millenium

Journal of Education, Technologies, and Health

6

Série | Serie 2 • Ano | Year 3

março•march | abril•april
maio•may | junho•june 2018

en | pt

Diretor • Director
Madalena Cunha

Período temporal de publicação | Time period of publication
Série • Serie 1 - 1996/2016 | ano • year 1-21
Série • Serie 2 - 2016/2018 | ano • year 1-3

Acesso livre e gratuito • Free access

ISSNe (versão electrónica•electronic version)1647-662X
Prefixo DOI CrosRef: https://doi.org/10.29352/mill0206

doi Crossref Content Registration
Repositório Instituto Politécnico de Viseu
Dialnet
latindex
DOAJ DIRECTORY OF OPEN ACCESS JOURNALS

millenium
Journal of Education, Technologies, and Health

Ficha Técnica | Technical Sheet | Ficha Técnica

Propriedade | Property | Propiedad

Instituto Politécnico de Viseu (IPV)
NIPC – 680033548
Centro de Estudos em Educação, Tecnologias e Saúde
Unidade de I&D do Instituto Politécnico de Viseu

Sede do Proprietário/Editor/Redator/Impressor | Owner´s Headquarters/Publisher/Writer/Printer | Sede del Proprietario/Editor/Redactor/Impresor

Av. Cor. José Maria Vale de Andrade
Campus Politécnico
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http://www.ipv.pt/millenium/ (Revista Millenium)
http://www.ipv.pt/ci (Centro de Estudos em Educação, Tecnologias e Saúde (CI&DETS) - Unidade de I&D do Instituto Politécnico de Viseu)

Diretor | Director | Director

Madalena Cunha

Ficha Catalográfica | Catalogue File | Ficha Catalográfica

Revista Millenium. / prop. Instituto Politécnico de Viseu, 1996 - 2016

Título da Revista | Journal title |Título de la Revista: Millenium- Revista do Instituto Politécnico de Viseu (IPV)
Título da Revista abreviado | Abbreviated title of the Journal | Título de la Revista abreviado: Rev. Mill
Sigla da Revista | Acronym of the Journal |Sigla de la Revista: Mill
Depósito Legal Nº | Legal Deposit |Depósito Legal: 973 71/96
Número de Registo ERC | ERC Registration Number | Número de Registo ERC: "Anotada"
Estatuto Editorial | Editorial Status | Estatuto Editorial: Estatuto Editorial da Revista Millenium *(http://revistas.rcaap.pt/millenium/pages/view/estatuto)*

ISSNe (versão eletrónica) 1647-662X
Prefixo DOI CrossRef: *https://doi.org/10.29352/mill0206*

Acesso livre e gratuito para autores, revisores e leitores | Free access to authors, rewiers and readers | Acceso libre el autor, revisores e lectores

Periodicidade | Publication Frequency | Periodicidad
Quadrimestral, sendo editada em fevereiro, junho e outubro | Quarterly released in February, June and October | Cuatrimestral, siendo editada em febrero, junio y octubre

Período temporal da publicação | Temporal period of publication | Período de tiempo de publicación
Série 1 - 1996 - 2016 | ano 1 - 21
Série 2 - 2016 - 2018 | ano 0 - 2

Indexação | Indexation | Indexación

- Repositório Científico do Instituto Politécnico de Viseu - http://repositorio.ipv.pt/
- DIALNET – http://dialnet.unirioja.es/
- Latindex – Sistema Regional de Información en Línea para Revistas Científicas de América Latina, el Caribe, España y Portugal http://www.latindex.unam.mx/index.html
- DOAJ - Directory of Open Access Journals – http://www.doaj.org/

Avaliada por Qualis/CAPES | Qualis/CAPES Assessment | Evaluado por Qualis/CAPES

ÁREAS DE AVALIAÇÃO EVALUATION AREAS ÁREAS DE EVALUACIÓN	2012 CLASSIFICAÇÃO CLASSIFICATION CLASIFICACIÓN	2013 CLASSIFICAÇÃO CLASSIFICATION CLASIFICACIÓN	2014 CLASSIFICAÇÃO CLASSIFICATION CLASIFICACIÓN	2013-2016 CLASSIFICAÇÃO CLASSIFICATION CLASIFICACIÓN ISSN 0873-3015	 ISSN 1647-662X
Educação **Education** **Educación**	B2			C	C
Filosofia/Tecnologia: Subcomissão de Filosofia **Philosophy/Theology: Philosophy Subcommittee** **Filosofia/Teología: Filosofía subcomité**	B5				
Interdisciplinar **Interdisciplinary** **Interdisciplinaria**	B2	B3		B3	B3
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Editorial | Editorial | Editorial

O conhecimento científico constitui um dos pilares que suportam as inúmeras atividades técnicas e profissionais. Deste modo, a revista Millenium pretende dar continuidade à difusão deste conhecimento, bem como a sua discussão crítica, proporcionando a aproximação da ciência e da tecnologia, de uma vertente mais académica, das atividades empresariais/ industriais e das comunidades.

Nesta edição, a revista Millenium proporciona a possibilidade de aprofundamento de vários assuntos científicos e técnicos no domínio da educação e desenvolvimento social, das ciências da vida e saúde, das engenharias, tecnologia, gestão e turismo.

Na área das Ciências da Vida e da Saúde, o artigo "Complicações da fluidoterapia em pacientes com pancreatite aguda: uma contribuição" explora a relação entre a administração de fluidos nas primeiras 48h e o desenvolvimento de complicações locais ou sistémicas. No segundo artigo desta secção, "Cultura de segurança do doente: estudo de alguns fatores intervenientes" analisa-se a perceção dos enfermeiros sobre a comunicação como determinante da qualidade e segurança dos cuidados de saúde. Esta secção integra ainda mais dois manuscritos, "Inventário Habilidades do Cuidador: estrutura fatorial numa amostra de participantes Portugueses" e "Controlo da pressão arterial em mulheres idosas medicadas: benefícios do Programa de Exercício Físico Funcional", os quais têm como objetivos: a avaliação as propriedades psicométricas, nomeadamente a estrutura fatorial e a consistência interna, bem como a classificação das habilidades autopercecionadas pelos cuidadores informais; avaliar o efeito da implementação de um programa de treino funcional sobre a pressão arterial em repouso em mulheres idosas hipertensas submetidas ao treino de exercício físico durante um período de 24 meses, respetivamente.

Na secção de Educação e Desenvolvimento Social, através da leitura e análise de três publicações: "A tragédia dos vencedores nas Tróades de Séneca", "Articulação curricular entre a educação pré-escolar e o 1.º Ciclo do ensino básico: conceções e práticas", e "Influência da expectativa de futuro sobre a qualidade de vida de cadetes do exército Português", existe a possibilidade de aprofundamento dos conhecimentos dos nossos leitores a diversos níveis. No primeiro artigo pode apreciar-se a importância da literatura clássica na formação de leitores críticos, debruçando-se nas dificuldades dos vencedores que se evidenciam nas Tróades de Séneca; no segundo, ao nível da importância, significado e iniciativas no âmbito da articulação curricular e, por último, no terceiro trabalho é apresentada uma avaliação da expectativa que o cadete da Academia Militar Portuguesa tem sobre o seu futuro, a sua saúde e qualidade de vida.

Finalizando, na secção das Engenharias, Tecnologia, Gestão e Turismo, são apresentados dois artigos, "Indústria 4.0: um desafio competitivo" e "Mulheres Solo travellers: Motivações e experiências". O primeiro é uma revisão aprofundada da literatura sobre a análise técnica dos requisitos da Indústria 4.0, nomeadamente os principais riscos e desafios associados à IoT e as medidas de atratividade regional como fatores de crescimento que devem ser implementadas para atrair empresas. O segundo artigo é um trabalho conceptual, onde se categorizam as motivações de mulheres solo travelers com base na revisão da literatura, pretendendo-se identificar o porquê das mulheres escolherem viajar sozinhas, explorando-se a relação entre as motivações e as suas experiências de viagem.

Após a leitura desta edição da revista Millenium esperamos ter contribuído para um maior aprofundamento do conhecimento nas várias áreas científicas, proporcionado uma oportunidade de desenvolvimento e atualização profissional.

A Equipa Editorial
Madalena Cunha, José Luís Abrantes, Maria João Amante, Paula Correia, Paula Santos

Editor Convidado
Cláudia Seabra

Scientific knowledge is one of the pillars that support several technical and professional activities. That way, the Millenium Journal intends to continue the dissemination of this knowledge, as well as its critical discussion, providing a closer relationship between science and technology, from a more academic perspective, to business/ industrial activities and communities.

In this edition, the Millenium Journal offers the possibility of deepening various scientific and technical subjects in the field of education and social development, life sciences and health, engineering, technology, management and tourism.

In Life Sciences and Health area, the article "Complications of fluidotherapy in patients with acute pancreatitis: a contribution" explores the relationship between fluid administration in the first 48 hours and the development of local or systemic complications. In the second article of this section, "Patient safety culture: study of some intervening factors", the nurses' perception about communication as determinant of the quality and safety of health care is analyzed. This section still integrates another two manuscripts, "Caregiver skills inventory: factorial structure in a sample of Portuguese participants" and "Benefits of a physical functional exercise program for blood pressure control in elderly medicated women", which have the following objectives: the evaluation of the psychometric properties, namely the factorial structure and the internal consistency, as well as the classification of skills self-perceived by informal caregivers; to evaluate the effect of the implementation of a functional training program on resting blood pressure in hypertensive elderly women submitted to physical exercise training during a period of 24 months, respectively.

In the section on Education and Social Development, through the reading and analysis of three publications: "The winners' drama in Seneca's Troades", "Curricular articulation between early childhood education and primary school: conceptions and practices" and "The influence of the future expectation on quality of life of cadets of Portuguese army", there is the possibility of deepening the knowledge of our readers at different levels. In the first article we can appreciate the importance of classical literature in the formation of critical readers, focusing on the difficulties of the winners that are evident in the Seneca's Troades; in the second, at the level of importance, meaning and initiatives within the scope of curricular articulation, and finally, in the third work is presented an evaluation of the expectation that the cadet of the Portuguese Military Academy has about its future, its health and quality of life.

Finally, in the section on Engineering, Technology, Management and Tourism, two articles are presented, "Industry 4.0: a challenge of competition" and "Women Solo Travellers: Motivations and Experiences". The first is an in-depth review of the literature on the technical analysis of Industry 4.0 requirements, namely the main risks and challenges associated with IoT and measures of regional attractiveness as growth factors that must be implemented to attract enterprises. The second article is a conceptual work, which categorizes the motivations of women solo travelers based on literature review, aiming to identify why women choose to travel alone, exploring the relationship between motivations and their travel experiences.

After reading this edition of Millenium Journal we hope to have contributed to a deeper knowledge in the several scientific areas, providing an opportunity for professional development and updating.

The Editorial Board
Madalena Cunha, José Luís Abrantes, Maria João Amante, Paula Correia, Paula Santos

Guest Editor
Cláudia Seabra

El conocimiento científico constituye uno de los pilares que soportan las innumerables actividades técnicas y profesionales. De este modo, la revista Millenium pretende dar continuidad a la difusión de este conocimiento y su discusión crítica, proporcionando la proximidad de la ciencia y de la tecnología, de un punto de vista más académico, de las actividades empresariales/industriales y de las comunidades.

En esta edición, la revista Millenium proporciona la posibilidad de profundización de varios asuntos científicos y técnicos en el dominio de la educación y desarrollo social, de las ciencias de la vida y salud, de las ingenierías, tecnología, gestión y turismo.

En el área de las Ciencias de la Vida y de la Salud, el artículo "Complicaciones de la fluidoterapia en pacientes con pancreatitis aguda: una aportación" explora la relación entre la administración de fluidos en las primeras 48 h y el desarrollo de complicaciones locales o sistémicas. En el segundo artículo de esta sección, "Cultura de seguridad del enfermo: estudio de algunos factores intervinientes", se analiza la percepción de los enfermeros sobre la comunicación como determinante de la calidad y seguridad de los cuidados de salud. Esta sección incluye también dos textos más, "Inventario Habilidades del Cuidador: estructura factorial en una muestra de participantes portugueses" y "Control de la presión arterial en mujeres ancianas medicadas: beneficios del Programa de Ejercicio Físico Funcional", los cuales tienen como objetivos: la evaluación de las propiedades psicométricas, concretamente la estructura factorial y la consistencia interna, así como la clasificación de las habilidades autocaptadas por los cuidadores informales; evaluar el efecto de la implementación de un programa de entrenamiento funcional sobre la presión arterial en reposo en mujeres ancianas hipertensas sometidas al entrenamiento de ejercicio físico durante un periodo de 24 meses, respectivamente.

En la sección de Educación y Desarrollo Social, a través de la lectura y análisis de tres publicaciones –"La tragedia de los vencedores en las Troyanas de Séneca", "Articulación curricular entre la educación preescolar y el primer ciclo de enseñanza básica: concepciones y prácticas" e "Influencia de la expectativa de futuro sobre la calidad de vida de cadetes del ejército portugués" -, existe la posibilidad de profundización de los conocimientos de nuestros lectores a diversos niveles. En el primer artículo se puede estimar la importancia de la literatura clásica en la formación de lectores críticos, concentrándose en las dificultades de los vencedores que se destacan en las Troyanas de Séneca; en el segundo, sobre la importancia, significado e iniciativas en el ámbito de la articulación curricular; y, por último, en el tercer trabajo, se presenta una evaluación de la expectativa que el cadete de la Academia Militar Portuguesa tiene sobre su futuro, su salud y su calidad de vida.

Finalizando, en la sección de las Ingenierías, Tecnología, Gestión y Turismo se presentan dos artículos: "Industria 4.0: un desafío competitivo" y "Mujeres solo travelers: motivaciones y experiencias". El primero es una revisión profundizada de la literatura sobre el análisis técnico de los requisitos de la Industria 4.0, sobre todo los principales riesgos y desafíos asociados a IoT y las medidas de atractividad regional como factores de crecimiento que deben ser implementadas para atraer empresas. El segundo artículo es un trabajo conceptual donde se categorizan las motivaciones de las mujeres solo travelers con base en la revisión de la literatura y que pretende identificar porque las mujeres eligen viajar solas, explorándose la relación entre las motivaciones y sus experiencias de viaje.

Después de la lectura de esta edición de la revista Millenium, esperamos haber aportado una mayor profundización del conocimiento en las varias áreas científicas, proporcionando una oportunidad de desarrollo y actualización profesional.

El Equipo Editorial
Madalena Cunha, José Luís Abrantes, Maria João Amante, Paula Correia, Paula Santos

Editor Invitado
Cláudia Seabra

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CONTROLO DA PRESSÃO ARTERIAL EM MULHERES IDOSAS MEDICADAS: BENEFÍCIOS DO PROGRAMA DE EXERCÍCIO FÍSICO FUNCIONAL

BLOOD PRESSURE CONTROL IN ELDERLY MEDICATED WOMEN: BENEFITS OF A PHYSICAL FUNCTIONAL EXERCISE PROGRAMME

CONTROL DE LA PRESIÓN ARTERIAL EN LAS MUJERES DE EDAD AVANZADA MEDICADAS: BENEFICIOS DEL PROGRAMA DE EJERCICIO FÍSICO FUNCIONAL

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RECEIVED: 23th March, 2018
ACCEPTED: 08th May, 2018

Sales, A. & Cunha, M. (2018). Blood pressure control in elderly medicated women: Benefits of a physical functional exercise programme. *Millenium*, 2(6), 13-22.
DOI: https://doi.org/10.29352/mill0206.01.00178

RESUMO

Introdução: A atividade física é recomendada para a prevenção e tratamento da hipertensão. A abordagem da intervenção promotora da atividade física funcional em um grupo de idosas hipertensas, deve ser caracterizada por uma intervenção holística face à pessoa. Esta consiste em considerar a pessoa na sua integridade física, psíquica e social.
Objetivo: Avaliar o efeito da implementação de um programa de treino funcional sobre a pressão arterial em repouso em mulheres idosas hipertensas, submetidas ao treino de exercício físico durante um período de 24 meses.
Métodos: Pesquisa exploratória, com orientação analítico-descritiva com a finalidade de analisar a ação da atividade física direcionada e implementada três vezes por semana no prognóstico da hipertensão arterial. Esta pesquisa foi suportada na recolha de dados da pressão arterial em repouso numa amostra de 60 idosas brasileiras na faixa etária de 60 a 90 anos da comunidade do Vergel do Lago, Maceió/AL, Brasil.
Resultados: A maioria das idosas é hipertensa (80%), constatando-se que durante o período de treino apresentaram pressão arterial sistólica e diastólica muito abaixo do padrão da normalidade para essa faixa etária.
Conclusões: Após a intervenção do *Projeto Prevenção de Saúde Estádio Vivo*, as idosas apresentaram redução e melhor controle dos valores da sua pressão arterial. Considera-se assim, que o treino físico ao exercer um efeito fisiológico específico ao nível muscular e cárdio-circulatório é protetor do estado de saúde pelo que deve ser incentivado ao longo de todo o ciclo vital. Infere-se também que o Programa implementado pode ser replicado como medida de educação terapêutica, de avaliação e de auditoria de boas práticas em saúde.

Palavras Chave: Idoso; Atividade física; Hipertensão; Envelhecimento.

ABSTRACT

Introduction: Physical activity is recommended for the prevention and treatment of hypertension. The approach of promoting functional physical activity in a group of hypertensive elderly women should be characterized by a holistic intervention on the person. This consists in considering the whole person in terms of their physical, psychic and social selves.
Objective: To evaluate the effect of implement a functional training programme on resting blood pressure in hypertensive elderly women, submitted to exercise training over a period of 24 months.
Methods: Exploratory research, with descriptive-analytical orientation to analyse the action of directed physical activity, implemented three times a week on the prognosis of arterial hypertension. This research was supported by the blood pressure data collection at rest in a sample of 60 Brazilian elderly women in the age group of 60 to 90 years, in the community of Vergel do Lago, Maceió / AL, Brazil.
Results: The majority (80%) was elderly and hypertensive, having noticed that during the training period they had a systolic and diastolic blood pressure well below the normal standard for this age group.
Conclusions: After the intervention of the *Vivo Stadium Health Prevention Project*, the elderly women showed a reduction and better control of blood pressure values. The results suggest that in inducing a specific physiological effect exerted at the muscle and cardio-circulatory level, physical training protects the state of health, indicating that it should be encouraged throughout the lifecycle. It can also be inferred that the programme implemented can be replicated as a measure of therapeutic education, assessment and audit of good health practices.

Keywords: Elderly Person; Physical Activity; Hypertension; Aging.

RESUMEN

Introducción: La actividad física es recomendada para la prevención y tratamiento de la hipertensión. El abordaje de la intervención promotora de la actividad física funcional en un grupo de ancianos hipertensos, debe ser caracterizada por un enfoque holístico de la persona. Esta consiste en considerar a la persona en su integridad física, psíquica y social.
Objetivo: Evaluar el efecto de la implementación de un programa de entrenamiento funcional sobre la presión arterial en reposo en mujeres ancianas hipertensas, sometidas al entrenamiento de ejercicio físico durante un período de 24 meses.
Métodos: Investigación exploratoria, con orientación analítico-descriptiva con la finalidad de analizar la acción de la actividad física dirigida e implementada tres veces por semana en el pronóstico de la hipertensión arterial. Esta investigación fue apoyada en la recogida de datos de la presión arterial en reposo en una muestra de 60 ancianas brasileñas en el grupo de edad de 60 a 90 años, de la comunidad del Vergel del Lago, Maceió / AL, Brasil, en condiciones de excelente motivación por parte del grupo.

Resultados: La mayoría de las ancianas era hipertensa (80%), constatando que durante el período de entrenamiento presentaron presión arterial sistólica y diastólica muy por debajo del patrón de la normalidad para ese grupo de edad.
Conclusiones: Después de la intervención del *Proyecto Prevención de Salud Estadio* Vivo las ancianas presentaron reducción y mejor control de los valores de su presión arterial. Se considera así que el entrenamiento físico al ejercer un efecto fisiológico específico al nivel muscular y cardio-circulatorio es protector del estado de salud por lo que debe ser incentivado a lo largo de todo el ciclo vital. Se infiere también que el Programa implementado puede ser replicado como medida de educación terapéutica, de evaluación y de auditoría de buenas prácticas en salud.

Palabras Clave: Ancianos; Actividad física; hipertensión; Envejecimiento.

INTRODUCTION

High blood pressure (HBP) or hypertension (HTN) is a disease which affects almost 25% of the world's population. It affects mainly adults with a low percentage of them revealing proper control of this clinical parameter. This requires a close attention to blood pressure levels as a way to prevent all cardiovascular diseases. HBP diagnosis is defined as the persistent increase, in different measurements and on different occasions, in systolic blood pressure (SBP) equal to or greater than 140 mmHg and/or in diastolic blood pressure (DBP) equal to or greater than 90 mmHg. (Direção Geral da Saúde, Portugal, 2013). This condition can be classified into three major categories or levels: class 1 corresponds to mild high blood pressure, class 2 to moderate high blood pressure and class 3 to severe high blood (Direção Geral da Saúde, Portugal, 2013). It is an asymptomatic disease for which morbidity and mortality are manifest by degeneration of blood vessels, the myocardium, glomeruli and retinal disease. These lesions are caused by chronically high pressure exerted on the blood vessels which predispose the patient to clinically relevant cardiovascular events encephalic vascular accident, severe myocardial infarction, peripheral vascular insufficiency, more severe retinal injuries such as exudates, bleeding and swelling of the optic disc(Silva, Martins, Carlos, Silva & Veloso, 2012).

Although a knowledgeable reader in the area of health may be considered to understand the differentiated use of the terms arterial pressure and hypertension according to the focus of the research and the contexts of the analysis of the study, we would like to clarify them thusly: – blood pressure is the "pressure of the blood in the arteries. It is commonly measured in the upper arm with a sphygmomanometer, representing the arterial pressure in the brachial artery" (DeCS, 2018); – hypertension is "persistently high systemic blood pressure. Based on various measurements (blood pressure determination), hypertension is currently defined as having systolic pressure repeatedly over 140 mm/Hg or s diastolic pressure of 90 mm/Hg or higher. Synonyms – High Arterial Pressure; High Blood Pressure" (DeCS, 2018).

Blood pressure (BP) varies according to daily activities and there are many variability factors: room temperature, time of day or year, meals, physical activity, posture, smoking habits, emotions and above all stemming from repeated lifestyle errors. Among these, we highlight the regular practice of a physical activity, as a non-pharmacological means capable of reducing blood pressure significantly. The exercise to be undertaken should comprise cyclical movements such as walking, running, swimming, or dancing. However, hypertensives should avoid intense efforts such as lifting weights or moving heavy furniture, which can sometimes increase blood pressure (Carrageta, 2006).

With this problem in mind, healthcare workers should understand that high blood pressure is a public health concern that has to be controlled without exception in the general population, in order to substantially modify populations' health indicators.

Several risk factors such as age, race, obesity, smoking habits, diabetes mellitus and dyslipidaemia, and a sedentary lifestyle are directly associated with high blood pressure. (Radovanovic, Santos, Carvalho, Marcon, 2014)

Through the *European Society of Hypertension e da European Society of Cardiology* (2013) recommendations, Perk, De Backer, Gohlke, Graham, Reiner, Verschuren, Albus, Benlian, Boysen, Cifkova, Deaton, Ebrahim, Fisher, Germano, Hobbs, Hoes, Karadeniz, Mezzani, Prescott, Ryden, Scherer, Syvänne, Scholte op Reimer, Vrints, Wood, Zamorano & Zannad, (2012) stress that the primary aim of treatin hypertensive patients is to reach a long-term maximum reduction in morbidity and mortality rates. Therefore, although HBP is often treated on its own, it is urgent to identify and treat all the reversible risk factors like smoking, dyslipidaemia and diabetes. Taking into account all the evidence that indicates that HBP represents one of the most relevant risk factors in the aetiology of cerebrovascular and cardiovascular diseases and is a major cause of cardiovascular morbidity and mortality, prevention and proper treatment are key factors in the therapeutic attitude towards this (Direção Geral da Saúde, Portugal, 2013).

The *American Heart Association & American Stroke Association* (2014, p. 4) stresses that the focus on prevention should

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DOI: https://doi.org/10.29352/mill0206.01.00178

be centred on three major actions: *checking, changing* and *controlling.*
With the aging process comes physiological and functional changes that are part of this phase of human life and that make elderly people more vulnerable to chronic diseases, including high blood pressure. Besides age, excess weight is clearly a factor that affects the normal functioning of the circulatory system, allowing HBP to develop, increasing the risk of cardiovascular diseases and diabetes (Malta, Scala & Fuchs, 2017).
A sedentary lifestyle also increases the risk of HBP appearance. That is why physical exercise is a condition that brings great benefits to people's heart and circulatory system and helps control blood pressure. Lifestyle is also an important factor in everyone's lives, but mainly on elderly people's lives: the consequences of a lifestyle that follows risk behaviours is a huge concern since HBP complications tend to increase with age (Malta, Scala & Fuchs, 2017). The authors also report that obese people, with a BMI (Body Mass Index) >30, are up to 6 times more likely to have HBP when compared to people with a BMI <25. The sedentary lifestyle also increases the risk of the onset of hypertension. Therefore, practicing physical activity is a condition that results in great benefits to the heart and the circulatory system in general, helping to control blood pressure. Lifestyle is also an important factor in the specific case of the elderly. The consequences of a lifestyle based on risk behaviours is a major concern because the complications of hypertension tend to increase with age (Malta, Scala & Fuchs, 2017).
Hypertensive patients' medicinal therapy must be based on pharmacological studies, on the one hand, and on each person's individual profile, on the other. Healthcare workers must then act as mediators who have to conjugate pharmacological and non-pharmacological interventions. Non-pharmacological interventions are important to control risk factors since they is associated with changes in lifestyles and are a way to prevent or stop the evolution of high blood pressure. In this context, non-pharmacological treatments are an essential part of treating patients with HBP. The protective effect of the functional physical activity, in addition to reducing BP, is associated with reducing cardiovascular risk factors and with decreased morbidity and mortality. This justifies the idea that physical exercise should be recommended to help achieve primary prevention and to treat HBP (Nogueira, Santos Mont´Alverne, Martins & Magalhães, 2012). According to these authors, functional physical activity has been considered as one of the main therapeutic strategies in patients with HBP. Its synergetic effect associated with the pharmacological treatment and with changes in eating and behavioural habits is an added value that has to be developed and implemented in a dynamic way in conjunction with the different chronological stages of human development.
HBP is currently a risk factor prevalent in different populations and, consequently, this nosological entity *lacks early* and proper differential diagnosis and ongoing monitoring. So, it is very important that patients do not interrupt the triple therapy (pharmacological treatment, physical activity and eating habits) since this interruption is likely to cause a worsening of their clinical situation, although HBP may evolve in a benign manner in a significant number of cases and may be controlled with medication.
With this in mind, the aim of this study is to confirm if the practice of functional physical activity, performed three times a week, consisting of 40 minute walks, helps to reduce resting BP in elderly hypertensive women who are being medically controlled.

1. METHODS

The objective of this exploratory descriptive study was to analyse the influence of directed physical activity carried out three times a week on diagnosis of HBP. This research was backed by the BP data collected at rest from a sample elderly Brazilian women aged between 60 and 90. The 60 elderly women were arranged into three age groups: 60-70, 71-80 and 81 years or older, with the majority aged 60-70 years (65.0%).
The main aim was to check the effects the functional practice of the exercise of walking on resting BP in elderly hypertensive women who were being medically controlled and who were between 60 and 90 years old. The women's BP was being controlled with anti-hypertensive medication, during a 24-month period. The patients were part of a functional exercise practice group. Our specific aim was to assess resting BP at the beginning of the physical activity and 2 years after the practice of physical exercise had begun, as well as to evaluate the elderly women's health profile.

Participants
The "*Prevenção de Saúde Estádio Vivo*" Project was carried out at the "*Estádio Rei Pelé*" in the Maceió municipality, in Brazil, and involved the population from the Vergel do Lago quarter and its surroundings, an area which has seen considerable growth in recent years as a consequence of building of new housing estates. Nevertheless, new shacks have continued to appear giving rise to new "favelas" or slums. This situation led to the development of public policies to promote health by preventing diseases and developing strategies that would improve quality of life and have a social

impact on the lives of people living in extreme poverty.

Intervention/Research/Programme/Measurement Protocol

Criteria for inclusion and exclusion: Age equal to or greater than 60 years; medical diagnosis of hypertension; undergoing medical treatment with prescribed medication; not having a history of another chronic disease.

The two-year (24 months) intervention programme included assessments every 6 months.

Physical exercise consisted of walking in the park three times a week for forty minutes with a break every twelve (12) uninterrupted minutes.

The hypertensive elderly women accepted the physical assessment of their physiological and cardiorespiratory functions with a maximum VO^2 test 12 minutes after walking in order to test their aerobic resistance. In this study only blood pressure is reported.

Socio-demographic data and the assessed health parameters were collected using an ad hoc form created for this purpose.

Blood Pressure Reference Values

The BP values were classified according to Norm No. 2/DGCG of 31/03/04 as proposed by the World Health Organization (WHO) in 2003) (see Table 1).

Table 1. Classification of the Blood Pressure.

The recommendations of Portuguese Norm No. 2/DGCG of 31/03/04, backed by the classification suggested by WHO (2003), which defines the following cut-off points:			
Classification	**Systolic BP**		**Diastolic BP**
Hypotension	≤119	and	≤79
Normal	120-129	and	80-84
High	130-139	or	85-89
Hypertension level I	140-159	or	90-99
Hypertension level II	≥ 160	or	≥ 100

Statistical and ethical-legal procedures

In the data analysis, descriptive statistics were used for the sociodemographic characterization and health parameters and the Friedman test was used for the inferential analysis in paired samples.

The choice to use this type of test was due to the fact that the variable in question did not present a normal distribution.

The development of the study followed the ethical-legal requirements of respect for self-determination and autonomy of the subjects, so that the elderly women's participation in this study was voluntary as they took part in the training programme after being informed regarding the project, they signed the consent form freely.

2. FINDINGS

During the two-year period, the group continued to take the same medication as before the study. The only change introduced was their physical activity (walking).

Table 2 shows the medication taken by each elderly woman and their respective blood pressure values in the four assessments, showing decreased BP values. In the four evaluations, the maximum value was 170/110 observed in the first (1st) evaluation, and the minimum value was 100/50 measured in the fourth (4th) and final evaluation (cf. Table 2).

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DOI: https://doi.org/10.29352/mill0206.01.00178

Table 2. Frequency of elderly women's BP level.

Participants	Medication	1st BP April 2012 121/140 – 90 mmhg	2nd BP Oct.2012 12/80 mmhg	3rd BP April 2013 12/80mmhg	4th BP Oct. 2013 110/60 mmhg
1	Atenolol 25 mg	140/90 mmhg	12/80 mmhg	12/80 mmhg	11/60 mmhg
2	Captopril 50 mg	140/80mmhg	11/70mmhg	12/80	100/50
3	Captopril 25 + 25	160/90mmhg	130/80mmhg	130/70	110/70
4	Aradois 50	170/90mmhg	140/80mmhg	110/70	120/80
5	Pressat 25 mg	160/80	130/70	120/80	110/70
6	Losartana 50	150/80	130/80	130/70	120/70
7	Clorotiazida	150/70	140/80	120/80	120/80
8	Clorotiazida	170/80	150/80	140/80	120/90
9	Adalat 25	115/70	120/80	115/75	136/85
10	Clorotiazida 50	155/80	145/85	130/80	120/80
11	Clorotiazida 25	160/95	150/80	140/80	130/80
12	Adalat 25	150/90	150/80	130/80	120/80
13	Clorotiazida 50	140/80	130/80	120/80	120/75
14	Adalat 50	140/80	120/80	130/80	110/60
15	Aradois 50	140/10	130/90	120/90	120/80
16	Abloc 50	140/90	120/75	120/70	110/65
17	Atenoresi 50	150/10	120/80	110/70	120/70
18	Captopril 25	140/10	130/70	120/70	110/60
19	Adalat 25	130/90	120/80	110/60	100/60
20	Clorotiazida 50	135/10	120/75	110/60	110/60
21	Atenol 25	140/90	120/80	110/70	110/70
22	Atenol 50	160/80	140/80	130/90	110/80
23	Losartana 50	150/70	130/80	130/90	110/80
24	Aradois 25	150/90	120/80	120/70	110/70
25	Abloc 25	170/11	140/80	120/80	120/80
26	Aradois 50	150/10	140/80	130/90	120/80
27	Clorotiazida 50	140/90	130/80	130/80	110/70
28	Adalat 25	130/80	120/80	120/80	110/60
29	Losartana 25	170/80	120/70	120/70	110/70
30	Aradois 50	160/75	130/70	110/70	110/60
31	Losartana 25	170/80	120/70	130/70	110/70
32	Aradois 25	140/100	130/70	110/60	110/60
33	Anenoto 25	140/90	130/80	120/80	120/80
34	Abloc 50	170/11	140/80	120/80	120/70
35	Atenol 25	130/80	120/80	110/60	120/70
36	Pressat 25	140/50	120/80	120/80	120/80
37	Clorotiazida 25	140/80	130/85	120/80	115/60
38	Losartana 25	160/80	140/90	110/70	110/60
39	Aradois 50	140/90	130/80	120/70	110/60
40	Clorotiazida 25	130/90	120/70	110/70	110/60
41	Aradois	150/10	130/80	130/70	120/70
42	Losartana	140/80	130/80	113/70	120/70
43	Aradois	130/70	120/80	120/70	110/60
44	Adalat	130/70	120/80	110/70	120/60
45	Losartana	140/70	115/90	120/70	110/60
46	Captopril	160/80	130/70	120/80	120/80
47	Captopril	150/80	130/80	130/70	110/70
48	Pressat	150/70	130/80	130/90	110/80
49	Adalat	160/75	130/70	110/70	110/60
50	Aradois	140/100	130/70	110/60	110/60
51	Clorotiazida	130/80	120/80	110/60	120/70
52	Clorotiazida	115/70	120/80	115/75	136/85
53	Captropil	140/100	130/70	110/60	110/60
54	Captropil	150/80	130/80	130/70	120/80
55	Losartana	150/70	140/80	120/80	120/80
56	Losartana	130/70	120/80	110/70	120/60
57	Adalat	140/90	120/80	120/80	110/60
58	Pressat	130/80	120/80	110/60	120/70
59	Pressat	150/80	130/80	130/70	110/70
60	Captopril	160/80	130/70	120/80	120/80

The participants showed a rather significant reduction in their systolic and diastolic BP during the resting period that happened between the days on which they performed their physical activity (Table 3). They felt motivated to interrupt the use of their respective medications; however, no resolution from the medical clinic was obtained, making evaluation of such a possibility impossible to carry out in th is study. Nevertheless, it was possible to diagnose the significant reduction in resting BP through the practice of physical activity.

The statistics of the mean systolic BP values reveal that, during the first assessment, those were significantly higher and that they went on decreasing during the next three assessments and reached their lowest value during the fourth assessment. As far as the mean values of the diastolic BP are concerned, we saw that, on the first evaluation, those values were significantly higher than in the other three evaluations where a decrease can be observed. The values recorded during the fourth evaluation were the lowest. We confirmed that there are statistically significant differences between the moments in which assessment was performed regarding both the systolic BP and the diastolic BP ($p<0.05$) (cf. Table 3).

Table 3. Statistics regarding mean systolic and diastolic BP values.

BP	n	Min	Max	M	DP	$Sk/_{error}$	$K/_{error}$	CV (%)	Kolmogorov-Smirnov	p
Systolic BP										
1st Evaluation	60	115	170	146.00	13.366	0.17	-0.53	9.15	.190	0.004
2nd Evaluation		110	150	128.33	9.098	2.01	-0.72	7.08	.227	0.000
3rd Evaluation		110	140	120.05	8.335	1.25	6.94	-1.09	.219	0.000
4th Evaluation		100	136	115.12	7.018	2.23	2.02	6.09	.284	0.000
Diastolic BP										
1st Evaluation	60	50	110	84.08	11.553	0.05	0.47	13.74	.221	0.001
2nd Evaluation		70	90	78.33	5.098	-0.88	-0.71	6.50	.378	0.000
3rd Evaluation		60	90	74.00	8.224	0.15	10.42	11.11	.220	0.000
4th Evaluation		50	90	70.00	9.206	0.27	-1.78	13.15	.211	0.000

The prevalence of women who show Level I Hypertension in the first evaluation was 45%, followed by those who had Level II Hypertension (40.0%). In the second evaluation, we could see that the highest percentage was women with normal high blood pressure (38.3%), followed by those who showed normal blood pressure (36.7%). Level I Hypertension cases (23.3%) decreased considerably and there was no evidence of patients with Level II high blood pressure. This decrease in BP values is even more evident in the third and fourth evaluations: in the third, the percentage of women with hypotension increased (33.3%) and the percentage of patients with normal blood pressure (36.7%) should be stressed. In the fourth evaluation, the percentage of participants with hypotension increased (48.3%), as well as for those who showed normal blood pressure (46.7%). There was no evidence of Level I or Level II Hypertension. Thus, we witnessed we found hypertension had been controlled (see table 4).

Table 4. Classification of the BP values in each evaluation moment.

Blood Pressure The recommendations of "Portuguese Norm No. 2/DGCG of 31/03/04 which defines the following cut-off points were adopted:					**1st Evaluation**		**2nd Evaluation**		**3rd Evaluation**		**4th Evaluation**	
	Systolic BP		**Diastolic BP**	**Classification**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
BP	**≤119**	and	**≤79**	Hypotension	2	3.3	1	1.7	20	33.3	29	48.3
	120-129	And	80-84	Normal	-	-	22	36.7	22	36.7	28	46.7
	130-139	Or	85-89	Normal high	7	11.7	23	38.3	11	18.3	3	5.0
	140-159	Or	90-99	Level 1Hypertension	27	45.0	14	23.3	7	11.7	-	-
	≥ 160	Or	≥ 100	Level 2 Hypertension	24	40.0	-	-	-	-	-	-
				Total	**60**	**100.00**	**60**	**100.00**	**60**	**100.00**	**60**	**100.00**

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Analysis of the Friedman test for the blood pressure values according to the evaluation moment show that there are statistically significant differences. We may conclude that in the first evaluation the systolic BP values were significantly higher and that they were lower in the fourth evaluation (Table 5).

Table 5. Friedman test results for BP values according to the moment of the evaluation.

BP	Evaluation	*n*	Mean *x*	Std. Deviation *DP*	Friedman Test Mean Rank	Chi-Square	df	p
Systolic Blood Pressure	1st systolic BP evaluation 1	60	146.00	13.366	3.91	136.877	3	0.000
	2nd systolic BP evaluation 2	60	128.33	9.098	2.74			
	3rd systolic BP evaluation 3	60	120.05	8.335	1.90			
	4th systolic BP evaluation 4	60	115.12	7.018	1.45			
Diastolic Blood Pressure	1st diastolic BP evaluation 1	60	84.08	11.553	3.23	57.253	3	0.000
	2nd diastolic BP evaluation 2	60	78.33	5.098	2.81			
	3rd diastolic BP evaluation 3	60	74.00	8.224	2.22			
	4th diastolic BP evaluation 4	60	70.00	9.206	1.24			

3. DISCUSSION

The results of this study show that, with the implementation of the programme, there was in general a decrease in the BP values. The elderly participants showed a quite significant reduction in their systolic and diastolic BP during a resting period between the days in which they had to follow their physical training. The fourth evaluation showed a dramatic reduction in systolic and diastolic BP values. These results are in line with those found by Nogueira et al. (2012 where changes in systolic and diastolic BP values were compared among the groups of elderly patients with HBP, who were part of a physical activity programme. A statistically significant decrease in all of the variables was obtained. Thus, the results suggest that functional physical activity is an efficient tool in the treatment of hypertensive elderly people. Those authors mention that cardiovascular endurance training benefits the presence or absence of beta-blockers and a marked improvement in the endothelial function. However, they caution that the training heart rate of people with HBP who use beta-blockers is about 20% lower than those who do not use them.

Similarly, based on their study, Medina et al. (2010), have observed that aerobic training reduces hypertensive patients' clinical systolic/diastolic BP by about 7/5 mmHg. From this perspective, the authors recommend the practice of at least 30 minutes of moderate physical activity five days week, if possible, for HPB prevention. For hypertensive people to achieve a more specific benefit, these authors recommend mild or moderate intensity aerobic training, which can be performed through different activities, at least three times a week, for 30-minute periods (Medina et al. 2010).

Bearing the results in mind, the functional physical activity intervention programme led to positive results when it comes to reducing BP. From this perspective, Silva, Clinton, Appleton & Flanagan (2011) mention that self-management education programmes help people become aware that they are their own caregivers and that health workers are consultants that will support them in that function. Based on the assumption that managing hypertension requires the participation of patients, it is essential to monitor its impact, especially on psychosocial and behavioural functions (Ferreira, 2012a,b).

CONCLUSIONS

We may conclude that, after the intervention, the participants show lower BP and greater control over it, and we may infer that the exercise programme can be replicated as a measure of therapeutic education and of assessing and auditing good health habits. Physical activity can thus be considered to exercise a specific physiological effect at the muscular and cardio circulatory levels improving overall health. It should therefore be encouraged throughout the entire lifecycle.

It is also necessary to make efforts to evaluate people's perspectives on health gains and quality of life obtained from the treatments. The strategies of preventive intervention for the occurrence of hypertension include salutogenic public policies combined with structured actions in the scientific/academic communities as well as in civil society and the media, promoting increasing health literacy and positive lifestyles to the average citizen.

Substantial empirical evidence points to the links between hypertension and the repeated occurrence of lifestyle errors, such as a sedentary lifestyle, poor eating habits, excessive consumption of salt, smoking, among others. Therefore, the focus should be on stimulating healthy behaviours, early diagnosis, and continuous treatment with the goal of achieving controlling BP by changing lifestyles addition to regular use of medication when necessary.

The results suggest that we should continue to conduct research to monitor the strength of the relationship between those variables. It is necessary to support an approach centred on the person with hypertension and through co-responsible self-management produce greater gains in health translated into fewer lives lost prematurely, fewer expenses with procedures/interventions that integrate the services provided by health systems among other benefits.

ACKNOWLEDGMENTS

This work is financed by national funds through FCT - Fundação para a Ciência e Tecnologia, I.P., under the UID/Multi/04016/2016 project. Furthermore, we would like to thank the Instituto Politécnico de Viseu and CI&DETS for their support.

The authors also wish to thank the students of the 29th CLE at ESSV-IPV.

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CONTROLO DA PRESSÃO ARTERIAL EM MULHERES IDOSAS MEDICADAS: BENEFÍCIOS DO PROGRAMA DE EXERCÍCIO FÍSICO FUNCIONAL

BLOOD PRESSURE CONTROL IN ELDERLY MEDICATED WOMEN: BENEFITS OF A PHYSICAL FUNCTIONAL EXERCISE PROGRAMME

CONTROL DE LA PRESIÓN ARTERIAL EN LAS MUJERES DE EDAD AVANZADA MEDICADAS: BENEFICIOS DEL PROGRAMA DE EJERCICIO FÍSICO FUNCIONAL

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RECEBIDO: 23 de março de 2018
ACEITE: 08 de maio de 2018

Sales, A. & Cunha, M. (2018). Controlo da pressão arterial em mulheres idosas medicadas: Benefícios do programa de exercício físico funcional. *Millenium*, 2(6), 13-22.
DOI: https://doi.org/10.29352/mill0206.01.00178

RESUMO

Introdução: A atividade física é recomendada para a prevenção e tratamento da hipertensão. A abordagem da intervenção promotora da atividade física funcional em um grupo de idosas hipertensas, deve ser caracterizada por uma intervenção holística face à pessoa. Esta consiste em considerar a pessoa na sua integridade física, psíquica e social.
Objetivo: Avaliar o efeito da implementação de um programa de treino funcional sobre a pressão arterial em repouso em mulheres idosas hipertensas, submetidas ao treino de exercício físico durante um período de 24 meses.
Métodos: Pesquisa exploratória, com orientação analítico-descritiva com a finalidade de analisar a ação da atividade física direcionada e implementada três vezes por semana no prognóstico da hipertensão arterial. Esta pesquisa foi suportada na recolha de dados da pressão arterial em repouso numa amostra de 60 idosas brasileiras na faixa etária de 60 a 90 anos da comunidade do Vergel do Lago, Maceió/AL, Brasil.
Resultados: A maioria das idosas é hipertensa (80%), constatando-se que durante o período de treino apresentaram pressão arterial sistólica e diastólica muito abaixo do padrão da normalidade para essa faixa etária.
Conclusões: Após a intervenção do *Projeto Prevenção de Saúde Estádio Vivo*, as idosas apresentaram redução e melhor controle dos valores da sua pressão arterial. Considera-se assim, que o treino físico ao exercer um efeito fisiológico específico ao nível muscular e cárdio-circulatório é protetor do estado de saúde pelo que deve ser incentivado ao longo de todo o ciclo vital. Infere-se também que o Programa implementado pode ser replicado como medida de educação terapêutica, de avaliação e de auditoria de boas práticas em saúde.

Palavras Chave: Idoso; Atividade física; Hipertensão; Envelhecimento.

ABSTRACT

Introduction: Physical activity is recommended for the prevention and treatment of hypertension. The approach of promoting functional physical activity in a group of hypertensive elderly should be characterized by a holistic intervention of the person. This consists in considering the person in their physical, psychic and social integrity.
Objective: To evaluate the effect of the implementation of a functional training program on resting blood pressure in hypertensive elderly women, submitted to exercise training over a period of 24 months.
Methods: Exploratory research, with descriptive-analytical orientation to analyze the action of directed physical activity and implemented three times a week in the prognosis of arterial hypertension. This research was supported in the blood pressure data collection at rest in a sample of 60 Brazilian elderly in the age group of 60 to 90 years, in the community of Vergel do Lago, Maceió / AL, Brazil.
Results: The majority (80%) was lderly hypertensive, having noticed that during the training period had systolic and diastolic blood pressure well below the normal standard for this age group.
Conclusions: After the intervention of the *Health Prevention Project Vivo Stadium*, the elderly have shown reduction and better control of blood pressure values. The results suggest that physical training induces a specific physiological effect exerted by the muscle and cardiocirculatory level which is assumed is assumed a health protector indicating that it should be encouraged throughout the life cycle. It infers also that the implemented *Program* can be replicated as a measure of therapeutic education, as well as an evaluation and audit measure of good health practices.

Keyword: Elderly; Physical Activity; Hypertension; Aging.

