self-care of clients	0	0.0	2	0.7	38	12.4	266	86.9	306	100
He/she demonstrates technical/scientific rigor in the implementation of nursing interventions, with a view to preventing complications	0	0.0	0	0.0	54	17.6	252	82.4	306	100
He/she demonstrates technical/scientific rigor in the implementation of nursing interventions that contribute to increasing the well-being and performance of the clients' life activities	0	0.0	1	0.3	68	22.2	237	77.5	306	100
He/she references problematic situations identified for other professionals, according to social mandates	0	0.0	6	2.0	123	40.2	177	57.8	306	100
He/she supervises the activities that implement the nursing interventions and the activities that he/she delegates	0	0.0	13	4.2	112	36.6	181	59.2	306	100

Although the quality standards of specialized care in rehabilitation nursing have been defined since 2011, given the weaknesses identified in hospital contexts within the scope of a congruent performance with the quality standards of nursing care [12], this study allowed us to clarify the contribution of specialist/specialized nurses in rehabilitation nursing to the quality of nursing care. Established in 2001 by the Ordem dos Enfermeiros, the quality standards of nursing care aim to improve the quality of the service provided[8], thus requiring practices that are congruent with them, regardless of the condition in which nurses exercise the profession.

Thus, in order to identify how specialist/specialized nurses in rehabilitation nursing operationalize the quality standards of nursing care, it makes perfect sense to address the practices of these professionals in relation to all descriptive statements.

In this context, with regard to customer satisfaction, although the answers *sometimes* and *always* were the majority in the three activities of this dimension, when we compare the results with the study published in 2017[5], we found that a higher percentage of specialists nurses in rehabilitation nursing evidence "involving the individual client's significant menbers in the care process".

Although specialist nurses apparently show greater concern with the health promotion dimension, similarly to other studies carried out [5,8], the majority response in the three activities that materialize this dimension was *sometimes*. Currently, and as it has been advocated by several authors[8], although the client needs to develop skills and competences that facilitate their adaptation to the various stages of their life cycle and to their health and disease processes, the professional help of nurses will be a facilitating factor. For this, regardless of the context of professional practice, it is necessary to implement interventions in the field of health promotion, aim at empowerment and the development of strategies that help the client to manage the weaknesses caused by the different transitions he experiences. The problem is that in the hospital context, contrary to what has been evident in primary health care and continuing care, health promotion practices have not been properly incorporated by nurses yet [5,8,12-13].

With regard to the prevention of complications dimension, the answer *always* has been the majority in all activities. In addition to corroborating the results obtained in another study [5], it proves, once again, the relevance of professional practice focused on the prevention of complications, that is, the potential problems of clients and intrinsic and extrinsic risk factors, whose control requires the intervention of nurses[8].

In the context of well-being and self-care, while general care nurses *always* identify clients' problems, but only *sometimes* prescribe, implement and evaluate interventions that contribute to increasing well-being and self-care[5], the results obtained in this study, demonstrate that specialist/specialized nurses in rehabilitation nursing mostly *always* perform all activities. In this sense, in addition to *always* identifying clients' problems, prescribing, implementing and evaluating interventions, in the activity "refers to identified problematic situations that contribute to the clients' well-being and performance of life activities", the participants also responded mostly *ever*. Since the activities inherent in this descriptive statement incorporate the phases of the nursing process[8], the concern of specialist/specialized nurses with its operationalization is implicit. In fact, as stated within the scope of their specific competences, specialist nurses in rehabilitation nursing, design, implement and monitor differentiated care plans, based on people's real and potential problems, in order to maximize their potential, avoiding incapacities or minimizing their repercussion[2].

With regard to functional readaptation, in all activities that make this dimension a reality, the answer *always* has been the majority. By analyzing all the results obtained in this study and comparing them with those of another investigation already carried out[5], it is in this descriptive statement that the differences are most notorious. In fact, specialist/specialized nurses in rehabilitation nursing, in the search for excellence in their professional practice, place a special focus on developing effective adaptation processes with clients. In this sense, in addition to continuing the process of providing nursing care, they plan the discharge of clients according to their needs and the resources of the community, optimize the client's capacities and significant cohabitants to manage the therapeutic regimen, they teach, instruct and train the client on the individual adaptation required in view of functional readaptation.

Within the scope of the organization of nursing care, the responses of general care nurses[5] and specialist/specialized nurses in rehabilitation nursing are overlapping. Both responded *mostly* in the activity "dominate the nursing records system", and *sometimes* in the activity "know the hospital policies".

Regarding the responsibility and rigor dimension, in line with the results obtained in another study [5], in all activities the majority response was *always*. However, it is important to highlight that the percentage values associated with the response *always* are higher among specialist/specialized nurses in rehabilitation nursing, which reveals the increased responsibility to promote the quality of nursing care provided in different contexts[14].

Similar to other investigations in which general care nurses and nurses from other areas of specialty participated, the responses of specialist/specialized nurses in rehabilitation nursing, globally, showed a practice that was congruent with the quality standards of nursing care.

As a result of the analysis carried out, it was clear that the contribution of these specialist nurses to the quality of nursing care provided in hospital contexts is specifically centered on the descriptive statements of well-being and self-care and functional readaptation, which effectively translate the core of the specialty area of rehabilitation nursing, as well as its social mandate. On the other hand, and although health promotion is currently considered a priority area, it is one that, in the context of general care and specialized care, has been neglected, particularly in the hospital context. Rehabilitation nursing specialist are required to rethink their practices in order to help clients reach their maximum health potential. Furthermore, hospital admission must be seen as an opportunity to promote health, and not just as time dedicated to treat and cure the disease.

Despite the contributions of this study, we assume as a limitation the fact that the sampling technique used was non-probabilistic, which determines the possibility that the profile of specialist/specialized nurses who participated in the study influenced the results.

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O IMPACTO DOS SINTOMAS DO TRATO URINÁRIO INFERIOR NA PESSOA COM ESCLEROSE MÚLTIPLA

THE IMPACT OF LOWER URINARY TRACT SYMPTOMS ON PATIENTS WITH MULTIPLE SCLEROSIS

EL IMPACTO DE LOS SÍNTOMAS DEL TRACTO URINARIO INFERIOR EN LA PERSONA CON ESCLEROSIS MÚLTIPLE

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RESUMO

Este estudo pretendeu descrever o impacto que os Sintomas do trato urinário Inferior apresentam na Qualidade de Vida relacionada com a saúde das pessoas com Esclerose Múltipla, recorrendo ao Qualiveen, que avalia o impacto, tanto o real como o percecionado, dos problemas urinários na qualidade de vida das pessoas com lesão medular e com esclerose múltipla. É um estudo quantitativo, descritivo-correlacional. A amostra é não probabilística acidental constituída por 72 indivíduos.

Os sintomas do trato urinário inferior mais frequentes são os mistos sendo a urgência urinária o mais frequente. O Impacto dos Problemas Urinários na Qualidade de Vida é notório e apresentou maiores valores no sexo feminino, nos reformados, nos que necessitam de ajuda nas atividades de vida diária dentro e fora de casa e nas pessoas que usam dispositivos protetores. Apresenta correlação elevada com a perceção da pessoa sobre a forma como urina e correlação moderada com o número de sintomas do trato urinário inferior, a frequência urinária diária aumentada e os anos de evolução dos Sintomas do trato urinário Inferior.

Os sintomas do trato urinário inferior constituem um problema real das pessoas com Esclerose Múltipla e causam impacto real e percecionado na sua qualidade de vida, com necessidade urgente de intervenção ativa e imediata dos Enfermeiros de Reabilitação.

Palavras chave: qualidade de vida; esclerose múltipla; transtornos urinários

RESUMEN

Este estudio pretendió describir el impacto que los Síntomas del Tracto Urinario Inferior presentan en la Calidad de Vida relacionada con la salud de las personas con Esclerosis Múltiple, con uso del Qualiveen, que evalúa el impacto, tanto el real como el percibido, de los problemas urinarios en la calidad de vida de las personas con lesions medulares y con esclerosis múltiple. Se trata de un estudio cuantitativo, descriptivo y correlacional. La muestra es no probabilística accidental y está constituida por 72 individuos.

Los Síntomas del Tracto Urinario Inferior más frecuentes son los mixtos, y la urgência urinária es la más frecuente. El Impacto de los Problemas Urinarios en la Calidad de Vida es notorio y presentó valores más elevados en el sexo femenino, en los jubilados, en los que necesitan ayuda en las actividades de la vida diaria dentro y fuera de casa y en las personas que usan dispositivos protectores. Presenta alta correlación con la percepción de la persona sobre la forma como orina, y correlación moderada con el número de Síntomas del Tracto Urinario Inferior, la frecuencia urinaria diaria aumentada y los años de evolución de los Síntomas del Tracto Urinario Inferior.

Los Síntomas del Tracto Urinario Inferior constituyen un problema real de las personas con Esclerosis Múltiple y causan impacto en su Calidad de Vida, con necesidad urgente de intervención activa e inmediata de los enfermeros de rehabilitación.

Palabras clave: esclerosis múltiple; trastornos urinarios; calidad de vida

ABSTRACT

This study aimed to describe the impact of lower urinary tract symptoms on the health-related quality of life of patients with Multiple Sclerosis, using Qualiveen, which assesses the impact, real and perceived, of urinary problems on the quality of life of people with spinal cord injury and multiple sclerosis. A quantitative, descriptive-correlational study was conducted with a nonprobability, convenience sample of 72 patients.

The most common lower urinary tract symptoms are mixed symptoms. Urinary urgency is the most frequent. The Impact of Urinary Problems on Quality of Life is evident. Higher scores were found among female patients, retired patients, patients requiring assistance for indoor and outdoor activities of daily living, and patients using protective devices. It is high correlated with the patient's perception of how they urinate and moderate correlated with the number of lower urinary tract symptoms, the increased urinary frequency per day, and the years of evolution of lower urinary tract symptoms.

Lower urinary tract symptoms are a common problem in patients with Multiple Sclerosis, with an impact on their quality of life, with an urgent need, active and immediate intervention of the Rehabilitation Nurses.

Keywords: multiple sclerosis; urination disorders; quality of life

INTRODUCTION

The quality of life related to a person's health assumes, nowadays, a relevant role in the decision-making of health professionals[1]. This growing concern emerges from the human and biological sciences, valuing not only the elimination of disease symptoms, the increase in average life expectancy and the decrease in mortality[2], but above all to provide the best quality of life (QL) possible to all people regardless of their health status.

Although Multiple Sclerosis (MS) differs from person to person, in its vast majority it causes lesions in the myelin sheath of nerve fibers, which causes limitations in the short/medium term. Despite the high probability of being fully visible and evident limitations, in some cases they can be discrete and subjective, being initially devalued by both the person and the physician, even before the diagnosis[3].

These people have to start a re-adaptation process in order to be able to respond to the new demands and needs imposed by the disease.

Health professionals must be equipped with knowledge and skills to be awake even to the most discrete and subjective signs and symptoms that may occur during the course of the disease, so that they can intervene in order to lessen their impact on the person's quality of life[4].

For the awareness process to take place, favoring the transition process, these people need to be helped to clarify concepts and to demystify beliefs. Health professionals, especially rehabilitation nurses, are professionals privileged by their proximity to people and by the knowledge they contain to help them in this process[5].

MS, like so many other pathologies of the central nervous system, has been the subject of many studies. However, and contrary to what one might think, epidemiological studies are very scarce in Portugal[5]. In fact, research studies focus essentially on clinical trials, which fortunately translate into a significant increase in available therapies, which, in turn, ensure not only a delay in the occurrence of outbreaks, but also a delay in their progressive evolution of disease[3]. However, studies that analyze the dimension of the problem, with regard to the incidence/frequency of the most diverse signs/symptoms and the investigation of their interference in the quality of life of these people, are still very small in number[6].

Developing the person's ability to be able to control some of the symptoms as well as the reaction to these same symptoms that result from the existence of MS lesions is a concern of health professionals, since we are talking about a young adult who, in addition to being permanently afraid of the course of his illness, needs to remain professionally active to remain psychologically healthy as well[5].

Lower urinary tract symptoms (LUTS) reveal to be a major problem and an impacting cause regarding the incapacity of people with MS, affecting social relationships and their daily activities, decreasing their quality of life[7].

The purpose of this study is to increase knowledge in this area, contributing to facilitate the health-disease transition process for people with MS in order to improve the quality of life of these people, enhancing their autonomy/independence, keeping them professionally active as long as they can. Answers are sought to the following questions: "*What are the most frequent lower urinary tract symptoms in people with Multiple Sclerosis? What impact do lower urinary tract symptoms have on the quality of life of people with Multiple Sclerosis? Will lower urinary tract symptoms contribute, as referred to in literature, to a decrease in the quality of life of people with Multiple Sclerosis?*", with a general objective of "*describing the impact that lower urinary tract symptoms have on the quality of life related to the health in people with multiple sclerosis*".

MATERIAL AND METHODS

The quantitative research method is used, as data were collected in a systematic, observable and quantifiable way[8] through two questionnaires.

It is a level II study because the objective is not only to describe the variables, but also to identify the existence of relations between them[8]. The purpose of a descriptive studie is observe, describe and document the aspects of a situation; while in descriptive-correlational studies it is also important to explore and to determine the existence of relations between the variables, and then to describe these same relations; it is not the target of the investigation to establish a causal connection[9].

In this study, two distinct questionnaires were used: a clinical questionnaire, in order to characterize the sample according to the date of diagnosis, year of symptom onset, date of onset of urinary symptoms and the presence of lower urinary tract symptoms. To analyze urinary symptoms, 13 questions were asked about the presence or not of lower urinary tract symptoms (storage, emptying and post-emptying) defined in 201510, using closed questions (Yes/No).

All participants who had at least one LUTS received the second questionnaire to measure the impact of LUTS on QL. To assess this impact, the Qualiveen - Português (European) questionnaire was used by Véronique Bonniaud, owned by Coloplast and Véronique Bonniaud, deposited at the Mapi Research Institute (http://www.mapi-research.fr/). The Portuguese (European) version was culturally validated for Portugal by us, awaiting publication in another scientific journal of this process. This validation allowed conceptual and linguistic equivalence, demonstrating that this instrument has excellent reliability (Cronbach's alpha of 0.96), as well as convergent and discriminant validity.

Qualiveen consists of two sections, the first one with 30 questions that assess the impact of urinary changes on the person's health-related quality of life in 4 dimensions (Annoyances, Limitations, Concerns and Impact on quality of life). And the second, which contains 9 questions that assess the quality of life in

general and one that assesses the person's perception of their way of urinate.

QL varies between -2 and +2 and negative values mean a decrease in QL. The dimensions of the impact on QL vary between 0 and 4. Regarding to the result, the closer to 4, the greater the impact of LUTS on QL.

The study sample is accidental non-probabilistic, and all people with MS and LUTS who attended the nursing consultation or day hospital of a Neurology service of a Central Hospital between the period of December 3, 2016 and January 14, 2017 were part of it. Data were collected by the author of this article, prior to the nursing consultation or scheduled treatment, in the reffered timeline. Since the objective is to study relationships between variables, a non-probabilistic sample may sufficient[8].

Inclusion criteria were clinical diagnosis of MS, cognitive ability to answer questionnaires, age over 18 years-old, knowing how to read and write, and the exclusion criteria were pregnant women, women with gynecological pathology, people with a medical diagnosis of not medicated urinary tract infection, and if medicated, that they remain with alterations in the urination pattern potentiated by the infection, as well as men with diagnosed and untreated prostatic pathology.

The study was authorized by the Institution's Ethics Committee and informed consent was obtained from all participants.

In the statistical analysis, the variables that follow a normal distribution were represented by the mean (M) and the standard deviation (σ) was used as a measure of dispersion. Because most of the data do not show a normal distribution curve, we had to resort to the median (Md) and the interquartile range (IQR) was used as a measure of dispersion.

Qualitative variables were described by absolute (N) and relative (%) frequencies.

To explore the relations between quantitative or qualitative ordinal variables, Spearman's correlation coefficient (ρ) was determined and the test was evaluated for its significance, since in all the variables studied, at least one of them did not present normal distribution, which did not allow us to use the Pearson correlation coefficient[11].