RESUMEN

Introducción: La actividad física es recomendada para la prevención y tratamiento de la hipertensión. El abordaje de la intervención promotora de la actividad física funcional en un grupo de ancianos hipertensos, debe ser caracterizada por un enfoque holístico de la persona. Esta consiste en considerar a la persona en su integridad física, psíquica y social.
Objetivo: Evaluar el efecto de la implementación de un programa de entrenamiento funcional sobre la presión arterial en reposo en mujeres ancianas hipertensas, sometidas al entrenamiento de ejercicio físico durante un período de 24 meses.
Métodos: Investigación exploratoria, con orientación analítico-descriptiva con la finalidad de analizar la acción de la actividad física dirigida e implementada tres veces por semana en el pronóstico de la hipertensión arterial. Esta investigación fue apoyada en la recogida de datos de la presión arterial en reposo en una muestra de 60 ancianas brasileñas en el grupo de edad de 60 a 90 años, de la comunidad del Vergel del Lago, Maceió / AL, Brasil, en condiciones de excelente motivación por parte del grupo.
Resultados: La mayoría de las ancianas era hipertensa (80%), constatando que durante el período de entrenamiento presentaron presión arterial sistólica y diastólica muy por debajo del patrón de la normalidad para ese grupo de edad.
Conclusiones: Después de la intervención del *Proyecto Prevención de Salud Estadio* Vivo las ancianas presentaron reducción y

mejor control de los valores de su presión arterial. Se considera así que el entrenamiento físico al ejercer un efecto fisiológico específico al nivel muscular y cardio-circulatorio es protector del estado de salud por lo que debe ser incentivado a lo largo de todo el ciclo vital. Se infiere también que el Programa implementado puede ser replicado como medida de educación terapéutica, de evaluación y de auditoría de buenas prácticas en salud.

Palabras Clave: Ancianos; Actividad física; hipertensión; Envejecimiento.

INTRODUÇÃO

A hipertensão arterial (HTA) é uma doença que a probabilidade estatística estima afetar quase 25% da população adulta mundial, ou seja, um em cada quatro indivíduos (Radovanovic, Santos, Carvalho, & Marcon, 2014) e atinge maioritariamente pessoas adultas, com reduzido percentual a apresentar controlo deste parâmetro clínico, o que exige uma particular atenção aos valores da pressão arterial como forma preventiva de todas as doenças cardiovasculares.

O diagnóstico de HTA define-se como a elevação persistente, em várias medições e em diferentes ocasiões, da pressão arterial sistólica (PAS) igual ou superior a 140 mmHg e/ou da pressão arterial diastólica (PAD) igual ou superior a 90 mmHg. (Direção Geral da Saúde, Portugal, 2013). A sua classificação em três graus, correspondendo o grau 1 à hipertensão arterial ligeira, o grau 2 à hipertensão arterial moderada e o grau 3 à hipertensão arterial grave (Direção Geral da Saúde, Portugal, 2013). Consiste numa doença com características assintomáticas que manifesta a sua morbidade e mortalidade através da degeneração dos vasos sanguíneos, miocárdio, glomérulos e retina, sendo estas lesões resultantes da pressão exercida, cronicamente elevada, que favorece a ocorrência de eventos cardiovasculares clinicamente relevantes, nomeadamente o acidente vascular encefálico, enfarte agudo do miocárdio, insuficiência vascular periférica, lesões retinianas mais acentuadas, como exsudados, hemorragias e edema do disco ótico (Silva, Martins, Carlos, Silva & Veloso, 2010).

Apesar de se considerar que um leitor com conhecimentos na área da saúde compreende a utilização diferenciada consoante os focos da investigação e os contextos de análise do estudo dos termos pressão arterial e hipertensão, clarifica-se o seguinte: - Pressão arterial é a "Pressão sanguínea nas artérias. É comumente medida com um esfigmomanómetro na parte superior do braço, que representa a pressão arterial na artéria braquial" (DeCS, 2018); - Hipertensão é a "pressão arterial sistémica persistentemente alta. Com base em várias medições (determinação da pressão arterial), a hipertensão é atualmente definida como sendo a pressão sistólica repetidamente maior que 140 mm/Hg ou a pressão diastólica de 90 mm/Hg ou superior. Sinónimo - Pressão Arterial Alta; Pressão Sanguínea Alta" (DeCS, 2018).

A pressão arterial (PA) varia em função das atividades da vida quotidiana, sendo diversos os fatores concorrentes para a sua variabilidade, tais como: temperatura ambiente, altura do dia, refeições, atividade física, postura, emoções e sobretudo decorrente da ocorrência reiterada de erros associados às vivências do estilo de vida. Destacamos neste conjunto a prática regular de atividade física, como meio não farmacológico capaz de poder reduzir significativamente a pressão arterial. O exercício a implementar deve compreender movimentos cíclicos tais como marcha, corrida, natação, dança. Contudo os hipertensos devem evitar esforços intensos como, levantar pesos, empurrar móveis pesados, que aumentam por vezes a pressão arterial. (Carrageta, 2006)

Atendendo a este problema, os profissionais de saúde devem compreender que a hipertensão arterial é um problema de saúde pública, que requer controlo na comunidade em geral, sem distinções, a fim de se modificar substancialmente os indicadores de saúde das populações.

Vários fatores de risco, designadamente a idade, a raça, a obesidade, o consumo de tabaco, diabetes mellitus e dislipidemia e um estilo de vida sedentário, encontram-se diretamente associados a uma pressão arterial elevada. (Radovanovic, Santos, Carvalho, Marcon, 2014).

Perk, De Backer, Gohlke, Graham, Reiner, Verschuren, Albus, Benlian, Boysen, Cifkova, Deaton, Ebrahim, Fisher, Germano, Hobbs, Hoes, Karadeniz, Mezzani, Prescott, Ryden, Scherer, Syvänne, Scholte op Reimer, Vrints, Wood, Zamorano & Zannad, (2012) através das recomendações da *European Society of Hypertension e da European Society of Cardiology* (2013), alertam que a finalidade primária no tratamento de um doente hipertenso é alcançar um máximo de redução do risco de morbilidade e mortalidade, a longo prazo. Por conseguinte, não obstante se atuar sobre a HTA isoladamente, é urgente identificar e tratar todos os fatores de risco reversíveis, nomeadamente o consumo de tabaco, a dislipidémia e a diabetes. Tendo em conta as evidências que apontam para a HTA representar um dos fatores de risco mais relevantes na etiologia das doenças cerebrovasculares e cardiovasculares, que uma causa major de morbilidade e mortalidade cardiovascular, a prevenção e o tratamento adequado são fatores chave na atitude terapêutica para com esta doença (Direção Geral da Saúde, Portugal 2012).

A *American Heart Association & American Stroke Association* (2014, p. 4), preconiza que o foco na prevenção, se centre na agregação de três ações importantes; *check* (verificar), *change* (alterar) e *control* (controlar).

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Com o processo de envelhecimento, surgem modificações fisiológicas e funcionais, próprias desta fase da vida humana, o que torna os idosos mais vulneráveis a doenças crónicas, entre as quais a hipertensão arterial. Para além da idade, o excesso de peso é manifestamente um determinante que afeta o normal funcionamento do sistema circulatório, proporcionando o aparecimento da HTA, aumentando o risco de doenças cardiovasculares e da diabetes (Malta, Scala & Fuchs, 2017). Os autores também referem que as pessoas obesas, IMC (Índice de Massa Corporal)> 30, apresentam até 6 vezes maior probabilidade de terem PA elevada quando comparadas com as pessoas com IMC <25. O sedentarismo também aumenta o risco do aparecimento da HTA. Por conseguinte, a prática de atividade física é uma condição que resulta em grandes benefícios para o coração e para o sistema circulatório de uma forma geral, ajudando a controlar a pressão arterial. O estilo de vida assume-se igualmente como um fator importante, no caso concreto dos idosos, as consequências de um estilo de vida pautado por comportamentos de risco resulta numa grande preocupação, porque as complicações da HTA tendem a aumentar com a idade (Malta, Scala & Fuchs, 2017).

A terapia medicamentosa da hipertensão arterial deve basear-se, por um lado, em estudos farmacológicos e, por outro lugar, no perfil individual de cada pessoa, assumindo-se como mediador o profissional de saúde, que deve conjugar a intervenção farmacológica e a não farmacológica. A intervenção não-farmacológica é importante para o controlo dos fatores de risco, estando associada às alterações do estilo de vida, como forma de prevenir ou deter a evolução da hipertensão arterial. Por conseguinte, o tratamento não-farmacológico é um imperativo componente do tratamento dos doentes com HTA. O efeito protetor da atividade física funcional, para além de reduzir a PA, está associado à redução dos fatores de risco cardiovasculares e à menor morbimortalidade, o que justifica a sua recomendação para a prevenção primária e para o tratamento da HTA (Nogueira, Santos Mont´Alverne, Martins & Magalhães, 2012). De acordo com os mesmos autores, a atividade física funcional tem sido considerada como uma das principais estratégias terapêuticas em doentes com HTA. O seu efeito sinérgico¸ associada ao tratamento farmacológico e às modificações de hábitos alimentares e comportamentais, assume-se como um valor acrescentado que importa prover de forma dinâmica e articulada com os diferentes estádios cronológicos do desenvolvimento humano.

A HTA é atualmente um fator de risco prevalente em diferentes populações e, por conseguinte, esta entidade nosológica carece de atempado e adequado diagnóstico diferencial e de vigilância contínua. Assim, é importante que os doentes não interrompam a tríade terapêutica (tratamento farmacológico, atividade física, padrão alimentar), pois assume-se que tal pode resultar num agravamento da situação clínica, apesar de, num significativo número de casos, a HTA evoluir de uma forma benigna e seja possível controlar com recurso a fármacos.

Decorrente do exposto, objetiva-se com o presente estudo verificar se a prática de atividade física funcional, realizada 3 vezes por semana, consistindo de caminhadas realizadas no período de total de 40 minutos, promove a diminuição da PA em repouso em mulheres idosas hipertensas controladas.

1. MÉTODOS

O presente estudo de natureza analítico-descritiva, com orientação longitudinal, teve como finalidade analisar a ação da atividade física (caminhadas) direcionada e implementada três vezes por semana no prognóstico da HTA. Esta pesquisa foi suportada na recolha de dados da PA em repouso numa amostra de idosas brasileiras na faixa etária de 60 a 90 anos. As 60 idosas foram agrupadas em três grupos etários, nomeadamente 60-70, 71-80 e 81 anos ou mais, estando em maior prevalência as idosas com idades compreendidas entre os 60-70 anos (65.0%).

O objetivo principal consistiu em verificar os efeitos do treino funcional do exercício de caminhadas na PA em repouso em mulheres idosas hipertensas controladas com recurso à farmacologia com anti-hipertensivos, num período de 24 meses. Como objetivos específicos, pretendeu-se avaliar a PA em repouso no início da prática de atividade física e após 2 anos de acompanhamento, bem como avaliar o perfil de saúde das idosas.

Participantes

O Projeto *Prevenção de Saúde Estádio Vivo,* foi realizado no Estádio Rei Pelé, no Município de Maceió, Brasil, com a população do bairro do Vergel do Lago e circunvizinho, cujo número de habitantes multiplicou consideravelmente nos últimos anos com a construção de mais complexos habitacionais. Todavia, novos casebres foram surgindo, dando origem a novas favelas, o que requereu uma intervenção de políticas públicas de promoção da saúde para a prevenção de doenças e desenvolvimento de estratégias para a melhoria da qualidade de vida e do impacte social na vida das pessoas expostas a situação de miséria extrema.

As idosas hipertensas como já referido, com idades na faixa etária de 60 a 90 anos, eram residentes no referido *locus* de estudo.

Protocolo de Intervenção / Pesquisa / Programa / Medição

Critérios de inclusão e exclusão: Idade superior ou igual a 60 anos; Diagnóstico médico de hipertensão arterial; Estar a realizar

tratamento médico com toma da medicação prescrita; Não possuir história clínica de outra doença crónica.

O Programa de intervenção com a duração de dois anos (24 meses), incluiu avaliações a cada 6 meses.
O exercício físico consistiu em caminhadas no parque, três vezes por semana, durante quarenta minutos com pausa a cada doze (12) minutos ininterruptos.
As idosas hipertensas aceitaram a avaliação física das funções fisiológicas e cardiorrespiratórias com *teste de VO^2 máximo* em 12 minutos decorrente de caminhadas, para se poder testar a sua resistência aeróbica. Neste estudo apenas se relatam os valores da Pressão arterial.
A recolha dos dados sociodemográficos e dos valores dos parâmetros de saúde avaliados foi suportada num *Formulário ad hoc* criado para o efeito.

Valores de referência da Pressão Arterial
Os valores da PA foram classificados de acordo com a Circular Normativa Nº 2/DGCG de 31/03/04, classificação proposta pela Organização Mundial de Saúde (OMS) em 2003) (cf. Tabela 1).

Tabela 1. Classificação da Pressão Arterial

Foram adotadas as Recomendações da Circular Normativa de Portugal, Nº2/DGCG de 31/03/04, suportada na classificação proposta pela OMS (2003), que define os seguintes pontos de corte:

Classificação	PA Sistólica		PA Diastólica
Hipotensão	≤119	e	≤79
Normal	120-129	e	80-84
Normal alto	130-139	ou	85-89
Hipertensão grau I	140-159	ou	90-99
Hipertensão grau II	≥ 160	ou	≥ 100

Procedimentos estatísticos e ético-legais
Na análise dos dados, foi utilizada a estatística descritiva para a caracterização sociodemográfica e dos parâmetros de saúde e para análise inferencial em amostras emparelhadas o teste de Friedman.
A opção por este tipo de teste decorreu do facto da variável em questão não ter apresentado distribuição normal.
O desenvolvimento do estudo seguiu os requisitos ético-legais de respeito pela autodeterminação e autonomia dos sujeitos pelo que a participação das idosas no estudo foi voluntária e após explicação do projeto aceitaram assinaram o termo de consentimento livre e esclarecido e integrar o programa de treino.

2. RESULTADOS

Durante o período de dois (2) anos, o grupo de idosas utilizou a mesma farmacologia, tendo como única variante a atividade física (caminhadas).
Na tabela dois, são descritos os fármacos ingeridos por cada idosa e os respetivos valores de pressão arterial nas quatro avaliações, constatando-se prevalência de decréscimo dos valores da PA. Nas quatro avaliações, os valores máximos e mínimos foram de 170/110 observado na primeira (1ª) avaliação e 100/50 medido na quarta (4ª) e última avaliação. (cf. Tabela 2).

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Tabela 2. Frequência do nível da PA das idosas

Participantes	Medicamento	1ª PA abril 2012 121/140 – 90 mmhg	2ª PA out.2012 12/80 mmhg	3ª PA abril 2013 12/80mmhg	4ª PA out. 2013 110/60 mmhg
1	Atenolol 25 mg	140/90	120/80	120/80	110/60
2	Captropil 50 mg	140/80	110/70	120/80	**100/50**
3	Captropil 25 + 25	160/90	130/80	130/70	110/70
4	Aradois 50	170/90	140/80	110/70	120/80
5	Pressat 25 mg	160/80	130/70	120/80	110/70
6	Losartana 50	150/80	130/80	130/70	120/70
7	Clorotiazida	150/70	140/80	120/80	120/80
8	Clorotiazida	170/80	**150/80**	**140/80**	120/90
9	Adalat 25	115/70	120/80	115/75	**136/85**
10	Clorotiazida 50	155/80	145/85	130/80	120/80
11	Clorotiazida 25	160/95	**150/80**	**140/80**	130/80
12	Adalat 25	150/90	**150/80**	130/80	120/80
13	Clorotiazida 50	140/80	130/80	120/80	120/75
14	Adalat 50	140/80	120/80	130/80	110/60
15	Aradois 50	140/10	130/90	120/90	120/80
16	Abloc 50	140/90	120/75	120/70	110/65
17	Atenoresi 50	150/10	120/80	110/70	120/70
18	Captropil 25	140/10	130/70	120/70	110/60
19	Adalat 25	130/90	120/80	110/60	100/60
20	Clorotiazida 50	135/10	120/75	110/60	110/60
21	Atenol 25	140/90	120/80	110/70	110/70
22	Atenol 50	160/80	140/80	130/90	110/80
23	Losartana 50	150/70	130/80	130/90	110/80
24	Aradois 25	150/90	120/80	120/70	110/70
25	**Abloc 25**	**170/11**	140/80	120/80	120/80
26	Aradois 50	150/10	140/80	130/90	120/80
27	Clorotiazida 50	140/90	130/80	130/80	110/70
28	Adalat 25	130/80	120/80	120/80	110/60
29	Losartana 25	170/80	120/70	120/70	110/70
30	Aradois 50	160/75	130/70	110/70	110/60
31	Losartana 25	170/80	120/70	130/70	110/70
32	Aradois 25	140/100	130/70	110/60	110/60
33	Anenoto 25	140/90	130/80	120/80	120/80
34	Abloc 50	**170/11**	140/80	120/80	120/70
35	Atenol 25	130/80	120/80	110/60	120/70
36	Pressat 25	140/50	120/80	120/80	120/80
37	Clorotiazida 25	140/80	130/85	120/80	115/60
38	Losartana 25	160/80	140/90	110/70	110/60
39	Aradois 50	140/90	130/80	120/70	110/60
40	Clorotiazida 25	130/90	120/70	110/70	110/60
41	Aradois	150/10	130/80	130/70	120/70
42	Losartana	140/80	130/80	113/70	120/70
43	Aradois	130/70	120/80	120/70	110/60
44	Adalat	130/70	120/80	110/70	120/60
45	Losartana	140/70	115/90	120/70	110/60
46	Captropil	160/80	130/70	120/80	120/80
47	Captropil	150/80	130/80	130/70	110/70
48	Pressat	150/70	130/80	130/90	110/80
49	Adalat	160/75	130/70	110/70	110/60
50	Aradois	140/100	130/70	110/60	110/60
51	Clorotiazida	130/80	120/80	110/60	120/70
52	Clorotiazida	115/70	120/80	115/75	**136/85**
53	Captropil	140/100	130/70	110/60	110/60
54	Captropil	150/80	130/80	130/70	120/80
55	Losartana	150/70	140/80	120/80	120/80
56	Losartana	130/70	120/80	110/70	120/60
57	Adalat	140/90	120/80	120/80	110/60
58	Pressat	130/80	120/80	110/60	120/70
59	Pressat	150/80	130/80	130/70	110/70
60	Captropil	160/80	130/70	120/80	120/80

As idosas demonstraram uma redução bastante significativa na sua PA sistólica e diastólica, no período de repouso nos dias que alternaram com os da atividade física (Tabela 3). Estas sentiram-se motivadas a interromper o uso da farmacologia, contudo, não foi obtida nenhuma resolução da clínica médica sobre o assunto, não sendo possível avaliar tal possibilidade nesse estudo. Todavia, foi possível diagnosticar a redução significativa do nível da PA em repouso mediante a prática de atividade física.
As estatísticas dos valores médios da PA Sistólica revelam que, na primeira avaliação, eram significativamente mais elevados, observando-se um decréscimo nos três momentos de avaliação seguintes, atingindo-se o seu valor mais baixo na 4.ª avaliação. No que se refere aos valores médios da PA Diastólica, verifica-se que, na primeira avaliação, os mesmos eram significativamente mais elevados do que nas outras três avaliações, onde se observa um decréscimo, tendo na 4.ª avaliação atingido o valor mais baixo. Constata-se que existem diferenças estatisticamente significativas entre os vários momentos de avaliação quer em relação à PA Sistólica, quer na PA Diastólica ($p<0.05$) (cf. Tabela 3).

Tabela 3. Estatísticas descritivas relativas aos valores de médios PA Sistólica e Diastólica

PA	n	Min	Max	M	DP	Sk/$_{erro}$	K/$_{erro}$	CV (%)	Kolmogorov-Smirnov	p
PA Sistólica										
1.ª Avaliação	60	115	170	146,00	13,366	0,17	-0,53	9,15	,190	0,004
2.ª Avaliação		110	150	128,33	9,098	2,01	-0,72	7,08	,227	0,000
3.ª Avaliação		110	140	120,05	8,335	1,25	6,94	-1,09	,219	0,000
4.ª Avaliação		100	136	115,12	7,018	2,23	2,02	6,09	,284	0,000
PA Diastólica										
1.ª Avaliação	60	50	110	84,08	11,553	0,05	0,47	13,74	,221	0,001
2.ª Avaliação		70	90	78,33	5,098	-0,88	-0,71	6,50	,378	0,000
3.ª Avaliação		60	90	74,00	8,224	0,15	10,42	11,11	,220	0,000
4.ª Avaliação		50	90	70,00	9,206	0,27	-1,78	13,15	,211	0,000

A prevalência de mulheres que apresentaram hipertensão de Grau 1 na primeira avaliação foi de 45%, seguindo-se-lhe as que tinham hipertensão Grau 2 (40.0%). Na segunda avaliação, observa-se que a percentagem mais elevada refere-se às idosas com pressão arterial normal alta (38.3%), seguindo-se as que já apresentam pressão arterial normal (36.7%), tendo reduzido o número de casos com hipertensão Grau 1 (23.3%), não se registando idosas com hipertensão arterial Grau 2. Esta redução de valores é ainda mais notória na 3ª e 4ª avaliação. Assim, na 3ª avaliação, aumentou o percentual de hipotensão (33.3%), destacando-se os 36.7% de idosas com pressão arterial normal. Relativamente à 4ª avaliação aumentou o percentual de idosas com hipotensão (48.3%) e com pressão arterial normal (46.7%), sem registo de hipertensão de Grau 1 e de Grau 2. Deste modo, constata-se a existência de hipertensão controlada (cf. Tabela 4).

Tabela 4. Classificação dos valores da pressão arterial em cada momento de avaliação

Pressão Arterial Foram adotadas as Recomendações da Circular Normativa de Portugal, Nº2/DGCG de 31/03/04, que define os seguintes pontos de corte:					**1ª Avaliação**		**2ª Avaliação**		**3ª Avaliação**		**4ª Avaliação**	
	PA Sistólica	**E**	**PA Diastólica**	**Classificação**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
P A	**≤119**	e	**≤79**	Hipotensão	2	3.3	1	1.7	20	33.3	29	48.3
	120-129	e	80-84	Normal	-	-	22	36.7	22	36.7	28	46.7
	130-139	ou	85-89	Normal alto	7	11.7	23	38.3	11	18.3	3	5.0
	140-159	ou	90-99	Hipertensão Grau 1	27	45.0	14	23.3	7	11.7	-	-
	≥ 160	ou	≥ 100	Hipertensão Grau 2	24	40.0	-	-	-	-	-	-
				Total	**60**	**100.00**	**60**	**100.00**	**60**	**100.00**	**60**	**100.00**

A análise dos resultados do Teste de Friedman para os valores de pressão arterial em função do momento de avaliação patenteia que existem diferenças estatísticas significativas, inferindo-se que na 1ª avaliação os valores de PAS e PAD eram significativamente mais elevados e na 4ª avaliação mais baixos (cf. Tabela 5).

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DOI: https://doi.org/10.29352/mill0206.01.00178

Tabela 5. Resultados do teste de Friedman para os valores de pressão arterial em função do momento de avaliação

PA	Avaliação	*n*	Mean *x*	Std. Deviation *DP*	Friedman Test Mean Rank	Chi-Square	df	p
Pressão Arterial Sistólica	1ª Avaliação PA Sistólica 1	60	146,00	13,366	3,91	136,877	3	0,000
	2ª Avaliação PA Sistólica 2	60	128,33	9,098	2,74			
	3ª Avaliação PA Sistólica 3	60	120,05	8,335	1,90			
	4ª Avaliação PA Sistólica 4	60	115.12	7.018	1,45			
Pressão arterial Diastólica	1ª Avaliação Diastólica 1	60	84,08	11,553	3,23	57,253	3	0,000
	2ª Avaliação Diastólica 2	60	78.33	5,098	2,81			
	3ª Avaliação Diastólica 3	60	74.00	8.224	2,22			
	4ª Avaliação Diastólica 4	60	70.00	9.206	1,24			

3. DISCUSSÃO

De realçar que os resultados da pesquisa mostram que, com a implementação do programa, de uma forma geral, houve uma diminuição dos valores da PA. As idosas evidenciaram uma redução bastante significativa na sua PA sistólica e diastólica, no período de repouso entre os dias alternados de atividade física, com uma redução acentuada dos valores da PA (sistólica e diastólica) na 4.ª avaliação. Estes resultados corroboram os encontrados por Nogueira et al. (2012) que, ao compararem os valores da mudança de PA sistólica e PA diastólica entre os grupos de idosos com HTA, o grupo experimental, inserido num programa de atividade física, obteve uma diminuição estatisticamente significativa em todas as variáveis. Deste modo, os resultados sugerem que a atividade física funcional é uma ferramenta eficaz no tratamento de idosos hipertensos. Os mesmos autores referem que o treino de resistência cardiovascular resulta em benefícios na presença ou ausência de betabloqueadores, incluindo a acentuada melhoria da função endotelial. Contudo, advertem para o facto de que a frequência cardíaca de treino em pessoas com HTA que utilizam os betabloqueadores é cerca de 20% menor comparativamente às que não utilizam o medicamento. De igual modo, Medina et al. (2010), com base no seu estudo, observaram que o treinamento aeróbico reduz a PA clínica sistólica/diastólica de hipertensos em cerca de 7/5 mmHg. Neste sentido, os mesmos autores sugerem, em relação à prevenção da HTA, a prática, de pelo menos de 30 minutos, de atividade física moderada, se possível durante 5 dias da semana. Para um benefício mais específico nos hipertensos, os mesmos autores recomendam a execução do treino aeróbico, podendo o mesmo ser conduzido com distintas modalidades, pelo menos três vezes por semana, durante 30 minutos, com uma intensidade leve a moderada (Medina et al, 2010).

Em face dos resultados, o programa de intervenção ao nível da atividade física funcional implementado resultou em resultados positivos na redução da PA. Nesta perspetiva, Silva, Clinton, Appleton e Flanagan (2011) referem que os programas de educação para a autogestão ajudam as pessoas a consciencializarem-se de que são os seus principais cuidadores e que os profissionais de saúde são consultores que os apoiam nessa função. Partindo-se do pressuposto que a gestão da HTA exige a participação dos doentes, é imprescindível fazer-se a monotorização do seu impacto, sobretudo nas funções psicossociais e de comportamento (Ferreira, 2012a,b).

CONCLUSÕES

Conclui-se que, após a intervenção, as idosas apresentaram redução e maior controlo dos valores da sua PA, inferindo-se que o programa de caminhadas pode ser replicado como medida de educação terapêutica e de avaliação e auditoria de boas práticas em educação para a saúde. Considera-se, assim, que o treino físico, ao exercer um efeito fisiológico específico, ao nível muscular e cárdio-circulatório melhora o estado de saúde global pelo que deve ser incentivado ao longo de todo o ciclo vital.

É ainda necessário empreenderem-se esforços para avaliar a perspetiva do cidadão sobre os ganhos em saúde e qualidade de

vida, obtidos com os tratamentos. As estratégias de intervenção preventiva da ocorrência de HTA, englobam políticas públicas de cariz salutogénico combinadas com ações estruturadas das sociedades científicas/académicas mas também da sociedade civil e dos meios de comunicação social promotores do aumento da literacia para a saúde e da vivência de estilos de vida positivos pelo cidadão comum.

Evidência empírica substancial aponta para as ligações entre HTA e a ocorrência reiterada de erros associados às vivências do estilo de vida, tais como sedentarismo, erros no padrão alimentar, consumo excessivo de sal, consumo de tabaco, entre outros, daí que o foco deve ser estimular comportamentos saudáveis, o diagnóstico precoce, o tratamento contínuo, com o objetivo de obter o controlo da PA por meio da modificação do estilo de vida acrescido sempre que necessário do uso regular de medicamentos.

Os resultados sugerem que se deve continuar a desenvolver investigação que monitorize a força do efeito da relação entre estas variáveis, porquanto se torna necessário suportar a abordagem centrada na pessoa com HTA e através da autogestão corresponsável produzir maiores ganhos em saúde traduzidos, entre outros, em menos anos de vida perdidos prematuramente e menos gastos com os procedimentos/intervenções que integram os serviços dos sistemas de saúde.

AGRADECIMENTOS

This work is financed by national funds through FCT - Fundação para a Ciência e Tecnologia, I.P., under the project UID/Multi/04016/2016. Furthermore we would like to thank the Instituto Politécnico de Viseu and CI&DETS for their support.
The authors thank the students of the 29th CLE da ESSV-IPV

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Millenium, 2 (6), 23-31.

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COMPLICAÇÕES DA FLUIDOTERAPIA EM PACIENTES COM PANCREATITE AGUDA: UMA CONTRIBUIÇÃO

COMPLICATIONS OF FLUIDOTHERAPY IN PATIENTS WITH ACUTE PANCREATITIS: A CONTRIBUTION

COMPLICACIONES DE LA FLUIDOTERAPIA EN PACIENTES CON PANCREATITIS AGUDA: UNA CONTRIBUCIÓN

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RECEIVED: 11th September, 2017
ACCEPTED: 08th February, 2018

Henriques, C., Pereira, J., Matos, A. C. & Afonso, C. (2018).
Complications of fluidotherapy in patients with acute pancreatitis: A contribution.
Millenium, 2(6), 23-31. **DOI:** https://doi.org/10.29352/mill0206.02.00160

RESUMO

Introdução: A fluidoterapia agressiva é frequentemente sugerida no tratamento da pancreatite aguda. No entanto, há alguma controvérsia sobre o efeito desta opção relativamente ao aparecimento de complicações clínicas e à necessidade de cirurgia.
Objetivos: Explorar a relação entre administração de fluidos nas primeiras 48 horas e o desenvolvimento de complicações, locais ou sistémicas, a fim de contribuir para esclarecer algumas questões nesta matéria.
Métodos: Este estudo é baseado em registros de 109 pacientes internados na Unidade de Cuidados Cirúrgicos Intermédios do Centro Hospitalar Tondela Viseu, entre 2007 e 2012, com diagnóstico de pancreatite aguda. Foi feita a exploração dos dados e aplicados testes estatísticos de modo a identificar variáveis que diferenciavam pacientes com complicações. As curvas ROC (Receiver Operating Characteristic) permitiram relacionar a quantidade de fluidos administrados nas primeiras 48h com a ocorrência de cada complicação. Modelos de regressão logística foram utilizados para identificar fatores de risco independentes para cada complicação.
Resultados: Não se registou relação significativa entre a terapia de fluidos às 48 horas com a morte nem com a ocorrência de complicações sistémicas. Ao contrário, a fluidoterapia às 48 horas revelou-se associada a complicações locais e tardias, presença de infeção e necessidade de cirurgia.
Conclusões: Níveis elevados de fluidos administrados nas primeiras 48 horas registaram-se associados ao desenvolvimento de complicações.

Palavras-chave: Pancreatite aguda; Fluidoterapia; Complicações; Curvas ROC; Regressão logística

ABSTRACT

Introduction: Aggressive fluid therapy is frequently suggested in the treatment of acute pancreatitis. However, there is some controversy about the effect of this therapy concerning the development of clinical complications and the need for surgery.
Objectives: To explore the relationship between fluid administration in the first 48 hours and the development of local or systemic complications, to contribute to clarifying some open questions on this subject.
Methods: This study is based on records of 109 patients admitted to the Surgical High Dependency Unit of Tondela Viseu Hospital Centre, between 2007 and 2012, with the diagnosis of acute pancreatitis. Data were explored, and statistical tests were used to identify variables that differentiate patients with complications. Receiver operating characteristic (ROC) curves allowed to relate the amount of fluids at 48 hours with the occurrence of each complication. Logistic regression models were used to identify independent risk factors for each complication.
Results: There was no significant relationship between fluid therapy at 48 hours with death nor with the occurrence of systemic complications. As opposed, fluid therapy at 48 hours revealed to be associated with local and late complications, presence of infection and need for surgery.
Conclusion: High levels of fluid therapy in the first 48 hours were associated with the development of complications.

Keywords: Acute pancreatitis; Fluidotherapy; Complications; ROC curves; Logistic regression.

RESUMEN

Introducción: La fluidoterapia agresiva se sugiere con frecuencia en el tratamiento de la pancreatitis aguda. Sin embargo, existe cierta controversia sobre el efecto de esta terapia con respecto al aumento/reducción de complicaciones clínicas y la necesidad de cirugía.
Objetivos: Explorar la relación entre la administración de fluidos en las primeras 48 horas y el desarrollo de complicaciones locales y sistémicas, con el fin de contribuir a aclarar algunas preguntas abiertas en este tema
Métodos: Este estudio se basa en los registros de 109 pacientes ingresados en la Unidad de Cuidados Intermedios Quirúrgicos del Centro Hospitalario Tondela Viseu, entre 2007 y 2012, con diagnóstico de pancreatitis aguda. Se exploraron los datos y se utilizaron pruebas estadísticas para identificar las variables que diferencian a los pacientes con complicaciones. Las curvas ROC (Receiver Operating Characteristic) permiten relacionar la cantidad de fluidos a las 48 horas con la aparición de cada complicación. Se usaron modelos de regresión logística para identificar factores de riesgo independientes para cada complicación.
Resultados: No hubo una relación significativa entre la fluidoterapia a las 48 horas con la muerte ni con la aparición de complicaciones sistémicas. Por el contrario, la fluidoterapia a las 48 horas reveló estar asociada con complicaciones locales y tardías, presencia de infección y necesidad de cirugía.
Conclusións: Los altos niveles de fluidoterapia en las primeras 48 horas se asociaron con el desarrollo de complicaciones.

Palavras Clave: Pancreatitis aguda; Terapia de fluidos; Complicaciones; Curvas ROC; Regresión logística.

INTRODUCTION

The pancreas is a solid organ located in the upper abdomen, behind the stomach, responsible for a double function, both endocrine and exocrine (see, e.g., Blumgart, 2016). Its main endocrine purpose is regulation of blood glucose levels. To put through its exocrine function, the pancreas produces a series of digestive enzymes, capable of digesting sugars, lipids, and proteins. The premature activation of these enzymes within the pancreatic parenchyma produces a disease called acute pancreatitis. The cause of the enzyme activation is diverse (direct toxicity – ethanol, duct hypertension – cholelithiasis (Pollock, 1959), for example), but once triggered, initiates a cascade reaction that leads to self-digestion of the organ. The degree of initial inflammatory response will determine the severity of the disease and the autodigestion (Glasbrenner and Adler, 1993). The condition of local tissue microcirculation is thought to play an essential role in this sequence, hence the volume and type of fluids administered in the first hours to maintain hemodynamic stability may play an important role in preventing complications and avoiding severe forms of the disease (Nasr and Papachristou, 2011).
The study explores the relationship between fluid administration in the first 48 hours and the development of local or systemic complications, early or late in the course of the disease, to contribute to clarifying some open questions in this subject.

1. THEORETICAL FRAMEWORK

Acute pancreatitis is, in most cases, a self-limiting and benign disease. In a variable percentage of patients, around 15% to 20% (Dupuis *et al*., 2013), complications develop that can significantly overshadow the prognosis of acute pancreatitis (Banks et al., 2012). Reasons for this disparate evolution are not fully known and are surely multifactorial (Yang, Chen, Phillips, Windsor and Petrov, 2014). Fluid therapy in the first hours of disease installment, especially in the first 48 hours, seems to have some influence on the development of these complications in a way not yet fully understood. Hemodynamic stability and maintenance of euvolemia appear to be important factors in maintaining pancreatic microcirculation, preventing ischemia and necrosis of pancreatic tissue, one of the most severe local complication (Nasr and Papachristou, 2011). Aggressive fluid therapy (infusion of high fluid volumes) seems to contribute to the maintenance of the microcirculation (Janisch and Gardner, 2016). On the other hand, it produces excess volume in the extracellular space which also contributes to the development of complications (Stigliano, Sternby, de Madaria, Capurso, and Petrov, 2017). We are far from knowing all the factors that lead to complications that worsen the course of acute pancreatitis. And with fluid therapy, it would be important to find a balance to avoid the deleterious effects of its use.
According to the last review of Atlanta 2012 (Banks *et a*l., 2012), acute pancreatitis complications can be divided in local and systemic, and they can appear early or late in the course of the disease. Local complications result from the collection of fluid in or around the pancreas and/or presence of pancreatic necrosis, diagnosed through CT scan (Balthazar, 2002). Both of these types of local collection can suffer secondary infection, which worsens the prognosis. Systemic complications refer to the exacerbation of pre-existing illnesses, as cardiac or respiratory disease. In this regard, it is easy to understand the influence that fluid therapy may have on the appearance or worsening of complications. The maintenance of euvolemia and hemodynamic stability are important to avoid the onset of ischemia and necrosis, requiring administration of fluid (Tenner, Baillie, DeWitt and Vege, 2013). On the other hand, excessive volume administration can produce tissue edema and hypervolemia, worsening pre-existing cardiac, pulmonary or other conditions (Gardner, Vege, Pearson and Chari, 2008). Still, another aspect introduced by the Atlanta review was the importance of organ failure in the progress and prognosis of acute pancreatitis. In this matter, pancreatitis can be divided in mild, if no organ failure is present, moderate if a transient organ failure ensues (less than 48 hours) and severe, with persistent organ failure. Pancreatic necrosis is the worst local complication possible, more so if infection emerges (Pereira, Constantino, Duarte, Pinho and Pinheiro, 2015). In close relation to the concept of organ failure is tissue oxygenation. It depends on several factors but, above all, on patient's volume state and oxygen carrying capacity. This not only stresses the importance of the fluid volume to administer but also its type. The need to increase volume to maintain hemodynamic stability, which can be accomplished with crystalloids, may be associated with the need for oxygen transport capacity, as erythrocyte concentrate transfusion (Kalkwarf and Cotton, 2017).

2. DATA AND METHODS

This retrospective study included all the records of the 109 patients admitted to the Surgical High Dependency Unit of Tondela Viseu Hospital Centre, between 2007 and 2012, with the diagnosis of acute pancreatitis (according to the Atlanta 2012 revision).
Statistical analysis was performed using IBM SPSS Statistics (version 24). Numerical variables are described by mean±standard deviation (SD) or by the median and interquartile range (IQR). Categorical variables are described with percentages. For each complication, two groups of patients were considered: those who presented and those who did not present the complication.

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The relationship between each complication and the variables under study was analyzed using the Mann-Whitney test for numerical variables and the Chi-square test, or Fisher's exact test, for categorical variables. Receiver operating characteristic (ROC) curves were used to relate the amount of fluid at 48 hours with the occurrence of each complication. The area under the curve (AUC) was used to measure the performance of the fluid quantity at 48 hours to determine the occurrence of complications. ROC analysis also allowed to establish cutoff values for the amount of fluid at 48h that optimally predicted the occurrence of complications. Logistic regression was used to assess the significance of the fluid therapy relationship with the occurrence of each complication, along with other significant variables, with the objective of identifying independent risk factors/markers to each complication. Besides the amount of fluid received at 48h, all variables with $p<0.1$ in the univariate analyses were considered to enter in the regression model. Non-significant variables were eliminated from the model. Statistical significance was set at $p <0.05$.

Several clinical variables were considered in this study. Two clinical scores were used to assess the severity of the disease, Ranson, and APACHE II criteria. To assess organ failure, Marshall R (respiratory status), K (Kidney status) and C (Cardiovascular status) were considered.

Other clinical variables studied were:

- C-reactive protein (CRP);
- Hematocrit;
- Type of pancreatitis (edematous, necrotizing);
- Amount of fluids administrated in the first 48 hours;
- Etiology (ethanol, gallstones, mixed, drugs, others, unknown);
- Glycemia (controlled, uncontrolled);
- Comorbidities (respiratory, cardiac, haematological, endocrine, others);
- Use of colloid (Starch, gelatine, Albumin, none);
- Glucose containing fluid (yes, no);
- Crystalloid (Ringer's Lactate, Normal Sodium chloride, Normal polyelectrolytic solution)
- Nutrition (yes, no).

3. RESULTS

The sample included 61.5% of males and 38.5% of females. Age ranged from 21 to 95 years old, with a mean of 67.9 years old and a standard deviation of 17.6. Table 1 summarizes the clinical characteristics of the patients.

Table 1 - Clinical characteristics of the patients

	% or mean±SD or median (IQR:25th-75th)
Ranson	3 (2-3)
APACHE II	9 (6-13)
Marshall R	1 (0-1)
Marshall K	0 (0-1)
Marshall C	0 (0-0)
CRP	20.7±13.1
Hematocrit	41.8±5.5
Type of pancreatitis	
edematous	89,9%
necrotizing	10,1%
Fluids at 48h	7312.9±2280.2
Etiology	
ethanol	25.7%
gallstones	46.8%
mixed	11.9%
drugs	0.9%

	% or mean±SD or median (IQR:25th-75th)
others	2.8%
unknown	11.9%
Glycemia (controlled)	42.2%
Comorbidities	
respiratory	13.8%
cardiac	53.2%
haematological	8.3%
endocrine	35.8%
others	46.8%
Use of colloid	
Starch	17.4%
gelatine	5.5%
Albumin	0%
none	77.1%
Glucose containing fluid (yes)	97.2%
Crystalloid	
Ringer's Lactate	18.3%
Normal Sodium chloride	52.3%
Normal polyelectrolytic solution	29.4%
Nutrition (yes)	39.4%

In the following, results of the analysis will be described separately for each complication.

a. Acute Local Complications

Acute local complications included acute fluid collection and acute necrotic collection and were present in 13% of the patients. None of the clinical scores considered in this study, Ranson, APACHE II and Marshall scores, revealed any association with the existence of local complications, that is, these clinical scores could not differentiate patients with and without local complications. However, patients with local complications were younger (56±16 vs. 70±17 p=0.004), had higher values of hematocrit (45.8±5.4 vs 41.2±5.3 p=0.008) and higher values of CRP (33.3±12.7 vs 18.8±12.1, p<0.0005) and were significantly more frequent in patients with necrotizing pancreatitis relative to patients with edematous pancreatitis (81.8% vs 5.1%, p<0.0005). Furthermore, significant differences between patients with and without local complications were found in the type of colloid; a higher percentage of patients with no colloids used was found in patients without local complications (82.1% vs. 42.9%, p=0.006). Moreover, among patients with local complications, the percentage of those who had Ringer's Lactate was significantly higher (42.9% vs. 14.7%, p=0.037). As for the fluid therapy at 48hours, higher values were found for patients with local complications (10231.7±3874.4 vs. 6882.8±1562.7, p<0.0005), that is, when local complications were present, patients had significantly higher values of fluids administrated in the first 48 hours.

ROC curves were used to evaluate the performance of fluid therapy at 48h to differentiate patients with and without local complications. The area under the ROC curve (AUC) was equal to 0.81 (95%CI 0.67 – 0.95; p<0.0005), suggesting an excellent discriminant performance (Hosmer and Lemeshow, 2000). ROC analysis also revealed the cutoff value of 7182 ml, as one with a good compromise between sensitivity (0.86) and specificity (0.66). This means that a fluid therapy above 7182 ml pinpoints 86% of patients with local complications, while 66% of those without local complications are identified by having a fluid therapy below 7182 ml.

Resorting to logistic regression, a model was constructed to predict local complications. All variables that revealed a significant association with local complications (at the level of p<0.1) were included in the model at first, but were then eliminated if they did not reach significance in the model.

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The final model only included the *Type of pancreatitis* and *Fluidotherapy at 48h above 7182 ml* (see Table 2). This model suggests that administration of more than 7182 ml of fluids in the first 48 hours is related to the occurrence of local complications regardless of the type of pancreatitis.

Table 2 - Logistic regression model to predict local complications

	Coef	S.E.	p
Fluids at 48h>=7182	2.805	1.162	0.016
Acute pancreatitis of type necrotizing	4.721	1.189	<0.0005
Constant	-4.758	1.130	<0.0005

b. Late Local Complications

Late complications (Pseudocyst; Walled-off necrosis) occurred in 12% of the patients and were significantly associated with:

- Younger age (52±16 vs 70±17, p=0.001);
- Higher CRP (31.8±15.4 vs 19.1±12.0, p=0.008)
- Type of colloid (in 53.8% of patients with late complications no colloids were used, while this percentage rises to 80.2% in patients without late complications, p=0.046)
- Type of acute pancreatitis (38.5 % of patients with late complications were of the type necrotizing, while this percentage is only 6.3% in patients with no late complications, p=0.003)
- Higher values of fluids taken in the first 48 hours (9387.2±3291.3 vs. 7032.0±1968.3, p=0.012)

The AUC for the ROC curve of the fluids administrated at 48 hours was 0.72 (95%CI 0.53 – 0.91; p<0.012), suggesting an acceptable discriminant ability to distinguish patients with and without late complications. The ROC curve yielded the cutoff of 7742 ml for the amount of fluid, corresponding to a sensibility of 69.2% and a specificity of 76%. Thus, a fluid therapy above 7742ml pinpoints 69.2% of patients with late complications, and below 7742ml identifies 76% of patients with no late complications. Logistic regression modeling yielded the model presented in Table 3, which demonstrates that administration of more than 7742 ml of fluid in the first 48 hours is associated with late complications, regardless of the type of pancreatitis.

Table 3 - Logistic regression model to predict late complications

	Coef	S.E.	p
Fluids at 48h>=7742	1.791	0.676	0.008
Acute pancreatitis of type necrotizing)	1.981	0.766	0.01
Constant	-3.189	0.558	<0.0005

c. Presence of infection

The percentage of patients with infection was 12.8% and, again, this was associated with:

- Younger age (55±15 vs 70±17, p=0.002);
- Type of colloid (in 57.1% of patients with infection no colloids were used, while this percentage rises to 80% in patients without infection, p=0.04)
- Type of acute pancreatitis – again a higher percentage of patients with necrotizing pancreatitis was present in patients with infection (50% vs 4.2%, p<0.0005);
- Higher values of fluids taken in the first 48 hours (9539.4±4274.3 vs 6984.8±1612.5, p=0.036).

The ROC curve for the amount of fluid given in the first 48h to depict the presence of infection had an AUC equal to 0.67 (95%CI 0.48 – 0.87; p=0.099), which is not significantly different from 0.5, meaning that there is no evidence that the amount of fluid at 48 hours can perform better than chance discriminating the patients with and without infection. Nevertheless, the ROC curve was used to choose a cutoff for the amount of fluid, for which a good compromise between sensitivity and specificity could be obtained. The cutoff identified was of 8556 ml with a sensitivity of 57.1% and a specificity of 86.3%.
Regression modeling yielded the model summarized in Table 4, from which we could deduce that independently of the type of pancreatitis, administration of more than 8556 ml of fluids in the first 48 hours is associated with the presence of infection.

Table 4 - Logistic regression model to predict presence of infection

	Coef	S.E.	p
Fluids at 48h>=8556	1.685	0.704	0.017
Acute pancreatitis of type necrotizing)	2.736	0.79	0.001
Constant	-3.003	0.495	<0.0005

d. Surgery Need

Only 14 patients (12.8%) required surgery and, again, this was associated with:

- Younger age (59±17 vs 69±17, p=0.038);
- Type of colloid (in 57.1% of patients with need for surgery no colloids were used, while this percentage rises to 80% in patients without need for surgery, p=0.04)
- Type of acute pancreatitis – again a higher percentage of patients with necrotizing pancreatitis was present in patients with need for surgery (50% vs. 4.2%, p<0.0005);
- Amount of fluids taken in the first 48 hours (9712.1±4170.7 vs. 6959.3±1607.6 , p=0.005).