The variation of a variable that on average is explained by another is presented by the coefficient of determination, which is the squared elevation of ρ (ρ2), which varies between 0 and 1. It is usually represented in percentage terms and is considered relevant between 10% and 25%[12].

To investigate the relationship between quantitative and qualitative nominal variables, since the data distribution does not present a normal distribution, we resorted to the use of non-parametric tests[11,13]. The Wilcoxon-Mann-Whitney test (U) was used, the asymptotic distribution was chosen when in each category n ≥ 10 or the exact distribution if n < 1012, for the investigation of the relationship between dichotomic nominal quantitative and qualitative variables. To investigate the relationships between nominal quantitative and qualitative variables, the Kruskal-Wallis test (H)[12,13] was used, with the exact distribution being selected whenever in 3 groups on ≤ 5 and in all other situations the asymptotics distribution was used[12].

A significance level of 5.00% (sig.=0.05) was adopted in this study, allowing us to affirm the existence of the tested relationships in 95.00%. We considered p ≥0.05: not significant; p<0.05: statistically significant, p<0.01 statistically highly significant and p<0.001 statistically highly significant[14].

All analysis was performed using the IBM SPSS software (Statistical Package for the Social Sciences) Statistics version 23.0.

RESULTS

As the main objective of this investigation was not to identify the prevalence of LUTS in people with MS, it was considered pertinent to analyze this data. We noticed that of the 81 people who agreed to participate in the study, 72 had at least one LUTS, corresponding to 88.9%.

The sample subject to Qualiveen consisted of 72 people, 22 males and 50 females, aged between 25 and 71 years old (mean of 45.72 years old and standard deviation of 10.16 years old). The distribution by the variable and level of academic training is heterogeneous. With regard to employment status, 50% of individuals are retired, while 34.72% are professionally active (working for themselves or someone else) and the other 15.28% are unemployed. 72.2% live with a partner, 19.4% live with other people and 8.3% live alone. 70.8% do not need daily help at home and 72.2% do not need daily help outside home. 95.8% of people do not need help to urinate. 84.7% people walk, 12.5% use a manual wheelchair and 2.8% use another type of auxiliary device (crutch and walking stick).

The median years of MS evolution since diagnosis is 12 years, with an IQR of 14.3 years. As a minimum of years of evolution of MS we have 1 year and a maximum of 37 years.

Taking into account only the 80.6% of cases with LUTS who know the date of onset of symptoms, these cases presented as inaugural symptoms in 12.1% and 63.8% occurred as symptoms before the date of diagnosis, while 24, 1% of cases occurred after diagnosis. 23.6% have already undergone treatments for LUTS, and 4.2% have already undergone surgical intervention.

Out of the individuals who are part of the sample, 90.3% spontaneously urinate, 6.9% use self-catheterization, 2.8% resort to bladder emptying by another person, 15.3% resort to abdominal pressure to urinate, 1, 4% have urinary incontinence and 1.4% have permanent bladder drainage.

In the last 6 months, 19.4% of individuals report having presented a change in the way they urinate.

The use of protective means, absorbent (dressing, diaper or underwear)/external urinary device, occurs

in 58.3% of the sample. Out of these, 1.4% because they are permanently incontinent, 38.1% use them because they have regular losses between urinations and during rest as a precaution.

By analyzing the LUTS, we considered only 71 individuals, since 1 individual had continuous bladder drainage and did not respond to the LUTS perception questionnaire. We found in the 71 individuals that the highest frequencies are the presence of 4 LUTS as shown in table 2.

Table 1 *- Sample distribution in different variables*

Variables		N	%	Mean	Standard deviation	Median	IQR
Gender	Female	50	69.00				
	Male	20	30.60				
Age	(25-71)			45.72	10.16		
Employment Status	Retired	36	50.00				
Cohabitation	Companion/other	66	91.70				
Help outside the home	No	52	72.20				
Help at home	No	51	70.80				
Help to urinate	No	69	95.80				
Ways of moving	Walking	63	87.50				
Years of evolution of MS	(1-37)					12.00	14.30
Years after the first occurrence of symptoms	1st Symptoms led to the diagnosis	35	48.60				
Years after the first occurrence of lower urinary tract symptoms	Inaugural	7 (58)	12.10				
	Before the date of diagnosis	37 (58)	63.80				
Medical treatment of urinary problems	Yes	17	23.60				
Bladder emptying	Spontaneously	65	90.30				
Use of protective devices	Yes	42	58.3				
Reason for using the protective device	Precaution	25	59.50				
Quality of life				-0.10	0.83		

Table2 *- Distribution of the number of LUTS per individual in the sample*

Number of LUTS per individual	1	2	3	4	5	6	7	8	9	10	11	12	13	Total
N	7	3	7	13	5	8	12	4	4	7	0	0	1	71
%	9.86	4.23	9.86	18.31	7.04	11.27	16.90	5.63	5.63	9.86	0	0	1.41	100

The most frequent symptom is urinary urgency in 69% of individuals. 50% of individuals reported nocturia, frequency and feeling of incomplete emptying, more than 40% of individuals reported urgent incontinence, urinary incontinence, slow urinary stream and altered urinary stream, more than 30% reported hesitation, stress urinary incontinence and intermittent urinary flow, 28.6% reported needing abdominal effort to initiate urination and 16.7% had nocturnal enuresis.

The vast majority (73.3%) have mixed LUTS (emptying and storage), and only 2.8% have only empty LUTS and 23.9% only storage LUTS.

Figure 1 - Frequency of LUTS

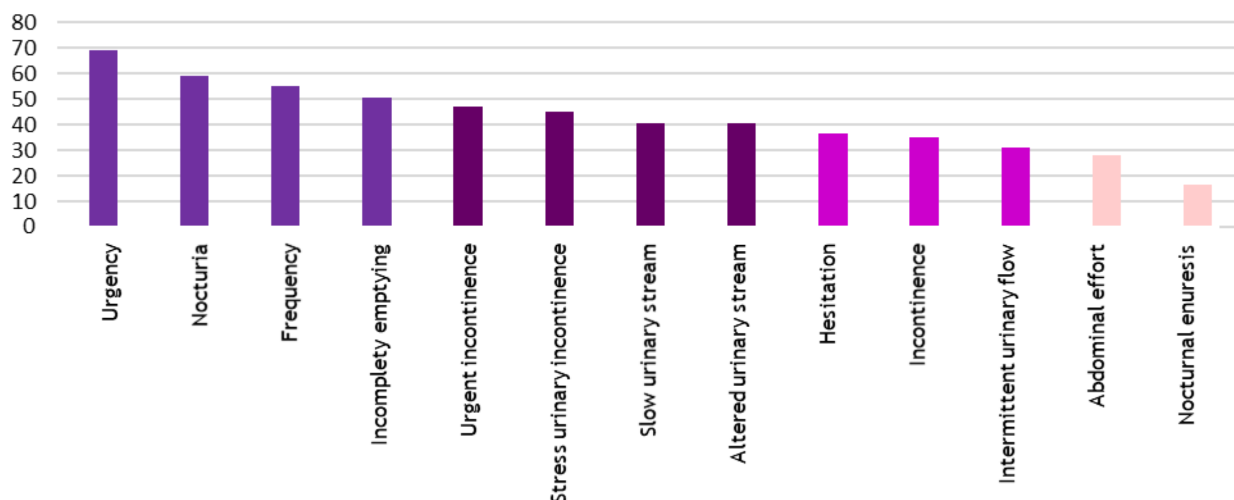

Table 3 *- Number of LUTS storage and LUTS emptying per individual*

		0	1	2	3	4	5	6	7	Total
LUTS Storage	n	2	12	16	10	11	8	10	2	71
	%	2.82	16.90	22.54	14.08	15.49	11.27	14.08	2.82	100
LUTS Emptying	n	17	9	16	11	7	6	5	-	71
	%	23.94	12.68	22.54	15.49	9.86	8.45	7.04	-	100

Regarding urinary frequency, 41.4% urinate 9 or more times a day, up to a maximum of 15 times, while 59.4% urinate more than twice during the night, up to a maximum of 7 times.

Analyzing the impact of urinary problems on health-related quality of life (IUPQL), the median of the sample is 1.33, with an IQR of 1.66, with a minimum value of 0.00 in the sample and a maximum value of 3.44. We found that only 4.2% had no impact on quality of life and 25% had an IUPQL above 2.00.

In the annoyances dimension, the median is 1.22, the IQR 1.95, with a minimum value of 0.00 and a maximum of 4.00. In the dimension limitations, the median is 1.25 to 2.38 IQR, with a minimum value of 0.00 and a maximum value of 3.75. In the area of concerns, the median is 1.56, the IQR 1.63, with a minimum value of 0.00 and a maximum value of 3.00. Regarding the impact on daily life, the median is 0.80, the IQR 1.95, with a minimum of 0.00 and a maximum of 4.00.

The mean quality of life of the sample was -0.1 with a standard deviation of 0.834 with a minimum of -2.00 and a maximum of 1.56.

Regarding the person's perception of their way of urinating, we found 9.7% who considered to urinate very well, 29.2% who considered to urinate relatively well, 22.2% considered to urinate neither good nor bad, 15 .3% consider to urinate relatively badly and 23.6% consider to urinate very badly.

In order to understand the existence or not of relations and correlations, several variables were crossed using statistical tests.

Several relations were found in the sample, significant relations, where the IUPQL is higher in women (Mann-Whitney test, p=0.045) and in people who need daily help at home (Mann-Whitney test, p=0.023), very significant relations, where the IUPQL is higher in retired people (Kruskal-Wallis test, p=0.005) and in people who need daily help outside home (Mann-Whitney test, p=0.002) and we found a relations highly significant where the IUPQL is higher in those using protective devices (Mann-Whitney test, p=0.00).

We found moderate, highly significant correlations, where the variation in the IUPQL result is explained in 30.69% by the number of LUTS (ρ <0.001, rho=0.554) and is explained in 19.27% by the daytime urinary frequency (p<0.001, rho=0.439). We identified a very significant correlation, where the variation in the IUPQL result is explained in 19.01% by the years of evolution of urinary tract symptoms (p<0.01, rho= 0.436). We found a high correlation, highly significant, where the variation in the IUPQL result is explained in 64.16% of the person's perception of the way they urinate (p<0.001, rho= -0.801).

Other weak but not relevant correlations were found (IUPQL with years of symptom evolution, years of MS evolution and nocturnal urinary frequency) and non-existent correlations and relationships (IUPQL with age, education, cohabitation, form of displacement, help to urinate , years after the first occurrence of

lower urinary tract symptoms, medical treatment of urinary problems).

DISCUSSION

The data obtained reveal very interesting findings and some surprising ones. This is a young adult sample, with proportions of incidence in the sexes according to the literature, with years of disease evolution of a median of 12 years and in which the first symptoms of the disease were in almost half of the sample those that led to the diagnosis of MS. We found higher IUPQL values in women. Nowadays, women still assume two distinct roles, family and professional, the impact occurs in both spheres, which may justify the findings found[15].

Although the correlation found between the years of evolution of MS symptoms and IUPQL is weak and with little relevance, it is an obvious relationship due to the usual evolution of this disease, almost always with worsening of existing deficits.

We found a higher IUPQL in people who need help both at home and away from home, a relationship that we understand, since in the presence of difficulty in performing activities of daily living due to fatigue, musculoskeletal changes, among many others, the presence of a LUTS causes greater concern/limitation/inconvenience. The presence of LUTS, which enhance concerns/limitations/inconveniences, results in a decrease in QL.

Half of the people in the sample are retired. Physical limitations resulting from MS, particularly those resulting from fatigue (one of the main symptoms), result in the impossibility of performing professional tasks in the normal time[4,16]. In terms of employment, unfortunately these people, for the most part, do not find a suitable workplace for the limitations presented, which leads to them becoming professionally inactive, although many of them have skills. The employment situation is related to the IUPQL, and we found higher values in retired people.

With regard to LUTS, as reported in the literature[17,18], these can be the inaugural of the disease, and we found 12.10%, in which the LUTS were initial to the diagnosis, while 63.8% the LUTS appeared even before the diagnosis. We consider these data very important, as it requires a greater appreciation of these symptoms. One author[19] states that LUTS are often undervalued and not associated with the disease, and this study only shows that they are symptoms of the disease and that they can be present in the earliest stages. However, unlike a study we consulted[20], we found a statistically significant correlation, positive and moderate, in which, the years of evolution of urinary symptoms explain 19.01% of the variation in the IUPQL. In any case, this relations is explainable considering that the older the person is with LUTS, even if they do not evolve or worsen, the greater will be the concerns, limitations, fears and impact on daily life, which will possibly lead to people value these symptoms more, which causes greater impact on their quality of life conditioned by urinary problems.

Although almost all people in our sample urinate spontaneously, half feel the need to constantly use a protective device, and most of them just in case. These people, even controlling urination, seem to feel a concern about the occurrence of urinary loss, which influences their lives, compatible with the relationship found, in which the highest values of the IUPQL are in people who use individual protection.

The more types of LUTS felt by people (90% have more than one LUTS), the higher the IUPQL explained in 30.69%. In previous studies[20,21] that analyzed this relationship, a moderately statistically significant relationship was also found in 2004 and a strong statistically significant relationship in the 2006 study, the concerns felt and the greater the impact on the quality of life of the person with MS and LUTS.

The vast majority of the sample, 73.3%, has mixed LUTS, which is similar to a study22 that found the prevalence of both symptoms to be 70%. In another study8 the prevalence of mixed symptoms is 50%.

Urinary urgency is found in more than half (69%) of our sample, a value similar to that found in a study[23] in which urinary urgency had a frequency of 83%, and in another study[24] which found 70.2% of urinary urgency present in people with MS.

One of the LUTS that does not have a consensus in the literature is incontinence. A frequency of 83%[23], 75%[19], 59%[6], and only 10%[25] was found in the consulted studies. In this study, incontinence is found with a frequency of 35.2%, being the tenth LUTS most frequently found.

The existence of a correlation between the increased daily urinary frequency and the IUPQL would be expected, considering that this is a symptom that causes changes in the person's daily dynamics, which can cause disturbances at personal and professional level, but such correlation was not verified. Was also expected to find a correlation of IUPQL with nocturia/nocturnal urinary frequency as it interferes with sleep and rest, but such relationship was not verified. It would be importante in the future, studies to deepen this subject.

The existance of a significant impact of urinary problems on the quality of life of people with MS are results coincident with the results obtained in a study carried out in 2016[26].

In all Qualiveen dimensions tehre are consequences for QL. The area that has the greatest consequences on the person´s quality of life due to urinary problems are limitations, followed by concerns, annoyances and then impact on quality of life. In the study of 2016[26] the areas with the greatest impact on pleople´s lives due to urinary problems appear in exactly same order.

CONCLUSION

The presence of LUTS in people with MS is often undervalued, both by people themselves and by health

professionals, essentially if they are shown together with other more evident and more disabling symptoms, these remain in the background.

This study showed us that LUTS have a negative impact on the QL of people with MS and also revealed that these people have multiple LUTS, with urinary urgency being the most frequently found.

The IUPQL is higher among women, retired people, those who need daily help inside and outside the home, and those who wear protective devices.

A high correlation was found between the IUPQL and the person's perception of the way they urinate. Several moderate correlations were found between the IUPQL and the number of LUTS, increased daily urinary frequency and years of evolution of urinary tract symptoms.

We were concerned to understand which LUTS caused the highest IUPQL, but due to the size of the sample we were not able to use statistical tests that would allow us to unveil these responses, from our point of view, it will be an added value to study these relationships in future studies.

Rehabilitation nurses are professionals who have the ability to transform this knowledge into useful tools in order to increase the quality of life of people with Multiple Sclerosis and LUTS. This promotes early diagnoses, develops preventive actions, preventing complications and avoiding disabilities, maintaining or recovering the personal and professional activity of the person with LUTS and MS.

Once this problematic is identified, it will make sense to change professional practices and acquire new behaviors, that is, questioning the presence of LUTS in all people with MS, even without manifestations of its presence, both in order to prevent future complications such as higher Urinary tract Infection , with a view to referring to an earlier medical diagnosis or to teach, instruct and train these people to deal with their LUTS in order to lessen their impact on their quality of life, reducing inconveniences, limitations, concerns and impact on daily life.