Additionally, need for surgery was associated with comorbidities (other than respiratory, cardiac, hematological and endocrine), which were present in 21.4% of patients with need for surgery and in 50.5% in those who did not need for surgery (p=0.042).
The AUC of the ROC curve for the amount of fluid given in the first 48h was 0.73 (95%CI 0.56 – 0.91; p<0.005), and this again suggests an acceptable discriminant ability to distinguish patients with and without the need for surgery. A good compromise between sensitivity and specificity was found for the cutoff of 7182 ml, with a sensitivity of 71.4% and specificity of 64.2%. Hence, of all patients needing for surgery, 71.4% received more than 7182ml of fluids in the first 48h, while 64.2% of those without the need for surgery received less than that amount of fluids. The final model found by logistic regression modeling is presented in Table 5. The final model includes only the fluids variable, which means that no other variable could increase significantly the model's explanatory ability.

Table 5 - Logistic regression model to predict surgery need

	Coef	S.E.	p
Fluids at 48h>=7182	1.501	0.629	0.017
Constant	-2.725	0.516	<0.0005

e. Systemic Complications and death

Systemic complications were present in 64% of the patients, while death only occurred in 11.9%. Patients with systemic complications had with higher values of CRP (23.7±13.4 vs. 15.0±10.4, p=0.001). No other variables revealed to be significantly associated with systemic complications. Concerning death, significantly higher values were found for the clinical scores. The APACHE II score had a median value of 12 (IQR 10-16) for the deceased, while for the survivors the median was 8 (IQR 6-12) (p=0.016). Ranson's scores taken at 48h also tended to be higher in the group of deceased patients (p=0.007). In fact, the median value was equal to 2 (IQR 2-3) in the group of deceased patients, but only of 1 (IQR 1-2) in the group of survivors. For Marshall R, the median value was of 1 in both groups, but the interquartile range was 0-1 in the survivor's group and of 1-2 in the deceased group (p=0.009). Furthermore, CRP values were also significantly higher for the deceased patients (29.1±14.1 vs. 19.6±12.6, p=0.013).
Fluid therapy at 48 hours was not significantly associated with either of these two complications. Consequently, neither ROC curves nor logistic regression models were constructed to further explore the relation of fluid therapy at 48 hours with these two complications.

4. DISCUSSION

The importance of fluid therapy in acute pancreatitis cannot be overstressed and has been shown in several studies, as well as its relation to the development of complications (Stigliano et al. 2017). In this particular setting, literature has not been consensual, avoiding to give strict indications on the volume to administer because the results are quite disparate. Some authors advocate aggressive fluid therapy (Tenner et al. 2013) while others suggest some care and tighter surveillance (Gardner et al. 2008; Janish et al. 2016). In this study, fluid administration in the first 48 hours revealed an association with local, acute and late

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complications, the presence of infection and need for surgery. However, no significant relationship was observed between fluid therapy at 48 hours and death, nor with the occurrence of systemic complications. This, of course, raises the question of the "critical" value of fluids associated with each of the first four mentioned complications. Using ROC curves, cutoff values were found for each complication, trying to obtain a good compromise between sensitivity and specificity. For the first four mentioned complications, these values were between 7000 ml and 8600 ml, which means around 150 – 180 ml/hour. Furthermore, the binary variables defined by these cut-off values were significantly associated with the occurrence of the respective complication, demonstrating that exceeding these quantities in the administration of fluids at 48 hours is directly related to their appearance. For each complication, this association remained significant when investigated with multiple regression modeling. This study gives a contribution to the controversy about the effects of aggressive fluid therapy concerning the development of clinical complications and the need for surgery. It suggests that an aggressive fluid therapy may not be free from objections concerning the occurrence of some complications, which is also suggested in the literature (Mao et al., 2009). It is odd that no relationship was found between fluid therapy and the occurrence of death, given the importance of volume resuscitation in the treatment of acute pancreatitis and its association with several prognostic indicators as infection and need for surgery (Pereira et al., 2015). Eventually, the retrospective nature and sample size may contribute to this finding. Sample size and the convenience sampling procedure used in this study compromises the generalizability of the results. Indeed, this needs further investigation as this is an ongoing observational study, with more records being collected in other to further look into this matter.

CONCLUSIONS

High levels of fluid therapy in the first 48 hours were associated with the development of complications in this study, mainly acute local and late local complications. Also, patients with more aggressive fluid therapy had higher infection rates and needed more surgery in the treatment of their disease.

ACKNOWLEDGEMENTS

This work is financed by national funds through FCT - Fundação para a Ciência e Tecnologia, I.P., under the project UID/Multi/04016/2016. Furthermore, we would like to thank the Instituto Politécnico de Viseu and CI&DETS for their support.
Additionally, this work was partially supported by the Centre for Mathematics of the University of Coimbra -- UID/MAT/00324/2013, funded by the Portuguese Government through FCT/MEC and co-funded by the European Regional Development Fund through the Partnership Agreement PT2020.

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CULTURA DE SEGURANÇA DO DOENTE: ESTUDO DE ALGUNS FATORES INTERVENIENTES

PATIENT SAFETY CULTURE: STUDY OF SOME INTERVENING FACTORS

CULTURA DE SEGURIDAD DEL PACIENTE: ESTUDIO DE ALGUNOS FACTORES INTERVENIENTES

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RECEIVED: 30th January, 2018
ACCEPTED: 08th May, 2018

Ferreira, M., Consciência, J., Duarte, J. & Silva, D. (2018). Culture of patient safety: Study of some intervening factors. *Millenium, 2* (6), 33-39.
DOI: https://doi.org/10.29352/mill0206.03.00174

RESUMO

Introdução: A segurança do doente tem um carácter multidimensional e multidisciplinar. No âmbito da sua índole multidimensional a OMS evidencia a importância da qualidade da interação e da comunicação como determinantes da qualidade e da segurança na prestação dos cuidados de saúde.
Objetivo: Analisar em que medida as variáveis sociodemográficas e profissionais influenciam as competências de comunicação dos enfermeiros e qual o impacto das competências comunicacionais dos enfermeiros na cultura de segurança dos cuidados.
Métodos: Estudo, de carácter quantitativo, descritivo/correlacional, analítico e transversal, realizado numa amostra de 138 enfermeiros. Foi utilizada a escala Avaliação da Cultura de Segurança do Doente em Hospitais (Eiras, 2011), e a Escala de Competências de Comunicação Clínica (ECCC) validada por (Ferreira, Silva & Duarte 2016) para avaliação das competências comunicacionais.
Resultados: Os participantes têm uma idade média de 32.51 anos, com um desvio padrão de 7.958. São maioritariamente do sexo feminino (77.54%) com licenciatura (94.4%) e tem, em média 9.41 anos, de experiência profissional. A idade, o estado civil, a experiencia profissional não influenciam a cultura de segurança do doente. Após a análise inferencial através de uma regressão múltipla multivariada, todas as variáveis manifestadas (Anos experiencia profissional, recolhe informação, partilha Informação e permite terminar o diálogo) registam valores significativos. Quanto maior o número de anos de experiencia profissional menor a resposta ao erro não punitiva.
Conclusões: Os resultados apontam para a importância da comunicação sobre algumas variáveis na cultura de segurança do doente. Esta realidade circunscreve-se de novos pressupostos e atitudes dos profissionais que têm que acompanhar, em tempo útil, a evolução do conhecimento, garantindo uma comunicação enfermeiro / utente eficaz e práticas de cuidados seguras, garantindo a qualidade dos cuidados prestados.

Palavras-Chave: Cultura de segurança; Qualidade cuidados; Comunicação.

ABSTRACT

Introduction: Patient's safety has a multidimensional and multidisciplinary character. In its multidimensional nature, WHO highlights the importance of the quality interaction and communication as determinants of quality and safety in health care delivery.
Objetive: To analyze the extent to which sociodemographic and professional variables influence nurses' communication skills and what the impact of nurses' communicational competencies on the safety culture of care.
Methods: A quantitative, descriptive-correlational, analytical and cross-sectional study with a sample of 138 nurses. We used the Hospital survey on Patient Safety Culture (Eiras, 2011), and the Clinical Communication Skills Scale (ECCC), validated by (Ferreira; Silva & Duarte 2016) for the evaluation of communication skills.
Results: The population has 32.51 years as average, with a standard deviation of 7.958. They are mostly female (77.54%) with a degree (94.4%) and have, on average, 9.41 years of professional experience. Age, marital status, work experience does not influence the safety culture of the patient. After the inferential analysis through a multivariate multiple regression, we note that all manifest variables (Years of professional experience, collects information, share information and allows to terminate the dialogue) showed significant values. The greater the years of professional experience less punitive error response.
Conclusions: The results point to the importance of some variables in the patient's safety culture. This reality is circumscribed by new presuppositions and attitudes; Professionals who have to attend, in a timely manner, the evolution of knowledge, ensuring safe practices, assuring the quality of the care provided.

Keywords: Safety culture; Quality of care; Communication.

RESUMEN

Introducción: La seguridad del paciente tiene un carácter multidimensional y multidisciplinario. En el ámbito de su índole multidimensional, la OMS pone de manifiesto la importancia de la calidad de la interacción y de la comunicación como determinantes de la calidad y la seguridad en la prestación de la asistencia sanitaria.
Objetivo: Analizar en qué medida las variables sociodemográficas y profesionales influencian las competencias de comunicación de los enfermeros y cuál es el impacto de las competencias comunicacionales de los enfermeros en la cultura de seguridad del cuidado.
Métodos: Estudio, de carácter cuantitativo, descriptivo / correlacional, analítico y transversal, se realizó en una muestra de 138 enfermeros. Se utilizó la escala Evaluación de la Cultura de Seguridad del Enfermo en Hospitales (Eiras, 2011), y la Escala de Competencias de Comunicación Clínica (ECCC) validada por (Ferreira, Silva & Duarte 2016) para la evaluación de las competencias comunicacionales.

Resultados: Los participantes tienen una edad media de 32.51 años, con una desviación estándar de 7.958. Son mayoritariamente del sexo femenino (77.54%) con licenciatura (94.4%) y tiene, en promedio 9.41 años, de experiencia profesional. La edad, el estado civil, la experiencia profesional no influyen en la cultura de seguridad del paciente. Después del análisis inferencial a través de una regresión múltiple multivariada, todas las variables manifiestas (Años experiencia profesional, recolecta información, compartir información y permite terminar el diálogo) registran valores significativos. Cuanto mayor sea el número de años de experiencia profesional menor la respuesta al error no punitivo.
Conclusiónes: Los resultados apuntan a la importancia de la comunicación sobre algunas variables en la cultura de seguridad del paciente. Esta realidad se circunscribe de nuevos supuestos y actitudes de los profesionales que tienen que acompañar a su debido tiempo la evolución del conocimiento, garantizando una comunicación enfermero / usuario eficaz y prácticas de cuidados seguros, con garantía de calidad de los cuidados prestados.

Palabras clave: Cultura de seguridad; Calidad de cuidados; Comunicación.

1. INTRODUCTION

The provision of health care has a high degree of complexity, determined by the specificities of its focus, which is the patient, as well as the multidimensional, multiprofessional and multidisciplinary character of contexts. One of the characteristics of Health Systems is the production of inaccurate results, often expressing errors and complications with high efficiency costs and increasing degrees of dissatisfaction, both of users and providers (Fragata, Sousa, Santos, 2014). Adverse events constitute the main cause of mortality and morbidity around the world and although estimates related with this reality are vague, many studies warn about the weaknesses in quality and safety of health care. (WHO, 2008). The quantification of the damages suffered by the provision of unsafe and inadequate health care is a difficult and complex process (WHO, 2008; Pimenta, 2013). In 1999, the Institute of Medicine disclosed the report 'To Error is Human: Builkding the Health System' where it estimates that in the United States would die between 44 to 98 thousand people annually as a result of health care errors, a number which is comparable to the daily fall of a Boeing 747 and higher than mortality originated from HIV-AIDS, breast cancer or road accidents (Kohn, 1999). According to literature, medical error is a serious problem in health care in the various countries of Europe. A wide range of investigations on the prevalence of error in health care, estimates that between 3 and 16% of patients are victims of treatment errors that could be avoided (Santos, 2010). In Portugal, available data on this important issue are even scarcer, however, if we consider that Portuguese hospitals have the same reliability of their American counterparts, it will be possible to estimate between 1.300 and 2.900 annual deaths as a consequence of errors committed in the provision of health care (Mendes and Barroso, 2014). Relating these numbers to the morbidity cases originated from the same fact, we realize that we are facing a disturbing reality that requires an immediate multidimensional and multidisciplinary attention, guided by an investigation that allows to identify the problems and challenges concerning patient's safety and to study suitable solutions. In this context, patient's safety is one of the biggest health care challenges of the 21th century. It is the main theme in the scope of the health services quality, which is a worldwide concern, of exponential growth, demanding the involvement of all process partners, health organizations, policy makers, managers, health professionals, patients and their family members. The development of assertive and consistent programs of quality concerning the health and safety of patients, demands this multidimensional and integrated approach. The occurrence of error is an adverse phenomenon that, in one way or another, affects all the links in this chain, namely professionals, which are the operational elements of health care provision (Antunes, 2015). The constant change of work conditions (increased average life expectancy, more complex patients, staff turnover, technological developments that are more and more complex), associated with an ever increasing level of exigency by health care system users, can threaten the functioning of the best team and the excellence of the best professional (Mendes and Barroso, 2014). This way, mistakes are often consequences and not causes. If committing errors is a human condition, recognizing the error and acquiring skills in order to prevent it, is a key requirement for personal and professional development (Santos, 2010). In this context, a new entity known as Culture of Safety is built and becomes important, expressing the commitment of an organization's professionals with the continuous promotion of a safe therapeutic environment and that will have, as expected consequence, a change of behaviours, influencing the results which are the assurance of safe care for the citizen (Reis, 2014). In Portugal, this new paradigm is a priority of the Estratégia Nacional para a Qualidade na Saúde e para o Plano Nacional para a Segurança dos Doentes, that consider the Culture of Safety as an imperative in improvement interventions that should always be assisted by monitoring their evolution (DGS, 2015). Culture of Safety is an integrant and inseparable element of quality programs, defined as the provision of safe, effective, timely and equitable health care (Pimenta, 2013). It should be conveyed through open communication, teamwork, recognition of mutual dependence, continuous learning, reporting of adverse events, this way ensuring the primacy of safety at all levels of the organization (WHO, 2009, cit. in Reis, 2014). Organizations with a positive culture of safety are characterized by a communication based on mutual trust and the effectiveness of preventive measures. The

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DOI: https://doi.org/10.29352/mill0206.03.00174

importance of communication in the health sector has been the subject of several studies over the last decades and WHO considers it as determinant factor of the quality of safety in the provision of health care (Santos et al., 2010). Its importance in the structure, process and results of health care is corroborated by the Joint Commission International. The mission of this commission is to identify problems and challenges related to patient's safety and to develop appropriate solutions that will be based on the sharing of health professionals and of all other elements involved in the health care system. As a result of this pluridisciplinary participation, in 2007, the WHO elaborated a document named "The Nine Patient Safety Solutions", which presents everything that was learned about "where", "how" and "why" adverse accidents happen in health sector (WHO, 2007). One of the nine challenges and solutions identified is related, precisely, to communication (Communication during patient hand-overs), assuming that disturbances or failures in communication inter and intra teams may be the basis of the occurrence of error in diagnosis and treatment, and also of the decrease quality of care and as a consequence, of the potential damages to patients (WHO, 2007). The importance of communication to the work of an interdisciplinary team is determinant in the quality of healthcare provision (Nogueira and Rodrigues, 2015), affecting in a positive way the safety and treatment results (Babiker, 2014). The relationships established with the patient or its family are originated by the nurse's ability to communicate as well as the entire multidisciplinary team's that works with him. This is what allows the understanding between who gives and who receives the information, being a determinant part of the profession and the primacy for the construction of a solid trust relationship (Pereira, 2008). Communication is the main therapeutic tool of the nurse, thus it allows him/her to know the personality, life environment and personal conception of the world. It increases the patient's efforts to preserve himself from the disease or to become aware of the disease and take responsibility for his treatment (Phaneuf, 2005).

2. METHODS

It is a quantitative, descriptive/correlational, analytical and cross-sectional study. The sample, for our convenience, is of non-probabilistic type, consisting of 138 nurses.

In order to perform the study, it was applied a data collection tool, consisting of a questionnaire designed to characterize the sample, which includes sociodemographic and professional variables.

We used the Evaluation Scale of Patient Safety Culture in Hospitals (Eiras, 2011) composed of 7 sections that include 42 items: – A "Your service/work unit", consisting of 18 items; B – "Your hierarchical superior", consisting of 4 items; C – "Communications", consisting of 6 items; D – "Frequency of notification", consisting of 3 items; Section E – "Patient Safety Level", consisting of 1 item; F – "Your hospital" consisting of 11 items; G – "Number of events/occurrences" consisting of 1 item. To analyse the results, we consider that positive results above 75% classify this aspect of the safety culture as strong (very good level), less than 50% represent problematic areas or critical aspects. For the intermediate values (> 50% and <75%), we consider that they are not problematic, but should be seen as an opportunity for improvement.

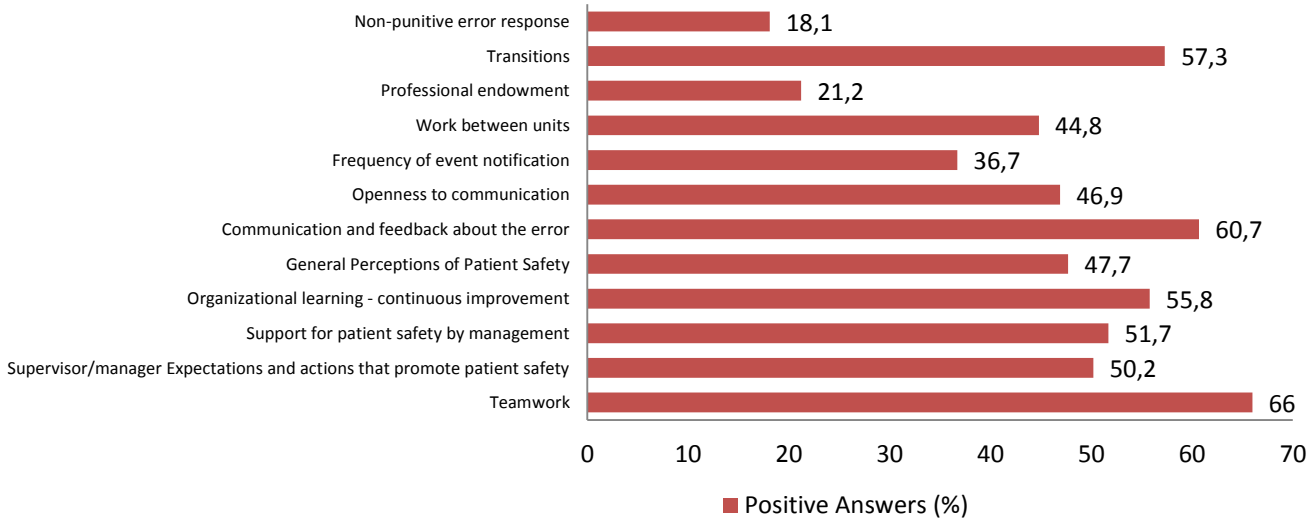
We also used the Clinical Communication Skills Scale (ECCC) validated by Ferreira; Silva & Duarte (2016). It is a Likert scale consisting of 24 items organized into 7 factors corresponding to the seven essential elements of communication: It builds a relationship; Begins the discussion; Collects information; Perceives the patient's perspective; Shares information; Reaches a consensus; Allows to finish the dialogue. We evaluated some of the metric properties through validity and reliability studies, namely the temporal stability and the internal consistency or items' homogeneity, showing good reliability indices. Data collection took place from February to May 2016.

3. RESULTS

The interviewees have an average age of 32.51 years, are mostly female (77.54%) with a degree (94.4%) and have, on average, 9.41 years of professional experience. Nurses over 30 years of age are those who have better communication skills. Health professionals with more years of professional experience (> 10 years = 14,945 ± 2,296) are the ones who present higher averages in the various dimensions of clinical communication skills. We have evaluated the importance given to clinical communication skills and found that: 61.6% of the nurses consider that the most relevant communication skill is the relationship between the professional and the patient (rapport). For 47.1% of the nurses the opening phase of a clinical consultation/interview is relevant, for 19.6% it is in first place and in second place for 27.5%. Collecting information (making clinical history) was considered by 40.6% of the interviewees as the third most relevant communication skill. The competence to understand the perspective of the patient about its problem/illness was in 4th place for 29.7% of the interviewees and in second place for 29.7% Sharing and discussing clinical information with the patient is considered by 39.9% of nurses to be the 5th most relevant competence. 44.9% of the interviewees consider the act of negotiating with the patient an agreement on their problems/diagnoses and therapeutic plan the 6th most relevant competence. We also verified that 119 (86.2%) of the nurses consider the act of closing the interview/consultation the least relevant communication competence. 97.1% of the nurses interviewed are aware of the existence of a department, inside the institution, responsible for implementing a quality policy on health care. Nurses up to the age of 30 present a better safety culture in what concerns the teamwork, patient safety support

through management, organizational learning – continuous improvement, general perceptions about patient's safety, training of professionals, transitions and error response. Concerning the supervisor/manager expectation subscales and actions that promote patient's safety, communication and error feedback, communication openness, notification frequency, inter-unit work training of professionals, nurses aged> 30 have a better safety culture. Most of the nurses 71 (51.4%) reported some type of event in the last year. Of these, 41 (29.7%) reported 1 to 2 events and 30 (21.7%) reported 3 or more events. 48.6% of the interviewees didn't report any adverse events in the last 12 months.

We conclude that all manifest variables have significant and positive values, except for the information collection (factor 3) with the communication and feedback about the error (r = -0.24) and the years of professional experience with the non-punitive response to error (r = -0.14). We verify that the dimension allows to determine the dialogue that presents the biggest predictive weight in relation to the security culture in the dimensions of event notification, communication and feedback about the error and organizational learning – continuous improvement. We conclude that the higher the number of years of professional experience the lower the error response.
Results from the safety culture indicate that none of the presented aspects has reached the percentage of positive responses needed to be considered as a strong (very good) point in the safety culture. In Graph 1, we identified six dimensions ("General Perceptions of Patient Safety", "Openness to Communication", "Frequency of Event Notification", "Inter-relationship Between Work Units", "Training of Professionals", "Non-punitive response to error") which obtained a percentage of positive responses below 50%, constituting critical points with a lack of priority intervention. The percentage of positive responses from the remaining dimensions is between 50.2% and 66%, being considered "acceptable", although with need of improvement (cf. Graph 1).



Graph 1 - Positive answers by dimension (%)

Figure 1 presents a multivariate regression of the ECCC results with those of the safety culture scale in hospitalized patients and after the inferential analysis we recorded that all the manifest variables (years of work experience, collection of information, information sharing and dialogue) register significant values. We assess that this dimension allows to determine that dialogue has a bigger predictive weight in relation to the security culture regarding the frequency of notification, communication and feedback about error and organizational learning – continuous improvement. The higher the number of years of professional experience the lower the response to the non-punitive error.

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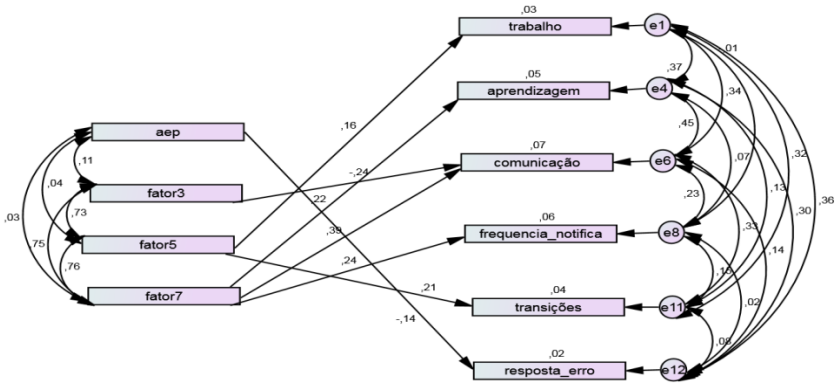

Figure 1 - Multivariate regression of the ECCC results with culture of safety of patients

4. DISCUSSION

The evidence points us to an inevitability of implementing a Culture of Safety, which reflects the commitment of the professionals of an organization with the continuous promotion of a safe therapeutic environment and which will have the desirable consequence, and expected, the change of behaviors influencing, thus, the results, that is, the guarantee of safe care for the citizen (Reis, 2014).

The results show that the majority of nurses in our study (51.4%) have notified some type of event in the last year. Of these 29.7% notified 1 to 2 events and 21.7% notified 3 or more events. The remaining 48.6%, almost half of the study population, did not make any notifications, result that, supported by theoretical support that we had access reveals concern. Other studies carried out in this context present results lower than ours. In the study carried out by Garcia (2015) the majority of nurses (95.6%) did not make any event notification, Costa (2014), inferred that 77.9% of the respondents did not report any event/occurrence. Also the study of de Eiras et al. (2011), shows that the majority of participants, (73%), did not report any events/occurrences. These results demonstrate that underreporting is a reality in many hospitals representing a priority area of intervention, in a patient-centered health system notification of incidents is essential, corroborating the notion that the real dimension of this problem is unknown in Portugal, as well as the consequences that come from the culture of underreporting (Costa 2014). Antunes (2015) states that 62.0% of adverse incidents/events are not reported, although our study presented a notification rate of 51.4% there is a large margin for improvement.

The Culture of Safety must be an integrant and inseparable element of quality programs, (Pimenta, 2013). It must be conveyed by open communication, teamwork, recognition of mutual dependence, continuous learning, ensuring, by this way the primacy of security at all levels of the organization (WHO, 2009 cit. in Reis, 2014). The evaluation of fragilities allows the definition of strategies that ensure uniformity in the acquisition of safety values, promoting sharing as a foundation of the prevention of adverse events and the culture of non-infallibility (culture of reporting events, culture of learning with the trajectories of error, culture of accountability without guilt) (Costa, 2014). In the context of the evaluation of nurses' perception about safety culture of hospitalized patients having as reference the proposal of Eiras et al. (2011), who consider good results when observe medium values positive responses equal or greater than 75% and as opportunities for improvement when values lower than 50% are observed, in our study none of the dimensions reached the necessary values so that the safety culture can be considered a strong point.

Errors are often, consequences and not causes. If erring is human, recognizing the error and acquiring skills to prevent it is a key requirement for personal and professional development (Santos, 2010).

CONCLUSION

Patient Safety in the occurrence dimension of adverse events have assumed a growing concern for organizations given their implication in the quality of care and patient satisfaction issues. Considered by several authors as a public health problem, health care organizations in general, and professionals in particular, should be more concerned with the implementation of measures focus on preventing and reducing undesirable events existent in provision of health care.

Results show the importance of training on incident and adverse event reporting systems, reinforcing the “positive” reporting perspective, highlighting the idea that we learn from the error. Learning from harmful situations allows to understand them, prevented them, and turn them into opportunities for change to best practices, keeping away the idea of punishment.

It is emphasized the importance of health professionals, specifically nurses, to take notice of adverse events as a useful tool for care delivery and to reduce the rate of adverse events. We also emphasize the importance of continuing education as the only way to follow the evolution of knowledge in this area, assuring safe practices, and the quality of care delivery.

ACKNOWLEDGMENT
This work is financed by national funds through FCT - Fundação para a Ciência e Tecnologia, I.P., under the project UID/Multi/04016/2016. Furthermore we would like to thank the Instituto Politécnico de Viseu, CI&DETS and (UICISA:E) for their support.

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CULTURA DE SEGURANÇA DO DOENTE: ESTUDO DE ALGUNS FATORES INTERVENIENTES

PATIENT SAFETY CULTURE: STUDY OF SOME INTERVENING FACTORS

CULTURA DE SEGURIDAD DEL PACIENTE: ESTUDIO DE ALGUNOS FACTORES INTERVENIENTES

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RECEBIDO: 30 de janeiro de 2018
ACEITE: 08 de março de 2018

Ferreira, M., Consciência, J., Duarte, J. & Silva, D. (2018). Culture of patient safety: Study of some intervening factors. *Millenium, 2*(6), 33-39.
DOI: https://doi.org/10.29352/mill0206.03.00174

RESUMO

Introdução: A segurança do doente tem um carácter multidimensional e multidisciplinar. No âmbito da sua índole multidimensional a OMS evidencia a importância da qualidade da interação e da comunicação como determinantes da qualidade e da segurança na prestação dos cuidados de saúde.
Objetivo: Analisar em que medida as variáveis sociodemográficas e profissionais influenciam as competências de comunicação dos enfermeiros e qual o impacto das competências comunicacionais dos enfermeiros na cultura de segurança dos cuidados.
Métodos: Estudo, de carácter quantitativo, descritivo/correlacional, analítico e transversal, realizado numa amostra de 138 enfermeiros. Foi utilizada a escala Avaliação da Cultura de Segurança do Doente em Hospitais (Eiras, 2011), e a Escala de Competências de Comunicação Clínica (ECCC) validada por (Ferreira, Silva & Duarte 2016) para avaliação das competências comunicacionais.
Resultados: Os participantes têm uma idade média de 32.51 anos, com um desvio padrão de 7.958. São maioritariamente do sexo feminino (77.54%) com licenciatura (94.4%) e tem, em média 9.41 anos, de experiência profissional. A idade, o estado civil, a experiencia profissional não influenciam a cultura de segurança do doente. Após a análise inferencial através de uma regressão múltipla multivariada, todas as variáveis manifestadas (Anos experiencia profissional, recolhe informação, partilha Informação e permite terminar o diálogo) registam valores significativos. Quanto maior o número de anos de experiencia profissional menor a resposta ao erro não punitiva.
Conclusões: Os resultados apontam para a importância da comunicação sobre algumas variáveis na cultura de segurança do doente. Esta realidade circunscreve-se de novos pressupostos e atitudes dos profissionais que têm que acompanhar, em tempo útil, a evolução do conhecimento, garantindo uma comunicação enfermeiro / utente eficaz e práticas de cuidados seguras, garantindo a qualidade dos cuidados prestados.

Palavras-Chave: Cultura de segurança; Qualidade cuidados; Comunicação.

ABSTRACT

Introduction: Patient's safety has a multidimensional and multidisciplinary character. In its multidimensional nature, WHO highlights the importance of the quality interaction and communication as determinants of quality and safety in health care delivery.
Objetive: To analyze the extent to which sociodemographic and professional variables influence nurses' communication skills and what the impact of nurses' communicational competencies on the safety culture of care.
Methods: A quantitative, descriptive-correlational, analytical and cross-sectional study with a sample of 138 nurses. We used the Hospital survey on Patient Safety Culture (Eiras, 2011), and the Clinical Communication Skills Scale (ECCC), validated by (Ferreira; Silva & Duarte 2016) for the evaluation of communication skills.
Results: The population has 32.51 years as average, with a standard deviation of 7.958. They are mostly female (77.54%) with a degree (94.4%) and have, on average, 9.41 years of professional experience. Age, marital status, work experience does not influence the safety culture of the patient. After the inferential analysis through a multivariate multiple regression, we note that all manifest variables (Years of professional experience, collects information, share information and allows to terminate the dialogue) showed significant values. The greater the years of professional experience less punitive error response.
Conclusions: The results point to the importance of some variables in the patient's safety culture. This reality is circumscribed by new presuppositions and attitudes; Professionals who have to attend, in a timely manner, the evolution of knowledge, ensuring safe practices, assuring the quality of the care provided.

Keywords: Safety culture; Quality of care; Communication.

RESUMEN

Introducción: La seguridad del paciente tiene un carácter multidimensional y multidisciplinario. En el ámbito de su índole multidimensional, la OMS pone de manifiesto la importancia de la calidad de la interacción y de la comunicación como determinantes de la calidad y la seguridad en la prestación de la asistencia sanitaria.
Objetivo: Analizar en qué medida las variables sociodemográficas y profesionales influencian las competencias de comunicación de los enfermeros y cuál es el impacto de las competencias comunicacionales de los enfermeros en la cultura de seguridad del cuidado.
Métodos: Estudio, de carácter cuantitativo, descriptivo / correlacional, analítico y transversal, se realizó en una muestra de 138 enfermeros. Se utilizó la escala Evaluación de la Cultura de Seguridad del Enfermo en Hospitales (Eiras, 2011), y la Escala de Competencias de Comunicación Clínica (ECCC) validada por (Ferreira, Silva & Duarte 2016) para la evaluación de las competencias comunicacionales.

Resultados: Los participantes tienen una edad media de 32.51 años, con una desviación estándar de 7.958. Son mayoritariamente del sexo femenino (77.54%) con licenciatura (94.4%) y tiene, en promedio 9.41 años, de experiencia profesional. La edad, el estado civil, la experiencia profesional no influyen en la cultura de seguridad del paciente. Después del análisis inferencial a través de una regresión múltiple multivariada, todas las variables manifiestas (Años experiencia profesional, recolecta información, compartir información y permite terminar el diálogo) registran valores significativos. Cuanto mayor sea el número de años de experiencia profesional menor la respuesta al error no punitivo.
Conclusiónes: Los resultados apuntan a la importancia de la comunicación sobre algunas variables en la cultura de seguridad del paciente. Esta realidad se circunscribe de nuevos supuestos y actitudes de los profesionales que tienen que acompañar a su debido tiempo la evolución del conocimiento, garantizando una comunicación enfermero / usuario eficaz y prácticas de cuidados seguros, con garantía de calidad de los cuidados prestados.

Palabras clave: Cultura de seguridad; Calidad de cuidados; Comunicación.

1. INTRODUÇÃO

A prestação de cuidados de saúde reveste-se de um elevado grau de complexidade determinado pelas especificidades do seu foco, o utente, assim como pelo carácter multidimensional, multiprofissional e pluridisciplinar dos contextos. Uma das características dos Sistemas de Saúde é a produção de resultados imprecisos, muitas vezes expressos em erros e complicações com elevados custos de eficiência e crescentes graus de insatisfação, tanto dos utilizadores como dos prestadores (Fragata, Sousa, & Santos, 2014). Os eventos adversos constituem-se como a maior causa de mortalidade e morbilidade em todo o mundo e embora as estimativas referentes a esta realidade sejam vagas, muitos estudos alertam para as fragilidades na qualidade e segurança dos cuidados de saúde (Organização Mundial de Saúde [OMS], 2008). A quantificação dos danos sofridos pela prestação de cuidados de saúde inseguros e inadequados é um processo difícil e complexo (OMS, 2008; Pimenta, 2013). Em 1999 o Instituto of Medicine divulgou o relatório To Error is Human: Builkding a safer Health System onde estima que nos Estados Unidos morreriam anualmente entre 44 a 98 mil indivíduos em consequência de erros dos cuidados de saúde que receberam, um número comparável à queda diária de um boing 747 e superior à mortalidade decorrente do VIH-Sida, do cancro da mama ou dos acidentes (Kohn, Corrigan, & Donaldson, 2000). A literatura identifica o erro médico como um problema grave nos cuidados de saúde nos diversos países da Europa. Um conjunto alargado de investigações sobre prevalência do erro nos cuidados de saúde estima que entre 3 a 16% dos doentes são vítimas de erros de tratamento que poderiam ser evitados (Santos, Grilo, Andrade, Guimarães, & Gomes, 2010). Em Portugal os dados disponíveis sobre esta importante problemática são ainda mais escassos, no entanto, se considerarmos que os hospitais portugueses têm a mesma fiabilidade dos seus congéneres americanos, será possível estimar entre 1.300 a 2.900 mortes anuais em consequência de erros cometidos pela prestação de cuidados de saúde (Mendes & Barroso, 2014). Se associarmos a estes números os casos de morbilidade decorrentes do mesmo facto, temos a noção de que estamos perante uma realidade assustadora que requer uma atenção multidimensional e pluridisciplinar imediata, orientada pela investigação que permita identificar os problemas e desafios inerentes à segurança do doente e estudar as soluções adequadas. A segurança do doente constitui-se, neste contexto, como um dos grandes desafios dos cuidados de saúde do séc. XXI. Tema central no âmbito da qualidade dos serviços de saúde é uma preocupação mundial, de crescimento exponencial, que exige o envolvimento de todos os parceiros do processo, organizações de saúde, decisores políticos, gestores, profissionais de saúde, utentes e familiares. A elaboração de programas assertivos e congruentes de qualidade em saúde e segurança do utente impõe esta abordagem pluridimensional e integrada. A ocorrência do erro é um fenómeno adverso que, de uma ou de outra forma afeta todos os elos desta cadeia nomeadamente os profissionais, elementos operacionais da prestação de cuidados (Antunes, 2015). A mudança permanente das conjunturas de trabalho (aumento da esperança média de vida, doentes mais complexos, rotação de profissionais, evolução tecnológica cada vez mais complexa), associada a um nível de exigência cada vez maior dos utilizadores do sistema de saúde, pode ameaçar o funcionamento da melhor equipa e a excelência do melhor profissional (Mendes & Barroso, 2014). Os erros são, assim, muitas vezes, consequências e não causas. Se errar é condição humana, reconhecer o erro e adquirir competências para o prevenir é exigência chave para o desenvolvimento pessoal e profissional (Santos et al., 2010). É neste contexto que se edifica e ganha destaque uma nova entidade, a *Cultura de Segurança*, que reflete o comprometimento dos profissionais de uma organização com a promoção contínua de um ambiente terapêutico seguro e que terá como consequência desejável e esperada, a mudança de comportamentos, influenciando desta forma os resultados, ou seja, a garantia de cuidados seguros ao cidadão (Reis, 2014). Em Portugal, este novo paradigma constitui uma prioridade da Estratégia Nacional para a Qualidade na Saúde e para o Plano Nacional para a Segurança dos Doentes que apontam a cultura de segurança como um imperativo nas intervenções de melhoria, as quais deverão ser sempre coadjuvadas pela monitorização da evolução das mesmas (Direcção Geral de Saúde [DGS], 2015). A *Cultura de Segurança* é um elemento integrante e indissociável dos programas de qualidade, definindo-se como a prestação de

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DOI: https://doi.org/10.29352/mill0206.03.00174

cuidados de saúde seguros, eficazes, oportunos e equitativos (Pimenta, 2013). Deve ser veiculada por uma comunicação aberta, trabalho em equipa, reconhecimento de dependência mútua, aprendizagem contínua, notificação de eventos adversos assegurando-se, por esta via a primazia da segurança em todos os níveis da organização (World Health Organization [WHO], 2009 cit. in Reis, 2014). Organizações com uma cultura de segurança positiva são caracterizadas por uma comunicação fundamentada na confiança mútua e na efetividade das medidas preventivas. A importância da comunicação na área da saúde tem vindo a ser alvo de vários estudos ao longo das últimas décadas e a OMS evidencia-a como determinante da qualidade da segurança na prestação dos cuidados (Santos *et. al*, 2010). A sua importância na estrutura, processo e resultados dos cuidados de saúde é corroborada pela Joint Commission International. Esta comissão tem como missão identificar problemas e desafios inerentes à segurança do doente e, estudar as soluções adequadas que serão fundamentadas nas partilhas dos profissionais de saúde e de todos os outros elementos envolvidos no sistema da prestação de cuidados. Como resultado desta participação pluridisciplinar em 2007 a OMS elaborou o documento "The Nine Patient Safety Solutions" expondo tudo o que foi apreendido sobre o "onde", o "como" e o "porquê" dos acidentes adversos em saúde (WHO, 2007). Um dos nove desafios e soluções identificadas diz respeito, precisamente, à comunicação (Communication during patient hand – overs), assumindo que as perturbações ou falhas na comunicação entre e inter equipas podem estar na base da ocorrência do erro no diagnóstico e tratamento, da diminuição da qualidade dos cuidados e, consequentemente, dos danos potenciais para os doentes (WHO, 2007). A importância da comunicação no trabalho de uma equipa interdisciplinar é determinante na qualidade da prestação de cuidados de saúde (Nogueira & Rodrigues, 2015), afetando positivamente a segurança e o resultado do tratamento (Babiker, *et al.*, 2014). As relações que se estabelecem, com o doente ou com a família, advêm da capacidade de comunicação do enfermeiro e de toda a equipa multidisciplinar que com ele atua. É através dela que se cria um entendimento entre quem emite e quem recebe a informação, sendo parte determinante da profissão e a primazia para a edificação de uma sólida relação de confiança (Pereira, 2008). A comunicação é a principal ferramenta terapêutica do enfermeiro, uma vez que lhe permite conhecer a personalidade, o ambiente de vida da pessoa e a conceção que tem do mundo. Motiva os esforços do indivíduo para se preservar da doença ou então, para se consciencializar da doença e responsabilizar-se pelo seu tratamento (Phaneuf, 2005).

2. MÉTODOS

Trata-se de um estudo quantitativo, descritivo/correlacional, analítico e transversal. A amostra, do tipo não probabilística por conveniência é constituída por 138 enfermeiros.

Pretendemos analisar em que medida as variáveis sociodemográficas e profissionais influenciam as competências de comunicação dos enfermeiros, e qual o impacto das competências comunicacionais dos enfermeiros na cultura de segurança dos cuidados. Foi aplicado um instrumento de colheita de dados composto por, um questionário destinado à caracterização da amostra que inclui as variáveis sociodemográficas e profissionais. Utilizamos a Escala Avaliação da Cultura de Segurança do Doente em Hospitais (Eiras, 2011) composta por 7 secções que englobam 42 itens: – A "O seu serviço/unidade de trabalho", constituída por 18 itens; B – "O seu superior hierárquico", constituída por 4 itens; C – "Comunicações", constituída por 6 itens; D – "Frequência da notificação", constituída por 3 itens; secção E – "Grau de segurança do doente", constituída por 1 item; F – "O seu hospital" constituída por 11 itens; G –"Número de eventos/ocorrências" constituída por 1 item. Para análise dos resultados, consideramos como positivos acima de 75% e classificam esse aspeto da cultura de segurança como forte (muito bom nível). Inferiores a 50% representam áreas problemáticas ou aspetos críticos. Para os valores intermédios (> 50% e < 75%), consideramos como não sendo problemáticos, mas devem ser vistos como oportunidade de melhoria.

Utilizamos ainda a Escala de Competências de Comunicação Clínica (ECCC) validada por (Ferreira, Silva, & Duarte, 2016). É uma escala tipo likert constituída por 24 itens organizados em 7 fatores correspondentes aos sete elementos essências à comunicação: Constrói uma relação; Inicia a discussão; Recolhe informação; Percebe a perspetiva do utente; Partilha informação; Chega a um consenso; Permite terminar o diálogo. Avaliamos algumas das propriedades métricas através de estudos de validade e de fiabilidade nomeadamente a estabilidade temporal e a consistência interna ou homogeneidade dos itens tendo revelado bons índices de fiabilidade. A colheita de dados decorreu de fevereiro a maio de 2016.

3. RESULTADOS

Os inquiridos têm uma idade média de 32.51 anos, são maioritariamente do sexo feminino (77.54%) com licenciatura (94.4%) e tem em média 9.41 anos de experiência profissional.

Os enfermeiros com mais de 30 anos são aqueles que detêm melhores competências comunicacionais.

São os profissionais de saúde com mais anos de experiência profissional (> 10anos $\bar{x}$=14.945±2.296) que apresentam médias mais elevadas nas diversas dimensões das competências de comunicação clinica.

Avaliámos a valorização atribuída aos domínios da comunicação clinica e verificámos que: 61.6% dos enfermeiros considera *estabelecer relação entre o profissional e o utente (rapport)* a competência de comunicação mais relevante. Para 47.1% dos enfermeiros *abrir uma consulta/entrevista clinica* é relevante, tendo sido colocada em 1º lugar por 19.6% e em 2º lugar por 27.5%. *Recolher informação (fazer historia clinica)* foi considerada por 40.6% dos inquiridos a terceira competência de

comunicação mais relevante. À competência *compreender a perspetiva do utente sobre o seu problema / doença* foi atribuído o 4º lugar por 29.7% dos inquiridos e 29.7% atribuem-lhe o 2º lugar de relevância. *Partilhar e discutir informações clinicas com utente* é considerada por 39.9% dos enfermeiros a 5ª competência mais relevante. Dos inquiridos, 44.9% consideram *negociar com o utente um acordo sobre os seus problemas/diagnósticos e plano terapêutico* a 6ª competência mais relevante. Constatamos ainda que 119, (86.2%) dos enfermeiros considera *fechar a entrevista/consulta* a competência de comunicação menos relevante.

A existência na instituição, de um departamento responsável pela implementação de uma política da qualidade nos cuidados de saúde é do conhecimento de 97.1% dos enfermeiros inquiridos.

Os enfermeiros até aos 30 anos, apresentam uma melhor cultura de segurança em relação ao trabalho em equipa, apoio à segurança do doente pela gestão, aprendizagem organizacional - melhoria continua, perceções gerais sobre a segurança do doente, dotação profissional, transições e resposta ao erro. No que diz respeito às subescalas de expectativa do supervisor/gestor e ações que promovam a segurança do doente, comunicação e feedback acerca do erro, abertura de comunicação, frequência de notificação, trabalho entre unidades e dotação de profissionais, os enfermeiros com idade > 30 anos apresentam uma melhor cultura de segurança.

A maioria dos enfermeiros (51.4%) notificaram algum tipo de evento no último ano. Desses 41 (29.7%) notificaram 1 a 2 eventos e 30 (21.7%) notificaram 3 ou mais eventos. Não fizeram nenhuma notificação de eventos adversos nos últimos 12 meses 48.6% dos inquiridos.

Concluímos que todas as variáveis manifestadas registam valores significativos e positivos com exceção da *recolha de informação* (fator 3) com a *comunicação e feedback acerca do erro* (r=-0.24) e dos *anos de experiencia profissional com a resposta ao erro não punitiva* (r=-0.14). Aferimos que a dimensão *permite terminar o diálogo* apresenta maior peso preditivo em relação à cultura de segurança nas dimensões *frequência de notificação de eventos, comunicação e feedback acerca do erro e aprendizagem organizacional – melhoria continua. Aferimos que* quanto maior os anos de experiencia profissional menor a resposta ao erro.

Os resultados acerca da cultura de segurança indicam que nenhuma dimensão atingiu a percentagem de respostas positivas necessárias para ser considerada como um ponto forte (muito bom nível) na cultura de segurança. Identificamos seis dimensões, "Perceções gerais sobre a segurança do doente"; "Abertura à comunicação"; "Frequência da notificação de eventos"; "Trabalho entre as unidades"; "Dotação de Profissionais"; "Resposta ao erro não punitiva" com percentagem de respostas positivas inferiores a 50%, constituindo pontos críticos com carência de uma intervenção prioritária. A percentagem de respostas positivas das remanescentes dimensões situa-se entre os 50,2% e 66%, sendo consideradas "aceitáveis", contudo a necessitar de melhoria (cf. Gráfico 1).