Monitoring the effectiveness and efficiency of implemented interventions is an asset in order to assess their individual suitability. For this monitoring of results it may be important to use Qualiveen.

Qualiveen is a strong tool for diagnosing and evaluating the results of interventions implemented by nurses.

It is suggested in future studies to identify which nursing interventions allow reducing the IUPQL of people with MS.

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DECLARATION OF INTEREST

This essay was prepared based on data extracted from the Master's Thesis "Quality of life related to the health of people with Multiple Sclerosis and lower urinary tract symptoms" presented to the Nursing School of Coimbra in August 2017 to obtain the Master's degree in Rehabilitation Nursing. This dissertation is also in the process of publishing in another scientific journal the data on cultural validation for Portuguese (European) of the Qualiveen scale.

The authors do not have any conflicts of interest, in the development of this research there was no sponsorship or support.

The investigation was approved by the Ethics Committee of the institution where it was carried out and had only the operational support of the service team where it took place. A panel of independent experts participated in the cultural validation process of the Qualiveen scale.

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Reabilitação Respiratória Em Pessoas Com Bronquiectasias Não Fibrose Quistica: Qualidade De Vida, Ansiedade E Função Respiratória

REHABILITACIÓN RESPIRATORIA EN PERSONAS CON BRONQUIECTASIAS NO FIBROSIS QUISTICA: CALIDAD DE VIDA, ANSIEDAD Y FUNCIÓN RESPIRATORIA

PULMONARY REHABILITATION IN PATIENTS WITH BRONCHIECTASIAS NON-CYSTIC FIBROSIS: QUALITY OF LIFE, ANXIETY AND RESPIRATORY FUNCTION

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RESUMO

Bronquiectasias são dilatações anormais e irreversíveis dos brônquios que condicionam aumento da produção de secreções e infeções respiratórias de repetição podendo interferir na Qualidade de vida (QV).

O objetivo deste estudo foi avaliar eficácia de um programa de reabilitação respiratória (PRR) na QV, na Ansiedade e na função respiratória (FR) em pessoas com BQ.

Estudo Prospetivo; quantitativo; exploratório que incluiu pessoas com bronquiectasias admitidas para reabilitação respiratória (RR). A Colheita de dados da QV, Ansiedade e FR foi realizada antes e após o PRR.

Incluiu 30 pessoas (39,1% homens); idade média de 53,3 anos. Encontradas melhorias estatisticamente significativas na QV, (Valor global p=0,003; Subescalas Sintomas p=0,065; Atividade p=0,005 e Impactos p=0,019), e na Ansiedade (p=0,001). Não foram encontrados resultados significativos na FR.

Os resultados deste estudo permitem-nos concluir que a RR melhora a QV, reduz a Ansiedade e não altera a FR em pessoas com bronquiectasias não fibrose quistica.

Palavras chave: enfermagem de reabilitação; reabilitação respiratória; qualidade de vida; ansiedade; função respiratória; bronquiectasias

RESUMEN

Las bronquiectasias (BQ) son dilataciones anormales e irreversibles de los bronquios que condicionan aumento de la producción de secreciones e infecciones respiratorias de repetición pudiendo interferir en la Calidad de vida (QV).

El objetivo de este estudio fue evaluar el efecto de un programa de rehabilitación pulmonar (PRP) en la QV, la Ansiedad y la función pulmonar (FP) en personas con BQ no relacionada com fibrosis quistica.

Estudio Prospectivo; cuantitativa; exploratorio que incluyó a personas con bronquiectasias admitidas para rehabilitación pulmonar (RP). Los datos de la QV, Ansiedad y FR fueran recogidos antes y después del PRR.

Incluyó 30 personas (39,1% hombres); edad media de 53,3 años. (P = 0,003), y en la ansiedad (p = 0,001), y en la ansiedad (p = 0,001), se observó una mejoría estadísticamente significativa en la QV, (Valor global p = 0,003; Subescalas Síntomas p = 0,065; Actividad p = 0,005 e Impactos p = 0,019). No se encontraron resultados significativos en la FR.

Los resultados de este estudio nos permiten concluir que RP mejora la QV, reduce la Ansiedad y no altera la FP en personas con bronquiectasias no relacionada com fibrosis quistica.

Palabras clave: rehabilitación pulmonar; calidad de vida; ansiedad; función pulmonar; bronquiectasias

ABSTRACT

Bronchiectasis (BQ) are abnormal and irreversible dilations of the bronchi that increased production of secretions and respiratory infections and can interfere in the Quality of life (QOL).

The essay aimed to evaluate the effect of a pulmonary rehabilitation program (PRP) on QOL, Anxiety and Respiratory Function (RF) in people with BQ.

Prospective, quantitative and exploratory study including people with bronchiectasis admitted for pulmonary rehabilitation (PR). Data collection regarding QOL, Anxiety and RF performed before and after PRP.

It included 30 people (39.1% men); mean age of 53.3 years. Statistically significant improvements were found in the QOL, (p = 0.003, p = 0.005, p = 0.005) and anxiety (p = 0.001). No significant results were found in RF.

The results of this study allow us to conclude that RR improves QOL, reduces anxiety and does not alter PF in people with non-cystic fibrosis bronchiectasis.

Keywords: rehabilitation nursing; respiratory rehabilitation; quality of life; anxiety; respiratory function; bronchiectasis

INTRODUCTION

Bronchiectasis is characterized by an abnormal, permanent and irreversible dilation of the bronchi caused by the destruction of the elastic and muscular components of its walls and deficient mucociliary clearance [1-2].

Associated with dyspnea, activity intolerance and coughing, bronchial hypersecretion is its main characteristic, presenting a high morbidity due to the recurrence of respiratory infections [3].

The progressive intensity of dyspnea, effort intolerance, presence of abundant secretions and the recurrence of infections lead to the need to change one's lifestyle, which is not always successful [4-5].

The impact of bronchiectasis in these people's lives does not only occur in the physical component. In addition to the inability, greater or lesser, to perform activities of daily living, the effect of the disease is also felt in the social and affective perspective, with anxiety being a very frequent finding with even more pressing effects on quality of life [6-7].

Respiratory Rehabilitation, a multidisciplinary approach in the treatment of people with chronic respiratory disease, is fundamental in the therapeutic management process of people with Chronic Obstructive Pulmonary Disease (COPD) [8-9][8] [9]. Although it is a clinical entity distinct from COPD, people with bronchiectasis are also characterized by an obstructive ventilatory pattern and by the possibility of dyspnea, fatigue, cough, bronchorrhea, and decreased exercise tolerance. These symptoms make respiratory rehabilitation also recommended in the treatment of this disease [4,8-9].

Few studies have been carried out to study the impact of pulmonary rehabilitation and its benefits in patients with bronchiectasis, when compared with the high scientific production on COPD [7].

In this sense, having Nursing Care as the focus of attention, it reveals itself as an object of current interest for the Nursing discipline to assess the impact of its practice.

Only in this way will it be possible to sustain the importance of Nursing in general and specialized care in Rehabilitation Nursing, in particular, in clinical practice, in health policies and in teaching as a discipline of knowledge.

Thus, the present essay aimed to evaluate the effect of a Respiratory Rehabilitation Program on the quality of life, anxiety and respiratory function of people with non-cystic fibrosis bronchiectasis.

METHOD

The question that guided this study was: How does respiratory distress disturb and affect the lives of people with Bronchiectasis?

From this central question, three research questions were formulated, which we intend to answer:

- How respiratory rehabilitation interferes with the quality of life of people with bronchiectasis;
- How respiratory rehabilitation interferes with the anxiety of people with bronchiectasis;
- How respiratory rehabilitation alters the respiratory function of those with bronchiectasis.

It was a prospective, quantitative and exploratory study, with intra-subject evaluation in two moments, carried out with a sample of people with non-cystic fibrosis bronchiectasis undergoing a respiratory rehabilitation program.

The sampling technique used was non-probabilistic and of convenience.

The inclusion criteria were expressing a desire to participate in the study and filling out an informed consent, being over 18 years-old, having communication skills, not being unable to practice physical exercise, and not having severe cognitive impairment.

Failure to fully comply with the PRP, inability to exercise, and psychiatric illness or cognitive dysfunction were exclusion criteria from the study.

The respiratory rehabilitation program was carried out on an outpatient basis for 13 weeks and 3 times a week. It consisted of a physical component that included high-intensity exercise training, inspiratory muscle strengthening and respiratory functional re-education (figure 1) and an educational component (figure 2).

Figure 1*: Respiratory Rehabilitation Program - Physical Component*

Treatment Program - Physical Component	
Objective	**Interventions**
Mobilization and drainage of secretions*	Postural Drainage
	Active Breath Cycle
Respiratory Functional Re-education*	Diaphragmatic exercises Back exercises
Inspiratory muscle training	15 minutes twice a day
Anaerobic training	3 sets of 10 repetitions
Upper limbs: (Bikeet, triceps, deltoid) Lower members: (Quadricepitis, hamstring, coxofemoral adductor and abductor, twins)	
Aerobic training (30 minutes)	Cycle ergometer training

*** Whenever necessary**

Figure 2: Respiratory Rehabilitation Program - Educational component

Treatment Program - Educational Component	
Theme	**Contents to be covered**
Pathophysiology of Bronchiectasis	Definition of Bronchiectasis
	Associated pathologies
	Exacerbations
Mobilization and drainage of secretions	Active Breath Cycle
	Self-draining positions
	Self-draining techniques
Adaptive strategies	Relaxation techniques
	Energy Management Techniques
	Importance of physical exercise
	Exercise planning
Nebulizations	Nebulizer cleaning and maintenance

The variables under study were Quality of life, Anxiety, and Respiratory Function, and data collection was performed at the beginning and at the end of the respiratory rehabilitation program.

Data related to the variable **Quality of life** were obtained using The St. George's Respiratory Questionnaire (SGRQ), which is a specific questionnaire for people with chronic respiratory disease and consists of three subscales: symptoms, restrictions in daily activities and impact of the disease on the individual. Each subscale has a maximum possible score, with variations of 10% (relative to the standard) indicating a change in quality of life. Changes greater than 4% after an intervention indicate a significant change in quality of life [(10)].

Anxiety variables were assessed using the Hospital Anxiety and Depression Scale (HADS). This scale consists of two subscales whose sum of scores identifies the level of **anxiety** and depression. A cut-point of eight was used, with higher scores showing anxiety and/or depression [(11)].

The Respiratory Function variable was evaluated by performing respiratory function tests and arterial blood gases.

Statistical analysis

In the statistical analysis of the data we used the IBM SPSS version 23.0 software.

In a first phase, with a view to describing and characterizing the sample under study, a descriptive analysis of the data was carried out according to the nature of the variables under study, performing an exploratory univariate analysis of the data, using measures of central tendency, of dispersion, flattening and symmetry, existence of outeliers and the normality of distributions.

In a second phase, in order to assess the effectiveness of the pulmonary rehabilitation program in "Quality of Life", "Anxiety" and "Respiratory Function", the nonparametric Wilcoxon test was used for two paired samples due to the small number of the sample in study.

All tests were applied with a confidence level of 95%.

Ethical aspects

In the methodological path, respect for all deontological presuppositions inherent to the ethics of research was guaranteed, as well as the guarantee of maximum confidentiality in the subsequent phases of collecting and processing information.

The study was presented, explaining the objectives, investigation time, the purposes of the results and the possibility of giving up at any stage, obtaining informed consent and guaranteeing data secrecy and confidentiality.

The application of the questionnaires was authorized by the ethics committee.

***Figure 3** - Socio-Demographic Characterization of the sample*

Socio-demographic Characterization	Frequencies	
n= 30	nº	%
Gender		
Female	18	60.9%
Male	12	39.1%
Age		
Median:	53.3 (±16.7) years-old	
Marital status		
Married	18	60.9%
Divorced	2	8.7%
Single	3	13.0%
Widowers	6	17.4%
Literary abilities (n= 23)		
4th Class	13	43.5%
5th Class	2	4.3%
9th year	3	8.7%
10th year	2	4.3%
12th year	6	21.7%
Teaching degree	4	17.4%
Degree of obstruction		
FEV1%	47,3%	
Tiffeneau Index		

RESULTS

Thirty participants were included in the study, most of them female (60.9%), 39.1% male, with a median age of 53.3 (± 16.7) years-old.

For a better explanation of the results obtained, we will proceed with the individual analysis of each of the variables under study.

Quality of life

Regarding the variable "Quality of life" we subdivided our analysis into:

A. SGQR total Score

B. Score of the "Symptoms", "Activities", "Impact" Subscales

***Figure 4** - Quality of life variable*

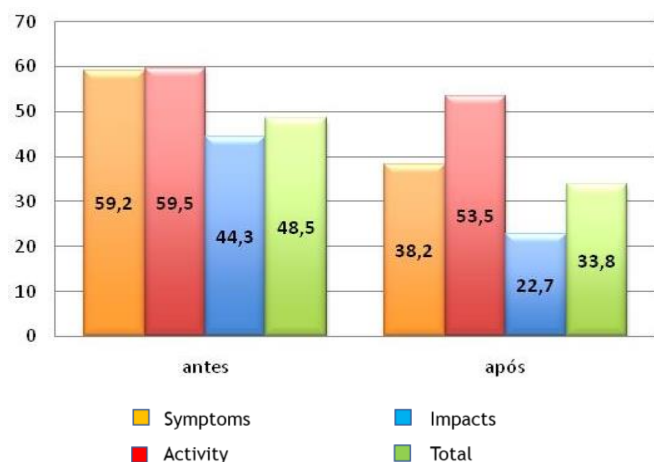

***Figure 5** - Quality of life variable: Statistical results*

	Saint George Respiratory Questionnaire			
	Before	After	P value	Variation
Symptoms				
Average	59.15	38.2	042*	20.95
Interquartile 25-75	23.7-68.6	18.4-57.8		
Activity				
Average	59.5	53.53	.009*	5.97
Interquartile 25-75	41.7-87.2	35.6-73.4		
Impacts				
Average	44.3	22.7	.026*	21.6
Interquartile 25-75	14.1-62.2	15.2-52.5		
Total				
Average	48.5	33.8	.003*	14.7
Interquartile 25-75	23-69.1	20.3-64.5		

* Statistically significant

Total Scale

A difference of -14.7 points was observed after respiratory rehabilitation compared to baseline values (before value=48.5; after value a=33.8). Statistically significant differences were found in the total value of the scale (p=0.003) (Figure 5).

Score of the Subscales "Symptoms", "Activities", "Impact".

After the rehabilitation program, participants expressed statistically significant improvements in all dimensions evaluated.

Clinically significant improvement (score variation greater than 4) was also found in the Total Scale and in all subscales.

Anxiety

The results show that regarding "Anxiety", statistically significant differences were found (p = 0.001) when comparing the results of the questionnaires before and after the rehabilitation program. The variation between the two evaluations being 3 points. (Figure 6)

***Figure 6** - Anxiety Variable: Statistical Results*

	Hospital Anxiety and Depression Scale			
	Antes	Depois	Valor p	Variação
Sub-escala ansiedade				
Mediana	9	6		
Interquartil 25-75	6-11	5-9	.001*	3

* Estatisticamente significativo

Respiratory Function

The values of respiratory function did not change with statistical significance in the values of arterial blood gases and respiratory function tests.

***Figure 7**: Respiratory Function Variable: Statistical Results*

	Before	After	P value
Arterial blood gas			
SatO2			
Average	93,7	94,8	,778
Interquartile 25-75	93,2-96,7	93,4-96,8	
pO2			
Average	69,4	74,2	,127
Interquartile 25-75	63,5-81,1	65,9-83,9	
pCO2			
Average	42,7	40,5	,177
Interquartile 25-75	37,5-47,6	35,2-46,2	
Functional Respiratory Tests			
VEMS%			
Average	42	37,7	,615
Interquartile 25-75	33-61,5	31-57	
CVF%			
Average	67,9	70,8	,390
Interquartile 25-75	58-87	49,5-91,9	
VR%			
Average	180	183	,338
Interquartile 25-75	139-216	149-233,5	
Tiffeneau index			
Average	56,5	54,7	,670
Interquartile 25-75	42-64,1	40,9-54,7	

DISCUSSION

This study aimed to evaluate the effect of a respiratory rehabilitation program on quality of life, anxiety and respiratory function in people with bronchiectasis.

The global interpretation of the data collected by this investigation demonstrated the achievement of clear benefits, namely in terms of reducing levels of anxiety and increasing quality of life. On the other hand, regarding the respiratory function, the data collected show that there is no statistically significant improvement.

To facilitate the discussion, we will go to the research questions formulated:

1. How does pulmonary rehabilitation interfere with the quality of life of patients with bronchiectasis?

Bronchiectasis has been described as an orphan disease of the airways.[1,12] Two decades later, very little investigation was carried out into the efficacy of most treatments performed, including pulmonary rehabilitation.[3,6,13]

On the other hand, respiratory rehabilitation that initially emerged as a treatment recommendation for people with chronic obstructive pulmonary disease is now mandatory in the treatment of other chronic respiratory diseases including bronchiectasis.[8,12]

Exercise patterns combined with self-care constitute an effective and highly effective intervention, leading to a reduction in exacerbations with a subsequent reduction in hospitalization and an increase in quality of life.[5,14]

Although different entities, bronchiectasis and COPD have considerable similarities, both in terms of pulmonary involvement and also in terms of peripheral muscles, tolerance to effort, nutritional status and impact on quality of life.[3,12-13]

Santomato in 2012 confirms the effectiveness of pulmonary rehabilitation programs in people with bronchiectasis and states that their impact on quality of life is as effective as in patients with COPD.[14]

In a retrospective study in 2011 Ong *et al.* demonstrates that respiratory rehabilitation in people with bronchiectasis significantly increases exercise tolerance as well as quality of life, being comparable with the group of patients with COPD undergoing the same rehabilitation program.[15]

Different levels of respiratory dysfunction can be found in patients with bronchiectasis, which can be translated into obstructive, restrictive or mixed.[16] According to the results obtained, the sample presented mild obstruction in the large airways and severe obstruction in the small airways. These results suggest that data on the respiratory function of patients with bronchiectasis show that there is airflow limitation, probably due to chronic inflammation or destruction of the bronchial wall.[3,12]

In our study, respiratory dysfunction translated a moderate obstructive pattern with mean values at the beginning of the treatment of FEV1 and the Tiffeneau index of 47.2 and 53.7, respectively.

The quality of life assessment revealed a clinically significant improvement (□ greater than 4 points) in the total scale score of 8.73, as well as in the scores of each of the three subscales: symptoms 9.40; activity 9.01 and impacts 8.40.

The data obtained reveal a total score of 48.4 (± 23.1) and partial scores of 62.9 (± 24.9) for the Activity subscale, 49.4 (± 25.3) for the Symptoms and subscale 39.7 (± 23.8) for the Impact subscale.

These values are globally lower than those reached by Martinez-Garcia in 2005[17] This variation can be explained by the mean value of FEV1 in this study (60 ± 19.4) being much higher than that presented in our study (FEV1 47.2 ±19.9) reflecting a lower degree of obstruction.[17]

The inclusion of inspiratory muscle training in our rehabilitation program is in line with the work of Newall in 2005, who concluded that people undergo respiratory rehabilitation programs simultaneous to inspiratory muscle training did not show advantage, but may however be importante in the longevity of the training effects. The result of this study was a very significant improvement in quality of life, translated into an average increase of 7.7 points in the total score, maintaining these results for a period of 3 months after the end of the program.[18]

21. *How does pulmonary rehabilitation interfere with the anxiety of patients with bronchiectasis?*

The results obtained in our study show a statistically significant reduction in anxiety values between the beginning and the end of the respiratory rehabilitation program.

However, no significant difference was found between the degree of pulmonary obstruction (measured by FEV1%) and anxiety, which suggests that the severity of the lung disease, regarding the impact on anxiety, is related to subjective aspects and individual experiences of each person.[19]

Anxiety as a clinical entity has been included in the main studies carried out in patients with chronic pulmonary pathology carried out in recent years, since it was found that the prevalence of anxiety disorders among people with chronic respiratory pathology is higher than that of the general population. [20] The explanation may lie in situations of hyperventilation and dyspnea symptoms that are characteristic of panic attacks and lack of control, as well as respiratory pathology with an obstructive pattern.[19]

Dyspnea is the most limiting symptom in people with obstructive pulmonary pathology and may also be considered the most important to determine the impact of the disease on quality of life. In fact, there is a close relationship between dyspnea, or rather, the fear of triggering an episode of dyspnea and anxiety.[21-23]

There is a broad base of consensus about the fundamental role of respiratory rehabilitation in the management of chronic obstructive respiratory disease, not only because it reduces anxiety, but especially because it reduces dyspnea and fatigue, increases exercise tolerance, thus increasing the quality of life.

Coventry published in 2007 a systematic review which concluded that pulmonary rehabilitation programs with three sessions per week that include physical exercise programs and educational programs reduce mild to moderate anxiety in patients with COPD GOLD C.[24]

Our investigation concluded that there is a significant improvement in anxiety after the pulmonary rehabilitation program, with an average reduction of approximately two points in the HADS scale, placing the total result in the sample at a value lower than the cutoff point of the scale.

3. How does pulmonary rehabilitation interfere with the respiratory function of patients with bronchiectasis?

Bronchiectasis is the pathological expression of a wide variety of diseases.[1]

They are characterized by airflow obstruction, coughing, sputum, recurrent respiratory infections, dyspnea associated with decreased quality of life and reduced exercise tolerance.[14] As in COPD, the causes of dyspnea and reduced exercise tolerance they are multifactorial, including ineffective gas exchange, loss of muscle mass, and the presence of large amounts of mucus.[13,16]

Since bronchiectasis is characterized by a deficiency in mucociliary clearance, airway clearance techniques are widely advocated as a fundamental part of these people's daily routine.[2]

Airway impaction with considerable amounts of sputum is associated with atelectasis, as well as deterioration of respiratory function and blood gas values, which improve with the mobilization of secretions or aspiration. However, the relationship between the removal of bronchial secretions and the improvement in respiratory function is not fully established yet.[25]

There is very little scientific evidence that proves the change in respiratory function caused by respiratory rehabilitation programs before increasing the amount of mucus expelled, not changing the FEV1 values.[4,15]

Mandal et al., in 2012, published a study of 30 patients with bronchiectasis of non-pulmonary fibrosis etiology, undergoing an 8-week, bi-daily program of pulmonary rehabilitation and concluded that there was no improvement in the values of FEV1, FCV, IT.[26]

Murray in 2009 concluded in a study of 20 patients with bronchiectasis of non-pulmonary fibrosis etiology that there was no variation in the values of FEV1, FVC, FEF25-75%, MIP, MEP or exacerbations when undergoing a 12-week rehabilitation program. However, this program was slightly different from the one presented in our study as it included sessions twice a day.[27]

Newall, in 2005, studied 32 patients with bronchiectasis of idiopathic etiology and concluded after an 8-week rehabilitation program, 3 times a week, that there were no statistically significant changes in the values of FEV1, FVC, IT, RV, TLC.[18]

Santomato published a study with a very small sample (3 patients) and a pulmonary rehabilitation period of 20 weeks, 3 times a week, also reaching the conclusion that there are no significant differences between the spirometric values.[14]

Van Zeller, in a cohort of 41 patients over a 12-week period, 3 times a week, concluded that there is a positive impact of pulmonary rehabilitation on lung function in certain groups of patients with bronchiectasis.[25]

Our study does not find statistically significant gains in respiratory function after the pulmonary rehabilitation program; it did not find statistically significant differences in the values of FEV1%, FVC%, VR%, IT%, TLC%.

Regarding arterial blood gas values, there were no statistically significant variations in PaO_2, $PaCO_2$, $SatO_2$ values.

CONCLUSION

The data obtained in this study allow us to conclude that pulmonary rehabilitation improves quality of life, significantly reduces anxiety and does not alter respiratory function in people with bronchiectasis.

In conclusion, the results achieved allow us to clearly infer that a respiratory rehabilitation program, in which the principles of exercise prescription and behavioral change were derived from COPD, is a valid approach also for people with non-cystic fibrosis bronchiectasis, and may represent one of the few treatments available with the potential to modify the course of the disease and its prognosis, being an unexpensive addition to existing medical care.

However, further investigations, namely randomized controlled trials, are needed to optimize training programs while maintaining long-term benefit.

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Revisões da Literatura Científica: Tipos, Métodos e Aplicações em Enfermagem

Revisiones de la Literatura Científica: Tipos, Métodos y Aplicaciones en Enfermería

Scientific Literature Reviews: Types, Methods and Applications in Nursing

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RESUMO

Introdução: O interesse da Enfermagem pela metodologia de revisões da literatura tem vindo a aumentar, constituindo-se métodos que permitem uma prática baseada na evidência científica.

Objetivo: Caracterizar os diferentes tipos de revisões da literatura e descrever etapas principais de uma revisão sistemática da literatura.

Material e métodos: Revisão narrativa da literatura. Pesquisa em bases de dados nas seguintes plataformas Google Académico, Scientific Electronic Library Online (SciELO), EBSCO Host, e Biblioteca Virtual em Saúde (BVS). As palavras-chave: metanálise; medicina baseada em evidências; literatura de revisão como assunto; metodologia, nos idiomas inglês e português.

Resultados: Foram descritas 14 tipos de revisões e analisadas de acordo com o tipo de pesquisa, avaliação da qualidade metodológica dos artigos incluídos, síntese da informação colhida e análise global dos dados. Foram apresentadas as vantagens e desvantagens de cada tipo e descritos os principais passos de uma revisão sistemática da literatura.

Conclusões: A revisão sistemática da literatura é um dos alicerces para prática baseada em evidência, uma vez que agrega uma grande quantidade de informações num único estudo.

Palavras chave: metanálise; medicina baseada em evidências; literatura de revisão como assunto; metodologia; enfermagem de reabilitação.

RESUMEN

Introducción: El interés de la enfermería por la metodología de revisiones sistemática de la literatura ha aumentado, ya que se constituye un método que permite una práctica basada en la evidencia científica.

Objetivo: Caracterizar los diferentes tipos de revisión de la literatura y describir etapas principales de una revisión sistemática de la literatura.

Material y métodos: Revisión narrativa de la literatura. Búsqueda en bases de datos en las siguientes plataformas Google Académico, Scientific Electronic Library Online (SciELO), EBSCO Host, y Biblioteca Virtual en Salud (BVS). Las palabras clave: *meta-analysis; evidence-based medicine; review literature as topic; methodology*, en Inglés y portugués.

Resultados: Se describieron 14 tipos de revisiones que fueron analizadas de acuerdo con el tipo de investigación, evaluación de la calidad metodológica de los artículos incluidos, síntesis de la información recolectada y análisis global de los datos. Han sido presentadas las ventajas y desventajas de cada tipo y descritos los principales pasos de una revisión sistemática de la literatura.

Conclusiones: La revisión sistemática de la literatura es el fundamento para la práctica basada en la evidencia, ya que agrega una gran cantidad de información en un único estudio.

Palabras clave: metanálisis; medicina basada en evidencias; literatura de revisión como asunto; metodología; enfermería de rehabilitación

ABSTRACT

Introduction: The interest of nursing in the methodology of the literature systematic review has been increasing, since it constitutes a method that allows a practice based on scientific evidence with scientific accuracy.

Objective: To characterize the different types of literature review and to describe the main steps of a systematic review of the literature

Material and methods: Narrative review of the literature. Database search on the following platforms: Google Academic, Scientific Electronic Library Online (SciELO), EBSCO Host, and Virtual Health Library (VHL). Keywords: meta-analysis; evidence-based medicine; review literature as topic; methodology, in the English and Portuguese languages.

Results: fourteen types of reviews were described and analyzed according to the type of research, evaluation of the methodological quality of the articles included, synthesis of the information collected and global analysis of the data. The advantages and disadvantages of each type and the main steps of a systematic review of the literature were presented.

Conclusions: A systematic review of the literature is the foundation for evidence-based practice, since it aggregates a large amount of information in a single study.

Keywords: meta-analysis; evidence-based medicine; review literature as subject; methodology; rehabilitation nursing

INTRODUCTION

Literature reviews have been increasingly used by health professionals to assimilate the results of studies in the context of health care.[1]

Among the various reviews, the systematic literature review (SLR) is defined as a systematic, explicit and reproducible method that allows the identification, evaluation and synthesis of studies carried out by researchers, academics and health professionals.[2] This methodology starts from question that is clearly formulated and uses systematic and explicit methods to identify, select and critically appraise studies; in addition, it allows for the collection and analysis of data from the studies that were included in the review.[1]

Although this method of literature synthesis has had greater expression in recent years, it is not a recent idea. James Lind, in 1753, conducted the first randomized clinical trial, recognized the value of systematic methods to identify, to extract and to evaluate information from studies in order to avoid biased interpretations of the investigation.[3-4]

There are many important historical events on the SLR, for example: in 1904, when Pearson publishes a historical review on the effects of vaccines against typhoid fever; in 1976, Glass coined the term "meta-analysis"; in 1984, Light and Pillemer report summarizing the results; in 1987, Mulrow publishes a medical review article on the state of science; in 1989, Enkin and colleagues publish Effective Pregnancy and Childbirth Care; in 1992, Antman and colleagues illustrated the value of accumulating results; in 1993, the launch of Cochrane Collaboration; in 1994, the creation of the UK NHS Center for Reviews and Dissemination; and in 2000, the creation of the Campbell Collaboration Foundation.

Literature review[3,10] can assume different expressions related to the degree of systematization and function for which they are intended. However, the SLR is based on an explicit, clear and standardized method so that it can be reproduced, which describes a priori in a rigorous way how it should be planned. [3-5]

The use of SLR makes it possible to "take stock" and have an overview of the knowledge produced so far, to identify opportunities that have not been explored yet and carrying out an innovative research project, in short, makes it possible to know the "state of the art". On the other hand, it allows verifying a specific hypothesis, in order to select tools, instruments or scales that are useful to conduct research and also to know gaps in studies, indicate unexplored topics or help to formulate research questions.[3]

The key features of an SLR are: clear definition of objectives based on pre-defined eligibility criteria for studies; explicit and reproducible methodology; systematic search that tries to identify all studies that meet the eligibility criteria; assessing the validity of the results of the included studies, for example, by assessing the risk of bias; and systematic presentation and synthesis of the characteristics and findings of the included studies.[6] The fact that it is reproducible is highlighted, which emphasizes the need for clarity in each of the steps.

This essay aims to present the different types of literature review and describe the main stages of an SLR.

MATERIAL AND MÉTHODS

A narrative review of the literature[7] was carried out in order to obtain a synthesis of the various types of systematic review, as well as their characteristics and functions in the context of nursing.

The essays included were obtained through the following platforms: Academic Google, Scientific Electronic Library Online (SciELO), EBSCO Host and Virtual Health Library (VHL), where it was possible to access the following databases: IBECS; CINAHL Complete; Library, Information Science & Technology Abstracts and MEDLINE Complete.

The subject titles and free terms were: 1. (Meta-Analysis/Meta-analysis) AND (Evidence-Based Medicine/Evidence-Based Medicine) AND 2. (Review/review) OR (Review Literature as Topic/review literature as subject) AND (Methodology /Methodology).

The inclusion criteria were: Language (Portuguese, English and Spanish); Availability (full text), all types of articles and books. The references of these articles or books were also considered.