Gráfico 1 - Respostas positivas por dimensão (%)

A regressão multivariada dos resultados da Escala de Competências de Comunicação Clinica com os da escala de cultura de segurança em doentes hospitalizados e após a análise inferencial registamos que todas as variáveis manifestadas (Anos experiencia profissional, recolhe informação, partilha Informação e permite terminar o diálogo) registam valores significativos. Aferimos que a dimensão permite terminar o diálogo apresentando maior peso preditivo em relação à cultura de segurança no que diz respeito a frequência de notificação, comunicação e feedback acerca erro e aprendizagem organizacional – melhoria continua (Cf. figura 1). Quanto maior o número de anos de experiencia profissional menor a resposta ao erro não punitiva.

Ferreira, M., Consciência, J., Duarte, J. & Silva, D. (2018). Culture of patient safety: Study of some intervening factors. *Millenium, 2*(6), 33-39.
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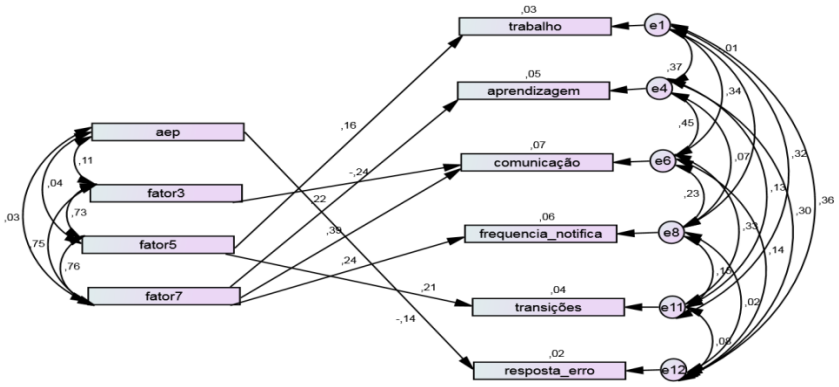

Figura 1 - Regressão múltipla multivariada das Competências de Comunicação Clinica com a cultura de segurança do doente

4. DISCUSSÃO

A evidência remete-nos para a inevitabilidade da implementação de uma *Cultura de Segurança*, que reflete o comprometimento dos profissionais de uma organização com a promoção contínua de um ambiente terapêutico seguro e que terá como consequência desejável, e esperada, a mudança de comportamentos influenciando, desta forma, os resultados, ou seja, a garantia de cuidados seguros ao cidadão (Reis, 2014).

Os resultados obtidos revelam que a maioria dos enfermeiros do nosso estudo (51.4%) notificaram algum tipo de evento no último ano. Desses, 29.7% notificaram 1 a 2 eventos e 21.7% notificaram 3 ou mais eventos. Os restantes 48,6%, quase metade da população em estudo, não fizeram nenhuma notificação, resultado que, apoiado no suporte teórico a que acedemos se revela preocupante.

Outros estudos realizados neste âmbito apresentam resultados inferiores aos nossos. No estudo realizado por Garcia (2015) a maioria dos enfermeiros (95,6%) não fez nenhuma notificação de evento, Costa (2014), inferiu que 77.9% dos inquiridos não relataram qualquer evento/ocorrência. Também o estudo de Eiras et al. (2011), revela que a maioria dos participantes, (73%), não notificaram quaisquer eventos/ocorrências. Estes resultados demonstram que a subnotificação é uma realidade em muitos hospitais representando por isso uma área de intervenção prioritária, uma vez que, num sistema de saúde que se deseja centrado no doente a notificação de incidentes é imprescindível, corroborando a noção de que em Portugal se desconhece a verdadeira dimensão desta problemática e das consequências que advêm da cultura de subnotificação (Costa 2014). Antunes (2015) refere que 62,0% dos incidentes / eventos adversos não são notificados, apesar de o nosso estudo apresentar uma taxa de notificação de 51.4% existe uma grande margem de melhoria.

A *Cultura de Segurança* deve ser um elemento integrante e indissociável dos programas de qualidade, (Pimenta, 2013). Deve ser veiculada por uma comunicação aberta, trabalho em equipa, reconhecimento de dependência mútua, aprendizagem contínua, assegurando-se, por esta via a primazia da segurança em todos os níveis da organização (WHO, 2009 cit. in Reis, 2014). A avaliação das fragilidades permite a definição de estratégias que veiculem uniformidade na aquisição dos valores de segurança, promovendo a partilha como fundamento da prevenção de eventos adversos e da cultura de não infabilidade (cultura de reportar eventos, cultura de aprender com as trajetórias de erro, cultura de responsabilização sem culpa) (Costa, 2014).

No âmbito da avaliação da perceção dos enfermeiros sobre a cultura de segurança dos doentes hospitalizados tendo como referencial a proposta de Eiras et al. (2011), que consideram bons resultados quando se observam valores médios de respostas positivas iguais ou superiores a 75% e como oportunidades de melhoria quando se observam valores inferiores a 50%, no nosso estudo nenhuma das dimensões atingiu os valores necessários para que a cultura de segurança possa ser considerada um ponto forte.

Os erros são muitas vezes, consequências e não causas. Se errar é condição humana, reconhecer o erro e adquirir competências para o prevenir é exigência chave para o desenvolvimento pessoal e profissional (Santos, 2010).

CONCLUSÕES

A Segurança do Doente na dimensão *ocorrência de eventos adversos* tem assumido uma crescente preocupação para as organizações de saúde dada a sua implicação na qualidade de cuidados e na satisfação do utente, sendo considerado por diversos autores como um problema de saúde pública o qual deve ter por parte das organizações de saúde em geral, e dos profissionais em particular, preocupação acrescida com a implementação de medidas que visem a prevenção e diminuição de acontecimentos indesejáveis decorrentes da prestação de cuidados de saúde.

Os resultados apontam para a importância da formação sobre os sistemas de notificação de incidentes e eventos adversos, reforçando a perspetiva "positiva" da notificação, realçando a ideia de que se aprende com o erro. A aprendizagem com as situações nefastas

permite compreendê-las, preveni-las e transformá-las em oportunidades de mudança para melhores práticas, afastando a perspetiva de punidade.

Realça-se a importância de os profissionais de saúde, e especificamente os enfermeiros, assumirem a notificação de eventos adversos como uma ferramenta útil para a prestação de cuidados e capaz diminuir a sua taxa de ocorrência. Realçamos ainda a importância da formação continua como sendo a única forma de acompanhar a evolução do conhecimento nesta área, garantindo práticas seguras, com garantia de qualidade dos cuidados prestados.

AGRADECIMENTOS

Agradecemos ao Instituto Politécnico de Viseu, CI&DETS e (UICISA:E)

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Millenium, 2(6), 41-55.

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INVENTÁRIO HABILIDADES DO CUIDADOR: ESTRUTURA FATORIAL NUMA AMOSTRA DE PARTICIPANTES PORTUGUESES

CAREGIVER SKILLS INVENTORY: FACTORIAL STRUCTURE IN A SAMPLE OF PORTUGUESE PARTICIPANTS

INVENTARIO HABILIDADES DEL CUIDADOR: ESTRUCTURA FACTORIAL EN UNA MUESTRA DE PARTICIPANTES PORTUGUESES

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RECEIVED: 27th November, 2017
ACCEPTED: 25th January, 2018

Cunha, M., Duarte, J., Cardoso, A., Ramos, A., Quintais, D., Monteiro, R., Castela, R. & Almeida, V. (2018).
Caregiver Skills Inventory: factorial structure in a sample of Portuguese participants.
Millenium, 2(6), 41-55. **DOI:** https://doi.org/10.29352/mill0206.04.00164

RESUMO

Introdução: O Inventário de Habilidades do Cuidador traduzido do original *Caring Ability Inventory (CAI)* de *Ngozi Nkongho* (1999) foi projetado para medir as habilidades autopercecionadas pelos cuidadores informais.
Considerando que alguns cuidadores poderão não estar capacitados com habilidades para cuidar de pessoas dependentes e que o conhecimento acerca desta problemática é ainda deficitário, justifica-se desenvolver investigação neste domínio.
Objetivos: Avaliar as propriedades psicométricas, nomeadamente a estrutura fatorial e a consistência interna; classificar as habilidades autopercecionadas pelos cuidadores informais.
Métodos: Estudo transversal de natureza observacional com foco metodológico, realizado em contexto comunitário, numa amostra de 214 participantes (86,9% mulheres), com uma média de 51,07 anos. Residem em meio rural 63,6% dos participantes; 66,8% possuem companheiro(a); 57,5% possuem até ao 3.º ciclo do ensino básico, 65,9% com família altamente funcional, 51,9% estão inseridos numa família nuclear ou simples. Foi estudada a consistência interna e realizada uma análise fatorial confirmatória do *Caring Ability Inventory* de *Ngozi Nkongho* (1999).
Resultados: O estudo da consistência interna do *Caring Ability Inventory* de *Ngozi Nkongho* (1999), versão espanhola *Inventário de Habilidades do Cuidador* de Berdejo & Parra (2008), confirmou a estrutura original, apresentando três (3) fatores relativos a: fator 1- Conhecimento (α= 0.78); fator 2 – Coragem (α=0. 65); fator 3 - Paciência (α= 0.78). O valor de Alfa de Cronbach para o global do CAI foi de 0,84. No global, 45,3 % dos participantes detêm adequadas habilidades para cuidar, 27,6% têm habilidades de cuidados muito adequadas, sendo que em 27,1% as habilidades são inadequadas.
Conclusões: Esta investigação aporta o estudo das propriedades psicométricas do *Caring Ability Inventory* , numa amostra da população portuguesa. A análise comparativa dos achados da presente investigação com os resultados obtidos por *Ngozi Nkongho* (1999) revelou que, no presente estudo, a estrutura fatorial se mantém e que os valores de consistência interna na Nota Global são coincidentes (α=0.84), porém nos fatores *Conhecimento* e *Coragem* são mais baixos e no factor *Paciência* mais altos.
A aferição de um instrumento de medida das habilidades dos cuidadores potencia que as/os enfermeiras/os implementem na prática clínica a sua avaliação e mensuração, de modo a identificar os clusters mais vulneráveis, ou seja, os grupos de cuidadores com menos habilidades e elaborar uma proposta de intervenção em termos de ajuda/intervenção formal.

Palavras-Chave: Estrutura fatorial; Habilidades; Cuidadores.

ABSTRACT

Introduction: The Caregiver Skills Inventory translated from the original Caring Ability Inventory (CAI) by Ngozi Nkongho (1999) was designed to measure skills that are self-perceived by informal caregivers.
Considering that some caregivers may not be able to care for dependants and that knowledge about this problem is still lacking, it is justified to develop research in this area.
Objectives: To evaluate the psychometric properties, namely the factorial structure and internal consistency; Self-perceived skills by informal caregivers.
Methods: A cross-sectional observational study with a methodological focus was carried out in a community context, in a sample of 214 participants (86.9% women), with a mean age of 51.07 years. 63.6% of the participants live in rural areas; 66.8% have a partner; 57.5% studied up to the 3rd cycle of basic education, 65.9% have a highly functional family, 51.9% are in a nuclear or simple family. The internal consistency was studied and a confirmatory factorial analysis of the Caring Ability Inventory of Ngozi Nkongho (1999) was performed.
Results: The internal consistency study of the Caring Ability Inventory by Ngozi Nkongho (1999), Spanish version of the Skills Inventory of the Caretaker of Berdejo & Parra (2008), confirmed the original structure, presenting three factors: Factor 1 - Knowledge (α=0.78); Factor 2 - Courage (α=0.65); Factor 3 - Patience (α=0.78). The Cronbach's alpha value for the CAI global was 0.84. Overall, 45.3% of the participants had acceptable skills to care for, 27.6% had very adequate care skills, and in 27.1% the skills were inadequate.
Conclusions: This research contributes to the study of the psychometric properties of the Caring Ability Inventory, in a sample of the Portuguese population. The comparative analysis of the findings of the present investigation with the results obtained by Ngozi Nkongho (1999) revealed that, in the present study, the factorial structure is maintained and that the internal consistency values in the Global Note coincide (α=0.84), but in Knowledge and Courage factors are lower and in the Patience factor higher. The assessment of an instrument to measure the abilities of caregivers empowers nurses to implement their assessment and measurement in clinical practice in order to identify the most vulnerable clusters, that is, the groups of caregivers with less skill and to elaborate a proposal for intervention in terms of aid/formal intervention.

Keywords: Factor structure; Skills; Caregivers.

RESUMEN

Introducción: El Inventario de Habilidades del Cuidador traducido del original Caring Ability Inventory (CAI) de Ngozi Nkongho (1999) fue diseñado para medir las habilidades autoperceciadas por los cuidadores informales.
Considerando que algunos cuidadores pueden no estar capacitados con habilidades para cuidar de las personas dependientes y que el conocimiento sobre esta problemática es todavía deficitario, se justifica desarrollar investigación en este ámbito.
Objetivos: Evaluar las propiedades psicométricas, en particular la estructura factorial y la consistencia interna; clasificar las habilidades autopercezadas por los cuidadores informales.
Métodos: Estudio transversal de naturaleza observacional con enfoque metodológico, realizado en contexto comunitario, en una muestra de 214 participantes (86,9% mujeres), con una media de 51,07 años. Residen en medio rural el 63,6% de los participantes; El 66,8% tiene compañero (a); El 57,5% posee hasta el 3º ciclo de la enseñanza básica, el 65,9% con familia altamente funcional, el 51,9% está insertado en una familia nuclear o simple. Se estudió la consistencia interna y se realizó un análisis factorial confirmatorio del *Caring Ability Inventory de Ngozi Nkongho (1999).*
Resultados: El estudio de la consistencia interna del *Caring Ability Inventory de Ngozi Nkongho (1999),* versión *española Inventario de Habilidades del Cuidador* de Berdejo & Parra (2008), confirmó la estructura original, presentando tres (3) factores: factor 1- Conocimiento α = 0.78); factor 2 - Coraje (α = 0 65); factor 3 - Paciencia (α = 0.78). El valor de Alfa de Cronbach para el global del CAI fue de 0,84. En total, el 45,3% de los participantes tiene adecuadas habilidades para cuidar, el 27,6% tiene habilidades de cuidado muy adecuadas, siendo que en el 27,1% las habilidades son inadecuadas.
Conclusiones: Esta investigación aporta el estudio de las propiedades psicométricas del Caring Ability Inventory, en una muestra de la población portuguesa. El análisis comparativo de los hallazgos de la presente investigación con los resultados obtenidos por Ngozi Nkongho (1999) reveló que, en el presente estudio, la estructura factorial se mantiene y que los valores de consistencia interna en la Nota Global son coincidentes (α = 0.84), pero en los casos Los factores de conocimiento y coraje son más bajos y en el factor de paciencia más altos.
La medición de un instrumento de medida de las habilidades de los cuidadores potencia que las / las enfermeras / os implementen en la práctica clínica su evaluación y medición, para identificar los clusters más vulnerables, o sea, los grupos de cuidadores con menos habilidades y elaborar una propuesta de intervención en términos de ayuda / intervención formal.

Palavras Clave: Estrutura Factorial; Habilidades; Cuidadores.

INTRODUCTION

The presence of a disease in the family household results, in most cases, in breaking with the previous life, which requires an adjustment to a new social/spiritual reality; it involves a process of reorganization in the family's structure, roles and affective relationships. Therefore, the transformations of each family resulting from the illness of one of its members depend on the social role of the patient, age, gender and the structure of the family itself. Accordingly, it should be taken into account the complexity of care provided by the families, and the fact that they themselves go through complex adjustment phenomena regarding the transformations of social organization demanded by the disease, resulting in potential constraints on the performance of their roles as caregivers. (Bica, Cunha, Andrade, Dias, Ribeiro et al., 2016).
An informal caregiver is a person who has a family-like or close relationship and takes responsibility for the care of a loved one with chronic illness, as well as participates in decision making, supervises and supports the execution of daily living activities to make up for the existing dysfunction in the sick person (Montalvo, Flórez & Stavro, 2007).
Informal caregivers are mainly middle-aged women with many civil statuses, some employed and others housewives, with different levels of education and heterogeneous socioeconomic conditions, who tend to take on this role at the time of diagnosis for over a period of six months. These people feel that this activity takes up most of their day and, in general, are not aware of the role they play (Montalvo, Flórez & Stavro, 2007).
Caring is a concern that includes elements which are invisible, intangible and difficult to account for. The role of the caregiver is defined not only in terms of the procedures and the tasks he/she performs, but above all refers to the ability to acquire the knowledge, patience and value for the task at hands, it consists in the ability of caring. Among these intangible elements lies the care skills of informal caregivers, which refer to the potential care of adult caregivers who carry out the role of caring for a significant family member or person who has an incapacitating chronic illness (Diaz, 2014).
Taking the aforementioned into account, the main objective of this study was to evaluate the psychometric characteristics of the Caregiver Skills Inventory, namely the factorial structure and the consistency of the Caregiver Skills Inventory, translated and adapted from Caring Ability Inventory (CAI) of Ngozi Nkongho (1999), using the Caregiver Skills Inventory (Spanish version) by Berdejo & Parra (2008).

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Millenium, 2(6), 41-55. **DOI:** https://doi.org/10.29352/mill0206.04.00164

1. THEORETICAL FRAMEWORK

The performance of the tasks carried out by an informal caregiver depends on the type/frequency of the need for care provided, the family context and the context in which the patient cared for is part of (Sequeira, 2007). For Moreira (2001), these are related to family structure, division and distribution of labour work, socioeconomic status and ethnicity.

André, Cunha, Duarte & Students 24 CLE (2015) carried out a study aimed at evaluating the impact of family functionality on informal caregiver overload in the context of palliative care, whose sociodemographic profile of the informal caregiver points to a predominantly female sample (73.6%), in which the majority of caregivers were aged 44 or over (34.0%), 54.2% did not have a partner, the majority lived in urban areas (53.3%), 77.6% in the central region of Portugal, and 47.2% were employed and earned minimum wage (43.5%). A single caregiver prevailed (54.2%) and it was made up of caregivers with secondary level education (41.4%). The study of family functionality revealed the majority to be highly functional families (77.1%), followed by moderately functional families (21.5%) and 1.4% of the caregivers belong to families with some type of dysfunction. It was also found that 36.1% of the informal caregivers did not present an overload, whilst 27.8% presented mild overload. Men reported higher levels of overload in terms of the impact of care provision, perceived self-efficacy, expectations about caring, and interpersonal relationships. Nevertheless, the differences were only significant in interpersonal relationships.

The female gender is also mentioned in other studies that stress the role of women as caregivers in the Portuguese culture, as well as in other cultures, since it is the woman who has the most interaction with the patient and is the strongest link in the health team. The knowledge of this profile is fitting and useful for health professionals so that they can plan and carry out activities focused on the reality of patients and their caregivers in the context of long-term illness, such as any support offered and, consequently, the costs incurred, which are almost exclusively the responsibility of the families (André, Cunha, Duarte& Students 24 CLE, 2015).

Still within the scope of the informal caregiver profile, Bica, Cunha et al. (2016) verified in their study, with a sample of 150 caregivers, that 110 were female (73.3%), with a mean age of 35.45 years, and 40 males (26.7%) with a mean age of 41,30 years. In the group of men, the largest percentage are those who have a partner (52.5%), contrary to the group of women, whose majority (57.3%) in turn has no partner. Caregivers residing in an urban environment prevailed (54.7%), who hold secondary level education (39.3%), and 78% were employed. Caregivers with high family functionality had a higher level of satisfaction with health care.

Regardless of the caregiver's profile, those who take responsibility for informal care at home assume a great commitment that is mediated by the affective relationship with the person cared for, rarely questioning their own ability to care and willingness to take on such responsibility (Diaz, 2014). According to the same author, one of the most balanced and functional ways to face the adverse conditions that emerge from the role of a home care provider entails knowing and acquiring skills to fulfil the role of the caregiver. Ngozi Nkongho (1999) proposes some skills that include cognitive and attitudinal dimensions such as knowledge, value and patience.

Regarding the skill of knowledge, characteristics such as the prevalence of positive feelings, as well as a favourable attitude to provide care and protection to the person in need of care, stand out; the ability to value is characterized by the presence of a sense of concern in knowing that someone depends on their care, as well as the courage to face the unknown. As for the ability of patience, the predisposition to support the person who is being cared for is empathically highlighted (Berdejo & Parra, 2008).

The ability of care expressed in a patient way, with knowledge and value, also contributes to the provision of care as an affective interaction that favours mutual growth between caregivers and those who receive the care (Diaz, 2014). The same author also mentions that the caring process is seen as an interpersonal intervention, in which the caregiver places his/her internal resources, that is, his/her care skills with patience, value and knowledge, at the service of the interpersonal relationship that is established.

2. METHODS

A cross-sectional observational study with a methodological focus, carried out in a communal context, to study the internal consistency and a confirmatory factorial analysis of the the *Caring Ability Inventory* by *Ngozi Nkongho* (1999).

The transcultural adaptation process, followed literary recommendations , such as: translation, retrotranslation, expert appreciation and pretests. Two independent translators, translated the instrument (CAI^1T^1 e CAI^1T^2) and the results were submitted for analysis by a group of experts, consisting of two female and two male nurses, being that one pair clinical experienced Professors and another exclusively care practice nurses. The expert group had the following requirements: Nursing Theories knowledge; Spanish language fluency; instrument translation and validation dominance. Their contributions created the CAI^2 version, which was retrotranslated to *CAI* Rt^1 e *CAI* Rt^2 versions, by two native Spanish translators ; then, after validation of the expert group, they proposed the CAI^3 version, which was studied and applied in this research.

2.1. Participants

The sample involved 214 informal caregivers, mostly female (86.9%), with a mean age of 51.07 years; 63.6% live in rural areas; 66.8% have a partner; 57.5% studied up to the 3rd cycle of basic education, 65.9% have a highly functional family, 51.9% are in a nuclear or simple family.

2.2. Data collection instrument

As data collection methods, we chose a protocol consisting of an *ad hoc Questionnaire*, since it is the method that allows the collection of information, with informal caregivers, with the highest speed as well as with minimum interference and external influence. It contains a questionnaire of the sociodemographic characterization of the caregivers, contextual variables of the person cared for and the health status of the informal caregivers. The protocol also included the Caregiver Skills Inventory, translated and adapted from the *Caring Ability Inventory* by *Ngozi Nkongho* (1999), Spanish version of Berdejo & Parra (2008).

The basic concept of the *Caring Ability Inventory* (CAI) derives from the concept of "caring". Four assumptions were identified, these being: *caring is multidimensional, presenting a cognitive component and an attitudinal component; the ability to care is present in all individuals; the act of caring can be taught and learned; the act of caring can be quantified*.

Mayeroff (1971) identified eight essential elements for the quantification of care: knowledge, rhythm alternation, patience, honesty, trust, humility, hope and courage. These elements made it possible to construct this instrument. After several tests, the items were divided into three factors: knowledge (the ability to deal with various situations), courage (the ability to deal with the unknown) and patience (tolerance and persistence).

The CAI is made up of 37 items, evaluated on a Likert scale ranging from 1 to 7 points, where one corresponds to *"never"* and seven to *"always"*. It presents three factors: knowledge, courage and patience. The *"knowledge"* factor consists of 14 items (2,3,6,7,9,19,22,26,30,31,33,34,35,36), the *"courage"* factor presents 13 items (4,8,11,12,13,14,15,16,23,25,28,29,32) being quoted inversely, and the factor *"patience"* (1,5,10,17,18,20, 21,24,27,37) consists of 10 items. The inter-correlation between the factors is moderate in size and reflects several domains of the concept of caring. Thus, by varying the range of answers from 1 to 7, the maximum score (7) indicates a high degree of care for a positive response to the scale item. For the responses answered in a negative way, the quotation is inverse, that is, it obtains the minimum score (1). The answers of each question are added to obtain a total for each factor. Due to the fact that the *"knowledge"* factor has 14 items, it varies from 14 to 98. The *"courage"* factor varies from 13 to 91 points and the *"patience"* factor varies from 10 to 70 points, respectively. The overall score is composed by the score of each factor.

In the present study, the *Caregiver Skills Inventory* (Spanish version) was used by Berdejo & Parra (2008), translated into Portuguese.

Given that the answers from 1 to 7 have a greater demand for comprehension, Berdejo & Parra (2008) modified the CAI's quotation scores to a Likert scale with scores of 1 to 4, in which 1 is never, 2 almost never, 3 almost always and 4 always. Thus, by varying the range of responses from 1 to 4, the maximum score (4) indicates a high degree of care for a positive response to the scale item. For the questions answered in a negative way, the quotation is inverse, that is to say, it obtains the minimum score (1). The answers of each question are added to obtain a total for each factor. Because the *"knowledge"* factor presents 14 items, it varies from 14 to 56. The *"courage"* factor varies from 13 to 52 points and the *"patience"* factor varies from 10 to 40 points, respectively (see Table 1). The answers to the items add up to each factor, therefore obtaining an overall score for each. Higher scores indicate a greater degree of care if the item presents itself positively; the score is reversed if the item is negative.

Table 1 - Classification of the Results of the Caregiver Skills Inventory (CAI) in categories for the total and for the factors

Categories	CAI Total	Factors		
		Knowledge (ability to deal with the various situations)	Courage (ability to deal with the unknown)	Patience (tolerance and persistence)
High	148-111	56-43	52-40	40-30
Medium	110-74	42-28	39-26	29-20
Low	73-37	27-14	25-13	21-10

2.3. Legal requirements

Bearing in mind that any research process requires a follow-up action of standards of conduct on the part of the researchers, some preliminary steps have been taken so as to protect the rights and freedom of the participants.

Therefore, the first step consisted in requesting permission from the authors of the scale in order to use it. This was followed by the opinion of the Ethics Committee of the School of Health of the Polytechnic Institute of Viseu, which was favourable (no.

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010605 3). Subsequently, some caregivers from the personal aspect of each member of the research group were contacted informally. They were invited to join the study, as well as refer other informal caregivers to include them in the study group, being chosen in a snowball type system.

In the development of the research, the rights of the participants and the fundamental ethical principles were safeguarded. This was done through the guidelines of the questionnaire, which include: the theme and the objective of the research, request for collaboration to fill out all questions and the need to answer all of them, so that they would not be eliminated, guarantee of anonymity and confidentiality regarding their answers, release of results, acknowledgment of collaboration and availability throughout.

2.4. Procedures

For the analysis of the data, we used descriptive statistics and analytical or inferential statistics. For this purpose, the statistical treatment was processed through the SPSS program (Statistical Package for the Social Sciences) version 21.0 (2013) for Windows and AMOS version 24, 2017.

The psychometric study of the scale encompasses two steps: internal consistency and factorial analysis, whose aim is to describe the structure of the covariance between variables in terms of a smaller number of variables, called factors. Factor analysis studies the interrelationships between variables, in an effort to find a set of factors (to a lesser extent than the set of original variables) that express what the original variables have in common (Pestana & Gageiro, 2014). According to the same authors, the factor analysis model is motivated by the following: assuming that the variables can be grouped taking into account the correlations among them, that is to say, all the variables of a given group are strongly correlated with each other, but have relatively small correlations with variables of the other group. It is permissible for each group of variables to represent one factor, which is responsible for the observed correlations. On the whole, the first step to be taken in this type of analysis is to examine the relationships between variables using the correlation coefficient as a measure of association between each pair of variables. The correlation matrix may allow the identification of subsets of variables that are highly correlated with each other within each subset, but a bit associated with variables from other subsets. In this case, the application of the factorial analysis will allow us to conclude whether it is possible to explain this pattern of correlations through a smaller number of variables - the factors.

A data collection instrument has a good reliability when the results provided by it are accurate or reliable, in other words, when they vary relatively little from one occasion or context to another (Pestana & Gageiro, 2014). The same authors report that the reliability of the results obtained refers to the consistency of the overall results or to the internal consistency of the items. Reliability refers to the degree of consistency or agreement between two or more independent samples, and for this there is a set of estimation techniques that allow it to be calculated. The methods for estimating reliability can be of the following type: test-retest, parallel forms, split-half, and internal consistency like Cronbach's Alpha, also known as Cronbach's Alpha internal consistency, which is the most commonly used method in psychometrics. This is an internal consistency index that presents values between 0 and 1 and where α is a squared correlation coefficient that measures the homogeneity of the questions correlating the means of all the items to estimate the consistency of the instrument, according to Pestana and Gajeiro (2014): - Very good: alpha greater than 0.9; - Good: alpha between 0.8 and 09; - Reasonable: alpha between 0.7 and 0.8; - Weak: alpha between 0.6 and 0.7; - Inadmissible: alpha <0.6.

The analysis of the internal consistency of a psychological measure is a need that is accepted in the scientific community. Among the different methods that provide estimates of the degree of consistency of a measure, the Cronbach index is highlighted as it is highly trusted among the majority of researchers. Any reference to questions of reliability of a measure raises a reference to Cronbach's alpha index (Marôco, 2014).

The trifactor solution that emerged from exploratory studies that have already been attempted using the Confirmatory Factor Analysis (CFA) was tested using the AMOS 24 software (Analysis of Moment Structures). This statistical procedure confirms whether or not the hypothesized factorial structure is adjusted for the data of the sample that is intended to study.

For the development of the CFA, the covariance matrix and algorithm for parameter estimation MLE (*Maximum-Likelihood Estimation*) was considered.

The assumptions made by Marôco (2014) were taken into account, namely:

- The global adjustment quality indicators of the model, whose reference values are: for the ratio between chi-square and degrees of freedom **($x^2/_{gl}$),** the adjustment is considered good if the ratio ($x^2/_{gl}$) is less than 2, acceptable if less than 5 and unacceptable if greater than 5; for the Root mean square residual (**RMR**) **and** Standardized root mean square residual (**SRMR**) - the smaller the better, and when (RMR=0) the adjustment is said to be perfect; Goodness fit index (**GFI**) and Comparative Fit Index (**CFI**) are recommended values above 0.90 for a good fit; Root Mean Square Error of Approximation (**RMSEA**), between 0.05 and 0.08 the adjustment is good, and very good when the index is lower than 0.05.
- Quality of the model's local adjustment - the factorial weights designated by lambda coefficients (λ) and the individual reliability of the items (δ) whose reference values are 0.50 and 0.25, respectively, were taken into account.

- Composite reliability (CR) - for the study of the internal consistency of the items in relation to each factor, which is a measure similar to Cronbach's alpha.
- Convergent validity (CV) - to determine whether the items that are reflective of a factor strongly saturate that factor.

As reference indicators, indexes above 0.70 for the CR are suggested, although for exploratory investigations lower values may be acceptable. Concerning the CV, values greater than or equal to 0.50 may be considered and this limit may be 0.40 (Marôco, 2014). The study of the normality of the items was made using the coefficient of asymmetry (Sk) and kurtosis (k) and by the multivariate coefficient of Márdia whose reference values are respectively <= 3.0, <= 7.0 and 5.0.

3. RESULTS

The analysis of reliability results indicates the statistics (means and standard deviations) and the correlations obtained between each item and the overall value, giving an insight into how the item combines with the overall value. According to the average rates, they range from 1.59 (item 23) "*I am afraid of letting go of those who I love, because I am afraid of what might happen to them*" and 3.69 (item 19) "*People can count on me to do what I promised*." Through Cronbach's alpha, the items are classified as reasonable, ranging from α=0.769 in item 34 "*I like to talk to people*" and α=0.795 in item 12 "*I do not feel comfortable knowing that there is someone who needs me*". Cronbach's alpha values for the overall value also show a reasonable internal consistency (α=0.783).

A conservative analysis of the results, show that items 2, 3, 6, 8, 9, 12, 15, 16, 22, 23, 25, should be excluded from the research, because they present correlation coefficients less than 0.20, however we decided to maintain the results and submit them to confirmatory factor analysis, thus respecting the original factor structure (see Table 2). Therefore the mentioned items appear in the Initial Model (cf. Figure 1).

Table 2 - Internal consistency of the items from the Caregiver Skills Inventory by Ngozi Nkongho (1999)

Item N.º	Items	Mean	Sd	r/item total	α without item
1	I believe learning takes time.	3,49	0,563	0,361	0,776
2	Today is full of opportunities.	2,94	0,813	0,185	0,782
3	I normally tell others what I think.	3,04	0,643	0,164	0,782
4	I can do very little for someone who is helpless.	2,67	0,878	0,215	0,781
5	I can see the need for change in myself.	3,07	0,637	0,268	0,778
6	I able to like people, even those who do not like me.	2,69	0,788	0,020	0,789
7	I understand people easily.	3,10	0,621	0,387	0,774
8	I've seen enough in this world for what I need to know.	2,45	0,897	0,188	0,782
9	I make time to meet new people.	2,72	0,797	0,184	0,782
10	Sometimes I like to be involved, other times I don't.	2,77	0,621	0,073	0,785
11	There's nothing I can do to make life better.	2,59	0,910	0,198	0,782
12	I do not feel comfortable knowing that there is someone who needs me.	2,02	0,926	-0,055	0,795
13	I do not like to stray from my path to help others.	3,06	1,005	0,358	0,774
14	In relationships with people it is very difficult to show my feelings.	2,58	0,874	0,411	0,771
15	It does not matter what I say as long as I do the right thing.	2,00	0,877	-0,018	0,792
16	It's hard for me to understand what other people feel, since I haven't had the same experience.	2,46	0,871	0,203	0,781
17	I admire people who are calm, serene and patient.	3,61	0,552	0,409	0,774
18	I believe it is important to accept and respect the attitudes and feelings of others.	3,65	0,559	0,488	0,772
19	People can count on me to do what I promised.	3,69	0,491	0,422	0,775
20	I believe there is room for improvement.	3,60	0,546	0,400	0,775
21	Good friends look out for each other.	3,60	0,595	0,496	0,771
22	I find a meaning for all situations.	3,10	0,570	0,168	0,782
23	I am afraid of letting go of those who I love, because I am afraid of what might happen to them.	1,59	0,732	-0,227	0,797
24	I like to encourage people.	3,52	0,596	0,533	0,770
25	I do not like to commit beyond the present moment.	2,00	0,774	-0,071	0,792
26	I really like myself.	3,28	0,663	0,464	0,771
27	I see qualities and weaknesses in each person.	3,17	0,629	0,269	0,778
28	New experiences are often scary for me.	2,46	0,871	0,285	0,778

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Item N.º	Items	Mean	Sd	r/item total	α without item
29	I'm afraid of opening up and letting others know who I am.	2,63	0,910	0,389	0,772
30	I accept people just as they are.	3,42	0,614	0,383	0,774
31	When I like someone, I do not have to hide my feelings.	3,24	0,805	0,383	0,773
32	I do not like being asked for help.	3,23	0,945	0,408	0,771
33	I can express my feelings for a person in a warm and caring way.	3,31	0,666	0,323	0,776
34	I like to talk to people.	3,56	0,543	0,581	0,769
35	I consider myself sincere in my relationship with others.	3,60	0,563	0,530	0,770
36	People need space to think and feel.	3,63	0,539	0,497	0,772
37	I can be approached by people at any time.	3,38	0,616	0,360	0,775
	Global Cronbach's Alpha Coefficient				**0,783**

The descriptive analysis of the items of the questionnaire revealed that all items had a minimum value of 1 and a maximum of 4, with absolute values of asymmetry lower than 3, varying between 0.027 and 1.358. The flattening was less than 7 with an oscillation between 0.032 and 1.432, hence we proceeded with the confirmatory factorial analysis without excluding any items. The Márdia multivariate coefficient with a value of 7.344 is slightly higher than the reference value (5.00), which suggests a deviation from the normal distribution.

Figure 1 presents the hypothesized trifactorial model where the items distributed by the respective factors, their respective factor weight and their individual reliability are observed. Since this is a preliminary study, we proceeded to eliminate all items in the three factors that presented saturations below 0.40. The overall fit quality of the first model was adequate for the ratio of (x2/gl=2.170), for RMSEA=0.074 and RMR=0.061 and inappropriate for the remaining indexes: GFI=0.737, CFI=0.659, SRMR=0.109.

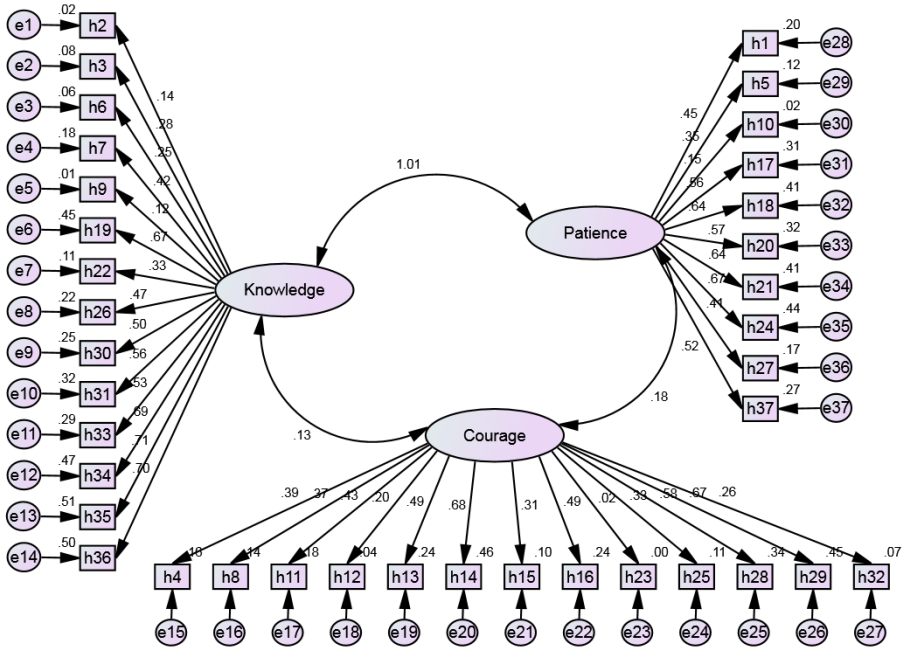

Figure 1 – Initial model with all items

The model was refined with the elimination of the items, which is expressed in figure 2. It is observed that all items presented as corresponding factors have factorial weights greater than 0.40. The global adjustment indexes are already adequate except for GFI=0.886 and CFI=0.881 (x2/gl=1.945; RMSEA=0.067; RMR=0.030 and SRMR=0.065).

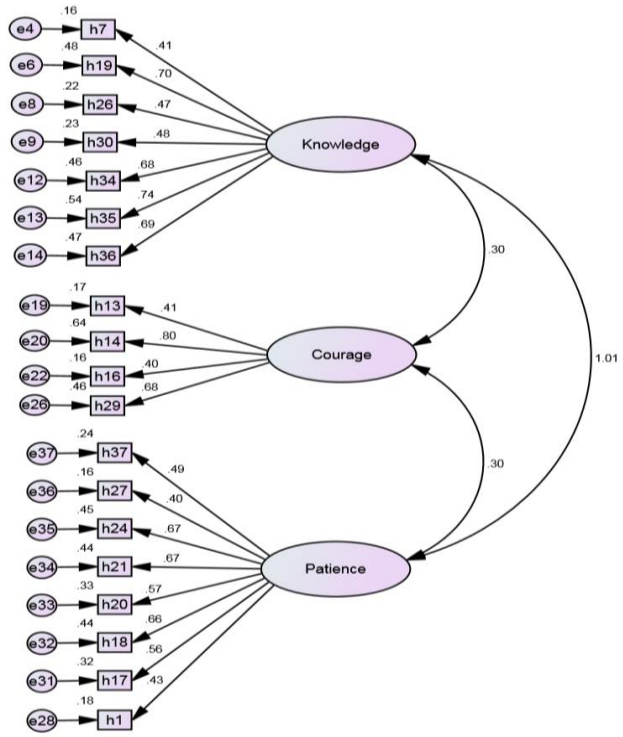

Figure 2 – Model with eliminated items

Still, the model was then adjusted according to the modification indexes proposed by AMOS, and it was verified that there was only an association of errors corresponding to items 17 and 18. With this change, the global adjustment indices presented adequate rates for CFI=0.906, but remained unsatisfactory for GFI=0.886 (see Figure 3).

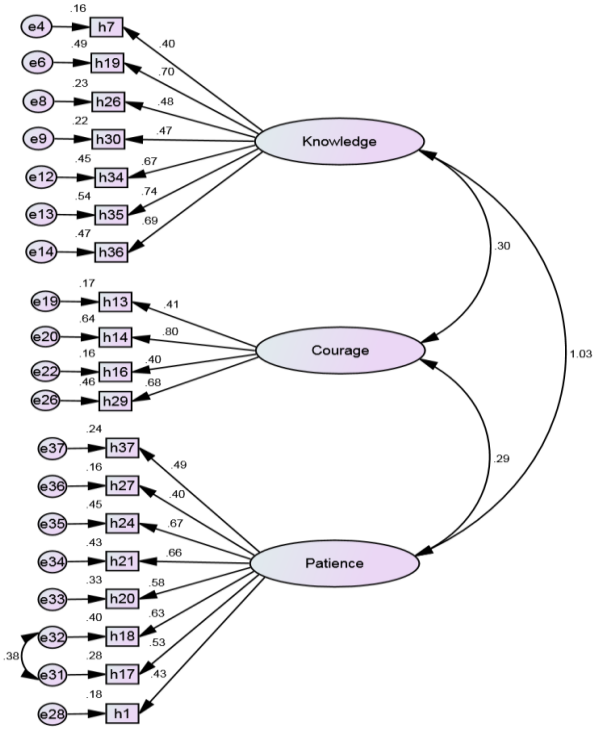

Figure 3 – Model with modification indexes

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Although the correlational values found among the factors were not suggestive of a second-order model, a hierarchical structure with a 2nd-order factor was proposed, which we called "caregiver skills". It can be seen that the indices related to goodness of the global adjustment maintained the same values, but the correlation of skills regarding knowledge and patience is higher than 1.0, which explains 107% and 99% respectively. Thus, this second order model should not be taken into account for the global factor (Figure 4).

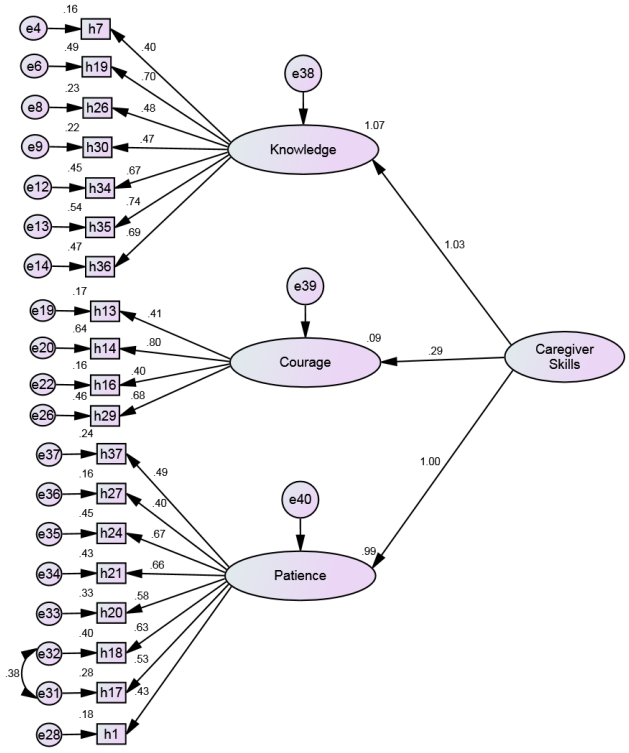

Figure 4- Second-order model

The chart 1 shows the goodness indices of the overall adjustment recorded in all models performed. It is observed that these indices improved as the model was refined.

Chart 1 - Quality indices for the adjustment of all models

Model	$x^{2}/_{gl}$	*GFI*	*CFI*	*RMSEA*	*RMR*	*SRMR*
Model 1 – initial model	2.170	0.737	0.659	0.074	0.061	0.109
Model 2 – with eliminated items	1.945	0.876	0.881	0.067	0.030	0.065
Model 3 – with modification indexes	1.755	0.886	0.906	0.060	0.029	0.062
Second-order model	1.755	0.886	0.906	0.060	0.029	0.062

Analysing the results of the composite reliability, it is observed that only factor 2 presents indices of an internal consistency outcome. On the other hand, the CV values do not allow this conclusion to be made due to the convergent validity of the factors in the sample under study, since they are less than 0.50. Nonetheless, there is a discriminant validity between the factors, except for the relation Factor 1 vs. Factor 3 (see Chart 2).

Chart 2 - Composite reliability, mean extracted variance and discriminant validity

Factors	*CR*	*CV*	Discriminant Validity	
			F2	F3
F1- knowledge	0.795	0.367	0.09	1.06
F2 – courage	0.672	0.358		0.024
F3 – patience	0.776	0.309		

The psychometric study was continued by studying the internal consistency of the final items that make up the scale (see Table 2). Pertaining to the **Knowledge** factor, we are able to see through the mean values that the item which seems most favourable in our view is 19 "*People can count on me to do what I promised*" and the least favourable item is 7 "*I understand people easily*". The Cronbach's alpha coefficients obtained in the seven items that oscillated between α=0.726 in item 35 "*I consider myself sincere in my relationship with others*" and α=0.779 in item 7 "*I understand people easily*", provide us with a reasonable internal consistency, with a total alpha of 0.780. The highest correlation value is found in item 35 (r=0.634) with a variability of 48.5%, whereas the one with the lowest correlation is item 7 (r=0.378) with an explained variance percentage of 16.2%.
As far as the **Courage** factor is concerned, in average terms the most favourable item is 13 "*I do not like to stray from my path to help others*" and the least favourable is item 16 "*It's hard for me to understand what other people feel, since I haven't had the same experience*". Nevertheless, the results show that they are well centred given the mean values and the respective standard deviations. Cronbach's alpha coefficients of the four items in this dimension that ranged from α=0.493 in item 14 "*In relationships with people it is very difficult to show my feelings*" and α=0.655 in item 13 "*I do not like to stray from my path to help others*", are an indication of an internal consistency between weak and reasonable, with a total alpha of α=0.651. The highest correlation value is in item 14 (r=0.562) and the item with the lowest correlation is item 13 (r=0.366), with variabilities of 36.1% and 12.7%.
Regarding the **Patience** factor, the best average is recorded in item 18 "*I believe it is important to accept and respect the attitudes and feelings of others*" with 3.65 and the lowest recorded in item 27 with 3.17, "*I see qualities and weaknesses in each person*". Cronbach's alpha coefficients vary between α=0.733 in item 21 "*Good friends look out for each other*" and α=0.779 in item 27 "*I see qualities and weaknesses in each person*", with an overall Cronbach alpha coefficient of α=0.778, which shows that there is reasonable internal consistency. The highest correlational value was found in item 21 (r=0.594) and the lowest was item 27 (r=0.399), with explained variance percentages of 39.3% and 18.0%, respectively.