RESULTS AND DISCUSSION

Literature reviews can be named as: Critical review; Integrative review; Literature revision; Systematic mapping/map review; Meta-analysis; Review of mixed studies/mixed methods review; Overview; Qualitative systematic review/synthesis of qualitative evidence; Quick review; Scoping review; Review of the state of the art; Systematic review; Systematized review; Systematic research and review; and Umbrella Review.[3,8]

The critical review of the literature aims to demonstrate that an extensive literature search was carried out and its quality was critically assessed.[8] In order to help with this assessment, guidelines are available to critically assess the quality of studies with a qualitative design.[9]

The integrative literature review allows for the combination of primary and secondary research, after evaluating the methodological quality and consists of six distinct phases: 1) Identification of the theme and selection of the hypothesis or research question for the elaboration of the integrative review; 2) Establishment of inclusion and exclusion criteria for studies/sampling or literature search; 3) Definition of information to be extracted from selected studies/categorization of studies; 4) Evaluation of the studies included in the integrative review; 5) Interpretation of results and, 6) Presentation of the review/synthesis of knowledge.[10,11]

The steps of a narrative literature review or also called traditional are: selection of a review topic; literature search; selection/collection, reading and

analysis of literature; review writing; and references.[12] Review essays can cover a variety of subjects and may include research findings. As it presents a very broad description, generalization is not possible.[8]

The steps of the mapping or systematic map review are: 1) Establishment of a review and *stakeholder* engagement team; definition of scope and issue; definition of inclusion criteria for studies; scope of studies; development; and publication of protocols; 2) Search for evidence; 3) Selection of evidence; 4) Encoding; production of a systematic map database; 5) Critical evaluation (optional); 6) Description and visualization of results; production report; and supporting information.[13] This review allows you to map and categorize existing literature on a specific subject, by identifying gaps in the literature and justifying further reviews and/or primary studies.[3,8]

Meta-analysis is a technique that statistically combines the results of primary studies in order to find a more accurate effect of the results, decreasing the bias and increasing objectivity, robustness and correlations of the results.[8,14] *A Preferred Reporting Items for Systematic reviews and Meta-Analyses* (PRISMA) for Protocols is a 17-item checklist designed to facilitate the preparation and reporting of a robust protocol for systematic review.[14] The latest update of PRISMA's recommendations has 27 checklists, which allows to improve the quality of the report as well as the methodological quality.[15]

Mixed methods review can refer to any combination of methods in which at least one of the components is a literature review (usually systematic). For example, it may include a systematic review accompanied by interviews or a *stakeholder* consultation.[3,8]

An overview review is a generic term describing a review of the medical literature. As such, it can be used for many different types of literature review, with different degrees of systematicity.[8,16]

Qualitative reviews, according to the *Cochrane Collaboration's handbook and the Center for Reviews and Dissemination methodologies*, are gradually gaining more weight.[3,8] They are also part of primary studies, applied in a insightful and uniform way, but not statistically combined. They find their genesis in the deepening of human interaction and individual experiences. Used in research work on attitudes, beliefs, preferences and life experiences.[17]

Rapid review methods were considered by some authors as an undesirable need for evidence-based decisions. This type of review allows for an assessment of what is already known about an issue of policy or practice, using systematic review methods to research and critically assess existing literature.[8,18]

The *scoping* review provides a preliminary assessment of the potential size and extent of available research literature. It is intended to identify the nature and scope of the evidence.[8,19]

The state-of-the-art review focuses on more current issues. This review may offer new perspectives on an issue or highlight an area that needs further investigation.[3,8]

Systematic review is the best known type of review. The systematic search for, evaluating and synthesizing evidence from studies, often adhering to guidelines on conducting a review provided by the *Cochran Collaboration*.[3,8]

Systematic review and research combines the strengths of a critical review with a comprehensive research process. Typically, this type of review addresses broad issues and the result is a synthesis of better evidence.[3,8]

Systematized reviews attempt to include one or more elements of the systematic review process and are not considered a true systematic review. It is usually performed by a graduate student.[8]

The umbrella review (also called coverage review) uses only units of analysis taken from systematic reviews and meta-analysis. It must comply with a peer review protocol and the tools available to assess the research synthesis, which must be explicit, clear and objective.[8,20]

In general, the methods used in a review comprise conducting the review in four stages: Research (search and selection of studies), evaluation, synthesis and analysis.[3,8,21] The main types of literature review and will be presented and analyzed based on these four steps (Table 1).

__Table 1__ - Characterization of the type of literature review.

Review type	Description	Research	Evaluation	Synthesis	Analysis
Critical review	It aims to demonstrate extensive research and critical quality assessment. It allows including the degree of analysis and conceptual innovation. It usually results in a hypothesis or model.	It seeks to identify the most significant items in the field.	Não. Avalia apenas através de contributos.	No. It only evaluates through contributions.	It seeks to identify the conceptual contribution to incorporate existing theory or obtain new theory.
Integrative review	It uses the widest type of research review methods, allowing the inclusion of experimental and non-experimental investigations in order to understand a phenomenon more broadly. Integrative reviews can combine data from theoretical and empirical literature.	Comprehensive search to identify the maximum number of eligible primary sources using two or more strategies.	Reports coded according to quality but it may not be deleted.	Tabular (matrices, charts, graphs or networks) Narrative	Creativity, critical data analysis and data presentation are key to comparing and identifying important patterns and themes.
Literature review	It consists of an analysis of recent or current literature. It can cover a wide range of subjects at various levels of coverage. May include search results.	Possibly comprehensie/ extensive.	Possible.	Narrative.	Chronological, conceptual, thematic, among others.
Mapping/Systematic Map Review	It maps and categorizes existing literature from reviews and/or primary research, identifying gaps in research literature.	The research is done according to the time available.	No.	Graphic. Tabular.	It characterizes the quantity and quality of literature. Can identify the need for primary/secondary research.
Meta-analysis	It statistically combines the results of quantitative studies to provide an accurate effect of the results.	Exhaustive and comprehensive. You can use funnel chart or forest plot.	Yes. What allows you to determine inclusion/ exclusion and/or sensitivity analysis	Graphic. Tabular. Narrative.	Numerical analysis.
Review of mixed studies	It combines methods that include review components (usually systematic). It combines quantitative and qualitative studies or results with process studies.	Sensitive research or separate quantitative and qualitative strategies.	Yes. Generic assessment instruments are used.	Narrative. Tabular. Graphic (to integrate quantitative and qualitative studies).	You can look for correlations between characteristics and use gap analysis to identify aspects missing in the literature.
Generel overview	It tries to search literature and describe its characteristics.	It depends on how systematic your methods are.	It depends on how systematic your methods are.	It depends on how systematic your methods are.	Chronological, conceptual, thematic, among others.
Qualitative systematic review / synthesis of qualitative evidence	It integrates or compares findings from qualitative studies. Search for "themes" or "constructs" in or through individual studies.	Selective or intentional.	It is frequently used to make the include/exclude decision.	Qualitative, narrative synthesis.	Thematic and may include conceptual models.

Rapid Review	It assesses what is already known about policy or practice, uses systematic review methods to research and critically assess existing research.	The research is done according to the time available.	The assessment is made according to the time available.	Narrative. Tabular.	Quantity and overall quality of literature/direction of literature effect.
Scoping Review	Preliminary assessment of the potential scope and breadth of available literature. It aims to identify the nature and extent of evidence from studies (usually including ongoing research).	As it allows time, it may include studies that are ongoing.	No.	Narrative. Tabular.	Quantity and quality of literature (study design and other characteristics). Attempt to specify a viable revision.
State of the art review	It addresses current issues. It can offer a new perspective on the issue or indicate an area for further investigation.	Comprehensive (current literature).	No.	Narrative. Tabular.	Current states of knowledge, priorities for future investigations and their limitations.
Systematic and research review	It combines the strengths of critical review with the comprehensive research process. It addresses broad issues to produce "better synthesis of evidence".	Exhaustive and comprehensive .	Possible.	Narrative. Tabular.	It allows finding what is known and making recommendations for practice.
Systematic review	Attempt to include elements of the systematic review process in the abbreviated systematic review. It is usually done in graduate student work.	It may or may not include a comprehensive search.	It may or may not make the assessment of methodological quality.	It is usually narrative using tables.	What is known? Identify uncertainties around discoveries; limitations of methodologies.
Umbrella Review or Coverage	Review refers to gathering evidence from multiple reviews in an accessible and usable document. The Focus is on a broad condition or issue for which there are competing interventions and highlights comments that address these interventions and their outcomes.	Identification of other revisions. It does not use primary studies.	Quality assessment of included reviews.	Graphic. Tabular and narrative comments.	What is known? Recommendations for practice. What remains unknown? Recommendations for future investigations.

Source: Booth A.[3]; Grant MJ, Booth A.[10]

A "systematic approach" refers to the elements/attributes that a literature review, whether done individually or collectively, has to present so that its methods are considered explicit and reproducible.[3] In this sense, conducting a systematic review involves the work of at least two researchers, who will independently assess the methodological quality of each selected article, based on a research protocol[9] and who will then compare the results obtained, which, if there is no agreement, should proceed to the next step, so that can be re-screened.

Systematic approaches are evidenced both in terms of conduct and in presentation of the literature review, and are summarized in the description of the method. Specifically, these approaches include:

– Systematic approaches to literature search, such as the scoping review and mapping review;

– Systematic approaches to assessing the quality of literature, as in an integrative review;

– Systematic approaches that allow for the synthesis of literature, as can be seen in techniques such as meta-ethnography, realistic synthesis and thematic synthesis; and

– Systematic approaches to analyzing the robustness and validity of review results as in subgroup analysis, either qualitative or quantitative, or in sensitivity analysis.[3]

Table 2 presents the main types of review that exist and the most used in the health field, where their advantages and disadvantages are explained.

Table 2 *- Advantages and Disadvantages of Various Types of Review.*

Type of review	Advantages	Disadvantages
Critical review	It critically evaluates previously produced literature. It allows you to analyze the perspective of competing schools of thought in order to promote conceptual development.	They usually do not demonstrate the systematicity of other more structured approaches in the literature. There is no formal requirement to present search, synthesis and analysis methods explicitly and there is no formal quality assessment. The synthesis is subjective and the resulting product is the starting point of a new investigation.
Integrative review	It is most commonly used for synthesizing results on a topic or issue. It provides broader information about a particular subject or problem. Those who use it can combine data from theoretical and empirical literature and from experimental or quasi-experimental elements.	The heterogeneity of the studies does not allow for comparisons. They use quality assessment, but not as an exclusion criterion.
Literature review	It intends to identify what was done previously, allowing the consolidation, for the construction of works, avoiding duplication and identifying omissions or gaps in the literature produced.	It is not explicitly intended to maximize scope or analyze the data collected. The conclusions may be biased by likely omission, perhaps inadvertently, from significant sections of the literature or by not questioning the validity of their results.
Mapping/Systematic Map Review	It allows the contextualization of in-depth systematic literature reviews within the broader literature and the identification of gaps in the evidence base. They are a valuable tool for providing policymakers, practitioners and researchers with an explicit and transparent means of identifying narrower issues about relevant policy and practice. Systematic maps can characterize studies in other ways, such as in a theoretical perspective, in the population group or in the context in which the studies were carried out.	They are necessarily time-constrained and lack the synthesis and analysis of more systematic approaches. Studies can be characterized at a broad descriptive level and thus oversimplify the picture or mask considerable variation (heterogeneity) between studies and their findings. These do not include a quality assessment process; characterizing studies only based on study design.
Meta-analysis	Small or inconclusive studies, without statistical significance, can, however, contribute to the larger picture. Furthermore, these compilations are time-efficient for decision makers, particularly when compared to the time spent reviewing scattered individual studies.	Combination of studies that are not sufficiently similar. However, this is not a critique of meta-analysis per se, but rather of the inappropriate use of meta-analysis. On the other hand, a meta-analysis cannot be better than your included studies [it is related to the quality of the studies, "garbage goes in, garbage comes out"]
Review of mixed studies	This review allows us to capitalize on the corresponding weaknesses of systematic review and more divergent alternative approaches to theory. It allows a more holistic understanding of a particular intervention or condition is compelling. These reviews also provide a potentially more complete picture of the research landscape in a specific area.	Difficulty in integrating the results of quantitative and qualitative investigations. More significant than these pragmatic decisions are more complex issues in relation to the theoretical and methodological challenges of putting together differently structured studies, addressing different yet related issues, and conducted within different paradigms.
General overview	These can provide a broad and often comprehensive summation of a subject area and, as such, are of value to people coming into contact with a subject for the first time.	This is often used as a non-discriminatory word for reviews of varying rigor and quality. For this reason, Cochrane chose to differentiate between "systematic overview", used as a synonym for "systematic review", from another type of overview that typically lacks both systematic methods and explicit reporting.
Qualitative systematic review / synthesis of qualitative evidence	These reviews can be used: to explore barriers and facilitating factors in service delivery; to explore the users perspective; investigate perceptions about new roles. These types of reviews have considerable strength in complementing research evidence. Qualitative research findings can be more powerful than isolated comments.	Methods for conducting a qualitative systematic review are still in their infancy and there is considerable debate about when specific methods or approaches are appropriate. Such debates focus on the search for a dominant model for the synthesis of qualitative evidence. It is questioned whether this is the classic systematic review method or whether it is more appropriate to adapt and adopt concepts from primary qualitative research (eg grounded theory, theoretical saturation, and intentional sampling).

Rapid review	They are intended to be rigorous and explicit in method and therefore systematic, but make allowances for the length or depth of the process, limiting particular aspects of the systematic review process. This methodology identifies several legitimate techniques that can be used to shorten the time scale. These carefully include the focus of the question, using broader or less sophisticated research strategies, carrying out a review of reviews, restricting the amount of gray literature, extracting only key variables, and carrying out only "simple" quality assessments. The reviewer chooses which steps to limit and then explicitly reports the likely effect of that method.	Reducing the length of the review process runs the risk of introducing bias. This is true for any review process, but this risk is heightened when measures are accelerated or even circumvented. Limiting the time required for research can result in publication bias, limiting evaluation or quality assessment can place a disproportionate emphasis on poorer quality research, while lack of attention to synthesis can ignore inconsistencies or contradictions. Furthermore, inadequate attention to the question being addressed or the quantity and quality of literature that exists on a subject can result in a very accurate answer to the wrong question or an inconclusive answer to a poorly conceived question.
Scoping review	This type of review is able to inform investigators if a full systematic review is needed. This shares several characteristics of systematic review in an attempt to be systematic, transparent and replicable.	These reviews generally cannot be considered as an end point in themselves, mainly because limitations on their rigor and limitations on their duration lead to the potential for bias. These usually do not include a quality assessment process. There is a danger that studies, without quality, will be used as the basis for conclusions. As a result, their findings cannot be used to recommend policies or practices.
State of the art review	These reviews are valued by those new to an area or those seeking to identify potential opportunities for further investigation. Instead of having to read several articles describing specific developments, the reader can get an idea of the quantity and main characteristics of a subject in a single review article.	These methods are limited in time and can distort the overall development picture of a field. For example, if a subject has been extensively covered by research in the past, but has temporarily gone into "remission", its importance may be underrepresented simply because it falls outside the established timeframe. On the other hand, an expert may simply provide a particularly idiosyncratic and personal perspective on current and future priorities.
Systematic and research review	Systematic reviews seek to bring together all the knowledge available on a subject area. In recent years, with the establishment of organizations such as the Campbell Collaboration and the Cochrane Qualitative Methods Group, there has been a notable shift to include a broader range of study designs, incorporating quantitative, qualitative, and mixed methods studies.	Restricting studies for inclusion in a single study design, such as randomized controlled trials, as practiced in the early years of the Cochrane Collaboration, may limit the application of this methodology to providing insights into effectiveness rather than seeking answers to more complex research questions; for example, why is a particular intervention effective?
Systematic review	The author can search just one or more databases and then code and analyze all results systematically. These can be the basis of more extensive work, whether as a dissertation or a fully funded research project.	This review falls short of having the same scope as the systematic review. Quality assessment and synthesis may be less identifiable. This means that these processes are not described, that they are modeled using a small set of eligible articles, or that they are completely absent.
Umbrella Review or Coverage	Synthesis of systematic reviews that can be compared. It only allows the inclusion of reviews with a higher level of evidence. Allows the reader a quick overview (and an exhaustive list) of comments on the decision.	The main weakness of an umbrella review is logistics. For a comprehensive review to be really useful, the more restricted component reviews must pre-exist.

Source: Booth A.[3]; Grant MJ, Booth A.[8]

Considering the 14 review types and methodologies associated with systematic review labels, there are frequent inconsistencies or overlaps between descriptions of nominally different review types. Currently, there is no international consensus on the types of reviews that are serious, coherent and mutually exclusive. The most pragmatic way to identify which of these various types of review is the most appropriate is through the application of the four main processes associated with the development of that review.[3,8]

The Cochrane Collaboration22 recommends that a systematic review be carried out in 8 (eight) steps: Definition of a review question and criteria for including studies; Search for studies; Selection of studies and data collection; Assessment of the risk of bias in the included studies; Data analysis and conducting meta-analyses; Placement of biases in the report; Present results and tables with "results summary", and lastly; Interpretation of results and conclusions.

Other authors[9-10] refer to seven steps:

1. Construction of the research protocol so that the review follows the same accuracy as a primary research. The components of this protocol are: the review question, inclusion criteria, and strategies for seeking research, how research will be critically evaluated, data collection and synthesis. The review planning is carefully prepared and it is recommended that the protocol be evaluated by a competent professional, prior to the start of the review.[9-10] It is recommended to register the protocol on the PROSTERO platform to avoid redundancies (https://www.crd .york.ac.uk/PROSPERO/).

2. Formulation of the question using the acronym PICO,[9] where P corresponds to the person or population (*population*), I is the intervention (*intervention*), C is the comparison or control (*comparison/control*) and O is the outcome or result (*outcomes*). In some specific cases, acromium derived from PICO should be used.[23]

3. Search for studies with the definition of descriptors, search strategies in each of the various electronic databases (MEDLINE, CINAHL, EMBASE, LILACS, *Cochrane Controlled Trials Database*, *SciSearch*, among others).[9-10]

4. Selection and review of studies applying predetermined inclusion and exclusion criteria.[9-10]

5. Critical evaluation of each article; for this purpose the grids must be used. *Joanna Briggs Institute* (JBI) criteria may be used according to the study design: JBI-QARI for the qualitative assessment and review of the instrument and is designed to facilitate critical assessment, data extraction and meta-synthesis of results of qualitative studies; JBI-MAStARI is specific for quantitative studies and is used to perform meta-analysis; JBI-NOTARI allows to evaluate text narratives, opinions and evaluations, facilitating critical evaluation, data extraction and the synthesis of expert opinions in texts and reports; and JBI-ACTUARI which uses in cost analysis, technology and the use of assessment and instrument review, facilitating critical assessment, data extraction and synthesis of economic data.[24] However, as an alternative, one can use the following grids and guidelines to assess the methodological quality of the studies, based on their design: Randomized clinical trials - CONSORT; observational studies - STROBE; Systematic reviews - PRISMA and AMSTAR; case studies - CARE; Qualitative research - SRQR & COREQ; Diagnostic/prognostic studies - STARD&TRIPOD; Quality improvement studies - SQUIRE; Economic evaluations - CHEERS; Clinical guidelines / guidelines - AGREE II. Guidelines for each type of study are accessible on the website - http://www.equator-network.org/.[25]

6. Data collection using instruments that analyze in pairs (two researchers independently) the methodological validity. At this stage, the level of evidence, quality[26] and degree of recommendation[27-28], the applicability of the results, the cost and current practice is determined, in addition, the limits between the benefits and risks of a given intervention are clearly determined.[9- 10]

7. Summary of results/data, where the studies should be grouped based on the homogeneity of the studies. The presentation and synthesis of data must be pre-established in the protocol, as well as the graphical and numerical presentation mode, to facilitate the reader's understanding of the reader.[9-10]

The main criticism that has been made to literature reviews is related to the non-use of clear, formal, explicit and systematic methods, which has harmed their status and usefulness as research.[29]

Regardless of the choice of the type of study to be applied when there is a need to investigate a particular subject or theme, it is essential that these studies are credible. This must reflect accuracy and quality in its conduct. Well-conducted reviews increase the possibility of unbiased results, and of making valid and robust interpretations. This type of writing remains a challenge, but its importance is crucial, enabling all this information produced to have an impact on the provision of nursing care and also on the knowledge that is produced.[30-31]

The characteristics of a high-quality systematic literature review in contrast to low-quality ones (main errors and pitfalls) are presented below.

Table 3 *- Characteristics of a high-quality review and major flaws.*

Merits
– Answerable question; – Does the review improve significantly over existing reviews? – PICOS strategy protocol; – PROSPERO registration; – PRISMA Guidelines, Checklist and Flowchart; – Complete data extraction; – Quantitative synthesis of study data (if it is applicable, meta-analysis); – Ranking of evidence and strength of recommendations (eg SORT, GRADE); and – Explicit statement of the "starting point" of the review.
Failures and pitfalls
– Underestimation of time to complete review; – Do not mention whether the review has been carried out recently; – Question not specific or too broad ("unanswerable"); – Failure to identify explicit inclusion and exclusion criteria for the study; – Revision "transparency" failure; – Do not exclude duplicate study populations in different studies; – Failure to recognize and report heterogeneity of studies;

– Failure to recognize and report study bias; and Make statements in conclusions that go beyond the facts/results of the review.

Source: Harris et al.[32]

Subtitle:
PRISMA - Preferred Reporting Items for Systematic Reviews and Meta-analyses;
PROSPERO - International prospective register of systematic reviews[33]
SORT - Strength of Recommendation Taxonomy[34]
GRADE - Grading of Recommendations Assessment, Development, and Evaluation.[35]
PICOS - Participant(s), intervention(s), comparison(s), outcome(s), and study design.

Managing a literature review is similar to managing any research project. In this sense, it is necessary to identify the skills, mastery of tools and methodologies, as well as the necessary resources (human, database, time, financial, among others).[3,36]

In order for rehabilitation nursing to expand the production of its knowledge and demonstrate health gains sensitive to its care, it is necessary to expand both the strength of the evidence and the degree of recommendation[28] and the quality of the evidence being produced.

Therefore, the source of the scientific evidence must be identified, which preferably should be primary studies, but may also be secondary, but an assessment of the quality must be carried out, in terms of its robustness (validity and reliability) and its relevance to the context location (applicability).[8]

FINALTHOUGHTS

There are several types of systematic review of the scientific literature, all of them with advantages and disadvantages. In this narrative review, 14 types of review were found, all of which can be important to synthesize the knowledge produced.

To help in making the decision for the type of review, it is necessary to balance and consider the investment of resources and energy in new researches if there are others done previously.

A systematic review of the literature has common principles and similar processes, but it can vary like primary studies, both in terms of length, scope and depth, as well as in the types of questions, data and methods used.

These secondary studies, like any other primary study, need proper quality assurance processes to assess them so that the result is representative of reality.

Researchers in general, and rehabilitation nurses in particular, should be aware of the many practical, methodological and policy challenges involved in this type of study and its broader role in the production and use of research findings.

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Satisfação Profissional: Um Estudo Com Enfermeiros Especialistas Em Enfermagem De Reabilitação

Professional Satisfaction: A Study With Rehabilitation Nurses

Satisfacción Profesional: Un Estudio com Enfermeros Especialistas en Enfermería de Rehabilitación

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RESUMO

Este estudo pretendeu analisar a satisfação profissional dos Enfermeiros Especialistas em Enfermagem de Reabilitação (EEER) e também averiguar se o exercício de cuidados de especialidade ou o exercício de cuidados gerais influencia a sua satisfação profissional.

A satisfação profissional foi avaliada através da aplicação da “Escala de Avaliação da Satisfação no Trabalho dos Enfermeiros” a 306 profissionais de Enfermagem, especialistas em Enfermagem de Reabilitação. Foi realizado um estudo transversal analítico.

Como instrumentos de análise estatística dos dados, recorreu-se à análise fatorial, ao coeficiente de correlação de Spearman e ao teste paramétrico t-student para amostras independentes.

Os resultados mostram que os EEER se encontram ligeiramente insatisfeitos.

Verificamos que os EEER que exercem cuidados gerais apresentam-se mais insatisfeitos do que os que exercem cuidados de especialidade.

Palavras chave: satisfação no emprego; estudos de validação; enfermagem de reabilitação

RESUMEN

Este estudio pretendió analizar la satisfacción profesional de los enfermeros especialistas en Enfermería de Rehabilitación y también averiguar si el ejercicio de cuidados de especialidad o el ejercicio de cuidados generales influye en su satisfacción profesional.

La satisfacción profesional fue evaluada a través de la aplicación de la “Escala de Evaluación de la Satisfacción en el trabajo de los Enfermeros” a 306 profesionales de Enfermería, especialistas en Enfermería de Rehabilitación. Se realizó un estudio transverso analítico.

Como instrumentos de análisis estadística de los datos, se recorrió al análisis factorial, al coeficiente de correlación de Spearman y a un teste paramétrico t-student para muestras independientes.

Los resultados muestran que los enfermeros especialistas en Enfermería de Rehabilitación se encuentran ligeramente insatisfechos.

Verificamos que los enfermeros que ejercen cuidados generales se encuentran más insatisfechos que los que trabajan como especialistas.

Palabras clave: satisfacción en el trabajo; estudios de validación; enfermería de rehabilitación

ABSTRACT

This study aimed to analyze the professional satisfaction of rehabilitation nurses (RN), as well as to verify whether the practice of specialized care or the practice of general care influences their professional satisfaction.

The study involved 306 rehabilitation nurses and their professional satisfaction was evaluated through their responses to the “Satisfaction in Nurses’ Work Scale”. We used an analytics transverse methodology.

For statistical evaluation, we used factorial analysis, Spearman’s correlation coefficient and parametric test t-student for independent samples.

Our results show that the rehabilitation nurses are slightly dissatisfied.

We found that Nurses who practice general care are more dissatisfied than those who practice specialty care.

Keywords: job satisfaction; validation studies; rehabilitation nursing.

INTRODUCTION

Due to the importance that work assumes in the human life, it is pertinent to develop studies that help us to understand how it fits and combines satisfaction and work. In this sense, job satisfaction is an important subject of investigation with the aim of contributing to improve the degree of satisfaction of individuals in the work context.

Many studies[1-4] have been developed on the issue of satisfaction in order to identify the factors that influence it, as well as the consequences that result from the individual not being satisfied with their work. It is concluded that the variables involved are numerous. Due to its multidimensional nature, the definition of satisfaction is difficult to put into practice.

Each individual is a unique universe of behaviors, influenced by heredity and the environment, and the way to act depends on the personality and the learning experiences they experience[5].

At first, it was thought it would be possible to build a global job satisfaction index, varying people's affective response along a continuum whose poles vary between little or nothing satisfied and very satisfied. But, by analyzing the aspects that most directly influence satisfaction, it was shown that there were numerous factors influencing satisfaction and that they affected individuals differently. This finding relativizes the value of the global satisfaction index[6].

Job satisfaction is an affective or emotional reaction related to various dimensions of an individual's work. This means that job satisfaction is not a unitary concept. An individual may be relatively satisfied with one aspect of their work and dissatisfied with one or more aspects[7].

Other factors such as:

• Dissatisfaction in one dimension can influence levels of satisfaction in others (for example, dissatisfaction with superiors can lead the worker to some dissatisfaction in carrying out their tasks);

• The backgrounds/causes of each facet of satisfaction are different (for example, satisfaction with the task results from its characteristics, while satisfaction with superiors results from their behavior and the interaction established with them)[8].

Studying satisfaction is very important when referring to professions within the scope of human relations such as nursing, which have undergone major changes in recent years. Its goals and areas of action, in order to meet the needs of users, have constantly changed.

Market demands are increasing and have led companies to compete for public recognition by adhering to quality certification and accreditation schemes that impose and enforce compliance with standardized standards in accordance with laws and codes for consumer and worker protection. In addition to the "rankings" organized according to the quality of products/services or the volume of business, investment in innovation and development, as well as the quality of working conditions measured by the level of satisfaction of workers and customers/users[9].

According to Nogueira[9], the issue of quality and satisfaction with regard to the health sector is linked to the specific characteristics of health care institutions, with their varied nature and dimension, whether public or private.

In the area of health, we have seen rapid and profound changes. In addition to the need to respond to the growing demands of citizens in terms of quality and rights, there are other unavoidable imperatives: the rationalization of resources, competitiveness, the safety of health care, the satisfaction of workers, as well as the satisfaction of users and providers of such care. Also the constant development of specialization of health professionals leads to the need to carry out rigorous controls to ensure that these professionals have sufficient knowledge and skills to provide safe and effective care.

Specialist nurses, due to skills obtained through their specialized training, are, without a doubt, when they're integrated into a nursing team or care provider, the professionals best positioned to supervise this process, all from a perspective of promoting quality and safety of health care.

Excellent care makes the nursing profession more autonomous and credible. This excellence contributes to the appreciation of nursing care, not only by nurses, but also by other technicians and by citizens in general. It is necessary that nurses have a behavior that develops the conceptual structure of the profession and protects citizens' rights towards excellence in nursing and health care[1].

Job satisfaction is also considered one of the indicators of Quality of Life at Work. Well-being and Quality of Life at Work are factors that influence the quality of care[1].

In this context, the question arises whether, at a time of major reforms in the health sector, the Rehabilitation Nurses (RNs) are satisfied in the exercise of their professional activity. The troubled time in which these professionals are living, in which these professionals see a set of rights withdrawn, namely: a freeze on career progression, not enjoying the respective upgrade of step for several years; precariousness of contracts; remunerations lower than the positions held; among many others. In the particular case of specialist nurses, who invested, both in monetary value and in personal time, in their training, to acquire more skills, some professionals find themselves exercising this specialized care without being remunerated according to their function; others remain in the provision of general care, as conditions are not created for them to exercise the skills acquired in their area of expertise.

This study aimed to analyze the professional satisfaction of the RNs, and to verify if the area of care provision influences their professional satisfaction.

The results obtained in this study may contribute to higher levels of professional satisfaction among

specialist nurses. It was also intended to deepen the knowledge about the satisfaction of nurses in different work contexts, in order to allow a systematic reflection on the subject.

METHOD

This is an analytical cross-sectional study.

The population studied was constituted by the RNs who work in Portugal. A random and representative sample was used. Nurses with the professional title of RN were included in this study, and general practitioners and nurses who had not completed the specialty were excluded from the study.

The data collection took place from November 2011 to January 2012. The instrument selected to perform the data collection was the "Nurses' Job Satisfaction Assessment Scale", built and validated by Frederico and Loureiro[10]. The instrument consists of 25 items. In this study, each item was rated from 1 to 5, where 1 indicates "totally disagree" and 5 indicates "totally agree". This scale measures the individual's level of agreement in relation to each statement.

A factor analysis was then carried out in order to explain the dependent variable. The principal component analysis technique was used, and the *Equamax* rotation was used as a rotation method in order to simplify the factorial matrix as much as possible.

Then, in order to statistically analyze the data, descriptive statistics were used first for the components and for the total score. The theoretical mean value for each component was defined as 3, which represents the point of indifference.

Afterwards, advance to the study of the correlation coefficients related to the components and the total score. For this, we used the non-parametric Spearman test.

Finally, to respond to the proposal, was used the parametric t-student test, unilateral, for independent samples in order to understand if the RNs who provide specialty care are more professionally satisfied than the RNs who only provide general care.

All data were entered and the analysis was performed using the statistical analysis program SPSS® v.18.0 (Statistical Package for the Social Sciences).

All ethical procedures were followed.

RESULTS

A total of 306 nurses (n=306) with a specialty in rehabilitation nursing participated in this study, most of them are female (73.20%, n=224). Regarding males, only 26.80% (n=82) of the respondents correspond. With regard to age, 33.99% (n=104) were under 35 years-old, 44.44% (n=136) were in the age group of 35 to 45 years-old and only 21.57% (n= 66) were over 45 years-old. It was found that the percentage of married nurses (68.62%, n=210), with or without registration, is relatively higher than the percentage of single nurses (24.51%, n=75), with a small percentage of divorced/separated nurses (6.54%, n=20) and widowed (0.33%, n=1). With regard to the workplace, it was found that about 68.96% (n=211) work in hospitals, 24.18% (n=74) at the level of Primary Health Care and 6.86% (n=21) elsewhere. In the studied sample, the majority of RNs (84.32%, n=258) exercise specialty care (50.33%, n=154) or general care (33.99%, n=104). The remaining RNs (15.68%, n=48) are in the area of Management (10.45%, n=32) and in Teaching/Research (5.23%, n=16). As for the regional area, it was found that 45.75% (n=140) of nurses work in the North, 41.83% (n=128) in the Center and South and 12.42% (n=38) in the Azores and Madeira. As for the length of professional experience, it was found that 24.52% (n=75) reported working for 10 years or less, 23.20% (n=71) between 10 and 15 years, 27.12% (n =83) between 15 and 20 years and 25.16% (n=77) reported working for more than 20 years. In turn, in relation to length of service, in the current workplace, it is observed that 39.21% (n=120) reported working in their current workplace for 3 or more years, 21.90% (n =67) between 3 and 6 years, 29.41% (n=90) for more than 9 years and only 9.48% (n=29) reported working in the same place between 6 and 9 years. The two most frequent situations, representative of the link to the institution, were as follows: 62.09% (n=190) of nurses have a Contract in Public Functions and 32.36 (n=99) have an Indefinite Contract. The remaining RNs (5.55%, n=17) have a fixed term contract (3.59%, n=11) or another type of contract (1.96%, n=6).