Table 3 - Internal Consistency according to factors of the Caregiver Skills Inventory by Ngozi Nkongho (1999)

Item N.º	Factors	Mean	Sd	R item/ total	r^2	α without item
	Knowledge	**Global Alpha for Knowledge 0,780**				
7	I understand people easily.	3,11	0,622	0,378	0,162	0,779
19	People can count on me to do what I promised.	3,70	0,491	0,563	0,415	0,744
26	I really like myself.	3,29	0,663	0,416	0,193	0,773
30	I accept people just as they are.	3,42	0,613	0,429	0,208	0,768
34	I like to talk to people.	3,56	0,543	0,592	0,403	0,736
35	I consider myself sincere in my relationship with others.	3,59	0,572	0,634	0,485	0,726
36	People need space to think and feel.	3,63	0,539	0,581	0,411	0,738
	Courage	**Global Alpha for Courage 0,651**				
13	I do not like to stray from my path to help others.	3,07	1,005	0,336	0,127	0,655
14	In relationships with people it is very difficult to show my feelings.	2,59	0,877	0,562	0,361	0,493
16	It's hard for me to understand what other people feel, since I haven't had the same experience.	2,46	0,875	0,362	0,134	0,628
29	I'm afraid of opening up and letting others know who I am.	2,64	0,912	0,487	0,320	0,543
	Patience	**Global Alpha for Patience 0,778**				
1	I believe learning takes time.	3,49	0,563	0,378	0,167	0,770
17	I admire people who are calm, serene and patient.	3,61	0,552	0,519	0,404	0,747
18	I believe it is important to accept and respect the attitudes and feelings of others.	3,65	0,558	0,572	0,453	0,738
20	I believe there is room for improvement.	3,60	0,546	0,489	0,299	0,752
21	Good friends look out for each other.	3,60	0,594	0,594	0,393	0,733
24	I like to encourage people.	3,52	0,595	0,552	0,328	0,741
27	I see qualities and weaknesses in each person.	3,17	0,630	0,339	0,180	0,779
37	I can be approached by people at any time.	3,39	0,616	0,417	0,188	0,765
						Global Alpha 0,839

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Table 4 presents the Pearson correlation matrix between the three factors and the global value of the Caregiver Skills Inventory that reveals positive and statistically significant values, ranging from 0.252 between knowledge vs. courage with a variability of 6.35 % and 0.803 between knowledge vs. patience with a variability of 64.48%. With the global factor the correlations are higher, with explained variance percentages above 35%.

Table 4 - Pearson Correlation Matrix among the factors of the Caregiver Skills Inventory by Ngozi Nkongho (1999)

Factors	Courage	Patience	Overall Caregiver Skills
Knowledge	0,252**	0,803**	0,881**
Courage		0,207**	0,599**
Patience		-	0,870**

The study in connection with the internal consistency of the inventory was finalised and the convergent/divergent validity of the items with the corresponding factors was presented in Table 5. The results clarify the existence of convergent and divergent validity when higher correlation values of the items with the factors to which they belong to are recorded, in which the second correlational value is higher with the overall factor.

Table 5 - Convergent/divergent validity of the items from the Caregiver Skills Inventory by Ngozi Nkongho (1999)

Items \ Factors	Knowledge	Courage	Patience	Overall Caregiver Skills
1. I believe learning takes time.	0,383***	0,043 n.s.	0,537***	0,420***
7. I understand people easily.	0,569***	0,219**	0,358***	0,486***
13. I do not like to stray from my path to help others.	0,228**	0,659***	0,198**	0,448***
14. In relationships with people it is very difficult to show my feelings.	0,261***	0,772***	0,167*	0,493***
16. It's hard for me to understand what other people feel, since I haven't had the same experience.	-0,012n.s.	0,639***	0,011n.s	0,255***
17. I admire people who are calm, serene and patient.	0,480***	0,188**	0,650***	0,570***
18. I believe it is important to accept and respect the attitudes and feelings of others.	0,564***	0,226**	0,694***	0,639***
19. People can count on me to do what I promised.	0,682***	0,109n.s	0,628***	0,612***
20. I believe there is room for improvement.	0,511***	0,091n.s	0,625***	0,532***
21. Good friends look out for each other.	0,581***	0,155*	0,718***	0,629***
24. I like to encourage people.	0,625***	0,215**	0,686***	0,657***
26. I really like myself.	0,611***	0,193**	0,464***	0,541***
27. I see qualities and weaknesses in each person.	0,405***	0,043n.s	0,524***	0,423***
29. I'm afraid of opening up and letting others know who I am.	0,221**	0,734***	0,195**	0,474***
30. I accept people just as they are.	0,607***	0,122*	0,436***	0,499***
34. I like to talk to people.	0,716***	0,253***	0,600***	0,671***
35. I consider myself sincere in my relationship with others.	0,753***	0,191**	0,634***	0,677***
36. People need space to think and feel.	0,707***	0,064n.s	0,645***	0,611***
37. I can be approached by people at any time.	0,476***	0,087*	0,584***	0,497***

Legend: ns $p > 0.05$ * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

The comparative analysis of the results found in the present study with those of the original CAI psychometric study by Ngozi Nkongho (1999) and with the Care Skills Inventory of Berdejo & Parra (2008), reveals that the alpha value in the factor of

courage in the present study, is lower than the original one and the Spanish version, too. The alpha value for the dimension of patience obtained a higher value than the original (English version). Nonetheless, it was lower than the Spanish version. For the present study, the alpha value of the dimension knowledge was lower in comparison with the two versions. The overall Alpha value of the present study is equal to the overall Alpha value of the Ngozi Nkongho study (1999) and lower than the study by Berdejo & Parra (2008) (see Table 6).

Table 6 - Reliability comparison between the English version and the Spanish version of the Caregiver Skills Inventory with the present study

Confiança	Estudo de Ngozi Nkongho (1999)	Nº Itens	Estudo de Berdejo & Parra (2008)	Nº Itens	Presente Estudo Cunha, et al (2017)	Nº Itens
	Alfa Cronbach		Alfa Cronbach		Alfa Cronbach	
CAI Total	0,84	37	0,86	37	0,84	19
Coragem	0,75	13	0,78	13	0,65	4
Paciência	0,71	10	0,84	10	0,78	8
Conhecimento	0,79	14	0,80	14	0,78	7

• ***Adequacy of caregiver skills***

To determine the adequacy of the caregivers' skills, the 25th and 75th percentile were considered and, with the overall score as a reference, three groups were obtained: percentile ≤ 25 inadequate skills, 26-74 adequate skills, and percentile ≥75 very adequate skills. On the whole, 45,3% of the participants have adequate skills to care for, 27,6% had very adequate care skills, and 27,1% have inadequate skills. (see Table 7).

Table 7 – Adequacy of Caregiver Skills

Skills	**Inadequate**		**Adequate**		**Very adequate**		**Total**		X^2	p
Gender	n (58)	% (27,1)	n (97)	n (45,3%)	n (59)	% (27,6%)	n (214)	% (100,0)		
Male	13	22,4	7	7,2	8	13,6	28	13,1	7,388	0,025
Female	45	77,6	90	92,8	51	86,4	186	86,9		
Total	58	100,0	97	100,00	59	100,0	214	100,0		

4. DISCUSSION

After having applied the Caregiver Skills Inventory to the study sample, the psychometric properties were tested.

The study of the validation of psychometric properties was based on the three "c's": construct, content and criterion. In this validation, only the validity of the construct was taken into account. According to Jaeger (1983), referenced by Costa, Nunes, Duarte and Pereira (2012, page 66), "*construct validity subordinates all others, trying to identify if the instrument actually measures what it intends to measure*." However, even according to the same authors, "*its validity is never proven, but simply accepted, inasmuch as the evidence in its favour is higher than the evidence against*" (Costa et al., 2012, page 66).

The study of the items' homogeneity of the inventory was determined using Cronbach's alpha coefficient, revealing a global value α=0.783 in the internal consistency of the items, presenting a reasonable internal consistency. In the final version of the internal consistency by factors, the overall value was α=0.839, which suggests a good internal consistency.

By studying the internal consistency of the final items that make up the inventory, a total alpha of 0.780 was obtained for the Knowledge factor; in the Courage factor, the total alpha was α=0.651, for the Patience factor a Cronbach alpha coefficient of α=0.778 was obtained, which reveals a reasonable internal consistency.

The evaluation of the validity of the exploratory factorial analysis revealed that all items had a minimum value of 1 and a maximum of 4, with absolute values of asymmetry less than 3, which was followed by a confirmatory factor analysis without item exclusion. Since this was a preliminary study, all items were eliminated in the three factors that presented saturations below 0.40. Thus, the overall fit quality of the first model was adequate for the ratio of ($x2/_{gl}$=2.170), for RMSEA=0.074 and RMR=0.061 and inadequate for the remaining indexes: GFI=0.737, CFI=0.659, SRMR=0.109, which resulted in a refinement of the model with item deletion. Accordingly, it was verified that all items would then have corresponding factors, factorial weights

higher than 0.40. In terms of overall adjustment indices, they were adequate except for GFI=0.886 and CFI=0.881 ($x2/_{gl}$=1.945; RMSEA=0.067; RMR=0.030 and SRMR=0.065).

The adjustment of the model according to the change indexes revealed that there was only the association of the errors corresponding to items 17 and 18. With this change, the global adjustment indexes started to present adequate indexes for CFI=0.906, but not for GFI=0.886.

It was verified that the indexes of the global adjustment of goodness presented the same values. Nevertheless, the correlation of the factor *Knowledge Skills* and with the factor *Patience* was higher than 1.0, explaining 107% and 99%, respectively. Hence, the results must be analysed with parsimony, insofar as they are suggestive of multicollinearity.

It was found that the indices under analysis improved as the model was refined.

The results of the composite reliability revealed that only the *Courage* factor presented indices of internal consistency. The CV values do not allow to conclude the convergent validity of the factors in the study sample, insofar as they were lower than 0.50. However, discriminant validity was found among the factors, except for the relationship between the *Knowledge* factor vs. *Patience* factor.

Given the results, it is proposed to replicate the psychometric validity study of the Caregiver Skills Inventory in samples with a greater number of participants.

CONCLUSIONS

The theoretical framework documents that the caring process is an interpersonal intervention, in which the caregiver coordinates his/her internal resources, his/her patience, courage and knowledge skills in the interpersonal relationship that he/she has with the person cared for.

Considering the relevance of the current number of dependent people, it is justified to assess the impact of caregiver skills on the person cared for. To this end, it is urgent to assess the quality of the instruments for measuring informal care skills.

This research applies the Caring Ability Inventory psicometrics in a sample of Portuguese population

The validation methodology of the factorial structure of the Caregiver Skills Inventory proves that it is considered as a reliable and valid instrument in the assessment of the caregiver's skills, with adequate reliability and evidence of validity.

This research results compared to Ngozi Nkongho (1999) results, revealed that in the present study, the factorial structure is the same and the internal consistency values are coincident in a Global score (α = 0.84); however, Knowledge and Courage factors are lower and Patience factor is higher.

Given these results, it is considered that in the future this inventory can be tested against other scales in order to complement the information obtained and identify areas that are sensitive to a greater investment in the skills of caregivers.

The creation of the measurement of caregivers abilities instrument, provides nurses the ability to use it on a daily basis, measuring and evaluating their clinical patients, finding more vulnerable clusters, which means less skilled caregivers and proposing an aid intervention/formal intervention.

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Millenium, 2(6), 41-55.

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INVENTÁRIO HABILIDADES DO CUIDADOR: ESTRUTURA FATORIAL NUMA AMOSTRA DE PARTICIPANTES PORTUGUESES

CAREGIVER SKILLS INVENTORY: FACTORIAL STRUCTURE IN A SAMPLE OF PORTUGUESE PARTICIPANTS

INVENTARIO HABILIDADES DEL CUIDADOR: ESTRUCTURA FACTORIAL EN UNA MUESTRA DE PARTICIPANTES PORTUGUESES

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RECEBIDO: 27 de novembro de 2017
ACEITE: 25 de janeiro de 2018

Cunha, M., Duarte, J., Cardoso, A., Ramos, A., Quintais, D., Monteiro, R., Castela, R. & Almeida, V. (2018).
Inventário habilidades do cuidador: Estrutura fatorial numa amostra de participantes portugueses.
Millenium, 2(6), 41-55. **DOI:** https://doi.org/10.29352/mill0206.04.00164

RESUMO

Introdução: O Inventário de Habilidades do Cuidador traduzido do original *Caring Ability Inventory (CAI)* de *Ngozi Nkongho* (1999) foi projetado para medir as habilidades autopercecionadas pelos cuidadores informais.
Considerando que alguns cuidadores poderão não estar capacitados com habilidades para cuidar de pessoas dependentes e que o conhecimento acerca desta problemática é ainda deficitário, justifica-se desenvolver investigação neste domínio.
Objetivos: Avaliar as propriedades psicométricas, nomeadamente a estrutura fatorial e a consistência interna; classificar as habilidades autopercecionadas pelos cuidadores informais.
Métodos: Estudo transversal de natureza observacional com foco metodológico, realizado em contexto comunitário, numa amostra de 214 participantes (86,9% mulheres), com uma média de 51,07 anos. Residem em meio rural 63,6% dos participantes; 66,8% possuem companheiro(a); 57,5% possuem até ao 3.º ciclo do ensino básico, 65,9% com família altamente funcional, 51,9% estão inseridos numa família nuclear ou simples. Foi estudada a consistência interna e realizada uma análise fatorial confirmatória do *Caring Ability Inventory* de *Ngozi Nkongho* (1999).
Resultados: O estudo da consistência interna do *Caring Ability Inventory* de *Ngozi Nkongho* (1999), versão espanhola *Inventário de Habilidades do Cuidador* de Berdejo & Parra (2008), confirmou a estrutura original, apresentando três (3) fatores relativos a: fator 1- Conhecimento (α= 0.78); fator 2 – Coragem (α=0. 65); fator 3 - Paciência (α= 0.78). O valor de Alfa de Cronbach para o global do CAI foi de 0,84. No global, 45,3 % dos participantes detêm adequadas habilidades para cuidar, 27,6% têm habilidades de cuidados muito adequadas, sendo que em 27,1% as habilidades são inadequadas.
Conclusões: Esta investigação aporta o estudo das propriedades psicométricas do *Caring Ability Inventory* , numa amostra da população portuguesa. A análise comparativa dos achados da presente investigação com os resultados obtidos por *Ngozi Nkongho* (1999) revelou que, no presente estudo, a estrutura fatorial se mantém e que os valores de consistência interna na Nota Global são coincidentes (α=0.84), porém nos fatores *Conhecimento* e *Coragem* são mais baixos e no factor *Paciência* mais altos.
A aferição de um instrumento de medida das habilidades dos cuidadores potencia que as/os enfermeiras/os implementem na prática clínica a sua avaliação e mensuração, de modo a identificar os clusters mais vulneráveis, ou seja, os grupos de cuidadores com menos habilidades e elaborar uma proposta de intervenção em termos de ajuda/intervenção formal.

Palavras-Chave: Estrutura fatorial; Habilidades; Cuidadores.

ABSTRACT

Introduction: The Caregiver Skills Inventory translated from the original Caring Ability Inventory (CAI) by Ngozi Nkongho (1999) was designed to measure skills self-perceived by informal caregivers.
Considering that some caregivers may not be able to care for dependents and that knowledge about this problem is still deficient, it is justified to develop research in this area.
Objectives: To evaluate the psychometric properties, namely the factorial structure and the internal consistency; Self-perceived skills by informal caregivers.
Methods: Cross-sectional observational study with a methodological focus was carried out in a community context, in a sample of 214 participants (86.9% women), with a mean of 51.07 years. 63.6% of the participants live in rural areas; 66.8% have a partner; 57.5% have up to the 3rd cycle of basic education, 65.9% have a highly functional family, 51.9% are in a nuclear or simple family. Internal consistency was studied and a confirmatory factorial analysis of the Caring Ability Inventory of Ngozi Nkongho (1999) was performed.
Results: The internal consistency study of the Caring Ability Inventory by Ngozi Nkongho (1999), Spanish version of the Skills Inventory of the Caretaker of Berdejo & Parra (2008), confirmed the original structure, presenting three factors: Factor 1 - Knowledge (α=0.78); Factor 2 - Courage (α=0.65); Factor 3 - Patience (α=0.78). The Cronbach's alpha value for the CAI global was 0.84. Overall, 45.3% of the participants had adequate abilities to care for, 27.6% had very adequate care skills, and in 27.1% the skills were inadequate.
Conclusions: This research contributes to the study of the psychometric properties of the Caring Ability Inventory, in a sample of the Portuguese population. The comparative analysis of the findings of the present investigation with the results obtained by Ngozi Nkongho (1999) revealed that, in the present study, the factorial structure is maintained and that the internal consistency values in the Global Note coincide (α=0.84), but in Knowledge and Courage factors are lower and in the Patience Factor higher. The assessment of an instrument to measure the abilities of caregivers empowers nurses to implement their assessment and measurement in clinical practice in order to identify the most vulnerable clusters, that is, the groups of caregivers with less skill and to elaborate a proposal for intervention in terms of aid/formal intervention.

Keywords: Factor structure; Skills; Caregivers.

RESUMEN

Introducción: El Inventario de Habilidades del Cuidador traducido del original Caring Ability Inventory (CAI) de Ngozi Nkongho (1999) fue diseñado para medir las habilidades autoperceciadas por los cuidadores informales.
Considerando que algunos cuidadores pueden no estar capacitados con habilidades para cuidar de las personas dependientes y que el conocimiento sobre esta problemática es todavía deficitario, se justifica desarrollar investigación en este ámbito.
Objetivos: Evaluar las propiedades psicométricas, en particular la estructura factorial y la consistencia interna; clasificar las habilidades autopercezadas por los cuidadores informales.
Métodos: Estudio transversal de naturaleza observacional con enfoque metodológico, realizado en contexto comunitario, en una muestra de 214 participantes (86,9% mujeres), con una media de 51,07 años. Residen en medio rural el 63,6% de los participantes; El 66,8% tiene compañero (a); El 57,5% posee hasta el 3º ciclo de la enseñanza básica, el 65,9% con familia altamente funcional, el 51,9% está insertado en una familia nuclear o simple. Se estudió la consistencia interna y se realizó un análisis factorial confirmatorio del Caring Ability Inventory de Ngozi Nkongho (1999).
Resultados: El estudio de la consistencia interna del *Caring Ability Inventory de Ngozi Nkongho (1999),* versión *española Inventario de Habilidades del Cuidador* de Berdejo & Parra (2008), confirmó la estructura original, presentando tres (3) factores: factor 1- Conocimiento α = 0.78); factor 2 - Coraje (α = 0 65); factor 3 - Paciencia (α = 0.78). El valor de Alfa de Cronbach para el global del CAI fue de 0,84. En total, el 45,3% de los participantes tiene adecuadas habilidades para cuidar, el 27,6% tiene habilidades de cuidado muy adecuadas, siendo que en el 27,1% las habilidades son inadecuadas.
Conclusiones: Esta investigación aporta el estudio de las propiedades psicométricas del Caring Ability Inventory, en una muestra de la población portuguesa. El análisis comparativo de los hallazgos de la presente investigación con los resultados obtenidos por Ngozi Nkongho (1999) reveló que, en el presente estudio, la estructura factorial se mantiene y que los valores de consistencia interna en la Nota Global son coincidentes (α = 0.84), pero en los casos Los factores de conocimiento y coraje son más bajos y en el factor de paciencia más altos.
La medición de un instrumento de medida de las habilidades de los cuidadores potencia que las / las enfermeras / os implementen en la práctica clínica su evaluación y medición, para identificar los clusters más vulnerables, o sea, los grupos de cuidadores con menos habilidades y elaborar una propuesta de intervención en términos de ayuda / intervención formal.

Palavras Clave: Estrutura Factorial; Habilidades; Cuidadores.

INTRODUÇÃO

A presença de doença na família resulta, na maioria das vezes, na rutura com a vida anterior, requerendo um ajustamento a uma nova realidade social/espiritual; envolvendo um processo de reorganização na sua estrutura, nos papéis e nas relações afetivas. Daí que as transformações de cada família decorrentes da doença de um dos seus membros dependem do papel social do doente, da idade, do género e da própria estrutura familiar, pelo que se deve ter em conta quer a complexidade do cuidado prestado pelas famílias, quer o facto delas próprias passarem por complexos fenómenos de ajustamento às transformações de organização social exigidas pela doença, redundando em potenciais constrangimentos ao nível do desempenho dos seus papéis enquanto cuidadores. (Bica, Cunha, Andrade, Dias, Ribeiro et al., 2016).
Denomina-se cuidador informal a pessoa que tem uma relação familiar ou de proximidade e assume a responsabilidade pelo cuidado de um ente querido com doença crónica e participa na tomada de decisões, supervisiona e apoia a implementação das atividades da vida diária para compensar a disfunção existente na pessoa doente (Montalvo, Flórez & Stavro, 2007).
Os cuidadores informais são principalmente mulheres de meia-idade, com vários estados civis, algumas no ativo profissionalmente e outras donas de casa, com diferentes níveis de escolaridade e condição socioeconómica heterogénea, que geralmente tendem a assumir esse papel no momento do diagnóstico e prolonga-se por mais de seis meses. Estas pessoas sentem que a atividade ocupa a maior parte do dia e, por norma, não têm consciência do papel que assumem (Montalvo, Flórez & Stavro, 2007).
Cuidar é uma preocupação que engloba elementos invisíveis, intangíveis e difíceis de contabilizar. O papel do cuidador não se define apenas em termos de procedimentos e as tarefas que realiza, mas acima de tudo refere-se à capacidade de adquirir o conhecimento, a paciência e o valor para essa tarefa, consiste na habilidade do cuidado. De entre estes elementos intangíveis residem precisamente as habilidades do cuidado dos cuidadores informais, que se assumem como o potencial do cuidado que têm as pessoas adultas que assumem o papel de cuidador principal de um familiar ou pessoa significativa, que se encontra em situação de doença crónica incapacitante (Diaz, 2014).
Tendo em conta o exposto, delineou-se como objetivo principal para este estudo avaliar as características psicométricas do Inventário de Habilidades do Cuidador, nomeadamente a estrutura fatorial e a consistência do Inventário de Habilidades do

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Inventário habilidades do cuidador: Estrutura fatorial numa amostra de participantes portugueses.
Millenium, 2(6), 41-55. **DOI:** https://doi.org/10.29352/mill0206.04.00164

Cuidador, traduzido e adaptado de Caring Ability Inventory (CAI) de Ngozi Nkongho (1999), tendo sido utilizado o *Inventário de Habilidades do Cuidador* (versão espanhola) de Berdejo & Parra (2008).

1. ENQUADRAMENTO TEÓRICO

O desempenho das funções do cuidador informal depende do tipo/frequência das necessidades de cuidados a prestar, do contexto familiar e do contexto em que o ser cuidado está inserido (Sequeira, 2007). Para Moreira (2001), estas estão relacionadas com a estrutura familiar, divisão e repartição de trabalhos, estatuto socioeconómico e etnia.

André, Cunha, Duarte, & Students 24 CLE (2015) realizaram um estudo que visava avaliar o impacto da funcionalidade familiar sobre a sobrecarga do cuidador informal, no contexto de cuidados paliativos, cujo perfil sociodemográfico do cuidador informal aponta para uma amostra maioritariamente feminina (73,6%), tendo a maioria dos cuidadores idade igual ou superior aos 44 anos (34,0%), 54,2% não possuíam companheiro(a), maioritariamente residiam em meio urbano (53,3%), 77,6% na região centro de Portugal, 47,2% eram ativos profissionalmente e recebiam um salário mínimo (43,5%). Predominava um único cuidador (54,2%) e era composta por cuidadores com o ensino secundário (41,4%). O estudo da funcionalidade familiar revelou a maioria de famílias altamente funcionais (77,1%), seguidas por famílias moderadamente funcionais (21,5%) e 1,4% dos cuidadores pertenciam a famílias com disfunção marcada. Foi também constatado que 36,1% dos cuidadores informais não apresentaram sobrecarga, 27,8% apresentaram sobrecarga leve. Os homens relataram níveis mais altos de sobrecarga em termos de impacto da provisão de cuidados, autoeficácia percebida, expetativas sobre cuidar e relações interpessoais. No entanto, as diferenças apenas foram significativas nas relações interpessoais.

O género feminino é também mencionado noutros estudos que destacam o papel da mulher como cuidadora na cultura de língua portuguesa, bem como em outras culturas, na medida em que é a mulher que tem mais contacto com o doente e é o elo mais forte na equipa de saúde. A compreensão deste perfil é apropriada e útil para os profissionais de saúde, para que possam planear e realizar atividades voltadas para a realidade dos doentes e seus cuidadores no contexto da doença de longa duração, como todo o suporte oferecido e, consequentemente, os custos assumidos, que são quase exclusivamente da responsabilidade das famílias (André, Cunha, Duarte, & Students 24 CLE (2015).

Ainda no âmbito do perfil do cuidador informal, Bica, Cunha et al. (2016) verificaram no seu estudo, com uma amostra constituída por 150 cuidadores, que 110 eram do sexo feminino (73.3%), com uma média de idades 35.45 anos e 40 do sexo masculino (26.7%), com uma idade média de 41.30 anos. No grupo dos homens, o maior percentual é dos que têm companheira (52.5%), contrariamente ao grupo das mulheres, cuja maioria (57.3%) não possui companheiro. Prevaleciam os cuidadores residentes no meio urbano (54,7%), com o ensino secundário (39.3%) e 78% eram profissionalmente ativos. Os cuidadores com elevada funcionalidade familiar apresentavam um nível de satisfação mais elevado face aos cuidados de saúde.

Independentemente do perfil do cuidador, quem assume a responsabilidade do cuidado informal no domicílio, assume um grande compromisso, mediado pela relação afetiva com a pessoa cuidada, questionando-se poucas vezes acerca da própria habilidade do cuidado e disposição para assumir tal responsabilidade (Diaz, 2014). De acordo com a mesma autora, uma das formas mais equilibradas e funcionais para enfrentar as condições adversas que emergem do papel de prestador de cuidados no domicílio implica conhecer e adquirir habilidades para o cumprimento do papel de cuidador. Ngozi Nkongho (1999) propõe algumas habilidades que incluem dimensões cognoscitivas e atitudinais, como o conhecimento, o valor e a paciência.

No que se refere à habilidade do conhecimento sobressaem características como o predomínio de sentimentos positivos, bem como uma atitude favorável para fornecer atenção e proteção à pessoa que requer cuidados; a habilidade de valor caracteriza-se pela presença de uma sensação de preocupação ao saber que alguém depende do seu cuidado, bem como a coragem para enfrentar o desconhecido. Quanto à habilidade de paciência, sobressai a predisposição para apoiar a pessoa cuidada de maneira empática (Berdejo & Parra, 2008).

A habilidade do cuidado expressa de maneira paciente, com conhecimento e valor, contribui também para que a prestação de cuidados seja uma interação afetiva, que favoreça o crescimento mútuo entre quem cuida e quem recebe os cuidados (Diaz, 2014). A mesma autora refere ainda que o processo de cuidar é encarado como uma intervenção interpessoal, em que o cuidador coloca os seus recursos internos, ou seja, as suas habilidades de cuidado com paciência, valor e conhecimento, ao serviço da relação interpessoal que se estabelece.

2. MÉTODOS

Estudo transversal de natureza observacional com foco metodológico, realizado em contexto comunitário, com a finalidade de estudar a consistência interna e estrutura análise fatorial confirmatória do *Caring Ability Inventory* de *Ngozi Nkongho* (1999) versão espanhola de Berdejo & Parra (2008).

O processo de adaptação transcultural seguiu as recomendações propostas na literatura, designadamente: tradução, retrotradução, apreciação por peritos e pré-teste. Dois tradutores independentes traduziram o instrumento (CAI^1T^1 e CAI^1T^2) e os resultados foram submetidos à análise de um grupo de peritos, constituído por duas enfermeiras e dois enfermeiros, sendo que um par eram docentes com experiência clínica e o outro constituído exclusivamente por profissionais de enfermagem da

prática assistencial. O grupo de peritos preenchia os seguintes atributos: conhecimento das teorias de enfermagem; domínio da língua castelhana; experiência na tradução e validação de instrumentos de pesquisa. Os seus contributos originaram a versão *CAI*[2]que foi retrotraduzida por outros dois tradutores com domínio do castelhano como idioma nativo, originando-se as versões *CAI* Rt[1] e *CAI* Rt[2], posteriormente, avaliadas pelo grupo de peritos, que a confrontando com o instrumento original, propôs a versão *CAI*[3] que foi aplicada e estudada nesta pesquisa.

2.1. Participantes

A amostra envolveu 214 cuidadores informais, maioritariamente do género feminino (86,9%), com uma média de idades de 51.07 anos; 63,6% residem em meio rural; 66,8% possuíam companheiro(a); 57,5% possuem até ao 3.º ciclo do ensino básico, 65,9% com família altamente funcional, 51,9% estão inseridos numa família nuclear ou simples.

2.2. Instrumento de recolha de dados

Como métodos de colheita de dados optou-se por um protocolo constituído por um *Questionário ad hoc,* por ser o método que permite a recolha de informação, junto dos cuidadores informais com a maior celeridade com o mínimo de interferência e influência externa. Este contém um questionário de caracterização sociodemográfica dos cuidadores, variáveis contextuais da pessoa cuidada e situação de saúde dos cuidadores informais. O protocolo incluiu também o Inventário de Habilidades do Cuidador, traduzido e adaptado de Caring *Ability Inventory de Ngozi Nkongho* (1999), versão espanhola de Berdejo & Parra (2008).

O conceito base do *Inventário de Habilidades do Cuidador/Caring Ability Inventory (CAI*) deriva do conceito de *"cuidar".* Identificaram-se quatro pressupostos, sendo estes: *o cuidar é multidimensional, apresentando uma componente cognitiva e uma componente atitudinal; a capacidade de cuidar está presente em todos os indivíduos; o ato de cuidar pode ser ensinado e aprendido; o ato de cuidar pode ser quantificado.*

Mayeroff (1971) identificou oito elementos essenciais para a quantificação do cuidado, sendo eles: conhecimento, alternância de ritmo, paciência, honestidade, confiança, humildade, esperança e coragem. Estes possibilitaram a construção deste instrumento. Após vários testes os itens foram divididos em três fatores**:** conhecimento (habilidade de lidar com as diversas situações), coragem (habilidade de lidar com o desconhecido) e paciência (tolerância e persistência).

O CAI é constituído por 37 itens, avaliados numa escala tipo Likert que varia de 1 a 7 pontos, em que um (1) corresponde a *"nunca"* e sete (7) a *"sempre".* Apresenta três fatores: conhecimento, coragem e paciência. O fator "conhecimento" é constituído por 14 itens (2, 3, 6, 7, 9, 19, 22, 26, 30, 31, 33, 34, 35, 36), o fator "coragem" apresenta 13 itens (4, 8, 11, 12, 12, 13, 14, 15, 16, 23, 25, 28, 29, 32) sendo cotados de forma inversa e o fator "paciência" (1, 5, 10, 17, 18, 20, 21, 24, 27, 37) é constituído por 10 itens. A inter-correlação entre os fatores é moderada em tamanho e reflete diversos domínios do conceito de cuidar. Desta forma e, variando o intervalo de respostas de 1 a 7, a pontuação máxima (7) indica alto grau de cuidado para uma resposta positiva ao item da escala. Para as respostas respondidas de forma negativa, a cotação é inversa, ou seja, obtém a pontuação mínima (1). As respostas de cada pergunta são somadas para se obter um total para cada fator. Devido ao fator "conhecimento" apresentar 14 itens, esta varia de 14 a 98. O fator "coragem" varia de 13 a 91 pontos e o fator "paciência" varia de 10 a 70 pontos, respetivamente. A pontuação total é composta pela pontuação de cada fator.

No presente estudo foi utilizado o *Inventário de Habilidades do Cuidador* (versão espanhola) de Berdejo & Parra (2008), traduzida para português.

Dado que as respostas de 1 a 7 têm uma maior exigência de compreensão, Berdejo & Parra (2008) modificaram os scores de cotação do CAI para uma escala Likert com scores de 1 a 4, onde 1 equivale a nunca, 2 a quase nunca, 3 a quase sempre e 4 a sempre. Desta forma e, variando o intervalo de respostas de 1 a 4, a pontuação máxima (4) indica alto grau de cuidado para uma resposta positiva ao item da escala. Para as perguntas respondidas de forma negativa, a cotação é inversa, ou seja, obtém a pontuação mínima (1). As respostas de cada pergunta são somadas para se obter um total para cada fator. Dado que o fator "conhecimento" apresenta 14 itens, o score neste fator varia de 14 a 56. O fator "coragem" varia de 13 a 52 pontos e o fator "paciência" varia de 10 a 40 pontos, respetivamente (Cf. Tabela 1). As respostas aos itens somam-se para cada fator obtendo-se uma pontuação total para cada um. As pontuações mais altas indicam um maior grau de cuidado se o item se apresenta de forma positiva; a pontuação é inversa se o item apresenta de maneira negativa.

De salientar que as análises estatísticas foram efectuadas após a inversão dos itens e que os 13 itens do fator "coragem" são cotados de forma inversa.

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Tabela 1 - Classificação dos resultados do *Inventario de Habilidades do Cuidador (CAI)* em categorias para o total e para os fatores

Categorias	CAI Total	Fatores		
		Conhecimento (habilidade de lidar com as diversas situações)	Coragem (habilidade de lidar com o desconhecido)	Paciência (tolerância e persistência)
Alto	148-111	56-43	52-40	40-30
Medio	110-74	42-28	39-26	29-20
Baixo	73-37	27-14	25-13	21-10

2.3. Requisitos legais

Estando conscientes que qualquer processo de investigação exige um seguimento de normas de conduta por parte dos investigadores, realizaram-se algumas diligências prévias, com a finalidade de proteger o direito e a liberdade dos participantes.

Assim, o primeiro passo consistiu no pedido de autorização aos autores da escala para a utilização da mesma. Seguiu-se a obtenção do Parecer da Comissão de Ética da Escola Superior de Saúde do Instituto Politécnico de Viseu que foi favorável (n.º 010605 3). Posteriormente, contactou-se de forma informal alguns cuidadores da esfera do conhecimento pessoal de cada membro do grupo de investigação, convidando-os para integrar o estudo, bem como para indicarem outros cuidadores informais para inclui-los no mesmo, selecionando-os em sistema de bola de neve.

No desenvolvimento da investigação foram salvaguardados os direitos dos participantes e os princípios éticos fundamentais. Tal foi conduzido, através das diretrizes do questionário, que contemplam: o tema e o objetivo da investigação, pedido de colaboração para o preenchimento e referência à necessidade de resposta a todas as questões, para que este não fosse eliminado, garantia de anonimato e confidencialidade das respostas, disponibilização dos resultados, agradecimento da colaboração e disponibilidade dispensadas.

2.4. Procedimentos

Para a análise dos dados, recorreu-se à estatística descritiva e à estatística analítica ou inferencial. Para o efeito, o tratamento estatístico foi processado através do programa SPSS (*Statistical Package for the Social Sciences*) versão 24.0 (2017) para Windows e AMOS versão 24, 2017.

O estudo psicométrico da escala engloba dois passos: a consistência interna e a análise fatorial, cujo objetivo consiste em descrever a estrutura de covariâncias entre as variáveis em termos de um número menor de variáveis, denominadas de fatores. A análise fatorial estuda os inter-relacionamentos entre as variáveis, num esforço para encontrar um conjunto de fatores (em menor número que o conjunto de variáveis originais) que exprima o que as variáveis originais partilham em comum (Pestana & Gageiro, 2014). Segundo os mesmos autores, o modelo de análise fatorial é motivado pelo seguinte: supondo que as variáveis podem ser agrupadas tendo em conta as correlações entre elas, ou seja, todas as variáveis de um dado grupo estão fortemente correlacionadas entre si, mas têm correlações relativamente pequenas com variáveis de outro grupo. É admissível que cada grupo de variáveis represente um fator, fator esse que é responsável pelas correlações observadas. Em geral, o primeiro passo a dar neste tipo de análise consiste no exame das relações entre as variáveis utilizando o coeficiente de correlação como medida de associação entre cada par de variáveis. A matriz de correlações poderá permitir identificar subconjuntos de variáveis que estão muito correlacionadas entre si no interior de cada subconjunto, mas pouco associados a variáveis de outros subconjuntos. Neste caso, a aplicação da análise fatorial permitirá concluir se é possível explicar este padrão de correlações através de um menor número de variáveis - os fatores.

Um instrumento de recolha de dados possui uma boa fidedignidade quando os resultados fornecidos por ele são precisos ou fiáveis, ou seja, quando variam relativamente pouco de uma ocasião ou contexto para outro (Pestana & Gageiro, 2014). Os mesmos autores referem que a fidedignidade dos resultados obtidos se reporta à consistência dos resultados totais ou à consistência interna dos itens. A fidedignidade prende-se com o grau de consistência ou acordo entre duas ou mais amostras independentes, existe um conjunto de técnicas de estimação que a permitem calcular. Os métodos para estimar a fidedignidade podem ser do tipo: teste-reteste, formas paralelas, de *split-half* e consistência interna do tipo Alpha de Cronbach ou também conhecido por fidedignidade interna Alpha de Cronbach, que é o método mais comummente utilizado em psicometria. Este é um índice de consistência interna que apresenta valores entre 0 e 1 e onde α é um coeficiente de correlação ao quadrado que mede a homogeneidade das perguntas correlacionando as médias de todos os itens para estimar a consistência do instrumento, de acordo com Pestana e Gajeiro (2014): - Muito boa: alfa superior a 0,9; - Boa: alfa entre 0,8 e 09; - Razoável: alfa entre 0,7 e 0,8; - Fraca: alfa entre 0,6 e 0,7; - Inadmissível: alfa <0,6.

A análise da consistência interna de uma medida psicológica é uma necessidade aceite na comunidade científica. Entre os diferentes métodos que fornecem estimativas do grau de consistência de uma medida salienta-se o índice de Cronbach sobre o

qual assenta a confiança da maioria dos investigadores. Qualquer referência a questões de fiabilidade de uma medida suscita referência ao índice alfa de Cronbach (Marôco, 2014).
Testou-se a solução trifatorial que emergiu de estudos exploratórios já realizados, através da análise fatorial confirmatória (AFC), usando o *software* AMOS 23 (*Analysis of Moment Structures*). Este procedimento estatístico serve para confirmar se a estrutura fatorial hipotetizada é ajustada para os dados da amostra que pretendemos estudar.
Para o desenvolvimento da AFC consideramos a matriz de covariâncias e o algoritmo da máxima verosimilhança MLE (*Maximum-Likelihood Estimation*) para estimação dos parâmetros.
Tivemos em consideração os pressupostos apresentados por Marôco (2014) nomeadamente:
- Indicadores de qualidade de ajustamento global do modelo, cujos valores de referência são: para a razão entre qui quadrado e graus de liberdade (**x^2/gl**), o ajustamento considera-se bom se a razão (x^2/gl) se for inferior a 2, aceitável se for inferior a 5 e inaceitável se superior a 5; para o *Root mean square residual* (**RMR) e** *Standardized root mean square* residual **(SRMR)** - quanto menor, melhor e quando o (RMR=0) diz-se que o ajustamento é perfeito; *Goodness fit índex* (**GFI)** e C*omparative Fit Index* **(CFI)** são recomendados valores acima de 0.90 para um bom ajustamento; *Root Mean Square Error of Approximation* (**RMSEA**), entre 0,05 e 0,08 o ajustamento é bom, e muito bom quando o índice é inferior a 0.05.
- Qualidade do ajustamento local do modelo – teve-se presente os pesos fatoriais designados por coeficientes lambda (λ) e a fiabilidade individual dos itens (δ) cujos valores de referência são de 0.50 e 0.25, respetivamente.
- Fiabilidade compósita (FC) - para o estudo da consistência interna dos itens em relação a cada fator, que é uma medida similar ao *Alfa de Cronbach*,
- Validade convergente (VEM) - para determinar se os itens que são reflexo de um fator saturam fortemente nesse fator.
Como os indicadores de referência, sugerem-se índices superiores a 0,70 para a FC embora para investigações exploratórias possam ser aceitáveis valores inferiores e para a VEM consideram-se valores superiores ou iguais a 0,50 podendo flexibilizar-se esse limite para 0,40 (Marôco, 2014). O estudo da normalidade dos itens foi efetuado pelo coeficiente de assimetria (Sk) e curtose (k) e pelo coeficiente multivariado de Márdia cujos valores de referência são respetivamente de <=3.0, <= 7.0 e 5.0.

3. RESULTADOS

A análise dos resultados da fiabilidade indica as estatísticas (médias e desvios padrão) e as correlações obtidas entre cada item e o valor global, dando uma visão sobre a forma como o item se combina com o valor global. Pelos índices médios, assinala-se que os mesmos oscilam entre 1,59 (item 23) *"Tenho receio de largar aqueles que amo, porque tenho medo do que lhes possa acontecer"* e 3,69 (item 19) *"As pessoas podem contar comigo para fazer o que prometi".* Através do alfa de Cronbach, os itens são classificados de razoáveis, oscilando entre α=0.769 no item 34 *"Gosto de falar com as pessoas"* e α=0.795 no item 12 *"Não me sinto tranquilo sabendo eu que há uma pessoa que precisa de mim".* Os valores de alfa de Cronbach, para o valor global, também apresentam uma razoável consistência interna (α=0.783).
Uma análise mais conservadora dos resultados indica que os itens 2, 3, 6, 8, 9, 12, 15, 16, 22, 23, 25 por apresentarem coeficientes de correlação inferiores a 0.20 deveriam ser eliminados, todavia decidiu-se pela sua manutenção visando submete-los a análise factorial confirmatória respeitando desse modo a estrutura factorial original (cf. Tabela 2). Em virtude dessa opção os referidos itens surgem no Modelo inicial (cf. Figura 1).

Tabela 2 – Consistência interna dos itens do Inventário de Habilidades do Cuidador de Ngozi Nkongho (1999)

Nº Item	Itens	Média	Dp	r/item total	α sem item
1	Eu acredito que aprender leva tempo.	3,49	0,563	0,361	0,776
2	O hoje está cheio de oportunidades.	2,94	0,813	0,185	0,782
3	Normalmente digo o que penso aos outros.	3,04	0,643	0,164	0,782
4	Pouco posso fazer por uma pessoa que é indefesa.	2,67	0,878	0,215	0,781
5	Eu consigo ver a necessidade de mudança em mim próprio.	3,07	0,637	0,268	0,778
6	Consigo gostar de pessoas mesmos daquelas que não gostam de mim.	2,69	0,788	0,020	0,789
7	Compreendo as pessoas com facilidade.	3,10	0,621	0,387	0,774
8	Já vi o suficiente neste mundo para aquilo que preciso de saber.	2,45	0,897	0,188	0,782
9	Despendo de tempo para conhecer outras pessoas.	2,72	0,797	0,184	0,782
10	Às vezes gosto de estar envolvido, outras vezes não gosto de estar envolvido.	2,77	0,621	0,073	0,785
11	Não há nada que eu possa fazer para tornar a vida melhor.	2,59	0,910	0,198	0,782
12	Não me sinto tranquilo sabendo eu que há uma pessoa que precisa de mim.	2,02	0,926	-0,055	0,795
13	Não gosto de desviar-me do meu caminho para ajudar os outros.	3,06	1,005	0,358	0,774
14	No relacionamento com as pessoas é muito difícil mostrar os meus sentimentos.	2,58	0,874	0,411	0,771

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Nº Item	Itens	Média	Dp	r/item total	α sem item
15	Não interessa o que diga desde que faça a coisa correta.	2,00	0,877	-0,018	0,792
16	Custa-me entender o que as outras pessoas sentem, pois não tive a mesma experiência.	2,46	0,871	0,203	0,781
17	Admiro as pessoas calmas, serenas e pacientes.	3,61	0,552	0,409	0,774
18	Acredito que é importante aceitar e respeitar as atitudes e os sentimentos dos outros.	3,65	0,559	0,488	0,772
19	As pessoas podem contar comigo para fazer o que prometi.	3,69	0,491	0,422	0,775
20	Acredito que há espaço para o melhoramento.	3,60	0,546	0,400	0,775
21	Os bons amigos olham uns pelos outros.	3,60	0,595	0,496	0,771
22	Encontro um significado para todas as situações.	3,10	0,570	0,168	0,782
23	Tenho receio de largar aqueles que amo, porque tenho medo do que lhes possa acontecer.	1,59	0,732	-0,227	0,797
24	Gosto de encorajar as pessoas.	3,52	0,596	0,533	0,770
25	Não gosto de me comprometer para além do presente.	2,00	0,774	-0,071	0,792
26	Eu gosto mesmo de mim.	3,28	0,663	0,464	0,771
27	Eu vejo qualidades e fraquezas em cada pessoa.	3,17	0,629	0,269	0,778
28	Experiências novas são normalmente assustadoras para mim.	2,46	0,871	0,285	0,778
29	Tenho medo de me abrir e deixar os outros perceber quem eu sou.	2,63	0,910	0,389	0,772
30	Aceito as pessoas tal como elas são.	3,42	0,614	0,383	0,774
31	Quando gosto de alguém, não tenho de esconder os meus sentimentos.	3,24	0,805	0,383	0,773
32	Não gosto que me peçam ajuda.	3,23	0,945	0,408	0,771
33	Posso demonstrar os meus sentimentos por uma pessoa de um modo caloroso e carinhoso.	3,31	0,666	0,323	0,776
34	Gosto de falar com as pessoas.	3,56	0,543	0,581	0,769
35	Considero-me sincero no meu relacionamento com os outros.	3,60	0,563	0,530	0,770
36	As pessoas necessitam de espaço para pensar e sentir.	3,63	0,539	0,497	0,772
37	Posso ser abordado pelas pessoas a qualquer altura.	3,38	0,616	0,360	0,775
	Coeficiente Alpha Cronbach global				**0,783**

A análise descritiva dos itens do questionário revelou que todos os itens apresentavam um valor mínimo de 1 e máximo de 4, com valores absolutos de assimetria inferiores a 3, variando entre 0.027 e 1.358 e de achatamento inferiores a 7 com uma oscilação entre 0.032 e 1,432, pelo que prosseguimos com a análise fatorial confirmatória sem exclusão de itens. O coeficiente multivariado de Márdia com um valor de 7,344 é ligeiramente superior ao valor de referência (5,00), o que sugere um desvio relativamente à distribuição normal.

A figura 1 apresenta o modelo trifatorial hipotetizado onde se observam os itens distribuídos pelos fatores correspondentes, os pesos fatoriais respetivos e a sua fiabilidade individual. Dado tratar-se de um estudo preliminar, procedemos à eliminação de todos os itens nos três fatores que apresentassem saturações inferiores a 0.40. A qualidade de ajustamento global do primeiro modelo mostrou-se adequado para a razão do (x^2/gl= 2.170), para o RMSEA=0.074 e RMR= 0.061 e inadequado para os restantes índices: GFI= 0.737, CFI= 0.659, SRMR= 0.109.

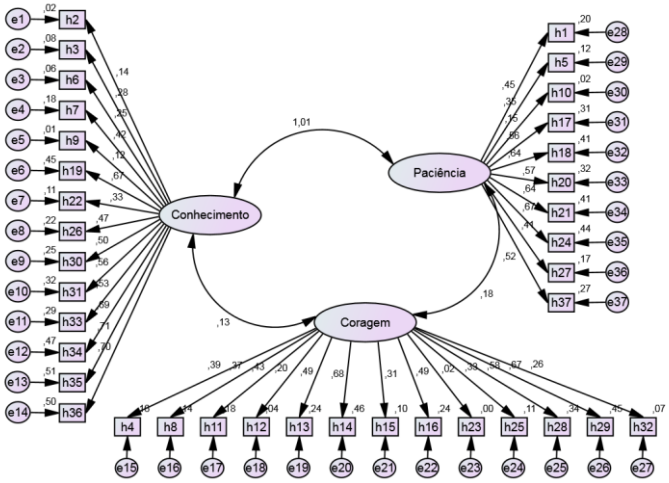

Figura 1 - Modelo inicial com todos os itens

Efectuou-se o refinamento do modelo com a eliminação dos itens o que se expressa na figura 2. Observa-se que todos os itens apresentam como fatores correspondentes, pesos fatoriais superiores a 0.40. Os índices de ajustamento global, já se manifestam adequados com exceção para o GFI=0.886 e CFI=0.881 (x^2/gl= 1.945; RMSEA=0.067; RMR= 0.030 e SRMR= 0.065.

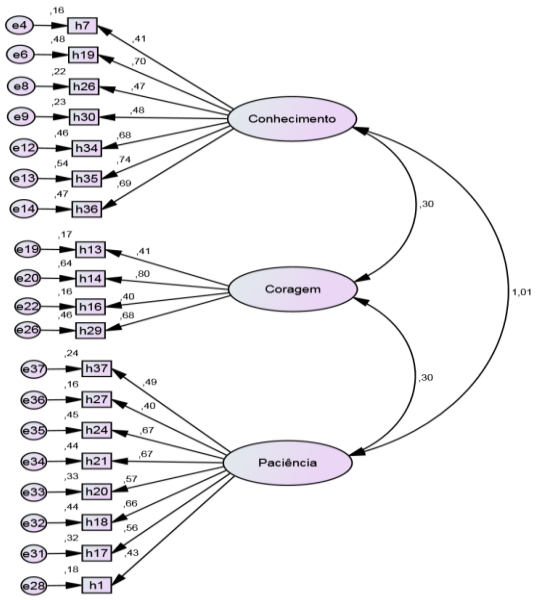

Figura 2 - Modelo com a eliminação dos itens

Procedeu-se, entretanto, ao ajustamento do modelo de acordo com os índices de modificação propostos pelo AMOS, verificando-se que apenas haveria a associação dos erros correspondentes aos itens 17 e 18. Com esta modificação, os índices de ajustamento global, já apresentou índices adequados para o **CFI= 0.906** mas mantendo-se sofrível para o **GFI= 0.886** (cf. Figura 3).

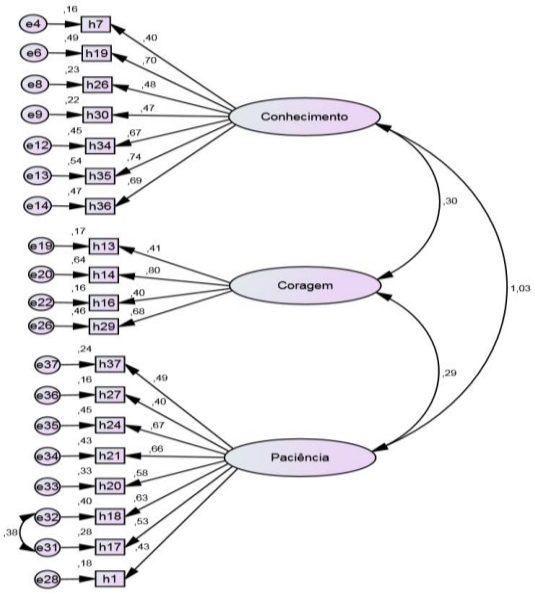

Figura 3 - Modelo com índices de modificação

Apesar dos valores correlacionais encontrados entre os fatores, não serem sugestivos de um modelo de 2ª ordem, propôs-se uma estrutura hierárquica com um fator de 2ª ordem que designámos de "habilidades dos cuidadores". Verifica-se que os índices de bondade de ajustamento global mantiveram os mesmos valores, mas a correlação das habilidades com os conhecimentos e com a paciência é superior a 1.0, o que explica 107% e 99% respetivamente, pelo que este modelo de segunda ordem não deve ser tomado em consideração no referente ao fator global (Figura 4).

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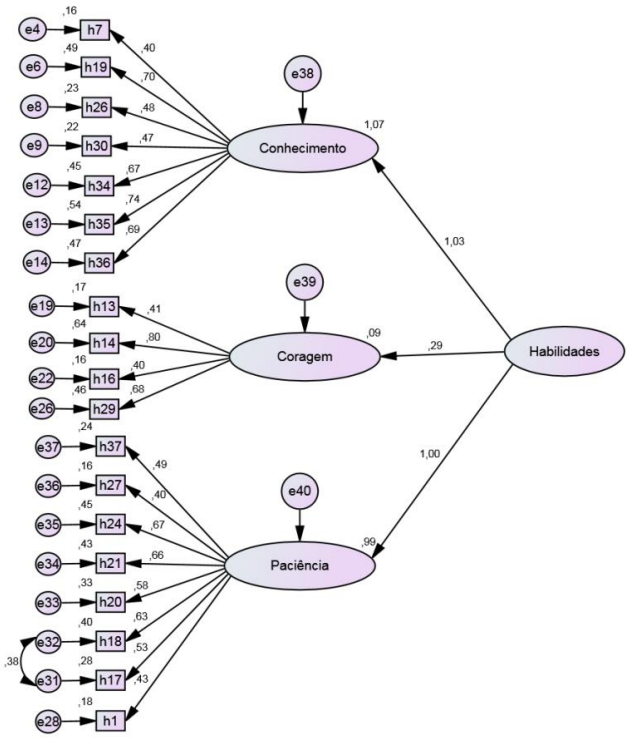

Figura 4- Modelo de segunda ordem

O quadro 1 mostra os índices de bondade de ajustamento global registados em todos os modelos realizados. Observa-se que os índices em análises foram melhorando à medida que se efetuou o refinamento do modelo.

Quadro 1 - Índices de qualidade do ajustamento de todos os modelos

Modelo	$x^2/_{gl}$	***GFI***	***CFI***	***RMSEA***	***RMR***	***SRMR***
Modelo 1 – modelo inicial	2.170	0.737	0.659	0.074	0.061	0.109
Modelo2 com itens eliminados	1.945	0.876	0.881	0.067	0.030	0.065
Modelo 3 com índices de modificação	1.755	0.886	0.906	0.060	0.029	0.062
Modelo 2ª ordem	1.755	0.886	0.906	0.060	0.029	0.062

Analisando os resultados da fiabilidade compósita, observa-se que apenas o fator 2 apresenta índices de consistência interna sofrível. Já os valores da VEM não permitem concluir pela validade convergente dos fatores na amostra sob estudo, uma vez que são inferiores a 0.50. Contudo, encontra-se a validade discriminante entre os fatores, salvo para a relação o fator 1 *vs*. Fator 3 (cf. Quadro 2).

Quadro 2- Fiabilidade compósita, variância extraída média e validade discriminante

Fatores	***FC***	***VEM***	**Validade discriminante**	
			F2	**F3**
F1- conhecimentos	0.795	0.367	0.09	1.06
F2 – Coragem	0.672	0.358		0.024
F3 – paciência	0.776	0.309		

Continuou-se com o estudo psicométrico, estudando a consistência interna dos itens finais que constituem a escala (cf. Tabela3). Para o fator **Conhecimento**, observamos que pelos valores médios, o item que nos parece mais favorável é o 19 *"As pessoas podem contar comigo para fazer o que prometi"* e o menos favorável o item 7 *"Compreendo as pessoas com facilidade".* Os coeficientes de alpha de Cronbach obtidos nos sete itens que oscilaram entre α=0,726 no item 35 *"Considero-me sincero no meu relacionamento com os outros"* e α=0,779 no item 7 *"Compreendo as pessoas com facilidade",* indicam-nos uma razoável

consistência interna, com um alfa total de 0,780. O maior valor de correlação situa-se no item 35 (r=0,634) com uma variabilidade de 48,5% e o que apresenta menor correlação é o item 7 (r=0,378) com uma percentagem de variância explicada de 16,2%.

No que concerne ao fator **Coragem**, em termos médios o item mais favorável é o *13 "Não gosto de desviar-me do meu caminho para ajudar os outros"* e o menos favorável é o item 16 *"Custa-me entender o que as outras pessoas sentem, pois não tive a mesma experiência",* embora os resultados indiquem que se encontram bem centrados, dados os valores médios e os respetivos desvios padrão obtidos. Os coeficientes de alpha de Cronbach dos quatro itens desta dimensão que oscilaram entre α=0,493 no item 14 *"No relacionamento com as pessoas é muito difícil mostrar os meus sentimentos"* e α= 0,655 no item 13 *"Não gosto de desviar-me do meu caminho para ajudar os outros"*, indicam-nos uma consistência interna entre o fraco e o razoável, com um alfa total de α=0,651. O maior valor de correlação situa-se no item 14 (r=0,562) e o item que apresenta menor correlação é o item 13 (r=0,336), com variabilidades de 36,1% e de 12,7%.

Quanto ao fator **Paciência**, a melhor média regista-se no item 18 *"Acredito que é importante aceitar e respeitar as atitudes e os sentimentos dos outros"* com 3,65 e a menor recaiu no item 27 com 3,17 *"Eu vejo qualidades e fraquejas em cada pessoa".* Os coeficientes de alpha de Cronbach variam entre α=0,733 no item 21 *"Os bons amigos olham uns pelos outros"* e α=0,779 no item 27 *"Eu vejo qualidades e fraquejas em cada pessoa",* com um coeficiente de alpha de Cronbach global de α= 0,778, o que revela que estamos perante uma razoável consistência interna. O maior valor correlacional obtido situa-se no item 21 (r=0,594) e o menor é o item 27 (r=0,339), com percentagens de variância explicada de 39,3% e 18,0%, respetivamente.

Tabela 3 – Consistência interna por fatores do Inventário de Habilidades do Cuidador de Ngozi Nkongho (1999)

Nº Item	Fatores	Média	Dp	R item/ total	r^2	α sem item
	Conhecimento	**Alfa global do Conhecimento 0,780**				
7	Compreendo as pessoas com facilidade	3,11	0,622	0,378	0,162	0,779
19	As pessoas podem contar comigo para fazer o que prometi	3,70	0,491	0,563	0,415	0,744
26	Eu gosto mesmo de mim	3,29	0,663	0,416	0,193	0,773
30	Aceito as pessoas tal como elas são	3,42	0,613	0,429	0,208	0,768
34	Gosto de falar com as pessoas.	3,56	0,543	0,592	0,403	0,736
35	Considero-me sincero no meu relacionamento com os outros.	3,59	0,572	0,634	0,485	0,726
36	As pessoas necessitam de espaço para pensar e sentir.	3,63	0,539	0,581	0,411	0,738
	Coragem	**Alfa global da Coragem 0,651**				
13	Não gosto de desviar-me do meu caminho para ajudar os outros.	3,07	1,005	0,336	0,127	0,655
14	No relacionamento com as pessoas é muito difícil mostrar os meus sentimentos.	2,59	0,877	0,562	0,361	0,493
16	Custa-me entender o que as outras pessoas sentem, pois não tive a mesma experiência	2,46	0,875	0,362	0,134	0,628
29	Tenho medo de me abrir e deixar os outros perceber quem eu sou	2,64	0,912	0,487	0,320	0,543
	Paciência	**Alfa global da Paciência 0,778**				
1	Eu acredito que aprender leva tempo	3,49	0,563	0,378	0,167	0,770
17	Admiro as pessoas calmas, serenas e pacientes.	3,61	0,552	0,519	0,404	0,747
18	Acredito que é importante aceitar e respeitar as atitudes e os sentimentos dos outros.	3,65	0,558	0,572	0,453	0,738
20	Acredito que há espaço para o melhoramento.	3,60	0,546	0,489	0,299	0,752
21	Os bons amigos olham uns pelos outros.	3,60	0,594	0,594	0,393	0,733
24	Gosto de encorajar as pessoas	3,52	0,595	0,552	0,328	0,741
27	Eu vejo qualidades e fraquezas em cada pessoa	3,17	0,630	0,339	0,180	0,779
37	Posso ser abordado pelas pessoas a qualquer altura	3,39	0,616	0,417	0,188	0,765
Alfa global 0,839						

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Na tabela 4 apresenta-se a matriz de correlação de Pearson entre os três fatores e o valor global do Inventário de Habilidades do Cuidador que nos revela valores positivos e estatisticamente significativos, oscilando as mesmas entre 0.252 entre o conhecimento vs coragem com uma variabilidade de 6.35% e 0.803 entre conhecimento *vs.* paciência com uma variabilidade de 64.48%. Com o fator global as correlações são mais elevadas registando-se percentagens de variância explicada acima de 35%.

Tabela 4 - Matriz de Correlação de Pearson entre fatores do Inventário de Habilidades do Cuidador de Ngozi Nkongho (1999)

Fatores	Coragem	Paciência	Habilidades do cuidador global
Conhecimento	0,252**	0,803**	0,881**
Coragem		0,207**	0,599**
Paciência		-	0,870**

Terminou-se o estudo da consistência interna do inventário apresentando na tabela 5 a validade convergente/divergente dos itens com os fatores correspondentes. Os resultados explanam a existência de validade convergente e divergente ao registarem-se valores correlacionais mais elevados dos itens com os fatores a que pertencem, sendo o segundo valor correlacional mais elevado com o fator global.

Tabela 5 – Validade convergente/divergente dos itens do Inventário de Habilidades do Cuidador de Ngozi Nkongho (1999)

Fatores / Itens	Conhecimento	Coragem	Paciência	Habilidades do cuidador global
1. Eu acredito que aprender leva tempo	0,383***	0,043 n.s.	0,537***	0,420***
7. Compreendo as pessoas com facilidade	0,569***	0,219**	0,358***	0,486***
13. Não gosto de desviar-me do meu caminho para ajudar os outros	0,228**	0,659***	0,198**	0,448***
14. No relacionamento com as pessoas é muito difícil mostrar os meus sentimentos	0,261***	0,772***	0,167*	0,493***
16. Custa-me entender o que as outras pessoas sentem, pois não tive a mesma experiência	-0,012n.s.	0,639***	0,011n.s	0,255***
17. Admiro as pessoas calmas, serenas e pacientes	0,480***	0,188**	0,650***	0,570***
18. Acredito que é importante aceitar e respeitar as atitudes e os sentimentos dos outros	0,564***	0,226**	0,694***	0,639***
19. As pessoas podem contar comigo para fazer o que prometi	0,682***	0,109n.s	0,628***	0,612***
20. Acredito que há espaço para o melhoramento	0,511***	0,091n.s	0,625***	0,532***
21. Os bons amigos olham uns pelos outros	0,581***	0,155*	0,718***	0,629***
24. Gosto de encorajar as pessoas	0,625***	0,215**	0,686***	0,657***
26. Eu gosto mesmo de mim	0,611***	0,193**	0,464***	0,541***
27. Eu vejo qualidades e fraquezas em cada pessoa	0,405***	0,043n.s	0,524***	0,423***
29. Tenho medo de me abrir e deixar os outros perceber quem eu sou	0,221**	0,734***	0,195**	0,474***
30. Aceito as pessoas tal como elas são	0,607***	0,122*	0,436***	0,499***
34. Gosto de falar com as pessoas	0,716***	0,253***	0,600***	0,671***
35. Considero-me sincero no meu relacionamento com os outros	0,753***	0,191**	0,634***	0,677***
36. As pessoas necessitam de espaço para pensar e sentir	0,707***	0,064n.s	0,645***	0,611***
37. Posso ser abordado pelas pessoas a qualquer altura	0,476***	0,087*	0,584***	0,497***

Legenda: ns p> 0.05 * p < 0.05 ** p < 0.01 *** p < 0.001

A análise comparativa dos resultados apurados no presente estudo com os do estudo psicométrico do CAI original Ngozi Nkongho (1999) e com o *Inventário das Habilidades de Cuidado* de Berdejo & Parra (2008), revela que o valor de alfa no fator coragem, no presente estudo, é inferior ao original e ao da versão espanhola. O valor de alfa para a dimensão paciência obteve um valor superior ao original (versal inglesa), no entanto, inferior à versão espanhola. Quanto ao valor de alfa da dimensão conhecimento, regista-se, para o presente estudo, um valor de alfa inferior às duas versões em comparação. O valor de Alfa global do presente estudo é igual ao valor de Alfa global do estudo de Ngozi Nkongho (1999) e inferior ao estudo de Berdejo & Parra (2008) (cf. Tabela 6).

Tabela 6 – Comparação da confiança entre a versão inglesa e a versão espanhola do Inventário de Habilidade de Cuidado com o presente estudo

Confiança	Estudo de Ngozi Nkongho (1999)	Nº Itens	Estudo de Berdejo & Parra (2008)	Nº Itens	Presente Estudo Cunha, et al (2017)	Nº Itens
	Alfa Cronbach		Alfa Cronbach		Alfa Cronbach	
CAI Total	0,84	37	0,86	37	0,84	19
Coragem	0,75	13	0,78	13	0,65	4
Paciência	0,71	10	0,84	10	0,78	8
Conhecimento	0,79	14	0,80	14	0,78	7

- ***Adequabilidade das habilidades dos cuidadores***

Para se determinar a adequabilidade das habilidades dos cuidadores consideraram-se os percentis 25 e 75 e tendo como referencia o score global, obtiveram-se três grupos: percentil ≤ 25 inadequadas habilidades, entre 26-74 de adequadas habilidades, e com percentil ≥75 classificados como habilidades muito adequadas. No global, 45,3 % dos participantes detêm adequadas habilidades para cuidar, 27,6% têm habilidades para cuidar muito adequadas, sendo que em 27,1% as habilidades são inadequadas. (cf. Tabela 7).

Tabela 7 - Adequabilidade das habilidades dos cuidadores

Habilidades	**Inadequadas**		**Adequadas**		**Muito adequadas**		**Total**		**X^2**	**p**
Sexo	n (58)	% (27,1)	n (97)	n (45,3%)	n (59)	% (27,6%)	n (214)	% (100,0)		
Masculino	13	22,4	7	7,2	8	13,6	28	13,1	7,388	0,025
Feminino	45	77,6	90	92,8	51	86,4	186	86,9		
Total	58	100,0	97	100,00	59	100,0	214	100,0		

4. DISCUSSÃO

Após a aplicação do *Inventário de Habilidades do Cuidador* à amostra em estudo, foram testadas as suas propriedades psicométricas.

O estudo da validação das propriedades psicométricas teve como base os três "c", de constructo, de conteúdo e de critério, tendo-se em conta nesta validação procurado aprofundar de forma mais ampla a validade do constructo. De acordo com Jaeger (1983), referenciado por Costa, Nunes, Duarte & Pereira (2012, p. 66), *"a validade de constructo subordina todas as outras, procurando identificar se o instrumento mede realmente o que pretende medir"*. Todavia, ainda de acordo com os mesmos autores, *"a sua validade nunca é provada, mas simplesmente aceite, na medida em que as provas a seu favor vão sendo superiores às provas contrárias"* Costa, Nunes, Duarte & Pereira (2012, p. 66).

estudo da homogeneidade dos itens do inventário foi determinado através do coeficiente Alfa de Cronbach, revelando na consistência interna dos itens o valor global α=0.783, apresentando uma razoável consistência interna. Na versão final da consistência interna por fatores, o valor global foi de α=0,839, o que sugere uma boa consistência interna.

Ao estudar-se a consistência interna dos itens finais que constituem o inventário, obteve-se um para o fator *Conhecimento* um alfa total de 0,780; no fator *Coragem* o alfa total foi α=0,651, para o fator *Paciência* obteve-se um coeficiente de alpha de Cronbach global de α=0,778, o que revela que se está perante uma razoável consistência interna.

A avaliação da validade da análise fatorial exploratória revelou que todos os itens apresentavam um valor mínimo de 1 e máximo de 4, com valores absolutos de assimetria inferiores a 3, pelo que se prosseguiu com a análise fatorial confirmatória sem exclusão de itens. Uma vez que se tratava de um estudo preliminar, eliminaram-se todos os itens nos três fatores que apresentavam saturações inferiores a 0.40. Deste modo, a qualidade de ajustamento global do primeiro modelo revelou-se adequado para a razão do ($x^2/_{gl}$=2.170), para o RMSEA=0.074 e RMR=0.061 e inadequado para os restantes índices: GFI= 0.737, CFI=0.659, SRMR=0.109, o que resultou num refinamento do modelo com a eliminação de itens. Assim, verificou-se que todos os itens passaram a apresentar fatores correspondentes, pesos fatoriais superiores a 0.40. Em termos de índices de ajustamento global, os mesmos revelaram-se adequados com exceção para o GFI=0.886 e CFI=0.881 ($x^2/_{gl}$=1.945; RMSEA=0.067; RMR= 0.030 e SRMR= 0.065.

O ajustamento do modelo de acordo com os índices de modificação revelou que apenas havia a associação dos erros correspondentes aos itens 17 e 18. Com esta alteração, os índices de ajustamento global já apresentaram índices adequados para o CFI= 0.906 mas mantendo-se sofrível para o GFI= 0.886.

Verificou-se que os índices de bondade de ajustamento global mantiveram os mesmos valores, todavia, a correlação do fator *Habilidades com os Conhecimentos* e com o fator *Paciência* foi superior a 1.0, explicando 107% e 99%, respetivamente, pelo que os resultados devem analisar-se com parcimónia, na medida em que são sugestivos de multicolinearidade.

Constatou-se que os índices em análises foram melhorando à medida que se efetuou o refinamento do modelo.

Os resultados da fiabilidade compósita revelaram que apenas o fator *Coragem* apresentava índices de consistência interna sofrível. Os valores da VEM não permitem concluir a validade convergente dos fatores na amostra em estudo, na medida em que se revelaram inferiores a 0.50. Todavia, encontrou-se validade discriminante entre os fatores, salvo para a relação entre o fator *Conhecimento vs*. fator Paciência.

Em face dos resultados propõe-se replicar o estudo da validade psicométrica do Inventário de Habilidades do Cuidador em amostras com maior número de participantes.

CONCLUSÕES

O quadro teórico documenta que o processo de cuidar é uma intervenção interpessoal, no qual o cuidador coordena os seus recursos internos, a suas habilidades de cuidado com paciência, valor e conhecimento na relação interpessoal que estabelece com a pessoa cuidada.

Considerando a relevância do número atual de pessoas dependentes, justifica-se aferir do impacto das habilidades de cuidador sobre a pessoa cuidada. Para o efeito, tem atualidade avaliar a qualidade dos instrumentos de mensuração do cuidar informal.

Esta investigação aporta o estudo das propriedades psicométricas do Caring Ability Inventory , numa amostra da população portuguesa. A metodologia de validação da estrutura fatorial do *Inventário de Habilidades do Cuidador* mostra que o mesmo é considerado como um instrumento fiável e válido na avaliação das habilidades do cuidador português, com adequada fiabilidade e evidência de validade.

A análise comparativa dos achados da presente investigação com os resultados obtidos por Ngozi Nkongho (1999) revelou que, no presente estudo, a estrutura fatorial se mantém e que os valores de consistência interna na Nota Global são coincidentes (α=0.84), porém nos fatores Conhecimento e Coragem são mais baixos e no factor Paciência mais altos.

Atendendo a estes resultados, considera-se que no futuro se pode testar este inventário no confronto com outras escalas, a fim de complementar a informação alcançada e identificar áreas sensíveis a um maior investimento nas habilidades dos cuidadores.

A aferição de um instrumento de medida das habilidades dos cuidadores potencia que as/os enfermeiras/os implementem na prática clínica a sua avaliação e mensuração, de modo a identificar os clusters mais vulneráveis, ou seja, os grupos de cuidadores com menos habilidades e elaborar uma proposta de intervenção em termos de ajuda/intervenção formal.

AGRADECIMENTOS

FCT, CIEC – Universidad of Minho, Portugal // CI&DETS Health School, Polytechnic Institute of Viseu, Portugal.

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INFLUÊNCIA DA EXPECTATIVA DE FUTURO SOBRE A QUALIDADE DE VIDA DE CADETES DO EXÉRCITO PORTUGUES

THE INFLUENCE OF THE FUTURE EXPECTATION ON QUALITY OF LIFE OF CADETS OF PORTUGUESE ARMY

INFLUENCIA DE LAS EXPECTATIVAS FUTURAS EN LA CALIDAD DE CADETS VIDA DEL EJÉRCITO PORTUGUÉS

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RECEIVED: 09th April, 2018
ACCEPTED: 11th May, 2018

Rosinha, A. J., Silva, B., Souza, M., Junior R. C. & Junior H. A. (2018).
The influence of the future expectation on quality of life of cadets of portuguese army. *Millenium, 2*(6), 59-68.
DOI: https://doi.org/10.29352/mill0206.05.00184

RESUMO

Introdução: A qualidade de vida no trabalho tem sido um tema recorrente na literatura, tendo em vista seu papel de agente motivador para os trabalhadores e promotor de vantagem competitiva para organização.
Objetivos: Este estudo pretende avaliar se a expectativa que o cadete da Academia Militar Portuguesa tem sobre o seu futuro influencia a sua saúde e qualidade de vida, em particular a satisfação profissional, a satisfação com a vida e o síndrome de *burnout* e o *stress* percebido.
Método: Participaram do estudo 424 cadetes da Academia Militar Portuguesa, todos do sexo masculino, sendo 99 (23,3%) do primeiro ano, 105 (24,8%) do segundo ano, 109 (25,7%) do terceiro ano e 111 (26,2%) do quarto ano. Os participantes preencheram as escalas utilizadas para mensuração das variáveis do estudo de forma presencial, coletiva e voluntária. Foram respeitados todos os preceitos éticos para a realização da pesquisa.
Resultados: A utilização da técnica de modelagem de equações estruturais revelou que a expectativa futura de sucesso profissional e financeiro tem uma influência positiva e significativa sobre a satisfação com a vida e com o trabalho e uma influência negativa significativa sobre o *stress* percebido e a síndrome de *burnout*.
Conclusão: A expectativa de futuro pode ser considerada como uma variável relevante para explicar a qualidade de vida de cadetes portugueses, ao menos no que se refere aos indicadores satisfação com a vida, satisfação com o trabalho, *stress* percebido e síndrome de *burnout.*

Palavras-chave: Expectativa de futuro; Qualidade de vida; Trabalho e satisfação com a vida; Síndrome *burnout*; *Stress* percebido.

ABSTRACT

Introduction: The quality of life at work has been a recurring theme in the literature, considering its role as motivating agent for workers and promoter of competitive advantage for organization.
Objectives: This study intends to evaluate if the expectation that the cadet of the Portuguese Military Academy has on his future influences his health and quality of life, in particular the professional satisfaction, the satisfaction with life and the burnout syndrome and the perceived stress.
Method: 424 cadets of the Portuguese Military Academy, all males, 99 (23.3%) from the first year, 105 (24.8%) from the second year, 109 (25.7%) from the third year and 111 (26.2%) of the fourth year. Participants completed the scales used to measure the variables of the study in person, in a collective and voluntary way. All ethical precepts for carrying out the research were respected.
Results: The use of the modeling technique of structural equations revealed that the future expectation of professional and financial success has a positive and significant influence on the life and jobsatisfaction and a significant negative influence on the perceived stress and the burnout syndrome.
Conclusion: The expectation of the future can be considered as a relevant variable to explain the quality of life of Portuguese citizens, at least with regard to indicators of satisfaction with life, satisfaction with work, perceived stress and burnout syndrome.

Key words: Future expectation; Quality of life; Work and satisfaction with life; Burnout syndrome; Perceived stress.

RESUMEN

Introducción: La calidad de vida en el trabajo ha sido un tema recurrente en la literatura, teniendo en cuenta su papel de agente motivador para los trabajadores y promotor de ventaja competitiva para la organización.
Objetivos: Este estudio tiene como objetivo evaluar la expectativa de que el cadete de la Academia Militar portugués ha sobre su futuro influye en su salud y calidad de vida, sobre todo la satisfacción en el trabajo, la satisfacción con la vida y el síndrome de burnout y estrés percibido.
Método: El estudio incluyó 424 cadetes de la Academia de Militar, todos hombres, 99 (23,3%) del primero año, 105 (24,8%) del segundo año, 109 (25,7%) de la tercera años y 111 (26,2%) del cuarto año. Los participantes de llenar las escalas utilizadas para medir las variables del estudio de forma presencial, colectiva y voluntaria. Se respetaron todos los preceptos éticos para la realización de la investigación.
Resultados: La utilización de la técnica de modelo de ecuaciones estructurales reveló que la expectativa futura de éxito profesional y financiero tiene una influencia positiva y significativa sobre la satisfacción con la vida y con el trabajo y una influencia negativa significativa sobre el estrés percibido y el síndrome de agotamiento.

Conclusión: La expectativa de futuro puede ser considerada como una variable relevante para explicar la calidad de vida del cadete portugués, al menos en lo que se refiere a la satisfacción de los indicadores de vida, satisfacción en el trabajo, el estrés percibido y el síndrome de agotamiento.
Palabras clave: Expectativa de futuro; Calidad de vida; Satisfacción con lo trabajo; Satisfacción con la vida; Síndrome de agotamiento, Estrés percibido.

INTRODUCTION

This study is part of a more comprehensive study that encompasses the Brazilian Military Academy of Agulhas Negrasand aims to investigate factors associated with adaptation to higher military education. Organizations have sought to know and investigate human behavior at work in order to predict or intervene, increasing quality of life and productivity at work. Many of these investigations have shown that contemporary problems related to the profession impact the conduct of the worker within and even outside the organization (Carlson, Grzywacz, & Zivnuska, 2009; Limongi-França, 2008; Lazarus & Folkman, 1989).
In the context of the Portuguese cadets, it is considered that the cadets' expectation of their future influences how they deal with their academic activities and with the military career in general.
In military institutions, professionals often expose themselves to physical and mental risks to carry out their work. These risks can impact health and affect the quality of life. The Military Academy is a public military higher education institution that develops teaching, research and community support activities with the objective of training officers assigned to the permanent staff of the Army and Republican National Guard. The period of formation of the cadet is four years, being after this period formed like official. During this period of time, students are constantly evaluated for their performance under adverse conditions, by performing topographic tests, shooting, tactical exercises and patrols.
The cadets of the Portuguese Military Academy are inserted in a challenging and very exhausting routine, which requires great physical and psychological preparation. Therefore they need to enjoy good health, to act properly within their society. According to the Portuguese Military Academy, the cadet is required: intelligence, will, effort, physical and moral courage, time, discipline, conscious subordination, preparation, sacrifice and often life itself.
In the context of the Portuguese Military Academy, to be Official is to have total availability to serve the Nation. It is to have adequate, gradual and continuous training, so that in addition to the technical-scientific preparation it must have the capacity to establish and maintain communication with others, to work in groups, to take responsibilities, to take initiative, to make decisions and assumptions of risks, professional spirit, ethical sense of competition and service to the community.

1. FUTURE EXPECTATIONS

Studies about future expectations are scarce, in civil or military contexts. They are especially rare military organizations, it' is considered that future expectation becomes relevant to the understanding of important phenomena related to military training.
Future expectations have been considered, directly or indirectly, in several studies. It has been used to explain performance of people, especially in the school environments. Future expectations can be considered a basic belief about the future, this belief can stimulate some behaviors and inhibit others (Verdugo, Freire & Sánchez-Sandoval, 2018).
This variable has been studied mainly in young audiences, who are in the phase of deciding the future of their lives (Aguiar & Conceição, 2009; Oliveira & Saldanha, 2010). However, such expectations may accompany individuals throughout their lives, regardless of age.
Some studies have shown that future expectations can function as a resilience factor, giving conditions to individuals to face adverse situations more appropriately, if they believe, for example, that difficulties are momentary and that the future reserves better moments (Souza, Pereira, Funck & Formiga 2013; Nelson, Buisine & Aoussat, 2013).
Particularly in the context of military organizations, it is considered that future expectations become relevant to the understanding of important phenomena related to military training. Functioning as a resilience factor, then, the expectation of the future would be positively related to health and quality of life.
According to Seginer (2009) expectations regarding the future consist of plans, aspirations and fears regarding several domains of life in the near or distant future. For Souza, Pereira, Funck and Formiga (2013) the perception of the future influences decisions and behaviors in the present. Thus, the greater the knowledge (or belief) of the future the greater the chance to make better decisions in the present. In this same direction, Oliveira and Saldanha (2010) understand the future expectancy as the way individuals perceive their future and the goals of life they propose to achieve, or as a planning-oriented construct or hope to achieve something. The expectation of future has several aspects that need to be considered, among them are professional and financial success and personal and family satisfaction.
Three main aspects of the future expectations were initially considered: the professional and financial success, the conditions of the society in which the individual is inserted and the personal realization in general. However, the achievement dimension was

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disregarded for a better adaptation of the study carried out in Portugal, and the dimension referring to the conditions in the society were not relevant, since no significant influence was observed to explain the study variables.

Locatelli, Bzuneck and Guimarães (2007) consider the expectation of the future as the anticipation, in the present, of future goals. This expectation thus refers to the degree and manner in which the chronological future of an individual is integrated into the present by means of motivational processes, whether these goals are relatively close or more distant. So we assume that future expectation is an individual's belief about how their future will be, regardless of whether their actions are being developed or not aimed at achieving that future.

2. HEALTH AND QUALITY OF LIFE

The World Health Organization (WHO) defines quality of life as "the individual's perception of their position in life in the context of the culture and value system in which they live and in relation to their goals, expectations, standards and concerns" (The World Helth Organization Quality of Life Assessment Group, 1995). WHO also defines that health is not just an absence of disease but a condition of perfect physical, mental and social well-being. However, this definition, as well as being based on subjective and unattainable expressions such as "perfection" and "well-being", is outdated.

Ferrans (1990) employs five broad components to define quality of life: (1) to have a normal life, which is the ability to live on a level similar to that of other healthy people or typical people of the same age; (2) happiness / satisfaction, which is the result of judgments about living conditions and focuses satisfaction on several important areas in the life of the individual; (3) achievement of personal goals, (4) social utility and (5) natural ability. It should be noted that these categories illustrate some of the most common ways in which quality of life has been defined but do not exhaust these categories.

Ferrans (1989) adopts an individualistic perspective, which considers that the quality of life depends on the experience of life that is unique for each person. Individuals are the only ones who can adequately judge their quality of life, as this would depend on an individual perspective.

Quality of life is an extremely important concept for health care that has been developed predominantly over the past three decades. However, because it is a complex concept, there is still no universally accepted definition of quality of life. The health and quality of life of the Portuguese cadets were measured in the present study through indicators of job satisfaction, life satisfaction, burnout syndrome, and perceived stress.

3. JOB SATISFACTION

Job satisfaction has been the subject of many studies, which associate it with other important variables within the scope of organizational research. Definitions of job satisfaction can be categorized in two approaches: one-dimensional and multidimensional or multifactorial (Tamayo, 2000). In the present study we used an one-dimensional approach, where job satisfaction was considered as a global attitude or an emotional or affective state in relation to work.

Job satisfaction is conceptualized as the worker's affective relationship with the work he or she develops. It is the result of the association the worker establishes between the work and its own values. According to Campos, Domingues, Rodrigues and Oliveira (2012), the satisfaction that people feel in their jobs is largely a consequence of the extent to which various aspects of their work conditions tend to be relevant to their value systems.

According to Wong, Abdull Rahman, and Choi (2014) job satisfaction is characterized by the general attitude of the individual about his work, which is the difference between the amount of rewards he actually receives and the amount of rewards he believes he should receive. Job satisfaction has been extensively investigated for its impact on behaviors within an organization, such as productivity and quality of life.

In fact, according to Hauret and Williams (2017) job satisfaction is a variable capable of exerting a strong influence within the organizational contexts. It has been associated with psychic health, quality of life and interpersonal relationships of the workers, with consequences for individuals and the organizations.

4. LIFE SATISFACTION

According to Joia, Ruiz, and Dinalisio (2007), life satisfaction is a cognitive judgment of some specific spheres of life such as health, work, living conditions, social relations, autonomy, among others. In such a way, satisfaction with life would be a process of judgment and general evaluation of one's own life according to one's own criterion. Reflecting in part on the subjective well-being of each person, that is, the way and the reasons that lead people to live their life experiences in a positive way.

Cheung and Lucas (2014), sustain that satisfaction with life is a cognitive judgment of some specific aspect of a person's life; a process of judgment and general evaluation of life itself; an assessment of life according to a criterion. The satisfaction judgment depends on comparisons between life circumstances and the standards individuals adopt for comparison (Atienza, Balaguer, Corte-Real & Fonseca, 2016).

5. BURNOUT SYNDROME

Theoretical models and instruments capable of evaluate and explain burnout, a syndrome characterized by chronic feelings of discouragement, apathy and depersonalization began to be developed only recently in the 1970s. According to Maslach and Jackson (1985), burnout is generally identified as a form of stress at work, and may occur from direct and excessive contact with other humans, especially among individuals involved in any highly emotional relationship. Burnout syndrome can be divided into three dimensions: emotional exhaustion, depersonalization, and reduction of personal fulfillment.

Emotional exhaustion refers to a depletion of one's own emotional resources and a sense of lack of energy. The depersonalization can be characterized by the development of a negative and apathetic attitude towards the people with whom it serves. The third aspect of burnout syndrome involves a negative evaluation of one's own personal accomplishments in working with people. Employees feel unhappy with themselves and dissatisfied with their accomplishments at work. Menezes et al (2017).

Bridgeman, Bridgeman and Barone (2018) defines burnout as an individual's response to a prolonged state of stress. In such a context, the methods of coping have failed or were insufficient to deal with the problem. The syndrome tends to reach professionals whose activity involves serving or helping others. There is evidence that professionals in care areas have presented burnout syndrome more frequently.

6. PERCEIVED STRESS

One of the ways of assessing stress is through the individual's perception of stressors that are around them. For an event to be considered by the subject as a stressor, two processes must occur: cognitive evaluation, which is the judgment of a situation as a stressor or not, and coping strategies that are the forms of coping that the individual finds to face the events perceived as stressors.

Stress arises when individuals realize that they cannot deal adequately with the demandsor threats. Nowadays, stress is conceived as a possible way of explaining the interface between psychological, social and biological dynamics. It is an important subject of study of the social psychology of health in the search for an understanding factor that affects health-disease processes (Taylor, 2010).

Conceptually, stress is a psychosocial phenomenon with a biological repercussion that occurs according to the perception of real or imagined threat interpreted as capable of causing harm to the psychological or physical integrity of an individual (Santos, 2010).

There are references that point to the influence of stress on the development or aggravation of several physical or mental illness situations (Machado, Damásio, Borsa, & Silva, 2014). This fact emphasizes the need for knowledge about health and quality of life in work environments, especially in the military contexts. The objective of present study is to provide a new perspective of reflection for the promotion of health and quality of life in military contexts, considering the role played by the expectation of future in the explanation of job satisfaction, life satisfaction, perceived stress and burnout syndrome.

7. METHODS

7.1. Sample

A total of 424 cadets of the Military Academy of Portugal, belonging to the four years of training, participated in the study,99 (23.3%) from the first year, 105 (24.8%) from the second year, 109 (25.7%) from the third year and 111 (26.2%) of the fourth year.The age ranged from 19 to 25 years.

7.2. Data collection instruments and procedures

Participants completed a digital questionnaire containing the study instruments.

The Future Expectation Scale is composed of 18 items distributed in 3 factors: Professional and Financial Success; Conditions of the Company and Personal Realization.

To measure job satisfaction, the scale developed by Judge and Klinger (2008) was employed. In such instrument, job satisfaction is measured as a unique facto with 5 items in Likert format, ranging from 1 to 5. The exploratory factorial analysis revealed the existence of satisfactory psychometric characteristics for use of the instrument in studies with Brazilian samples (KMO of 0.74, significant Bartlett sphericity test at the 0.001 level, 54.30% explanation of observed variance, and Cronbach's alpha coefficient of 0.78)

Satisfaction with life was measured using the Life Satisfaction Scale (Diener et al., 1985). The procedures of confirmatory factorial analysis performed by the authors confirmed the structure obtained in the original instrument.

The Perceived Stress Scale was developed and validated for Brazilian samples by Reis, Hino and Añez (2010). The instrument has been used both as uni and bifactorial measures. Considering the specificity of the participants of the present study, a confirmatory factorial analysis was performed, replicating the structure obtained.

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The Maslach Burnout Inventory for Students (MBI-SS, Schaufeli et al., 2002), was employed as an measurement of Burnout syndrome. The instrument consists of 15 questions that are subdivided into three subscales: Emotional Exhaustion (5 items); Depersonalization (4 items) and Professional Realization (6 items).
The instruments were offered to the cadets for online filling, and access was possible during a 2-week period. Full confidentiality was guaranteed regarding the identification of participants. The participation was voluntary and the study was approved in its ethical aspects by the Military Academy.

7.3. Statiscal analysis

Data were analyzed using the Statistical Package for the Social Science (SPSS) 19 and the Analysis of Moment Structures (AMOS) 19 software. The SPSS is usefull for general analysis and AMOS for Modelling of Structural Equation and Confirmatory Factorial Analysis.

8. RESULTS AND DISCUSSION

Initially a confirmatory factorial analysis was performed for the future expectation scale, with values recommended by the literature in the main indexes of adjustment (X^2, X^2/gl, RMR, GFI, AGFI, CFI and RMSEA). After this, a descriptive analysis was performed. Table 1 presents descriptive information for the scales. Participants completed the scales at Likert format of 5 points, in ascending order. That is, higher scores indicate higher levels of each measure.

Table 1 - Average, median and standard deviation of the participants in the study variables

Study variables	Average	Median	Standard Deviation
Professional Success and Financialexpectation	4.08	4.00	0.53
Expectations About Conditions of Society	3.03	3.00	0.75
Emotional exhaustion	2.67	2.60	0.74
Depersonalization	2.06	2.00	0.83
Lack of Professional Accomplishment	2.38	2.33	0.53
Perceived stress	2.69	2.67	0.71
Life Satisfaction	3.60	3.60	0.69
Job Satisfaction	3.79	3.80	0.56

The average for expectations regarding professional and financial success was 4.08, showing a high incidence of the perception of this variable by the group.
The average for expectation about the conditions of society was 3.03, the average for life satisfaction and job satisfaction were respectively 3.60 and 3.79. These results indicate a predominance of intermediate answers provided by cadets.
The averages for burnout syndrome were relatively low: emotional exhaustion (M = 2.67), depersonalization (M = 2.06); and lack of professional achievement (M = 2.38). In this same direction, the average for stress was 2.69. These results indicate low incidence of these variables among the target audience.
The analysis of structural equations showed that the hypothesized model was partially confirmed (Figure 1), since it was observed, in fact, a significant impact of the expected professional and financial success of the study variables, such positive impact in relation to satisfaction life and job satisfaction and negative in relation to burnout syndrome and perceived stress. However, the expectations dimension on the conditions of the society was removed from the study since it did not contribute significantly to explain changes in the study variables.

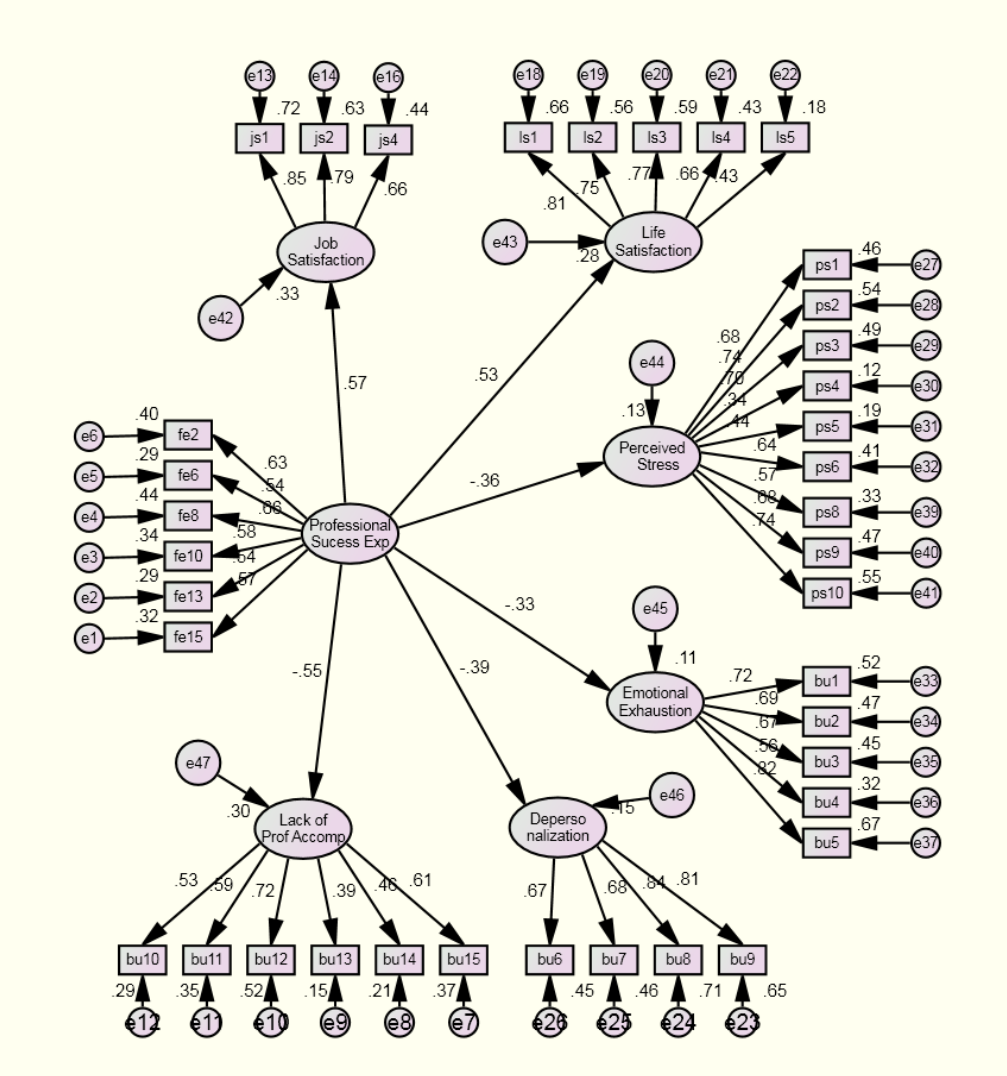

Figure 1 - Analysis of structural equation model in the study hypothesized

Table 2 lists the major indices used to evaluate the adequacy of the model, as indicated in the literature. Such indices are X^2/df, the AGFI, GFI, CFI and RMSEA (Maroco, 2010).