FACTOR ANALYSIS

Regarding reliability, *Cronbach's Alpha* was 0.85. *The Kaiser Meyer Olkin* test defined a value of 0.84, having shown that the data are good for the application of factor analysis[11].

Thus, a factor analysis was carried out in order to identify the structural relationships between the variables that most contribute to the professional satisfaction of the RNs. Six factors were retained, with own value greater than 1 (*Kaiser's* criterion), which explains 58.26% of the total variance11.

After factor rotation, it was possible to identify the variables that most relate to each of the six factors. According to the content of the items of each factor, denominations that characterize were assigned. The extracted factors identify six dimensions of the analyzed scale, which we designate as:

• Factor 1 - Satisfaction with managers - This factor explains 23.99% of the total variance.

• Factor 2 - Satisfaction with benefits and rewards - This factor explains 10.38% of the total variance.

• Factor 3 - Satisfaction with the nature of the work - This factor explains 8.47% of the total variance.

• Factor 4 - Satisfaction with communication - This factor explains 5.81% of the total variance.

• Factor 5 - Satisfaction with the relationship with the team - This factor explains 5.05% of the total variance.

• Factor 6 - Satisfaction with job requirements - This factor explains 4.55% of the total variance.

Table 1 presents the data related to the empirical and theoretical average, standard deviation, maximum and minimum for each component and for the total score. By analyzing the table, it can be stated that the individuals studied have a total score index below the theoretical average, which demonstrates a slight professional dissatisfaction.

The individuals studied considered themselves satisfied with the nature of the work and with the team. They consider themselves dissatisfied with benefits and rewards, job requirements and institutional communication. They consider themselves neither satisfied nor dissatisfied with their superiors, although there is an approximation to satisfaction. The dispersion values reveal a reasonable degree of agreement between the answers.

Table 1 *- Descriptive statistics for component indices and total score (n=306)*

	Empirical Average	Standard deviation	Minimum	Maximum	Theoretical Average	Z Score
Satisfaction with supervisors	3.43	0.78	1.00	5.00	3.00	0.55
Satisfaction with benefits and rewards	2.10	0.57	1.00	4.00	3.00	-1.58
Satisfaction with the nature of work	4.23	0.56	1.67	5.00	3.00	2.20
Satisfaction with institutional communication	2.80	0.77	1.00	5.00	3.00	-0.26
Satisfaction with the team	4.00	0.61	1.00	5.00	3.00	1.64
Satisfaction with job requirements	2.18	0.62	1.00	3.50	3.00	-1.32
Total Score	2.95	0.44	2.00	5.00	3.00	-0.11

The degree of association between job satisfaction and its dimensions was then analyzed using Spearman's non-parametric test (Table 2).

Table 2 *- Spearman correlations between components.*

	Satisfaction with supervisors	Satisfaction with benefits and rewards	Satisfaction with the nature of work	Satisfaction with institutional communication	Satisfaction with the team	Satisfaction with job requirements
Total Score	0,77**	0,70**	0,38**	0,72**	0,37**	0,33**
Satisfaction with supervisors	1,00	0,26**	0,31**	0,45**	0,25**	0,20**
Satisfaction with benefits and rewards		1,00	0,14*	0,43**	0,11*	0,21**
Satisfaction with the nature of work			1,00	0,13*	0,42**	0,09
Satisfaction with institutional communication				1,00	0,18**	0,19**
Satisfaction with the team					1,00	0,04
Satisfaction with job requirements						1,00

Subtitle: **p <0,01; *p <0,05

With regard to the relation between job satisfaction and the dimensions studied, in general, there is a significant association ($p<0.05$) between job satisfaction and all its dimensions. The dimensions that showed a greater degree of association with job satisfaction were: "satisfaction with managers"; "satisfaction with communication" and "satisfaction with benefits and rewards".

When we compare job satisfaction in different areas of care provision, it was found that it differs significantly for the RNs who provide specialty care compared to those who exercise general care. The RNs that provide general care (Mean ± standard deviation = 2.79 ± 0.43) are more professionally dissatisfied than the RN that provide specialty care (Mean ± standard deviation = 2.98 ± 0.41) ($p=0.001$).

DISCUSSION

With regard to the assessment of job satisfaction, in terms of total score, we found that the inquired nurses are slightly dissatisfied. This is a fact that was also pointed out by Santos, Braga and Fernandes[1].

Dissatisfaction factors are primarily related to benefits and rewards, followed by job requirements, and lastly with communication. Fontes[2] and Matos[12] also found that factors related to salaries and promotion systems are aspects in which nurses are more dissatisfied. Silva[13], on the other hand, considered that nurses perceived remuneration as the component of satisfaction that least influenced them.

The nature of the work and the relationship with the team are factors with which they obtain satisfaction. The nature of the work was the most relevant factor. Second, but not least, comes satisfaction with the team. It can then be considered that a good relationship with the work team is a condition to reduce non-satisfaction as much as possible, because nursing is a profession in which human beings take care of other human beings, interacting with each other and each contact has an influence on your satisfaction. In the study by Carvalho[3], satisfaction with colleagues was the dimension that caused the greatest satisfaction in nurses.

Then, there is the dimension satisfaction with the leadership in which there is an approximation to satisfaction.

Simoni[14] found the opposite: nurses were more satisfied with their leadership than with their colleagues. The author associated the fact that competition or the various commitments in the performance of their social roles reduced the availability of time, which contributed to the non-strengthening of relationships between nurses.

Regarding the professional satisfaction of the RNs who exercise specialty care compared to those who exercise general care, it was found that professionals who exercised general care showed significantly lower levels of dissatisfaction compared to those who exercised specialty care.

Regarding the dimensions of satisfaction, in the dimension managers, the inquired nurses who exercised specialty care attributed a significantly higher degree of satisfaction than the inquired nurses who exercised general care. This situation may be due to the fact that it is the Rehabilitation Nurse who replaces the Head Nurse in his absence and for this reason his relationship with the heads is closer.

Regarding the nature of work dimension, nurses who practice the specialty are more satisfied because they identify more with their work. According to Simoni [14], identification with the work developed favors greater satisfaction and may result in a feeling of well-being.

CONCLUSION

Based on the analysis carried out, it is concluded that, in general, the RNs are slightly dissatisfied.

We can say that in terms of professional satisfaction, they are "satisfied" with regard to the dimensions of nature of work and team. They are "neither satisfied nor not satisfied" regarding the dimension of satisfaction with the supervisors. Finally, they are "not satisfied" with the dimensions of benefits and rewards, work requirements and communication.

Regarding the assessment of the degree of overall job satisfaction, it was concluded that the inquired RNS exercise general care are more dissatisfied than those who exercise specialty care (p=0.001).

With regard to the relationship between the different dimensions of professional satisfaction of RNs and professional characteristics, it is concluded that:

- The RNs who exercise specialty care are more satisfied with the *leadership* than the nurses who work in other areas of the exercise of functions (p=0.001);
- The RNs who exercise specialty care are more satisfied with the nature of the work than the RNs who work in other areas of the exercise of functions (p=0.008);
- The RNs who exercise general care are the ones who are most dissatisfied with the communication in relation to nurses in other areas of the exercise of functions (p=0.001);
- The RNs that exercise specialty care are the ones that are most dissatisfied with the work requirements compared to the RNs in other areas of the exercise of functions (p=0.038).

At the end of this work, it is recognized that job satisfaction, in the specific case in nursing, is an indicator of the quality of care provided to the individual and the community, and it is considered that, if the main needs that interfere in the professional and organizational life of the nurses are diagnosed, minimized and/or satisfied, the quality of care provided by them may be influenced, which constitutes the true mission of health institutions.

In this sense, it is necessary that satisfaction is valued and monitored by institutions, providing greater satisfaction to their workers, with the objective of excellence in care, as only with the participation and involvement of everyone, organizations will be able to walk towards success.

In this study, one cannot fail to bear in mind some limitations, from the outset, the limitation imposed by the existing literature that in some aspects it was not possible to compare with other studies.

This study aimed to increase knowledge about professional satisfaction currently experienced by nursing, specifically in the rehabilitation specialty, but it is far from exhausting studies on the subject. We believe that these results are important points to be analyzed and reflected upon, not presenting the end, but the beginning of future research and collaboration in the search for knowledge.

As a proposal for future studies, it is suggested to carry out works that focus on this subject in a qualitative approach, thus giving the opportunity for

participants to express their feelings more freely, without pre-defined categories for analysis of the variables, which in this study is verified as a limiting aspect.

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TIMED UP AND GO TEST NA PESSOA COM ACIDENTE VASCULAR CEREBRAL RESIDENTE NA COMUNIDADE

TIMED UP AND GO TEST EN LA PERSONA CON ACCIDENTE VASCULAR CEREBRAL RESIDENTE EN LA COMUNIDAD

TIMED UP AND GO TEST IN COMMUNITY-DWELLING PEOPLE WITH STROKE

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RESUMO

Introdução: O Acidente Vascular Cerebral é a primeira causa de incapacidade adquirida no adulto, provocando alterações no padrão de marcha normal. A utilização de instrumentos de avaliação, de fácil aplicação, válidos, fiáveis e responsivos é imperativo.

Objetivo: Avaliar as propriedades métricas do Timed Up and go Test na pessoa com Acidente Vascular Cerebral, residente na comunidade.

Método: Revisão Sistemática da Literatura baseada nas recomendações do Joanna Brigs Institute para a estratégia PICo e recomendações PRISMA, partindo-se da questão: *"Quais as propriedades métricas do Timed Up and go test na pessoa com Acidente Vascular Cerebral, residente na comunidade?"*

Resultados: Foram incluídos cinco estudos nesta revisão. Este teste apresenta valores de reprodutibilidade significativos, e de responsividade. A validade de critério e de constructo é demonstrada em dois estudos.

Conclusões: O Timed Up and go Test pode ser considerado como um instrumento fiável, válido e com responsividade, nas pessoas com AVC residentes na comunidade.

Palavras chave: acidente vascular cerebral; psicometria; equilíbrio postural; reprodutibilidade dos resultados; enfermagem em reabilitação

RESUMEN

Introducción: El Accidente Vascular Cerebral es la primera causa de incapacidad adquirida en el adulto, provocando cambios en el patrón de marcha normal. El uso de instrumentos de evaluación, de fácil aplicación, válidos, fiables y responsivos es imperativo.

Objetivo: Evaluar las propiedades métricas del Timed Up and go Test en la persona con Accidente Vascular Cerebral, residente en la comunidad.

Método: Revisión Sistemática de la Literatura basada en las recomendaciones del Joanna Brigs Institute para la estrategia PICo y recomendaciones PRISMA, partiendo de la cuestión: ¿Cuáles son las propiedades métricas del Timed Up and Go Test en la persona con Accidente Vascular Cerebral, residente en la comunidad?

Resultados: Se incluyeron cinco estudios en la revisión. El test presenta valores de reproducibilidad significativos, y de responsividad. La validez de criterio y de constructo se demuestra en dos estudios.

Conclusiones: El Timed Up and Go Test puede considerarse como un instrumento fiable, válido y con responsividad en las personas con AVC residentes en la comunidad.

Palavars clave: accidente vascular cerebral; psicometría; equilibrio postural; reproducibilidad de los resultados; enfermeria en rehabilitación

ABSTRACT

Background: Stroke is the first cause of acquired disability in adults, causing changes in the normal gait pattern. The use of evaluation tools that are easy to apply, valid, reliable and responsive is imperative.

Objective: To evaluate the metric properties of the Timed Up and go Test in community-dwelling people with stroke.

Method: Systematic Review of Literature based on the recommended actions of the Joanna Brigs Institute for the PICo strategy and PRISMA recommendations, starting with the question: "What are the metric properties of the Timed Up and Go test in community-dwelling people with stroke?"

Results: Five studies were included in this review. This test presents significant reproducibility values and responsiveness. Criterion and construct validity is demonstrated in two studies.

Conclusions: The Timed Up and go Test can be considered as a reliable, valid instrument with responsiveness in community-dwelling people with stroke.

Keywords: stroke; psychometry; postural balance; reproducibility of results; nursing in rehabilitation

INTRODUCTION

The World Health Organization (2015) defined cerebrovascular accident (CVA) as a focal (or sometimes global) neurological impairment, of sudden occurrence and lasting more than 24 hours (or causing death) and of probable vascular origin.[1] Stroke has a high prevalence worldwide.[2] As the population ages, the incidence of this pathology increases. Inevitably, when approaching the subject, aging is referred to as an increase in the risk of stroke associated with age. [1,3] About 60 to 70% of strokes occur in people over 65, making it a major problem for our society.[3]

It is the first cause of acquired incapacity in the adult, leaving physical, mental and social sequelae as a rule, particularly restricting the person's functionality. It is characterized by a total or partial loss of motor function on one side of the body, and according to the WHO International Classification of Functioning, Disability and Health,[4] the functions of gait and balance in a person with stroke are compromised, limiting the performance of Activities of Daily Living.

Gait symmetry and some spatiotemporal parameters are affected, causing deficit in motor resources, with direct repercussions on gait.[5] There is a partial loss of muscle strength, with a shift in the center of gravity, change in the base of support and transfer of weight to the healthy side. The performance of any motor activity implies the integrity of the postural center. Difficulty in transferring weight to the affected side interferes with postural control, causing loss of stability and preventing guidance in performing movements.[6]

The impossibility or difficulty in performing a walk is considered to be one of the most disabling and frustrating problems for a person in post-stroke. More than half of people do not walk independently in the acute phase after stroke; furthermore, such dependence is based on 25% of people after 3 months.[7] Gait recovery is one of the main goals of rehabilitation, in order to promote autonomy and increase the person's quality of life.[2] The Rehabilitation nurse has a fundamental role in the process of adaptation to the person's new condition of life, in the application of actions that improve and limit the impact of disability, thus contributing to the maintenance and recovery of quality of life. [8] For this, rehabilitation nurse has technical, relational and educational competences that allow training, the promotion of autonomy, in order to reduce the impact of stroke in the life of the person and family.[9]

Gait instability, in line with postural changes and neuromuscular disorders caused by stroke are often the cause of falls. [10] People who have had a stroke may have an incidence of falls greater than 73% in the first six months.[12] Currently, there are balance and gait assessment instruments that allow the assessment of these two functions. Assessment tools are useful in defining the objective, documenting needs, and demonstrating the operations performed. [13] In people with stroke, an assessment of postural control and the risk of falls is highly provided, thus, in this context,

the evaluation protocols evaluated usually include the Timed Up and Go. [14] This is a test of balance, related to the level of functional mobility. It is a quick and simple assessment tool allowing to assess the risk of falling in a person.[3] This test requires that participants get up from a chair, walk 3 meters, return to the chair and sit down again. The time taken to complete the test is recorded in seconds using a stopwatch. The participant can walk with a cane or other walking aid. [13] The knowledge of psychometric properties is essential in order to verify whether the test has validity and reliability, so as not to compromise the results obtained. In this sense, it is intended to evaluate the psychometric properties of the Timed up and Go Test, to ensure that the results obtained after its application are not biased. The aim of this study is to identify the metric properties of the Timed and Go Test in community-dwelling people after stroke.