The ratio of$\chi 2$ (Chi-square) by the degree of freedom evaluates poverty adjustment. Thus, the lower the value the better for the study. In general, the ideal model has a value of 1, and an acceptable amount of up to 5. Values greater than 5 indicate a very impoverished model, which should not be accepted.

Goodness-of-Fit Index (GFI) and Adjusted Goodness-of-Fit Index (AGFI) R^2 are analogous to multiple regression. Therefore, indicate the proportion of variance-covariance in the data explained by the model. These range from 0 to 1, with values around 0.80 and 0.90, or greater, indicating a satisfactory fit of the model.

The Comparative Fit Index (CFI) compares, in general, the estimated model and the null model, considering values closer to 1 as ideal. However, values up to 0.9 are considered satisfactory. The Root-Mean-Square Error of Approximation (RMSEA), with its 90% confidence interval (90% CI), is considered an indicator of poor adjustment, ie, high values indicate an unadjusted model. It is assumed as an ideal that the RMSEA is between 0.05 and 0.08, accepting values up to 0.10.

In Table 2 it is possible to check measures of adjustments (Godness of Fit Index) and estimated parameters of the variable marker used model to verify their suitability to the data.

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DOI: https://doi.org/10.29352/mill0206.05.00184

Table 2 - Major indexes for model evaluation

Parameters	Value Obtained	Ideal Value
X^2 / gl	1.95	up to 5
GFI	0.87	Above 0.80
AGFI	0.85	Above 0.80
CFI	0.90	Next 1
RMSEA	0.05 (0.03-0.07)	Less than 0.10

The following indicators were used: X^2 / df, the AGFI, GFI, CFI and RMSEA. The model adjustment measures allow checking extension suitability of theory setting the covariance structure of the data. Accordingly, the adjustment measures GFI (0.87) and CFI (0.90) were between 0 and 1, as recommended by Coelho, Vasconcelos-Fernandes, and Raposo (2007). The other adjustment indicators also suggest a good fit of the model: X^2/df (1.95) below 5 and RMSEA (0.05) smaller than 0.10. We found that the model obtained a good fit, according to the adjustment ratios.
Table 3 shows the impact of expected future on life satisfaction, job satisfaction, burnout syndrome and perceived stress.
It is noticed by analyzing the data, there is a significant negative impact of future expectations about emotional exhaustion, depersonalization and perceived stress. That is, the greater the expectation of success, the less emotional exhaustion, depersonalization less works and lowers the perception of stress.

Table 3 - Indicative of the impact of expected future on life satisfaction, job satisfaction, burnout syndrome and perceived stress

Analyzed Influence			Estimate
Expectancy in Success	⇨	Emotional exhaustion	- 0.29 **
		depersonalization	- 0.34 **
		Lack of Professional Accomplishment	- 0.51 **
		Perceived stress	- 0.31 **
		Satisfaction with Life	0.45 **
		Job satisfaction	0.49 **

** - significant at 0.01.

On the other hand, we found the significant positive impact of expected future on the other variables. Thus, the higher the expectation of success, greater job satisfaction and satisfaction with life.
In general, it is possible to affirm that the results of the present study are in agreement with what is recommended in the literature. In fact, the expectation of the future has been demonstrated as an important variable that should be considered in both educational and professional environments, as is the case in the context of the present study.

CONCLUSIONS

The study aimed to investigate the impact of expected future on health and quality of life of cadets of the Portuguese Military Academy. To do so, life satisfaction, job satisfaction, burnout syndrome and perceived stress were investigated.
After analyzing the questionnaire responses, it was realized the negative impact of future expectations about the negative variables (burnout syndrome and perceived stress) and the positive impact of future expectations about the positive variables (job satisfaction and life satisfaction). If the cadet has the perception that their future is satisfactory, it works as a buffer for the current situations, which causes it to better face the difficult and stressful situations. On the other hand, if the cadet has a negative expectation for the future, adverse situations become more negatively perceived. If the cadet does not believe in a good future and only see trouble ahead, whatever happens, it is seen as a very large cost for a very small benefit.
Consequently, when there is an expectation of positive future, negative variables are diminished because it is believed that the difficult moment is temporary and necessary to achieve something better in the future. The expectation of the future, therefore, is linked to the confidence that things are going to happen. People with positive future expectations feel certain tranquility, knowing that ahead have something better to expect from them. The opposite occurs with people with negative expectations as they expect bad events in the future, thus generating stress and burnout syndrome.
Thus, the present results allow the conclusion corroboration of hypothesized model in the study. The expectation of the future can be considered as a relevant variable to explain current behavior and health indicators and quality of life, at least as regards

the Portuguese cadets. Additional studies may consider other variables as well as sociodemographic indicative in order to better understand the relationship between the variables. It is suggested, however, the interpretation of the present data with caution. For studies in the area are scarce and the instrument used to measure future expectations are fairly recent.

The results of the study allow us to conclude that, in fact, there is an anticipatory role of the expectation of future quality of life, at least with regard to the variables considered in the study (job satisfaction, perceived stress and burnout syndrome).

Important questions arise from the results of the study. In professional terms, the possibilities of the career should be transmitted to the cadets, who should have as realizable their aspirations in terms of aspirations to higher positions and to the exercises of specific functions within the Portuguese Army. In the educational context, the possibility of accomplishment in the career is another aspect that deserves attention.

Although the results obtained in the present study are in agreement with the literature, new investigations are suggested, considering other professional and training contexts, as well as the inclusion of other variables, capable of promoting a better understanding of the role played by the expectation of future on important phenomena in people's lives.

ACKNOWLEDGEMENTS

The authors would like to thank to the Portuguese Military Academy and the Brasilian Military Academy of Agulhas Negras.

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A TRAGÉDIA DOS VENCEDORES NAS *TROIANAS* DE SÉNECA

THE WINNERS' DRAMA IN SENECA'S *TROADES*

EL DRAMA DE LOS GANADORES EN LAS TROYANAS DE SÉNECA

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RECEIVED: 24th July, 2017
ACCEPTED: 25th January, 2018

Balula, J. P. (2018). The winners' drama in Seneca's Troades.
Millenium, 2(6), 69-76.
DOI: https://doi.org/10.29352/mill0206.06.00145

RESUMO

Introdução: A literatura clássica tem grande importância para a formação de leitores críticos. Por essa razão, este artigo propõe uma leitura atual das dificuldades dos vencedores que se evidenciam nas *Troianas* de Séneca: Pirro, Agamémnon, Ulisses, Aquiles e Helena.
Desenvolvimento: Partindo de uma análise de conteúdo da obra, apresenta-se uma reflexão sobre as consequências dos sentimentos e das paixões. Torna-se evidente que quando o ser humano é confrontado consigo próprio e com a sua essência tudo vem à superfície: a virtude mais admirada (a moderação) e os defeitos mais desprezíveis (a arrogância, a brutalidade, a tirania, a hipocrisia e a cobardia).
Conclusões: Conclui-se que a preocupação dos vencedores se centra na dúvida acerca do sucesso da viagem de regresso.

Palavras-chave: Séneca; *Troianas*; Vencedores; Sofrimento; Literatura Latina.

ABSTRACT

Introduction: The texts of classical literature are of great importance for the training of critical readers. For this reason, this article proposes a current reading of the winners' difficulties that are evident in Seneca's *Troades*: Pyrrhus, Agamemnon, Ulysses, Achilles, and Helena.
Development: Starting from a content analysis of the literary work, a reflection on the consequences of feelings and passions is presented. It becomes evident that when the human being is confronted with himself and with his essence everything comes to the surface: the most admired virtue (moderation) and the most despicable defects (arrogance, brutality, tyranny, hypocrisy and cowardice).
Conclusions: It is concluded that the winners' concern focuses on the doubt about the success of the return trip.

Keywords: Seneca; *Troades*; Winners; Suffering; Latin Literature.

RESUMEN

Introducción: Los textos de la literatura clásica tienen gran importancia para la formación de lectores críticos. Por esta razón, este artículo propone la lectura actual de las dificultades de los vencedores que se evidencian en las *Troyanas* de Séneca: Pirro, Agamenón, Ulises, Aquiles y Helena.
Desarrollo: A partir del análisis de contenido de la obra, se presenta una reflexión sobre las consecuencias de los sentimientos y de las pasiones. Es evidente que cuando el ser humano se enfrenta consigo mismo y con su esencia todo viene a la superficie: la virtud más admirada (la moderación) y los defectos más despreciables (la arrogancia, la brutalidad, la tiranía, la hipocresía y la cobardía).
Conclusiones: Se concluye que la preocupación de los ganadores se centra en la duda sobre el éxito del viaje de regreso.

Palabras clave: Séneca; *Troyanas*; Ganadores; Sufrimiento; Literatura Latina.

INTRODUCTION

Classical texts play a relevant role as protagonists of plural identities, of languages and cultures' labyrinths, guiding us, with their relevance criteria, through the language and culture of diversity, educating us towards inclusion and memory. Their critical reading prepares us for the future. Seneca's tragedies privilege speech and reflection over events (Cardoso, 2005). It is in this context that the preservation of all "heritage of human condition" and the reading of Seneca's *Troades* make sense (Matias, 2009), encouraging the thought "on power, fortune and suffering, life and death" (Gama, 2017, p. 8). The fickleness of Fortune as the cause of the present situation has in Troy, and in all its inhabitants, a well visible mark (Caviglia, 1981), providing therefore some timeless teachings:

> Moderation should be the constant concern of the mighty and these should continuously doubt the gods' favourable status. A thousand ships or ten years will not be needed for a kingdom to collapse. Not to all does Fortune give as much protection as it does to Troy. (Balula, 2015, p. 305)

Seneca's *Troades* show how this theme is transversal. M*ora* is the main mechanism of the play and unites winners and vanquished in suffering. The vanquished are free from all fears and hopes: in opposition to the theme of captivity, death as freedom comes as the ultimate destination (Caviglia, 1981). Uncertainty regarding the success of the return journey hangs over the winners. The ships departure and the end of *mora maris* may not be more than the transfer of *mora mortis* from the vanquished to the winners.

Considering that "reading is an activity that enables the transmission of wisdom and the relation with past and present knowledge" and that "there is, in reading, a sharing of wisdom and knowledge that is either accepted, or refused, or

problematized" (Balula, 2010, p. 2), this article aims to contribute towards the trining of 21st century readers and provide a critical reading of the winners' drama in Seneca's Troades: Pyrrhus, Agamemnon, Ulysses, Achilles and Helena.
Zwierlein (1986) was followed as reference edition.

1. DEVELOPMENT

Pyrrhus appears, to the spectator's eyes, as an example of determined and brutal arrogance, of violence always ready to unravel, and of a tyrant's ferocious cruelty. His concern is to secure his father's right, Achilles, to a part in the splitting of the spoils of Troy: a process, after all, of magnifying himself in the eyes of the Achaeans.
Before appearing on the scene, one of his past violent actions is brought to the memory of all spectators from the mouth of Hecuba. As Schetter (1965) says, the old queen's woe prepares the entrance of Pyrrhus. It was him who mercilessly took Priam's life. Thus, in the most violent way, the sanguinary character of Pyrrhus is marked.
In Talthybius's revelation, it is from the mouth of Achilles himself that we learn that to Pyrrhus is reserved the mission to immolate Polyxena.
On Pyrrhus fell Priam´s death, and upon him will fall Polyxena´s. Pyrrhus is, therefore, the one who completes the mission initiated by his father, although in its most unworthy part: the death of an old man and a damsel.
Being the spectator prepared for what to expect from Pyrrhus's character, the hero comes on the scene in *agon* with Agamemnon. The young man claims the lot due to his father, since, regarding the other chiefs, the deceased is being forgotten. Agamemnon's resistance and the violence of the dialogue clearly demonstrate Pyrrhus's brutality. In Agamemnon's eyes Pyrrhus appears as an immature young man: he does not know how to refrain his impulses, fierceness and insolence.
Achilles's son goes as far as to threaten with death the chief himself, the king of kings. It is from Pyrrhus's mouth that we hear that his hand has long refrained from royal blood, and that Priam claims a companion. These words are full of tragic sarcasm, for only a day has gone by since Priam's death. Pyrrhus, who was capable of committing such an atrocity towards Priam, is now willing to repeat the act towards Agamemnon, in case he cannot achieve what he wants.
Throughout the *agon* with Agamemnon, the young man defends the idea that the winner is allowed everything, including the anguish of the vanquished. Pyrrhus heads the only pair of winners who come into conflict in the play. In this conflict it is possible to glimpse a balance of forces that Pyrrhus can establish by opposing the king of kings with the vigour youth gives him. Pyrrhus has willpower, he is well resolved to achieve his goals.
Achilles's son appears to be hateful in the eyes of the defeated, by his past deeds, and in the eyes of the winner, by his present desires. Nevertheless, he will be invoked by Andromache, when he tries to oppose Ulysses' decision, and save Hector's tomb guaranteed by Achilles. Pyrrhus is part of the strategy set up by Helena to take Polyxena as a bride is taken to the wedding ceremony. That is why the perfidious ambassador enhances the union with the Achaean hero, relative of the gods, as highly honourable for a captive princess and reminds her that the spouse owns a kingdom that extends over vast plains. These ambiguous words only apparently refer to Pyrrhus, as in fact, they designate Achilles, to whom Polyxena is going to be immolated. But, for Andromache there is no greater evil than to see Priam's murderer transformed into the old king and Hecuba's son-in-law. Another clear example of Pyrrhus's cruelty, recognized in the field of the Achaeans itself.
After knowing the result of the draw, Hecuba announces Pyrrhus's entrance. His pace is fast; his look full of threats. Achilles's son truly appears as the rapturous one prepared by Helena.
Hecuba notes, however, a moment of hesitation from Pyrrhus. It is like a quick nod to a rough sketch of humanity that contrasts with all the previous characterization of Pyrrhus. He who took the most brutal attitudes, who enters with a fast pace and a fierce look, pauses for a moment, as if the Polyxena's beauty and the drama of the scene impressed him. This disturbance of Pyrrhus is the beginning of his decline, the decline of the one Hecuba calls the killer of old men.
Likewise, in the nuptial procession, Polyxena's determined march leaves Pyrrhus behind. When she comes near the tomb and Pyrrhus goes to the highest point, the damsel's intrepidity shakes the cruel hero again, who is slow in delivering the fatal blow.
In this way, Pyrrhus seems to confirm the Elder's words when he says that only in the first moment is the winner fierce, since the strength and impetus presented and proven in the first part of the play fade at the end. Nevertheless, he will not fail to commit a new atrocity in the eyes of the winners and the vanquished: the death of a damsel.
Pyrrhus, through a slight allusion, brings up into the play the question of the *mora maris* to which the winners are subject to. It is due to his brutal attitude against Agamemnon that this question reappears and is clearly defined through Calchas. A way to further aggravate, in appearance, the catastrophe of the vanquished.
In the end, the characteristics of Achilles's son are those typical of a tyrant (Herrmann, 1924), a theme which in Seneca is quite frequent (Pociña Pérez, 1976). Seneca seems to reveal, through Pyrrhus, the most repugnant of all winners, how he much learned from the despots of his time: Caligula, Claudius, and Nero (Boella, 1979). As Gama (2017, p. 2) states, "within that scenario, Seneca's work reflects, to some extent, the political situation. Themes such as power, the nature of the soul, death and the changes of fortune are particularly pricey."

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2. AGAMEMNON: THE DEFEATED WINNER

The King of Kings mirrors the image of the winner that, as Hecuba says, looks at the ruins of Troy fearful and still unsure about the triumph that his army has achieved. Unsure mainly about the consequences this triumph might entail.

Among the winners, Agamemnon deserves especial attention, both for being the king of kings and for the positions he takes. He is certainly one of the most complex characters. There are moments when he seems to have nobility. There are others in which he does not obey the norms of the wisdom he defends.

Therefore, according to Schetter (1965), he has been judged in several ways: by some as a feeble character and by others as a representative of noble humanity. Herrmann (1924) also considers the king of kings a generous, moderate and good sovereign. He goes on saying that of all the kings of the Senecan tragedy, Agamemnon is the noblest and perhaps the most original.

Wen discussing the subject of the main character, Giancotti (1953, pp. 109-110) puts the hypothesis of this being Agamemnon: "*se protagonista significa personaggio in cui i motivi d'un dramma s'adunano e s'incentrano in un motivo fondamentale e comprensivo, protagonista delle "Troiane" non può essere Ecuba, ma Agamennone*".

In his first intervention, Agamemnon tries, through reason, to make Pyrrhus understand that his desires may be justifiable, but must be tempered. In this first moment, he appears to be a defender of a new morality. He presents himself as a moderate, understanding, and patient man. His position as head of the winners is staggering.

But Agamemnon is not only the supreme leader of the winners. In his heart, he elevates himself and presents a vision of life and man that transcends the brutal law of war, the one that authorizes the winner to own the defeated. In the recognition of glory, he understands that the reign is but a vain glow, and in Priam's fate there is a teaching concerning the instability of Fortune which makes men equal, whether they are winners or vanquished. It shows what can be considered a virtue, to which kings should give especial importance to: patience. This judgment, based on an alliteration and an anadiplosis, resembles a self-criticism of his excesses before the accusations Pyrrhus directed at him.

The king of kings evidences his awareness of the precariousness of power, for what was done in ten years requiring a thousand ships, may be accomplished by Fortune in a single moment. It works as a compliment to the glory of Troy that had Fortune by its side for a long time and it is a warning to the Achaeans, liable to lose the protection which at that moment favours them.

This Agamemnon is a transformed man, a man who suffered (Schetter, 1965). The dark premonition of a tragic end illuminates his mind.

Agamemnon appears as the representative of noble humanity. But if, sometimes, this statement seems correct to us, there are moments when would be completely amiss. Accepting that the Senecan theatre truly settles upon the opposition between *bona mens* and *furor*, Agamemnon sometimes appears as representing *bona mens*. He desperately tries to save Polyxena, a role that, in Euripides, naturally belongs to Hecuba, and has the premonition that he is a man at risk. But there are aspects of his character that do not fit in *bona mens*, insofar as the king of kings gives in to impulses of retaliation, when, in *agon* against Pyrrhus, he becomes impetuous and unfair. After all, at the ultimate moment, Agamemnon transfers to the prophet the responsibility of the decision and disappears from the scene.

Agamemnon reveals a double side: on the one hand, he is the king who allowed that enormous excesses were committed in the night of Troy's destruction; on the other hand, he is the ruler who senses misfortune as punishment for the mistakes made and tries*, in extremis*, to prevent it.

He consults the prophet to counteract the offence that Pyrrhus addressed to him, that is, not to be charged as a tyrant. But when Agamemnon declares, "it is upon me that the errors of all fall: he who an evil deed does not forbid, when so able, is commanding it" (Tro., 290-291), he assumes the defence of a personal issue, even if he has to make use of the force that comes from his status as supreme chief in the field.

This commendable purpose, full of humanity, would lead him to present alternatives to avoid human sacrifices to be made. But for Pyrrhus, Agamemnon has none of the virtues he tries to inculcate. Achilles's son considers him to be tyrant of kings (now proud, then fearful, usurper other winners' spoils, prone to passions for women who should not belong to him). Therefore, either he gives in to the demand or Pyrrhus is sword will give Priam the company of another king.

Faced with this brutal threat, Agamemnon's reaction, though sarcastic, is not what would be expected of a commander-in-chief obliged to severely punish the arrogance of a dependent. The perceived impression is of a certain weakness or even cowardice. And Pyrrhus himself does not fail to point out that in the past such weakness had already been observed.

While Pyrrhus seeks arguments to defend contradictory deeds (he says that Achilles was a great king when he spared Priam's life, but also seeks to justify his own barbarity towards the same king), Agamemnon explores the bloodthirsty young man's difficulty to sustain his positions as a defender of his father's attitudes. When the young man strikes back, Agamemnon defends himself again with words that explain the ideal behaviour of a moderate king. To what would be, according to custom, legally permitted to the winner, Agamemnon opposes much higher values of honour and moderation. But those arguments are fleeting: Agamemnon returns to maleficence. Therefore, Pyrrhus, in his reply, emphasizes that the king of kings belongs to a family of fratricides.

Facing the inability to persuade Pyrrhus through words, in the absence of arguments that rationally lead him to renounce his determination, Agamemnon recoils. He claims that he could suppress Pyrrhus's insolent words and subdue his audacity (which

throughout the *agon* he was not able to demonstrate) but, in the same way he is capable of sparing the captives, he also spares him. He does not want to be known as a despotic sovereign.
Therefore, in order to escape from an embarrassing situation, he transfers to Calchas the responsibility of the final decision, although, judging from past experience, he foresees it will not favour him.
Effectively Calchas will provoke the defeat of Agamemnon and of his alleged principles. Besides Polyxena's death, the prophet still demands the death of Astyanax. The past returns in the present, but it is more annihilating insofar as it clearly weighs on the act of abuse committed by the winners.
After this complete defeat of his interests and principles, Agamemnon disappears from the play. The fate of the vanquished will be left to Ulysses and Pyrrhus. The name of the king of kings will only be remembered in the secondary nucleus of the play, the draw of the captive women. His prize will be Cassandra, the princess who the Trojans hoped to have been spared from the affront of the draw, given her prophetic gifts.
Agamemnon is the first winner to fear the consequences of the *mora maris* that might become *mora mortis*. After all you could say that "fate guides whoever follows it willingly, but drags those who refuse to follow it" (Campos, 1991, p. XXXV). Agamemnon seems to be the demonstration of this principle defended by Seneca. He is a vanquished winner who represents the communion of man in pain and in submission to fate, embodying the most dense, central and unifying motif of the tragedy. He disappears after Calchas's intervention, but reappears whenever the sharing of pain between vanquished and winners is concerned. However, while embodying this central motif, he does not exhaust it. He lacks magnanimity in sacrifice and constancy in purpose, which are the strong man's appanage. The pain he intended to avoid will be imposed upon him.

3. ULYSSES: THE FEAR OF A RESURRECTION

From early on, expectations of fear were created towards Ulysses. His entrance is announced by the Elder. Straightway, Andromache describes the manner he presents himself.
Ulysses's arrival is not desired by Andromache and his characteristics are repudiated. According to Andromache he plans some ruse, because from a perfidious person like Ulysses nothing else can be expected.
But the first words he utters contradict these expectations. He introduces himself as the representative of the Achaeans and of the gods. What he is doing is not his responsibility. His voice is the expression of all winners.
Interested in Andromache's collaboration, he does not hesitate to speak to her heart, using the resources that can allow a greater approximation. His first intervention is an effort for cooperation. At the end, he addresses Andromache calling her by her name, which represents a clear seduction attempt. Then, he accrues a series of metaphors from the animal and vegetal world that, in a most beautiful way, exalt the figure of Astyanax. This prominence of the victim, according to Ulysses's the cause of the *mora* that holds the ships. As if guessing Andromache's thoughts, he asks her not to consider him cruel, as the mission was entrusted to him by fate. Andromache should understand the need to eliminate a potential avenger. But for a mother, to request a child's death is an outrage. Ulysses, feeling that Andromache responds with deception, hardens his position. He resorts to the enumeration of the most diverse physical tortures. However, Andromache rejects this intimidation process.
Ulysses realises that he is treading a wrong path and no longer makes use of the direct threat. He now engages into hidden threats. Andromache is, however, able to lead him into a situation of doubt: should he believe in Astyanax's death that the mother herself announces?
This situation of doubt evolves to a critical point. Facing the gravity of the oath uttered by Andromache, for a moment, Ulysses believes in the child's death. But, as leader of a mission, he questions himself: if the Achaeans ask him, what evidences did he gather of Astyanax's death, what could he answer? However, Andromache's oath is too strong not to be true.
But Ulysses does not cease to observe Andromache, who stirs anxiously, as if fearing something, which makes him return to the state of doubt. That reaction is not evitable for a mother who lost her child. If such had happened, Andromache would have nothing to fear. This reflection, showing a lucid and cold Ulysses, gives him strength to get back to the attack with mental torture, which he will carry out in several stages and with different degrees of cruelty.
At first, he describes, without ceasing to observe Andromache, the death to which Astyanax was destined: he would be precipitated from the only existing tower. Facing the brutality of the revelation, Andromache shows a bigger disturbance.
Before Andromache can recover, Ulysses quickly triggers a new form of torture. He orders the soldiers to look for Astyanax and describes the search as if the child had already been found. Andromache is disturbed again, but tries to compose herself and find an excuse for her fear.
Faced with the partial failure of this attempt, Ulysses resorts to a new stratagem. Assuming that the son is dead, it is necessary, as compensation, to destroy Hector's tomb. It is the solution Calchas points out so that the ships may leave. Andromache still tries to resist and find arguments that prevent Ulysses from taking that decision. But the Achaean chief feels that soon he will be victorious in this unequal struggle. He orders the soldiers to destroy the tomb. His position of strength forces Andromache to break.

Balula, J. P. (2018). The winners' drama in Seneca's Troades.
Millenium, 2(6), 69-76.
DOI: https://doi.org/10.29352/mill0206.06.00145

When the miserable mother kneels at his feet, Ulysses reacts as someone who was being deceived. He cannot demonstrate gentleness without seeing the child before him. The barren brutality he manifests in face of the supplications is the consequence of the need to ensure, at all cost, the success of the mission.
After the victory over Andromache is guaranteed, Ulysses gives signs of commotion, but he thinks about the future of the winners and persists in his initial determination.
When Andromache insists on the pleads, Ulysses transfers to the prophet the responsibility for Astyanax's death. Thus, he demonstrates a hypocrisy to which he had not yet resorted.
This change in character induces Andromache to insult Ulysses: he is a schemer of deceits, an artificer of crimes, a fearful warrior who only has the courage to kill a child. Wounded in his pride, Ulysses responds harshly. But facing Andromache's humiliation, Ulysses returns to a more subdued tone and grants the small *mora* that Andromache begged him, to bid farewell to her son. As the farewell delays, the military chief gets impatient and claims an end to it, thus preparing for the final verses of the scene where the brutal cut of delays is seen in the name of the need to suppress the *mora*.
It would not be expected, after this success, that Ulysses had in luck the most undesired spoil, Hecuba. As Gama (2017, p. 8) states, "Hecuba functions as a mixture of the misery and despair that assailed the trojan women and the city." This piece of news, given by Helena, leads the old woman to insult her master: captive, besieged by all evils, she feels ashamed of her owner and not of captivity, of that who owns a barren island locked in the seas. Thus, Ulysses functions as the first symbol of Hecuba's possible revenge: the queen succeeded in managing, at least, that the Achaean chief did not receive a young female prisoner.
Only near the end, in the Messenger's explanation, Ulysses reappears. He who, with such difficulty, had taken Astyanax from Andromache, was encharged with leading the child to the execution tower. Ulysses's paced gait, though justified by the ritual of sacrifice, contrasts with Astyanax's determination by walking forward towards death without fear. This determination touches Ulysses.
But the last mission Ulysses had been given has a frustrating end. The Achaean chief should throw Astyanax from the tower, after repeating the words that Calchas recommended and invoking the deities. But he is interrupted in the middle of the ritual by Astyanax's anticipation. The final image that is left to us is that of a diminished chief in front of the greatness of a child that astonishes all.
Placed in a central position of the play, Ulysses represents the Achaeans' onslaught in eliminating even the most remote hypothesis of a new resurrection of Troy. He confirms this idea when he says that if the gods had not determined so, such was the chiefs' desire. It is the military chief performing a political mission. In this mission he takes advantage of all the strategies he knows and manages them according to needs and the resistance of the adversary. Confirming the eminently secular character of his mission is the fact that he only makes three brief references to the gods (Tro., 528, Tro., 533, Tro., 749). Ulysses only presents Astyanax's death as the deities' determination when he fears to give in to emotion. The point is that upon the success of his mission depends the end of the *mora maris*. The political aspect clearly emerges first.
The compassion for Andromache and the admiration for Astyanax are, however, signs of humanization and reveal the presence of an inner drama, though smothered. As if he sensed that the *mora maris* is *mora mortis* for both defeated and winners.

4. ACHILLES: THE VICTORIOUS GHOST

In the winners' field, someone who no longer belongs to the world of the living must be included, because of is extreme importance in the economy of the play: the shadow of Achilles.
From Talthybius's mouth, we learn of the wrath of the deceased: sea and earth in convulsion seem to support the ghost's demand, and the Tritons' song foreshadows the engagement consummation, creating an atmosphere of great tension (Silva, 2008). The Achaeans forgot to attribute to him a part of the war prey and he demands Polyxena's sacrifice upon his ashes. Achilles's sarcastic words ("*Ite*, *ite*, *inertes*") will find a distant echo in Hecuba's mouth, which likewise contains a clear threat: "*Ite*, *ite*, *Danai*" (Tro., 1165).
The ghost's demand reappears in the *agon* between Pyrrhus, his son, and Agamemnon, and will be confirmed by Calchas's oracle. It becomes, therefore, a fundamental element in the outcome of the tragedy: Polyxena will be sacrificed in his name to become his wife in the Elysian Fields.
After recovering from the shock caused by the news brought by Helena, Hecuba identifies Achilles's harmful presence. His "real" presence is, moreover, underlined by the way the earth absorbs the victim's blood.
Achilles's demands determine another victory of the Achaeans over the Trojans, insofar as they annihilate the last hopes left to the vanquished: Polyxena and Astyanax.
Achilles, the cause of the *mora* to which the winners are subject and of the revenge they are exposed to for having shed innocent blood, still asserts his will. The other deceased, the vanquished Hector, will not, apparently, achieve his goals.

5. HELENA: THE TREACHERY OF A MESSAGE

Placing Helena among the winners may give rise to justifiable reservations. She does not present herself as a winner, but she accepted a perfidious mission towards the vanquished. She lived for ten years with the Trojans, but now, a few hours after the fall of Troy, she is with Menelaus.

Helena's situation is marked by the ambiguity of the circumstance she finds herself in. She accepts a mission that accentuates her balance between the field of the winners and that of the vanquished: a mission that in no way dignifies her, since she is being used by the winners. By placing her among the winners, the link between the drama of the winners and that of the vanquished is established.

From the first moment, Helena is struggling with herself. She wants to inculcate herself as someone who is dragging a fatality. She presents herself as a victim and says she is obliged to carry out this mission. From the beginning she tries to evade her responsibilities: she must obey an order. But she does not fail to recognize her most visible feature: the ability to deceive.

She even tries to excuse her own action: Polyxena is going to die, but if she does not know it, her suffering will be attenuated up to the last moment. She works for a worthy cause, because, as she judges others by her own cowardice, the deception would mean, in this case, an act of mercy.

Helena's perfidy is clearly marked. In the words she addresses to Polyxena, she tries to give her reasons so she will walk with a favourable disposition towards that false engagement. She makes a compliment to the spouse, who has a vast territory, and says that Polyxena will be related to the gods. This is the most attractive part of the proposal.

Andromache will confirm what Helena said. In a sarcastic tone, she characterizes the messenger as bearer of misfortune. She was the one who caused the ruin of Asia and Europe. The marriage now proposed can only bring a new misfortune.

In face of this accusation, Helena feels the need to defend herself. She tries to prove that she has greater reasons for suffering than the captive women. From the start she says that she does not mind facing a court and, before the cause is judged, she already finds herself acquitted. The reasons that lead her to conclude that her suffering is greater are very clear to her. In the first place, Helena can only cry for Paris in secret. If people see her crying, she loses all hopes of being forgiven by Menelaus. Besides, Helena has been captive for ten years, while the Trojan women have only been captive for a day. She adds, as a reason for suffering, the fact that she does not know how she is going to be received. On the other hand, the captive women are unfortunate, but they have company. Helena is alone: vanquished and winners hate her.

Helena even considers herself in an inferior situation, once the captive women were submitted to a draw, while she is at the mercy of her former husband.

Soon after, Helena starts expressing her weakest arguments. She says she came to Troy in a Trojan ship. She wants to inculcate the idea that she was brought by force. But if she can only cry for Paris secretly, she was not kidnapped: she accompanied him voluntarily.

As she realizes no one would accept the version of the kidnapping she then says she let herself be transported in the Trojan ship, because a goddess had decided so. Unable to admit her faults, she casts them to the gods.

Helena's uses good and bad arguments. But most of them are contradictory. The only acceptable argument is the loneliness in which she finds herself: against her are winners and vanquished.

Helena feels the contradictions in which she fell and asks Andromache for help. She shows her human side: "*it is with difficulty that I can hold back the tears*" (Tro., 925-926). It is not a simulacrum, because Andromache confirms that vague outline of crying. Helena is ashamed to be leading the young and beautiful sister-in-law to sacrifice. She seems to show mercy for the victim and for herself simultaneously.

As Andromache is not willing to help, she is compelled to reveal Polyxena's fate and she expresses the desire to have a similar one. Helena does not really want to die. She presents her intention as unattainable (Schetter, 1965): her words are a little theatrical, motivated by the contrast between her cowardly attitude and the determined attitude of her sisters-in-law.

As an answer marked by some sort of cruel and rancorous happiness (Herrmann, 1985), Helena announces the result of the draw to the different captive women, starting with Andromache. Lastly, she indicates Hecuba's fate: the old queen is a prisoner that will not last long.

In the middle of the Trojans' curses, Helena will serve as bridesmaid to Polyxena in the mournful simulacrum of the nuptial procession that precedes the damsel's sacrifice. Therefore, she plays the role of a malevolent character as bridesmaid of fatal nuptials (Schetter, 1965). She walks face down, as the contrast between her cowardice and the nobility of her sister-in-law causes her a visible discomfort.

In disagreement with the idea defended by Tsirpanlis (1970) that the character of Seneca's Helena is linear and with no depth, as opposed to Euripides' Helena, we argue that she is a complex figure (Herrmann, 1985), imposing a negative image that has a strong tradition prior to Seneca. Her drama is loneliness in misfortune. The *mora mortis* that she manifests does not convince, but little more can be said for her benefit. If she herself has difficulty accepting this form of nobility, she will hardly have another.

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DOI: https://doi.org/10.29352/mill0206.06.00145

CONCLUSIONS

When the time comes to return home, expected for ten years, the winners, instead of feeling happy, experience the bitter taste of triumph. The *mora maris* imposed upon them new cruelties, which overshadow the merit of their achieved victory. There is also a doubt about the success of the journey. The ships departure is nothing more than the transfer of the *mora mortis* from the vanquished to the winners who see *mora maris* transformed into *mora mortis*.

Pyrrhus is forced to fight to see his merit recognized and his father Achilles recalled. Just as in the past, also in the present he assumes his bloodthirsty, arrogant, cruel, immature, hateful character, the most disgusting of all winners. His characteristics are those typical of a tyrant, but he is not completely insensitive to the nobility of the vanquished.

Agamemnon, the noblest and perhaps the most original of all the kings of the Senecan tragedy, a moderate, understanding and patient man, tries to avoid new violence, but ends up giving in and transferring the final decision to Calchas. His intervention is structured in to two different rhythms: on the one hand he stands as the defender of a new morality - a consequence of the learning provided by the fall of Troy; on the other hand, maleficence, hypocrisy, cowardice, the prevalence of individual interests over the interests of the army. He submits to fate, accepts the defeat of his good intentions, and tragedy unleashes. He learned from victory the ephemerality of greatness and the precariousness of power. He is the first to fear the consequences of *mora maris*. He represents man's communion in pain and in submission to fate - the most dense, central and unifying motif of the tragedy.

Ulysses, perfidious, lucid and cold, does everything to put an end to his drama, which is the drama of the Achaean army - the risk of a new Hector - but he cannot entirely fulfil his mission. He sees Astyanax anticipate the execution that was up to the Achaean chief and does not conceal his admiration for the child's fearlessness. He shows some signs of humanization amidst the brutality of the winners' decisions, but those signs do not hide the prevalence of the military chief's hypocrisy who performs a political mission.

Achilles no longer belongs to the world of the living, but his shadow is a fundamental element in the outcome of the tragedy: Polyxena's sacrifice.

Helena lived among the vanquished, but, at the end, the vilest figure is at the winners' service. In spite of being the cause of the ruin of Asia and Europe, she is incapable of assuming her own faults. Her most visible characteristic is the ability to deceive, but she also feels insecure concerning her fate. While preparing Polyxena for the sacrifice, she contributes to the end of the *mora maris*.

The winners' analysis in Seneca's *Troades* shows us that, from the most admired virtue (moderation) to the most despicable flaws (arrogance, brutality, tyranny, hypocrisy and cowardice), everything comes to the surface when the human being is confronted with himself and with his essence.

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A TRAGÉDIA DOS VENCEDORES NAS *TROIANAS* DE SÉNECA

THE WINNERS' DRAMA IN SENECA'S *TROADES*

EL DRAMA DE LOS GANADORES EN LAS TROYANAS DE SÉNECA

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RECEBIDO: 24 de julho de 2017
ACEITE: 25 de janeiro de 2018

Balula, J. P. (2018). A tragédia dos vencedores nas Troades de Séneca.
Millenium, 2(6), 69-76.
DOI: https://doi.org/10.29352/mill0206.06.00145

RESUMO

Introdução: A literatura clássica tem grande importância para a formação de leitores críticos. Por essa razão, este artigo propõe uma leitura atual das dificuldades dos vencedores que se evidenciam nas *Troianas* de Séneca: Pirro, Agamémnon, Ulisses, Aquiles e Helena.
Desenvolvimento: Partindo de uma análise de conteúdo da obra, apresenta-se uma reflexão sobre as consequências dos sentimentos e das paixões. Torna-se evidente que quando o ser humano é confrontado consigo próprio e com a sua essência tudo vem à superfície: a virtude mais admirada (a moderação) e os defeitos mais desprezíveis (a arrogância, a brutalidade, a tirania, a hipocrisia e a cobardia).
Conclusões: Conclui-se que a preocupação dos vencedores se centra na dúvida acerca do sucesso da viagem de regresso.

Palavras-chave: Séneca; *Troianas*; Vencedores; Sofrimento; Literatura Latina.

ABSTRACT

Introduction: The texts of classical literature are of great importance for the formation of critical readers. For this reason, this article proposes a current reading of the winners' difficulties that are evident in Seneca's *Troades*: Pyrrhus, Agamemnon, Ulysses, Achilles, and Helena.
Development: Starting from a content analysis of the literary work, a reflection on the consequences of feelings and passions is presented. It becomes evident that when the human being is confronted with himself and with his essence everything comes to the surface: the most admired virtue (moderation) and the most despicable defects (arrogance, brutality, tyranny, hypocrisy and cowardice).
Conclusions: It is concluded that the winners' concern focuses on the doubt about the success of the return trip.

Keywords: Seneca; *Troades*; Winners; Suffering; Latin Literature.

RESUMEN

Introducción: Los textos de la literatura clásica tienen gran importancia para la formación de lectores críticos. Por esta razón, este artículo propone la lectura actual de las dificultades de los vencedores que se evidencian en las *Troades* de Séneca: Pirro, Agamenón, Ulises, Aquiles y Helena.
Desarrollo: A partir del análisis de contenido de la obra, se presenta una reflexión sobre las consecuencias de los sentimientos y de las pasiones. Es evidente que cuando el ser humano se enfrenta consigo mismo y con su esencia todo viene a la superficie: la virtud más admirada (la moderación) y los defectos más despreciables (la arrogancia, la brutalidad, la tiranía, la hipocresía y la cobardía).
Conclusiones: Se concluye que la preocupación de los ganadores se centra en la duda acerca del éxito del viaje de regreso.

Palabras clave: Séneca; *Troades*; Ganadores; Sufrimiento; Literatura Latina.

INTRODUÇÃO

Os textos clássicos desempenham um papel relevante enquanto protagonistas de identidades plurais, dos labirintos das línguas e das culturas, orientando-nos, com os seus critérios de relevância, na linguagem e na cultura da diversidade, educando-nos para a inclusão e para a memória. A sua leitura crítica prepara-nos para o futuro. As tragédias de Séneca privilegiam o discurso e a reflexão sobre os acontecimentos (Cardoso, 2005). É neste contexto que a preservação de toda a "herança da condição humana" e a leitura das *Troianas* de Séneca fazem sentido (Matias, 2009), incentivando o pensamento "sobre o poder, a fortuna e o sofrimento, a vida e a morte" (Gama, 2017, p. 8). A inconstância da Fortuna como causa da situação presente tem em Troia, e em todos os seus habitantes, uma marca bem visível (Caviglia, 1981), proporcionando, por isso, alguns ensinamentos intemporais:

> "A moderação deve ser a preocupação constante dos poderosos e estes devem duvidar continuamente da posição favorável dos deuses. Não serão precisos mil navios nem dez anos para que um reino caia. Nem a todos a Fortuna dá, como a Troia, tantas delongas de proteção." (Balula, 2015, p. 305)

As *Troianas* de Séneca demostram como esta temática é transversal. A *mora* é o mecanismo fundamental da peça e une vencedores e vencidos no sofrimento. Os vencidos ficam livres de todos os receios e esperanças: em oposição ao tema do cativeiro, como último destino, surge a morte como liberdade (Caviglia, 1981). Sobre os vencedores paira a incerteza em relação ao sucesso

da viagem de regresso. A partida dos barcos e o fim da *mora maris* podem não ser mais do que a transferência da *mora mortis* dos vencidos para os vencedores.
Considerando que a "leitura é uma atividade que possibilita transmissão de saber e relação com o conhecimento do passado e do presente" e que "há, na leitura, uma partilha de saber e de conhecimento que ora se aceita, ora se recusa, ora se problematiza" (Balula, 2010, p. 2), pretendemos, com este artigo, contribuir para a formação de leitores do século XXI e proporcionar uma leitura crítica do drama dos vencedores nas *Troianas* de Séneca: Pirro, Agamémnon, Ulisses, Aquiles e Helena.
Seguimos Zwierlein (1986) como edição de referência.

1. DESENVOLVIMENTO

Pirro surge, aos olhos do espectador, como um exemplo de arrogância determinada e brutal, de violência sempre pronta a desencadear-se, e de crueldade feroz de um tirano. A sua preocupação é assegurar o direito de seu pai, Aquiles, a uma parte na divisão dos despojos de Troia: um processo, afinal, de se engrandecer aos olhos dos Aqueus.
Antes de aparecer em cena, uma das suas violências no passado é trazida, pela boca de Hécuba, à memória de todos os espectadores. Como diz Schetter (1965), o lamento da velha rainha prepara a entrada de Pirro. Foi ele quem, impiedosamente, tirou a vida a Príamo. Marca-se assim, da forma mais violenta, o caráter sanguinário de Pirro.
Na revelação de Taltíbio, é pela boca do próprio Aquiles que ficamos a saber que a Pirro está reservada a missão de imolar Políxena. Sobre Pirro recaiu a morte de Príamo e sobre ele vai recair a de Políxena. Pirro é, portanto, aquele que remata a missão iniciada por seu pai, embora na sua parte menos digna: a morte de um velho e de uma donzela.
Preparado o espectador em relação ao que pode esperar do caráter de Pirro, o herói entra em cena no *agôn* com Agamémnon. O jovem reclama o quinhão devido a seu pai, uma vez que, em relação aos outros chefes, o morto está a ser esquecido. A resistência de Agamémnon e a violência do diálogo vão demonstrar claramente a brutalidade de Pirro. Aos olhos de Agamémnon, Pirro aparece como um jovem imaturo: não sabe refrear os impulsos, a fogosidade e a insolência.
O filho de Aquiles chega ao extremo de ameaçar de morte o próprio chefe, o rei dos reis. É da boca de Pirro que ouvimos dizer que já há muito tempo a sua mão se abstém de sangue real, e que Príamo reclama um companheiro. Estas palavras estão repletas de sarcasmo trágico, pois ainda não passou mais de um dia sobre a morte de Príamo. Pirro, que fora capaz de cometer tal atrocidade em relação a Príamo, está agora disposto, caso não consiga o que pretende, a repetir o ato em relação a Agamémnon.
Ao longo do *agôn* com Agamémnon, o jovem defende a ideia de que ao vencedor tudo é permitido, mesmo que se trate do suplício dos vencidos. Pirro encabeça a única dupla de vencedores que entram em conflito na peça. Neste conflito vislumbramos um equilíbrio de forças que Pirro consegue estabelecer opondo ao rei dos reis o vigor que a juventude lhe proporciona. Pirro tem força de vontade, está bem resolvido a conseguir os seus objetivos.
O filho de Aquiles aparece odioso aos olhos do vencido, pelos seus atos passados, e aos olhos do vencedor, pelos seus desejos do presente. Apesar disso, será invocado por Andrómaca, quando tenta opor-se à decisão de Ulisses, e salvar o túmulo de Heitor garantido por Aquiles.
Pirro faz parte da estratégia montada por Helena para levar Políxena como se leva uma noiva para a cerimónia nupcial. Por isso a pérfida embaixadora encarece a união com o herói aqueu, parente dos deuses, como altamente honrosa para uma princesa cativa e lembra que o esposo possui um reino que se estende através de largas planícies. Estas palavras ambíguas só na aparência se referem a Pirro, já que, na realidade, designam Aquiles, a quem Políxena vai ser imolada. Mas, para Andrómaca não há mal maior do que ver o assassino de Príamo transformado em genro do velho rei e de Hécuba. Mais um exemplo claro da crueldade de Pirro, reconhecida no próprio campo dos Aqueus.
Depois de ter conhecimento do resultado do sorteio, Hécuba anuncia a entrada de Pirro. O seu passo é rápido; o olhar, carregado de ameaças. O filho de Aquiles surge realmente como o arrebatador preparado por Helena.
Hécuba regista, no entanto, um momento de hesitação de Pirro. É como o aceno rápido a um esboço de humanidade que contrasta com toda a caraterização anterior de Pirro. Quem tomava as atitudes mais brutais, quem entra com passo célere e olhar feroz, detém-se por instantes, como se a beleza de Políxena e o dramatismo da cena o impressionassem. Esta perturbação de Pirro é o princípio do seu declínio, o declínio daquele que Hécuba apelida de assassino de velhos.
Também, no cortejo nupcial, a marcha decidida de Políxena deixa Pirro para trás. Quando ela chega próximo do túmulo e Pirro se dirige para o ponto mais alto, a intrepidez da donzela abala de novo o herói cruel, que é lento em desferir o golpe fatal.
Deste modo, Pirro parece confirmar as palavras do Ancião quando diz que só no primeiro momento é que o vencedor é feroz, uma vez que a força e o ímpeto apresentados e comprovados na primeira parte da peça se atenuam no final. Mas nem por isso deixará de cometer nova atrocidade aos olhos de vencedores e de vencidos: a morte de uma donzela.
Pirro, através de uma leve alusão, faz surgir na peça a questão da *mora maris* a que os vencedores estão sujeitos. É devido à sua atitude brutal contra Agamémnon que esta questão reaparece e é claramente definida através de Calcas. Uma forma de agravar ainda mais, na aparência, a catástrofe dos vencidos.
No fundo, as características do filho de Aquiles são as típicas de um tirano (Herrmann, 1924), tema que em Séneca é bastante frequente (Pociña Pérez, 1976). Séneca parece revelar, através de Pirro, o mais repugnante de todos os vencedores, quanto

Balula, J. P. (2018). A tragédia dos vencedores nas Troades de Séneca.
Millenium, 2(6), 69-76.
DOI: https://doi.org/10.29352/mill0206.06.00145

aprendera com déspotas do seu tempo: Calígula, Cláudio e Nero (Boella, 1979). Como afirma Gama (2017, p. 2), "dentro desse cenário, a obra de Séneca reflete, em certa medida, a situação política. Temas como o poder, a natureza da alma, a morte e as mudanças da fortuna são especialmente caros".