MATERIAL AND METHODS

Systematic Literature Reviews (SLR) allows the identification, selection and critical evaluation of a set of studies in order to extract the best scientific evidence to answer a research question. The main purpose of SLR is to gather all the empirical evidence through the application of systematic and explicit methods, in order to reduce biases, in order to obtain more reliable results, and thus draw more adequate conclusions. [14]

A systematic literature review was carried out, as it is a careful process, which allows the identification, evaluation and interpretation of all available and relevant research, in order to answer a question that arises in the context of clinical practice. The fundamental elements of a systematic review consist of 8 steps: research question, problem definition, systematic review objectives; inclusion and exclusion criteria; search strategy; selection procedure; data extraction procedure; and procedure for assessing the methodological quality of selected studies.[15]

A systematic quality review should contain the formulation of one and only one starting question, being it sufficiently understandable and specific.[14] To formulate the research question, the recommendations of the Joanna Briggs Institute[16] were considered based on the PICo strategy (Population, Interests area, context). Each dimension of the PICo contributed to the definition of the inclusion criteria: P- Population: Adult person with stroke; I- area of interest: the psychometric properties of the Timed Up and Go Test; Co - Context: resident in the community.

Having resulted in the research question: “What are the metric properties of the Timed Up and go test in the person with stroke, living in the community?”.

The descriptors related to each of the components of the PICo strategy were identified, Stroke; Psychometrics; validity of test, Reproducibility of results, Postural Balance, previously validated in the Descriptors in Health Sciences and Medical Subject Headings platform. The following keywords were also used: Timed up and go test and community resident. The electronic search was carried out during the month of October 2016 using the EBSCOHost® platform (CINAHL®, Nursing & Allied Health Collection, British Nursing Index, Cochrane Collection, MEDLINE®), Virtual Health Library (BVS) and Academic Google. Subsequently, the descriptors with the following research strategy were inserted into these databases: (Table 1)

Table 1 *- Research strategy*

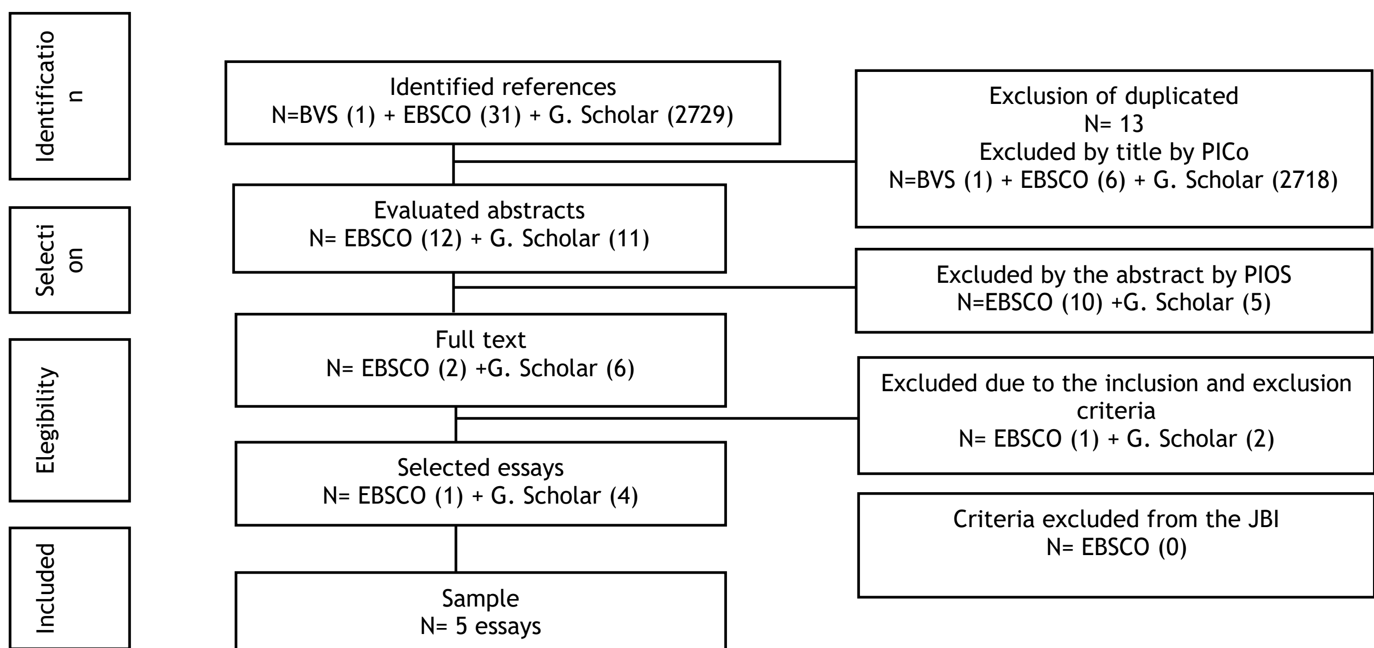
(Timed and Go Test) AND (Stroke)
(Timed and go Test) AND (Stroke) AND (Community)
(Stroke) AND (Timed up and Go Test) AND (Community) AND (Rehabilitation)
(Stroke) AND (Timed up and Go Test) AND (Psychometrics)
(Stroke) AND (Timed up and Go Test) and (Reproducibility of results)
(Stroke) AND (Timed up and Go Test) AND (Postural Balance) AND (Reproducibility of results)
(Stroke) AND (Timed up and Go Test) AND (Psychometrics) AND (Reproducibility of results) AND (Postural Balance) AND (Rehabilitation)
(Stroke) AND (Timed up and Go Test) AND (Psychometrics) AND (Reproducibility of results) AND (Postural Balance)

In a systematic quality review, the inclusion and exclusion criteria must be defined rigorously, transparently, in order to guide the research and select the scientific literature, so that all relevant studies can be included and the irrelevant ones excluded, in order to increase the accuracy of the results against the identified issue.[14] The following inclusion criteria were considered: Adult person with stroke, Evaluate at least one psychometric parameter, Quantitative Study, with publication date between 2011 and 2016, in Portuguese/English/Spanish/French, and article available in full and free access. As exclusion criteria, articles that present less than 75% of the JBI quality criteria were defined, that is, the Joanna Briggs Institute 2011 grid. Articles of systematic literature review were also defined as exclusion criteria.

After identifying the research question, the inclusion and exclusion criteria and the research strategy, the study selection procedure was defined in order to filter the studies. The exact definition of this procedure reduces bias and possible errors, making it possible to select all articles in the same way, and ensure the validity and veracity of the results.[14] The selection process involved, in a first phase, the independent analysis of the researchers, the titles and abstracts of the articles, taking into account the criteria defined in advance. The entire study selection process was recorded in a selection grid by two investigators. Subsequently, the results of the selection of investigators were compared and in case of divergences, another investigator was used.

The researchers then proceeded to select the articles independently, based on the previously defined inclusion and exclusion criteria. Quantitative studies were only selected for presenting a higher level of evidence and for responding more satisfactorily to the purpose of this review. Each investigator assessed the methodological quality of the studies based on the JBI classification for descriptive studies.

Figure 1 *- Identification, analysis and selection of scientific papers.*[17]



The information contained in the essays was systematized in a table, which allowed a better interpretation of the results obtained in each study. The levels of evidence from the studies contained in the articles were classified according to the criteria of the Registered Nurses Association of Ontario.[18]

RESULTS

The five essays that make up the sample were published in the following years, one in 2011,[23] two in 2013[19,21] and two in 2014,[20,22] with the countries of origin being Brazil,[19, 23] United States of America (USA),[21] Sweden[22] and Australia.[20] All studies included (Table 2) are descriptive studies, with level of evidence III.[18]

***Tabela 2**: Principais Resultados e conclusões dos cinco artigos*

AUTHORS, YEAR, COUNTRY AND POPULATION	RESULTS			CONCLUSIONS
	Reproducibility	Validity	Responsiveness	
Faria C., Teixeira-Salmela L., Nadeau S., 2013, Brazil, n= 44[19]	--	Discriminant and predictive validity at lens and moderate speed in stroke and healthy people	--	*Valid*
Vernon S., Paterson K, Bower K, McGinley J, Miller K, Pua Y-H et al. 2014, Australia, n=30[20]	Test-retest Intraclass correlation coefficient (ICC) >0.90	Validity Competitor between TUG and Kinect-TUG Predictive validity of TUG on Age and stride length	*Effect Size* (sensibility to changing)	*Valid, reliable and responsive*
Murphy K, Lowe S. 2013; USA, n=15[21]	Test-retest Pearson correlation coefficient r=0.77 and after training 0.86	--	--	*Reliable*
Persson C. Danielsson A., Sunnerhagen K, Grimby-Ekman A. and Hansson P-O, 2014, Sweden n=91[22]	--	--	Linear regression model IC =95%, p<0.001	*Responsive*
Faria C, Teixeira-Salmela L, Gomes Neto M, Rodrigues-de-Paula F. 2011, Brazil, n= 16[23]	Intra-observer (0.75<ICC<0.96) and inter-observer (0.91<ICC<0.96) reliability.	--	--	*Reliable*

Reproducibility

The US study [21] assesses the inter-observer reproducibility between a nurse and a physical therapist, with the aim of demonstrating the importance of training professionals in the application of an instrument such as the TUG. Initially, the TUG was applied without professional training, with the inter-observer reliability being 0.77, and after training, it increased to 0.86 (p=0.001).

One of the studies from Brazil[23] addresses intra- and inter-observer reliability, with the application of TUG being performed by experienced physiotherapists at different times. Significant values of intra-observer (0.75<ICC<0.96) and inter-observer (0.91<ICC<0.96) reliability were obtained.

In the study in Australia,[20] through the retest test, reliability was demonstrated in most of the Kinect-TUG variables, with ICC> 0.90.

Validity

Regarding the discriminant validity, one of the studies in Brazil[19] assesses the difference between the TUG means of a group of healthy individuals and a group with stroke in the community. Through ANOVA, the researchers verified that there were differences in the TUG means in the healthy group and in the stroke group. Each group was divided into 3 subgroups: Fast, Moderate and Slow, depending on the TUG results (according to quartiles). For both stroke groups (F=26.21; p<0.013) versus Healthy (F=32.73; p<0.006), there were significantly different results between the various subgroups. The ANOVA analysis of variance also revealed a significant interaction between groups and subgroups, since the differences in measurements between groups depended on the values obtained by the subgroups. However, in the Fast subgroup, TUG cannot discriminate the stroke group from the Healthy group, since the performance is similar.

Also in this study [19] the predictive validity or accuracy was evaluated. According to the analysis, 86.4% of the individuals were well classified, in relation to the association predictions made from the results obtained by the TUG. But there was an exception in the CVA Rapids subgroup, as it has very identical values to the Healthy Rapids subgroup.

Regarding concurrent validity, the study from Australia,[20] indicates excellent validity values

between the total time of the TUG and all the Kinect-TUG variables, with the exception of the trunk flexion angle (p=-0.23, P> 0.05) , and the step length (p=0.70, P<0.001). The total time of the TUG was considered a significant predictor, when associated with step length and age, in the evaluations of the 10-meter walk test (10 MWT) and Step Test. There was a 7% (P<0.01), and 6% (P=0.03) improvement, respectively, in the performance of the regression model.

Responsiveness

One study,[22] carried out in Sweden, investigated responsiveness by evaluating TUG in 91 people during the first year after the first stroke in the community (at week 1, at 3 months, at 6 months and at 12 months). A non-parametric statistic (median and 25th and 75th percentile) and the linear regression model were used, leading to the conclusion that the TUG is a responsive test during the first three months after stroke, given that there was a reduction in the mean time by 5 .3 seconds (95% CI, p<0.001). In the assessments carried out at intervals between 3-6 months and 6-12 months after stroke, the mean time did not have a statistically significant change. All changes verified from one assessment to another are only always detected in the youngest.

In the study from Australia,[20] the TUG was evaluated using a motion sensor camera (Kinect), which allows to provide useful information about the performance of independent components of motion. The Kinect – TUG association provides information on sensitivity to change (responsiveness). The Effet Size observed in the study was compared with the respective minimum detected results of 0.17m/s for walking speed and 1.7 steps for the Step Test.

DISCUSSION

The TUG is one of the most used mobility assessment instruments nationally and internationally, covers most basic activities and is practical and quick to apply.[25] Knowledge of the metric properties of an instrument allows for a more objective reading of results, avoiding interpretation errors, thus reducing a subjective appreciation of the quality of results obtained in research and clinical practice.[26-27] Systematic literature reviews on the Metric properties of the instruments applied in practice allow to verify the scientific evidence and confirm that the instrument is valid, reliable and responsive.

The results of this systematic review show that the TUG version in Brazil[23] and Australia,[20] according to Sousa et al.,[27] has excellent levels of reliability, ICC> 0.90. Only the Australian version assesses the intra-observer reliability (Test-Retest) and is excellent.[24, 27]

The inter-observer reliability is evaluated in the Brazilian[23] and US[21] versions, while the US version presents weak to very weak reliability values (0.77 <r <0.86). Intra-observer reliability is assessed only in the Brazilian version,[23] proving to be excellent (0.75 <ICC <0.96).[26]

The discriminative validity is only mentioned in the Brazilian version,[19] where it was concluded that the TUG is able to discriminate intra-groups, but not inter-groups. In a study comparing people with and without hemiparesis also found no differences, however the differences were found when comparing people with and without fear of falling.[28] In a study of people after stroke, they concluded that 69.8% of people had fear of falling as measured by the Fall Efficacy Scale-International,[29] and as fear of falling affects performance on the TUG[28] programs that improve balance are recommended and gait parameters in people with stroke as well as fear of falling.[30-31]

Criterion validity was addressed in Brazil[19] and Australia[20] versions, where the predictive value of TUG is confirmed. In the Brazilian version[19], the TUG allowed grouping individuals according to time, while in the study from Australia,[20] the predictive validity is addressed by associating the TUG with other variables. There was a correlation between the total time of the TUG and all the Kinect-TUG variables in the Australia version, with the exception of trunk flexion, according to Sousa et al.[27] and the step length considered good (p=0, 70) [26]. Both studies have adequate criterion validity (accuracy).[26] Sensitivity to TUG change was addressed in the study from Sweden[22] and Australia.[20] In the Swedish study,[22] the TUG makes it possible to detect changes from one assessment to another, although not always significant, only the younger ones always change, but not in the older ones. This study used different statistical methods, one used non-parametric statistics and the other linear regression, not allowing comparisons and determining whether there is strong evidence about the response to change. The results of this study cannot be extrapolated to people with recurrent stroke, as people were only selected after the first stroke. In the Australian version,[20] the Effect Size was addressed, but it does not present significant statistical values that allow us to know the responsiveness to the TUG change.

Some selected studies [19,21,23] in this systematic review have small samples, being referred to as a limitation by the studies themselves. According to Sousa et al.,[24] a sample with n <100 is considered poor.

Another limitation mentioned by the studies is the need to introduce other variables in future studies, such as speed, muscle strength, balance, extensor muscle strength, trunk flexion,[19-20] in order to improve the predictive value of TUG.

Two studies[19,21] refer to the need for further investigations, taking into account the limitations found, in a practical way to increase the level of evidence. With regard to the practical implications, it is recommended that professionals receive adequate training in the application of the instrument, in order to guarantee the reliability of the results obtained. It is still necessary to better understand the discriminating characteristics of people with stroke, with better performance in TUG compared to healthy people.

In summary, the TUG test-retest values and the inter-observer evaluation showed that this instrument is reliable and reproducible. It has validity and is sensitive to short-term changes after stroke. The

heterogeneity of the included studies makes it difficult to draw precise conclusions regarding the psychometric properties of TUG.

Practical implications

TUG is a recommended test to predict the risk of falling.[19, 28] People with stroke who have poor TUG performance level, with longer times since stroke onset and right hemisphere injury are at higher risk of fall and the TUG cutoff points for predicting fall vary by cerebral hemisphere, meaning, 13 seconds for the right hemisphere and 28 seconds for the left hemisphere.[32]

TUG can be used to predict performance on motor tasks and the bearing point is 13.49 seconds.[33]

CONCLUSION

Only five studies that studied the metric properties of the TUG in people with stroke in the community were included; however we can conclude that the TUG is a reliable intraobserver and interobserver instrument, valid and with some limitation in the responsiveness to change (responsiveness).

It is recommended that more studies be carried out in order to verify the sensitivity to change of this test in the person after a stroke.

Although the population samples are small, it allows us to verify that this assessment is transversal to different cultures; however, it will be important to carry out the TUG adapted to the Portuguese reality, taking into account the specific characteristics of this population.

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