2. AGAMÉMNON: O VENCEDOR VENCIDO

O rei dos reis espelha a imagem do vencedor que, como diz Hécuba, olha as ruínas de Troia temeroso e ainda inseguro do triunfo que o seu exército alcançou. Inseguro, principalmente, pelas consequências que esse triunfo poderá acarretar.

Entre os vencedores, Agamémnon merece uma atenção particular, quer por ser o rei dos reis, quer pelas posições que assume. É certamente uma das personagens mais complexas. Há momentos em que parece ter nobreza. Há outros em que não obedece às normas da sabedoria que defende.

Por isso, tem sido julgado, segundo Schetter (1965), de vários modos: por uns como um caráter débil e por outros um representante da humanidade nobre. Também Herrmann (1924) considera o rei dos reis um soberano generoso, moderado e bom. Diz ainda que, de todos os reis da tragédia senequiana, Agamémnon é o mais nobre e talvez o mais original.

Ao discutir a questão da personagem principal, Giancotti (1953, pp. 109-110) põe a hipótese de esta ser Agamémnon: "*se protagonista significa personaggio in cui i motivi d'un dramma s'adunano e s'incentrano in un motivo fondamentale e comprensivo, protagonista delle "Troiane" non può essere Ecuba, ma Agamennone*".

Na sua primeira intervenção, Agamémnon procura, através da razão, fazer compreender a Pirro que os seus desejos podem ser justificáveis, mas devem ser temperados. Neste primeiro momento, mostra-se aparentemente defensor de uma moral nova. Apresenta-se como homem moderado, compreensivo e paciente. A sua posição como chefe dos vencedores é surpreendente.

Mas Agamémnon não é apenas o chefe supremo dos vencedores. No seu foro íntimo, eleva-se e apresenta uma visão da vida e do homem que transcende a lei brutal da guerra, aquela que autoriza o vencedor a ser dono do vencido. No fastígio da glória, entende que o reino não passa de um vão fulgor e, na sorte de Príamo, está presente um ensinamento sobre a instabilidade da Fortuna que torna iguais os homens, quer sejam vencedores, quer vencidos. Mostra aquilo que pode ser considerado uma virtude a que os reis devem dar particular importância: a paciência. Esta sentença, apoiada numa aliteração e numa anadiplose, parece uma autocrítica à sua desmesura perante as acusações que Pirro lhe dirigiu.

O rei dos reis evidencia a sua consciência da precariedade do poder, pois o que foi feito em dez anos e para que foram necessários mil navios, poderá ser realizado pela Fortuna em um só instante. Funciona como um elogio à glória de Troia que teve a Fortuna do seu lado durante muito tempo e é um aviso para os Aqueus, sujeitos a perderem a proteção que naquele momento os bafeja.

Este Agamémnon é um homem transformado, um homem que sofreu (Schetter, 1965). O pressentimento obscuro de um fim trágico ilumina-lhe a cabeça.

Agamémnon configura-se como o representante da humanidade nobre. Mas se, em alguns momentos, esta afirmação nos parece acertada, há outros em que seria totalmente descabida. Se o teatro senequiano assenta realmente na oposição entre a *bona mens* e o *furor*, Agamémnon aparece, por vezes, como representante da *bona mens*. Tenta desesperadamente salvar Políxena, papel que, em Eurípides, compete naturalmente a Hécuba, e tem a premonição de que é um homem em risco. Mas há aspetos da personagem que não assentam numa *bona mens*, na medida em que o rei dos reis cede a impulsos de revindicta, quando, no *agôn* contra Pirro, se torna impetuoso e injusto. Afinal, no derradeiro momento, Agamémnon transfere para o adivinho a responsabilidade da decisão e desaparece da cena.

Agamémnon revela uma dupla face: por um lado, é o rei que deixou cometer enormes excessos na noite da destruição de Troia; por outro, é o governante que pressente a desgraça como punição dos erros cometidos e tenta, *in extremis*, evitá-la.

Consulta o adivinho para contrariar a ofensa que Pirro lhe dirigiu, isto é, para não ser acoimado de tirano. Mas quando Agamémnon afirma "é *sobre mim que recaem os erros de todos: quem não proíbe uma má ação, quando pode fazê-lo, está a ordená-la"* (*Tro*., 290-291), assume a defesa de uma questão pessoal, mesmo que para isso tivesse de fazer uso da força que lhe advém do seu estatuto de chefe supremo em campo.

Este propósito louvável, cheio de humanidade levá-lo-ia a apresentar alternativas para evitar que se fizessem sacrifícios humanos. Mas, para Pirro, Agamémnon não tem nenhuma das virtudes que tenta inculcar. O filho de Aquiles considera-o tirano de reis (ora orgulhoso, ora medroso, usurpador dos despojos de outros vencedores, atreito a paixões por mulheres que lhe não deviam pertencer). Por isso, ou cede à exigência ou a espada de Pirro dará a Príamo a companhia de outro rei.

Perante esta brutal ameaça, a reação de Agamémnon, embora sarcástica, não é a que se esperaria de um comandante-chefe obrigado a punir com severidade a arrogância de um dependente. A impressão que se colhe é de uma certa debilidade ou mesmo cobardia. E o próprio Pirro não deixa de sublinhar que já no passado se observara essa fraqueza.

Enquanto Pirro procura argumentos para defender feitos contraditórios (diz que Aquiles foi um grande rei quando poupou a vida a Príamo, mas procura também justificar a sua própria barbaridade perante o mesmo rei), Agamémnon explora a dificuldade do jovem sanguinário para sustentar as suas posições de defensor das atitudes do pai. Quando o jovem contra-ataca, Agamémnon defende-se novamente com palavras que explanam a atuação ideal de um rei moderado. Ao que seria, de acordo com o costume, legalmente permitido ao vencedor, Agamémnon opõe valores muito mais elevados de honra e moderação. Mas esses argumentos

são fugazes: Agamémnon regressa à maledicência. Por isso, Pirro, na sua réplica, acentua que o rei dos reis pertence a uma família de fratricidas.
Perante a incapacidade de convencer Pirro por palavras, perante a falta de argumentos que racionalmente o levem a renunciar à sua determinação, Agamémnon recua. Afirma que podia reprimir as palavras insolentes de Pirro e abater a sua audácia (o que ao longo do *agôn* não soube demonstrar), mas, da mesma forma que é capaz de poupar os cativos, também o poupa a ele. Não quer passar por soberano despótico.
Assim, para fugir de uma situação embaraçosa, transfere para Calcas a responsabilidade da decisão final, apesar de prever que essa decisão lhe não vai ser favorável, a julgar pela experiência do passado.
Efetivamente, Calcas vai provocar a derrota de Agamémnon e dos seus alegados princípios. Além da morte de Políxena, o adivinho exige ainda a de Astíanax. O passado regressa no presente, mas é mais aniquilador, na medida em que onera claramente o ato de desmesura cometido pelos vencedores.
Depois desta completa derrota dos seus interesses e dos seus princípios, Agamémnon desaparece da peça. A sorte dos vencidos ficará entregue a Ulisses e a Pirro. O nome do rei dos reis será apenas recordado no núcleo secundário da peça, no sorteio das cativas. Vai-lhe caber em sorte Cassandra, a princesa que, pelos seus dons proféticos, os Troianos esperavam que fosse poupada à afronta do sorteio.
Agamémnon é o primeiro vencedor a temer as consequências da *mora maris* que pode transformar-se em *mora mortis*. Dir-se-ia afinal que *"o destino guia quem o segue de bom grado, mas arrasta quem se recusa a segui-lo"* (Campos, 1991, p. XXXV). Agamémnon parece ser a demonstração deste princípio defendido por Séneca. É um vencedor vencido que representa a comunhão do homem na dor e na submissão ao fado, encarnando o motivo mais denso, central e unificador da tragédia. Desaparece depois da intervenção de Calcas, mas ressurge sempre que está em causa a partilha da dor entre vencidos e vencedores. Contudo, embora corporize esse motivo central, nem por isso o esgota. Faltam-lhe a magnanimidade no sacrifício e a constância no propósito que são apanágio do homem forte. A dor que pretendeu evitar ser-lhe-á imposta.

3. ULISSES: O TEMOR DE UMA RESSURREIÇÃO

Desde cedo se criam expectativas de temor em relação a Ulisses. A sua entrada é anunciada pelo Ancião. E Andrómaca vai, logo de seguida, descrever o modo como ele se apresenta.
A chegada de Ulisses não é desejada por Andrómaca e as suas características são repudiadas. Para Andrómaca ele trama algum ardil, porque de uma pessoa pérfida como Ulisses não se pode esperar outra coisa.
Mas as primeiras palavras que pronuncia contrariam estas expectativas. Apresenta-se como mandatário dos Aqueus e dos deuses. O que está a fazer não é da sua responsabilidade. A sua voz é expressão da de todos os vencedores.
Interessado na colaboração de Andrómaca, não hesita em lhe falar ao coração, utilizando os recursos que podem permitir uma aproximação maior. A sua primeira intervenção é um esforço de comparticipação. A terminar, dirige-se a Andrómaca, chamando-a pelo nome, o que representa uma clara tentativa de sedução. Depois, acumula uma série de metáforas do mundo animal e vegetal que, de forma muito bela, enaltecem a figura de Astíanax. É esta grandeza da vítima, segundo Ulisses, a causa da *mora* que retém os navios. Como que a adivinhar os pensamentos de Andrómaca, pede-lhe que o não considere cruel, porque ele foi incumbido da missão pela sorte. Andrómaca deve compreender a necessidade de eliminar um potencial vingador. Mas, para uma mãe, pedir a morte do filho é uma afronta. Ulisses, ao sentir que Andrómaca responde com o engano, endurece a sua posição. Recorre à enumeração das mais diversas torturas físicas. Contudo, Andrómaca rejeita este processo de intimidação.
Ulisses vê que está a trilhar caminho errado e deixa de recorrer à ameaça direta. Envereda por ameaças dissimuladas. Andrómaca, no entanto, consegue levá-lo a uma situação de dúvida: deverá acreditar na morte de Astíanax que a própria mãe anuncia?
A situação de dúvida vai evoluindo até um ponto crítico. Perante a gravidade do juramento proferido por Andrómaca, Ulisses acredita, por momentos, na morte da criança. Mas, como chefe de uma missão, coloca questões a si próprio: se os Aqueus lhe perguntarem, que provas colheu da morte de Astíanax, o que poderá responder? No entanto, o juramento proferido por Andrómaca é demasiado forte para não ser verdadeiro.
Mas Ulisses não deixa de observar Andrómaca, que se agita ansiosamente, como se receasse algo, o que o faz voltar ao estado de dúvida. Aquela reação não é própria de uma mãe que perdeu o filho. Se isso tivesse acontecido, Andrómaca nada teria que recear. Esta reflexão, onde aparece o Ulisses lúcido e frio, dá-lhe forças para regressar ao ataque com a tortura mental que vai exercer em várias etapas e com diferentes graus de crueldade.
Num primeiro momento descreve, sem deixar de observar Andrómaca, a morte a que estava destinado Astíanax: seria precipitado da única torre ainda existente. Perante a brutalidade da revelação, Andrómaca mostra uma perturbação ainda maior.
Antes que Andrómaca possa restabelecer-se, rapidamente Ulisses aciona uma nova forma de tortura. Dá ordens aos soldados para que procurem Astíanax e descreve a busca como se a criança já tivesse sido encontrada. Andrómaca fica novamente perturbada, mas tenta recompor-se e arranjar uma desculpa para o seu temor.
Perante o parcial fracasso desta tentativa, Ulisses recorre a novo estratagema. Uma vez que o filho está morto, é necessário, como compensação, destruir o túmulo de Heitor. É a solução que Calcas aponta para que os barcos possam partir. Andrómaca ainda

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tenta resistir e arranjar argumentos que demovam Ulisses daquela decisão. Mas o chefe aqueu sente que em breve será vencedor nesta luta desigual. Dá ordens aos soldados para que destruam o túmulo. A sua posição de força obriga Andrómaca a ceder.
Quando a infeliz mãe se lhe lança aos pés, Ulisses reage como alguém que esteve a ser enganado. Não pode mostrar brandura sem ver a criança à sua frente. A seca brutalidade que manifesta diante das súplicas é consequência da necessidade de assegurar, a todo o custo, o êxito da missão.
Depois de garantida a vitória sobre Andrómaca, Ulisses dá sinais de comoção, mas pensa no futuro dos vencedores e persiste na determinação inicial.
Quando Andrómaca insiste nos rogos, Ulisses transfere para o adivinho a responsabilidade da morte de Astíanax. Demonstra, assim, uma hipocrisia a que não tinha ainda recorrido.
Esta mudança de caráter leva Andrómaca a insultar Ulisses: é um maquinador de enganos, um artífice de crimes, um guerreiro medroso que apenas tem coragem para matar uma criança. Ferido no seu orgulho, Ulisses responde duramente. Mas perante a humilhação de Andrómaca, Ulisses regressa novamente a um tom mais brando e concede a pequena *mora* que Andrómaca lhe implorou para se despedir do filho. Como a despedida se alonga, o chefe militar impacienta-se e reclama um termo. Prepara assim os versos finais da cena em que se verifica o corte brutal das delongas em nome da necessidade de suprimir a *mora*.
Não se esperaria, depois deste êxito, que a Ulisses coubesse em sorte o despojo mais detestado, Hécuba. Como afirma Gama (2017, p. 8), "Hécuba funciona como um amálgama da desgraça e do desespero que acometeu as troianas e a cidade". Esta notícia, dada por Helena, leva a anciã a insultar o seu senhor: cativa, assediada por todos os males, sente vergonha do dono e não do cativeiro, daquele que possui uma ilha estéril fechada nos mares. Assim Ulisses funciona como primeiro símbolo da vingança possível de Hécuba: a rainha conseguiu, pelo menos, que ao chefe aqueu não coubesse uma prisioneira jovem.
Só perto do fim, na narração do Mensageiro, Ulisses volta a aparecer. Ele, que, com tanta dificuldade, tinha arrebatado Astíanax a Andrómaca, foi encarregado de conduzir a criança à torre da execução. O andar compassado de Ulisses, embora justificado pelo ritual do sacrifício, contrasta com a determinação de Astíanax que avança para a morte sem temor. Essa determinação comove o próprio Ulisses.
Mas a última missão de que Ulisses tinha sido incumbido tem um final frustrado. Ao chefe aqueu competia lançar Astíanax da torre, depois de repetir as palavras que Calcas tinha recomendado e invocar as divindades. Mas é interrompido a meio do ritual pela antecipação de Astíanax. A imagem final que nos fica é a de um chefe diminuído perante a grandeza de uma criança que a todos deixa admirados.
Colocado numa posição central da peça, Ulisses representa o encarniçamento dos Aqueus em liquidar a hipótese, mesmo remota, de uma nova ressurreição de Troia. Ele confirma esta ideia, quando diz que, se os deuses o não determinassem, era essa a vontade dos chefes. É o chefe militar que desempenha uma missão política. Nessa missão socorre-se de todos os artifícios que conhece e que administra consoante as necessidades e a resistência do adversário. A confirmar o carácter eminentemente laico da sua missão, está o facto de ele fazer apenas três sumárias referências aos deuses (*Tro.*, 528; *Tro*., 533; Tro., 749). Ulisses só apresenta a morte de Astíanax como determinação das divindades quando receia ceder à emoção. É que do êxito da sua missão depende o fim da *mora maris*. O aspeto político surge claramente em primeiro lugar.
A compaixão por Andrómaca e a admiração por Astíanax constituem, no entanto, sinais de humanização e revelam a presença de um drama interior, embora sufocado. Como se pressentisse que a *mora maris* é *mora mortis* para vencidos e vencedores.

4. AQUILES: O FANTASMA VITORIOSO

No campo dos vencedores, deve ser incluído alguém que já não pertence ao mundo dos vivos, mas que é de extrema importância na economia da peça: a sombra de Aquiles.
Pela boca de Taltíbio, tomamos conhecimento da cólera do morto: mar e terra em convulsão parecem apoiar a exigência do fantasma e o canto dos Tritões preanuncia a consumação do noivado, criando um ambiente de grande tensão (Silva, 2008). Os Aqueus esqueceram-se de lhe atribuir uma parte da presa de guerra e ele exige o sacrifício de Políxena sobre as suas cinzas. As palavras sarcásticas de Aquiles ("*Ite, ite, inertes*") vão encontrar um eco distante na boca de Hécuba que de igual modo contêm uma clara ameaça: "*Ite, ite, Danai"* (*Tro*., 1165).
A exigência do fantasma reaparece no *agôn* entre Pirro, o seu filho, e Agamémnon, e será confirmada pelo oráculo de Calcas. Torna-se, por isso, elemento fundamental no desenlace da tragédia: Políxena será sacrificada em seu nome para ser sua esposa nos Campos Elísios.
Hécuba, depois de se recompor do choque causado pela notícia trazida por Helena, identifica a presença nociva de Aquiles. A sua presença "real" é, aliás, sublinhada pela forma como a terra absorve o sangue da vítima.
As exigências de Aquiles determinam outra vitória dos Aqueus sobre os Troianos, na medida em que aniquilam as últimas esperanças que podiam restar aos vencidos: Políxena e Astíanax.
Aquiles, o causador da *mora* a que os vencedores estão sujeitos e da vingança a que ficam expostos por terem derramado sangue inocente, ainda faz valer a sua vontade. O outro morto, o vencido Heitor, não irá, aparentemente, atingir os seus objetivos.

5. HELENA: A PERFÍDIA DE UMA MENSAGEM

A colocação de Helena entre os vencedores pode suscitar reservas justificáveis. Ela não se apresenta como vencedora, mas aceitou uma missão de perfídia em relação aos vencidos. Viveu dez anos com os Troianos, mas agora, poucas horas depois da queda de Troia, está com Menelau.

A situação de Helena é marcada pela ambiguidade do estado em que se encontra. Aceita uma missão que acentua o seu balancear entre o campo dos vencedores e o dos vencidos: missão que de forma alguma a dignifica, uma vez que está a ser usada pelos vencedores. Com a sua colocação entre os vencedores pretendemos estabelecer a ligação do drama dos vencedores com o dos vencidos.

Desde o primeiro momento, Helena mostra-se em conflito consigo própria. Quer inculcar-se como alguém que arrasta uma fatalidade consigo. Apresenta-se como vítima e diz que é obrigada a levar a cabo esta missão. Desde logo, tenta enjeitar as suas responsabilidades: tem de obedecer a uma ordem. Mas não deixa de reconhecer a sua característica mais visível: a capacidade de enganar.

Tenta até desculpar a sua ação: Políxena vai morrer, mas, se o não souber, o sofrimento será atenuado até ao último momento. Trabalha por uma boa causa, pois, como ajuíza os outros pela sua própria cobardia, o engano representaria, neste caso, um ato de piedade.

A perfídia de Helena está claramente assinalada. Nas palavras que dirige a Políxena, procura dar-lhe motivos para que caminhe com favorável disposição para aquele falso noivado. Faz um elogio do esposo, que tem um grande território, e diz que Políxena vai ficar parente dos deuses. Esta é a parte mais aliciante da proposta.

Andrómaca vai confirmar o que a própria Helena disse. Em tom sarcástico, caracteriza a mensageira como portadora de desgraça. Foi ela quem causou a ruína da Ásia e da Europa. O casamento agora proposto só pode trazer uma nova desgraça.

Perante esta acusação, Helena sente necessidade de fazer a sua defesa. Tenta provar que tem maiores razões de sofrimento do que as cativas. Desde logo diz que não se importa de enfrentar um tribunal e, antes de a causa ser julgada, já se dá como absolvida. As razões que a levam a concluir que o seu sofrimento é maior são, para ela, bem claras. Em primeiro lugar, Helena só pode chorar Páris às escondidas. Se chorar à vista de todos, perde as esperanças de ser perdoada por Menelau. Além disso, Helena é cativa há dez anos, enquanto as Troianas apenas o são há um dia. Acrescenta ainda, como motivo de sofrimento, o facto de não saber como vai ser recebida. Por outro lado, as cativas são infelizes, mas têm companhia. Helena está sozinha: odeiam-na vencidos e vencedores.

Helena considera-se ainda em situação inferior, já que as cativas foram submetidas a sorteio, enquanto ela está à mercê do antigo marido.

Logo de seguida, Helena entra na parte mais débil da argumentação. Diz que veio para Troia num barco troiano. Quer inculcar a ideia de que foi trazida à força. Mas, se só pode chorar Páris às escondidas, não foi raptada: acompanhou-o voluntariamente.

Como percebe que ninguém aceitaria a versão do rapto, afirma, depois, que se deixou transportar no barco troiano, porque uma deusa o tinha decidido. Incapaz de assumir as suas culpas, lança-as para os deuses.

A argumentação de Helena tem momentos bons e momentos maus. Mas quase toda ela está eivada de contradições. O único argumento aceitável é o da solidão em que se encontra: contra ela estão vencedores e vencidos.

Helena sente as contradições em que caiu e pede ajuda a Andrómaca. Mostra o seu lado humano: "*é a custo que consigo reter as lágrimas"* (*Tro*., 925-926). Não é um simulacro, porque Andrómaca confirma esse esboço de choro. Helena envergonha-se de estar a conduzir a jovem e bela cunhada para o sacrifício. Parece mostrar simultaneamente pena da vítima e pena de si própria.

Como Andrómaca não está disposta a ajudar, vê-se obrigada a revelar o destino de Políxena e manifesta o desejo de ter igual sorte. Helena não deseja realmente morrer. Apresenta o seu propósito como irrealizável (Schetter, 1965): as suas palavras são um pouco teatrais, motivadas pelo contraste sentido entre a sua atitude cobarde e a atitude determinada das cunhadas.

Como resposta marcada por uma espécie de alegria cruel e rancorosa (Herrmann, 1985), Helena anuncia o resultado do sorteio às diferentes cativas, a começar por Andrómaca. Em último lugar, indica a sorte de Hécuba: a velha rainha é uma presa que vai durar pouco.

No meio das maldições dos Troianos, Helena servirá como prónuba a Políxena no fúnebre simulacro de cortejo nupcial que antecede o sacrifício da donzela. Representa, assim, o papel de uma personagem malévola como prónuba de núpcias fatais (Schetter, 1965). Vai cabisbaixa, porque o contraste entre a sua cobardia e a nobreza da cunhada lhe causa um visível mal-estar.

Em discordância com a ideia defendida por Tsirpanlis (1970) de que o caráter da Helena de Séneca é linear e sem profundidade, em oposição à Helena de Eurípides, defendemos que é uma figura complexa (Herrmann, 1985), impondo uma imagem negativa que tem uma forte tradição anterior a Séneca. O seu drama é a solidão na desgraça. A *mora mortis* que exprime não convence, mas pouco mais se pode averbar em seu benefício. Se a própria tem dificuldade em aceitar esta forma de nobilitação, dificilmente terá outra.

Balula, J. P. (2018). A tragédia dos vencedores nas Troades de Séneca.
Millenium, 2(6), 69-76.
DOI: https://doi.org/10.29352/mill0206.06.00145

CONCLUSÕES

Chegado o momento do regresso ao lar, esperado durante dez anos, os vencedores, em vez de se sentirem felizes, experimentam o sabor amargo do triunfo. A *mora maris* impôs-lhes novas crueldades que lhes ensombram o mérito da vitória alcançada. Acresce ainda a dúvida acerca do sucesso da viagem. A partida dos barcos não é mais do que a transferência da *mora mortis* dos vencidos para os vencedores que veem a *mora* maris transformada em *mora mortis*.

Pirro é obrigado a lutar para ver reconhecido o seu mérito e relembrado o seu pai Aquiles. Tal como no passado, também no presente assume o seu caráter sanguinário, arrogante, cruel, imaturo, odioso, o mais repugnante de todos os vencedores. As suas características são as típicas de um tirano, mas não é completamente insensível à nobreza dos vencidos.

Agamémnon, o mais nobre e talvez o mais original de todos os reis da tragédia senequiana, homem moderado, compreensivo e paciente, tenta evitar novas violências, mas acaba por ceder e transferir para Calcas a decisão final. A sua intervenção estrutura-se em dois ritmos diferentes: por um lado apresenta-se como defensor de uma moral nova – consequência da aprendizagem proporcionada pela queda de Troia; por outro lado, a maledicência, a hipocrisia, a cobardia, a prevalência dos interesses individuais em detrimento dos interesses do exército. Submete-se ao destino, aceita a derrota dos seus bons propósitos e a tragédia desencadeia-se. Aprendeu com a vitória a efemeridade da grandeza e a precaridade do poder. É o primeiro a temer as consequências da *mora maris*. Representa a comunhão do homem na dor e na submissão ao fado – motivo mais denso, central e unificador da tragédia.

Ulisses, pérfido, lúcido e frio, faz tudo para pôr termo ao seu drama, que é o drama do exército aqueu - o risco de um novo Heitor -, mas não consegue cumprir integralmente a sua missão. Vê Astíanax antecipar-se à execução que competia ao chefe aqueu e não esconde a sua admiração pelo destemor da criança. Apresenta alguns sinais de humanização no meio da brutalidade das decisões dos vencedores, mas não escondem a prevalência da hipocrisia do chefe militar que desempenha uma missão política.

Aquiles já não pertence ao mundo dos vivos, mas a sua sombra é um elemento fundamental no desenlace da tragédia: o sacrifício de Políxena.

Helena viveu com os vencidos, mas, no fim, a figura mais vil está ao serviço dos vencedores. Apesar de ser a causadora da ruína da Ásia e da Europa, é incapaz de assumir as suas culpas. A sua característica mais visível é a capacidade de enganar, mas também se mostra insegura da sua sorte. Ao preparar Políxena para o sacrifício, contribui para que a *mora maris* chegue ao fim.

A análise dos vencedores nas *Troianas* de Séneca mostra-nos que, da virtude mais admirada (a moderação) aos defeitos mais desprezíveis (a arrogância, a brutalidade, a tirania, a hipocrisia e a cobardia), tudo vem à superfície quando o ser humano é confrontado consigo próprio e com a sua essência.

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EDUCAÇÃO E DESENVOLVIMENTO SOCIAL
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Millenium, 2(6), 77-86.

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ARTICULAÇÃO CURRICULAR ENTRE A EDUCAÇÃO PRÉ-ESCOLAR E O 1.º CICLO DO ENSINO BÁSICO: CONCEÇÕES E PRÁTICAS

CURRICULAR ARTICULATION BETWEEN EARLY CHILDHOOD EDUCATION AND PRIMARY SCHOOL: CONCEPTIONS AND PRACTICES

ARTICULACIÓN CURRICULAR ENTRE LA EDUCACIÓN PRE-ESCOLAR Y EL 1ER CICLO DE LA ENSEÑANZA BÁSICA: CONCEPCIONES Y PRÁCTICAS

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RECEIVED: 19th November, 2017
ACCEPTED: 08th March, 2018

Cardoso, A. P., Carugati, F., Lacerda, C. & Fidalgo, S. (2018).
Curricular articulation between early childhood education and primary school: Conceptions and practices.
Millenium, 2(6), 77-86. **DOI:** https://doi.org/10.29352/mill0206.07.00161

RESUMO

I**ntrodução**: A articulação curricular entre a Educação Pré-Escolar (EPE) e o 1.º Ciclo do Ensino Básico (1.º CEB) é um processo fundamental na adaptação da criança à escola. Os professores, devem estabelecer ligações com os educadores de infância, facilitando a transição entre estes dois níveis de ensino, num processo harmonioso, promotor da sequencialidade do processo educativo.
Objetivos: Averiguar a importância e o significado que os professores do 1.º CEB conferem à articulação curricular, conhecer os aspetos do perfil do aluno privilegiados aquando da consulta do processo individual, bem como as iniciativas mais frequentes no âmbito da referida articulação.
Métodos: Foi realizada uma investigação de caráter descritivo e analítico, com recurso ao inquérito por questionário, aplicado a uma amostra de 45 professores a lecionarem a turmas do 1.º ano de escolaridade do 1.º CEB no concelho de Viseu (Portugal).
Resultados: De salientar a grande relevância atribuída pelos professores à articulação curricular, o privilégio conferido por estes ao saber estar (cidadania), ao sentido de autonomia e à capacidade de comunicar das crianças, bem como o empenhamento dos docentes na realização de atividades e projetos vários, para além das comemorações de dias temáticos e festas.
Conclusões: A articulação entre os dois níveis de ensino assume-se como um processo facilitador da transição entre estes níveis de ensino e contribui para uma adequada adaptação das crianças à escola, promovendo o sucesso escolar de todos os alunos.

Palavras-chave: Articulação curricular; Educação Pré-Escolar; 1.º Ciclo do Ensino Básico; Continuidade educativa.

ABSTRACT

Introduction: Curricular articulation between early childhood education and primary school is a fundamental process concerning the child's adaptation to school. Primary teachers should establish links with pre-school educators, facilitating the transition between these two levels of education in a harmonious process, and promoting the continuity of the educational process.
Objectives: To ascertain the importance and the meaning that teachers of primary school confer to curricular articulation and to know the aspects of the profile of the pupils that are favoured when consulting the individual process, as well as the most frequent initiatives regarding that articulation.
Methods: A descriptive and analytical research was conducted, using a questionnaire survey applied to a sample of 45 teachers of the 1st year of primary school in the municipality of Viseu (Portugal).
Results: From the data obtained, it is worth mentioning the great importance that teachers attribute to curricular articulation, the privilege conferred by them on how to behave in society (citizenship), the sense of autonomy and the children's ability to communicate, as well as the teachers' commitment to carry out a variety of activities and projects, in addition to the celebrations of thematic days and parties.
Conclusions: Curricular articulation facilitates the transition between these two levels of education and contributes to an adequate adaptation of the children to the school, thereby promoting school success for all pupils.

Keywords: Curricular articulation; Early childhood education; Primary school; Educational continuity.

RESUMEN

Introducción: La articulación curricular entre la Educación Infantil y el ciclo inicial de Educación Primaria es un proceso fundamental en la adaptación del niño a la escuela. Los profesores deben establecer vínculos con los educadores de infancia, facilitando la transición entre estos dos niveles de enseñanza, en un proceso armonioso y promotor de la secuencialidad del proceso educativo.
Objetivos: Averiguar la importancia y el significado que los profesores de Educación Primaria atribuyen a la articulación curricular, conocer los aspectos del perfil del alumno privilegiados en la consulta del proceso individual, así como las iniciativas más frecuentes en el marco de dicha articulación.
Métodos: Se realizó una investigación de carácter descriptivo y analítico, con recurso a la encuesta por cuestionario, aplicada a una muestra de 45 profesores del 1er año de Educación Primaria en el municipio de Viseu (Portugal).
Resultados: De destacar la gran relevancia atribuida por los profesores a la articulación curricular, el privilegio conferido por éstos al saber estar (ciudadanía), al sentido de autonomía y a la capacidad de comunicar de los niños, así como el compromiso de los docentes en la realización de actividades y proyectos variados, además de las celebraciones de días temáticos y fiestas.
Conclusiones: La articulación entre los dos niveles de enseñanza se asume como un proceso facilitador de la transición entre estos niveles de enseñanza y contribuye a una adecuada adaptación de los niños a la escuela, promoviendo el éxito escolar de todos los alumnos.

Palabras clave: Articulación curricular; Educación infantil; Educación primaria; Continuidad educativa.

INTRODUCTION

Curricular articulation is an essential process for the adequate transition among different levels, from early childhood to secondary education, through the planning of joint activities, turning school into an integrating environment, promoter of educational continuity.

Educators and teachers, as curriculum managers, should seek to establish links, discuss and communicate as a team, so that the transition from early childhood education to primary school can occur sequentially and harmoniously (Aniceto, 2010), contributing to the educational success of all pupils.

In this formative process, each cycle should consider everything the pupils have already learnt, each child's stage of development and their learning abilities at each level, always remembering that every pupil is unique and has their own learning pace (Cruz, 2008).

Although educational continuity between early childhood education and primary school should be established, this does not mean that the former is a level of children preparation for the next stage, as early childhood education is not supposed to be organized on the basis of the setting for compulsory schooling, but rather in the sense of lifelong education, facilitating the necessary conditions to successfully address the next stage (Ministério da Educação, 2016).

It is therefore important that educators and teachers commit themselves to good curriculum management, which implies the establishment of curricular articulation strategies, since this is the only way to achieve the desired educational continuity.

As explicitly stated in the Curriculum Guidelines for Early Childhood Education, it is a question of providing, at each stage, learning experiences and opportunities that allow the child to develop their potentialities, strengthen their self-esteem, resilience, autonomy and self-control, creating conditions for them to succeed in the next stage (Ministério da Educação, 2016).

Thus, this research tried to analyse how the curricular articulation between early childhood education and primary school is perceived by the teachers of the 1st year, namely by finding out the importance and meaning they attribute to it and by knowing the characteristics of the pupils' profile favoured when consulting the individual processes and also the most frequent initiatives in this context.

1. THEORETICAL FRAMEWORK

Curricular articulation has been the focus of a great number of studies over the last decades in line with the growing social and pedagogical concern about children's adaptation to school and the promotion of educational success, as the transition to the first years of schooling is considered a critical factor for children's adjustment to the demands of the school environment and in determining future school success (Margetts, 2002).

As social beings we are part of different contexts. The articulation among these contexts helps in the transitions of education levels and should be safeguarded from an early age, so that it can contribute to children's effective adaptation to the new educational environments, with a view to success in their development (Carvalho, 2010).

There are many fears concerning the adaptation to school, both on the part of parents and children. In order to overcome this anxiety and insecurity, it is necessary to ensure the adaptation to the new context (Portugal & Laevers, 2010), so as to develop confidence in their capacities to respond to the challenges they face.

Teachers are among the most crucial factors in building an effective articulation between the two school levels (UNICEF, 2012), that comes precisely from the differences recognized at these levels as a way of establishing a harmonious transition, respecting the evolutionary process of the child's education (Cruz, 2008).

For this transition to take place properly, a good relationship between educators and teachers of primary school is fundamental, so as to guarantee the desired articulation between the two levels (Lage, 2010), favouring children's preparation for the mentioned transition.

In this regard, Serra (2004) points out that children's emotional well-being is a decisive factor in learning and that teachers and educators can join efforts in order to find curricular articulation mechanisms that promote that well-being in children.

It is within this context that Serra (2004) defines curricular articulation, characterizing it as being a set of activities that facilitate the transition between the first two cycles, these activities being inserted, or not, in the school timetable.

In turn, Barbosa (2010) gives a definition of this concept as a sequentiality that should rule the whole educational process, since the development of capacities and skills on the part of each individual should occur in a continuous and progressive way, preparing pupils for the following cycle and thus promoting a continuity of the previous one.

In this sequence, Aniceto (2010) conceives curricular articulation from a perspective of pupils' experiences and knowledge, defining it as the establishment of theoretical and practical mechanisms capable of finding adjusted and facilitating responses concerning transition processes among teaching levels and cycles, based on the child's previous knowledge and experiences, fostering the construction of knowledge and skills.

Curricular articulation has, therefore, a very important role in a successful school adaptation process, allowing for the necessary educational continuity. According to Serra (2004), the latter refers to the way knowledge is organized in a sequenced perspective in the various educational levels, taking into account the children's development, as well as their learning capacity at each level.

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Curricular articulation between early childhood education and primary school has been recommended since the beginning of the work of the Education Committee of the Council of Europe in 1969, who tried to address this subject in the conferences of the European Ministers of Education. In this sense, a questionnaire was sent to all state members, and the answers given allowed the conclusion that half of the countries recognized the existence of articulation difficulties (Nabuco & Lobo, 1997).

Lei de Bases do Sistema Educativo (Lei n.º 46/86, October 14th) states that the articulation among the cycles obeys a progressive sequentiality, attributing to each cycle the function of completing, deepening and extending the previous one, in a perspective of the global unity of basic schooling (Article 8 no.2). According to this fundamental law, the articulation is promoted in order to establish a link among all education levels, from early childhood education to secondary school (Pires, 1987).

Decreto-Lei n.º 6/2001, January 18th, advocates that curriculum organization and management is subordinated to guiding principles, such as coherence and sequentiality among the three cycles of basic education and articulation with secondary school. It also advocates curriculum integration and assessment, ensuring that this one is the regulating element of teaching and learning (see Article 3 a) and b)).

The mentioned Decreto-Leipredicts the implementation of common projects, allowing for the participation of teachers and pupils from both cycles, in a joint and articulated work, which presupposes knowledge of the different educational realities, an ingredient that facilitates the transition process.

In 2007, the Directorate-General for Curriculum Innovation and Development, in articulation with the Regional Directorates for Education and the School Inspectorate, created the document entitled "Curriculum Management in Early Childhood Education - Contributions for its Implementation", which advocates the relationship between early childhood and primary education. This same document professes the articulation among the various stages of the educational process, in a progressive sequence, granting each stage the task of completing, deepening and extending the previous one, always in a context of continuity and global unity of education.

Also noteworthy is Article 43 of the Decreto-Lein.º 75/2008, April 22nd, which states that curriculum articulation and management should promote cooperation among the teachers of the school grouping or non-grouped school, trying to adapt the curriculum to the pupils' specific needs, in a clear reference to the key role of the governing bodies and of the teachers in this process.

The analysis of these normative documents highlights a concern about curricular articulation. However, this is not always a fact, which hinders the process of adaptation and of educational continuity. Often, the transition among cycles occurs with the change of school groupings, which contributes to a break in the continuity of a work that is supposed to be systematic and articulated.

The Curriculum Guidelines for Early Childhood Education make a clear reference to this subject, arguing that the educator should promote educational continuity from the moment the child begins early childhood education up to the transition to primary school, so that this transition can be experienced in a positive way, as an opportunity to grow, to undertake new learning experiences, to know other people and contexts, to start a new cycle, so as to feel confident in their capacities to respond to the challenges they have to face (Ministério da Educação, 2016).

The relationship between the educator and the child is very important and should be established from an early age, since it is the educator's role to provide the conditions for each child to experience successful learning in the next phase, being his duty, in collaboration with parents/family and in articulation with his primary school colleagues, to facilitate the child's transition to compulsory schooling (Ministério da Educação, 2016).

Transition is often seen as an ecological concept (Bronfenbrenner, 1979), including an interconnected set of systems (home, kindergarten and school), through which children move in their early learning years. This transition implies the participation of the various people involved in the planning of strategies that facilitate curricular articulation. Being reflected upon in the school grouping, these strategies can be very varied, necessarily involving communication and joint work between educators and primary school teachers.

Fabian and Dunlop (2006) identified some key areas to be taken into account when developing joint curricular strategies: promotion of children's socio-emotional well-being; support of learning across the transition and communication.

Children's involvement is decisive for success in transition. As far as this is concerned, some initiatives should be implemented, such as talking to children about transition, familiarizing them with the primary school environment and people, discussing activities and experiencing new situations, such as visits to primary schools prior to starting this next stage, so they become aware of the different ways of learning at school (Margetts, 2002). Activities involving parents/families and privileged agents of the child's education in the process could also be promoted.

For a successful transition to take place, some aspects are considered to be crucial: the ongoing communication between school and pre-school teaching staff, curricular articulation across the phases of education, where children should be helped to learn with and from each other, flexible admission procedures (e.g., allow children to start school with a friend; schools having systems installed to help children make friends) that give children the opportunity to experience a positive start on their first day at school.

Taking into account the present framework, an empirical research was conducted on the perception of first year primary school teachers about curricular articulation between early childhood education and primary school and the way this articulation is carried out.

2. METHODS

The undertaken research used a descriptive and analytical methodology, based on the questionnaire survey. According to Fortin (2003), the descriptive study consists of simply describing a phenomenon or a concept related to a population, in order to establish the characteristics of this population or of a sample of it.
Descriptive research describes existing perceptions, attitudes, behaviours or other characteristics of a group of subjects. This type of research "asks *what is*; it reports things the way they *are*" (McMillan & Schumacher, 2010, p. 281).

2.1 Sample

The research had as target population the 1st year primary teachers in the various public school groupings of the municipality of Viseu (central region of Portugal). The teachers who are teaching the 1st year were chosen because they are the ones who are most directly involved in the curricular transition.
We used a non-probability sampling technique, a convenience sample (Hill & Hill, 2005), where subjects were selected because of their accessibility and proximity to the researcher.
A total of 68 questionnaires was delivered in five school groupings of the municipality of Viseu. However, not all teachers answered them and three questionnaires were cancelled due to improper filling. The percentage of responses was 66.2%.
The sample was thus composed of 45 teachers, mostly female (96.0%), the majority being between 47 and 55 years old. It is also verified that teachers with a long professional experience were chosen, namely the ones having between 28 and 37 years of service (40.0%).
In terms of academic qualifications, teachers with a bachelor's degree prevail (82.0%), followed by those holding a master's degree (16.0%). Teachers' high professional stability should be highlighted, since almost all the teachers in the sample (98.0%) belong to the School Grouping Teaching Staff, with only one teacher belonging to the Pedagogical Zone Teaching Staff.

2.2 Data collection tool

In order to collect data, the questionnaire survey was used, a tool rigorously standardized, both concerning the text of the questions and their order, which allows the comparison of the answers (Ghiglione & Matalon, 2001) and requires them to be written by the subjects (Freixo, 2011).
The questionnaire was built respecting the usual rules and taking into account the quality and organization of the questions. It contains closed and open questions, in order to collect information to meet the stated objectives.
This tool is divided into two parts: the first consists of five closed questions and aims at collecting data concerning the respondents' personal and professional characterization; the second is made up of twelve questions (ten multiple choice questions and two open questions), which are intended to know the teachers' perceptions about the topics under analysis.
After being developed, the pre-test was administered to five teachers who are not part of the sample, in order to verify the suitability, correctness and degree of understanding of the questions asked. The application of this preliminary version of the questionnaire revealed that there was no need to introduce any changes with a view to its improvement.

2.3 Procedure

For the implementation of the study, several steps were taken. First, the request to carry out the survey in school context was made to the Directorate-General of Education (DGE), through the platform for Monitoring School Surveys. This request was favourably answered by DGE, since, as it is stated, "submitted to analysis, it complies with the requirements".
Next, a formal request for authorization was made to the directors of the school groupings for them to allow the application of the questionnaires in the various schools involved. In addition to this authorization, informed consent was also requested to the teachers through a declaration of voluntary participation in the research.
The questionnaires were personally delivered, in some cases in school grouping meetings, taking advantage of the fact that all teachers were present; in other cases they were delivered to every teacher in each one of the schools and collected later, within a previously established period.

2.4 Data processing and analysis

For the analysis of the quantitative data, descriptive statistics was used, which made it possible to determine the absolute frequencies and the percent relative frequencies, through the use of the SPSS program, version 21.
The qualitative data concerning the open questions were subjected to content analysis, following the criteria proposed by Bardin (2015). It is a technique of communication analysis in order to obtain, by systematic and objective procedures for

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describing the content of messages, indicators (quantitative or otherwise) that allow the inference of knowledge regarding the conditions of production (inferred variables) of these messages.
The analysis carried out made it possible to gather the data, categorizing them in such a way as to make the analysis of the answers and their interpretation more objective.

3. RESULTS PRESENTATION AND DISCUSSION

Teachers show a very positive perception regarding the relevance of curricular articulation between early childhood education and primary school. The percentage of teachers who consider it very relevant (58.0%), or totally relevant (27.0%) is worth mentioning. Only two teachers do not attribute any relevance to it (see Table 1).
These results indicate that the great majority of teachers is aware of the importance of curricular articulation between the two educational contexts, meeting the conclusions that Teixeira and Cardoso (2013) obtained in a similar study and, in addition, they also show that most teachers of primary school had the concern of including curricular articulation in the Class Curricular Project. This result is very positive because, as Carvalho (2010) claims, curricular articulation is assumed as facilitator of the transitions and should be ensured so that it can contribute to the educational success of all children.

Table 1 – Relevance of curricular articulation between early childhood education and primary school

Degree of relevance	N	%
Irrelevant	1	2.0
Little relevant	1	2.0
Relevant	5	11.0
Very relevant	26	58.0
Totally relevant	12	27.0
Total	**45**	**100.0**

Teachers refer several justifying reasons for the relevance of curricular articulation: it facilitates children's transition from early childhood education to primary school (twelve mentions); it contributes to a better progression of learning/educational continuity and promotes better knowledge of the child as an active agent of the teaching process (10 mentions each). Other reasons mentioned are related to the exchange of knowledge about pupils' previous course concerning their competences and to the provision of prerequisites, both with 3 mentions each, as well as to the appreciation of pupils' knowledge and experiences and also of the syllabuses and guidelines of each of the levels, both with two mentions each (see Table 2).

Table 2 – Justifying reasons for the relevance of curricular articulation

Justifying reasons	N.º of answers
It facilitates children's transition from early childhood education to primary school	12
It promotes the exchange of knowledge about pupils' previous course concerning their competences	3
It promotes better knowledge of the child as an active agent of the teaching process	10
It develops adequate skills for knowing how to behave in primary school	1
It allows for advantages in terms of language skills and mathematics when beginning primary school	1
It improves the progression of learning/educational continuity	10
It allows for a better knowledge of syllabuses and guidelines	2
It improves the appreciation of pupils' knowledge and experiences	2
It provides pupils with prerequisites	3
It develops pupils' phonological awareness	1
It checks behaviours	1
It creates the conditions for pupils' educational success	1
Total	**47**

Teachers were asked to indicate, among the definitions of curricular articulation presented, the one that best corresponded to their conception. As shown in Table 3, more than one-third of teachers (35.0%) share the opinion that curricular articulation consists of establishing theoretical and practical mechanisms, capable of finding adequate and facilitating responses for transition processes among different levels and cycles based on the child's previous knowledge and experiences, promoting the construction of knowledge and skills (Aniceto, 2010).
It is also expressive the percentage of teachers (29.0%) who perceive curricular articulation as the sequentiality that should rule the whole educational process, since the development of capacities and skills on the part of each individual should occur in a continuous and progressive way (Barbosa, 2010).
It is still worth mentioning the percentage of teachers (27.0%) who consider curricular articulation as all the activities promoted by the school with the purpose of facilitating the transition between early childhood education and primary school, whether they are activities implemented within school hours or not, experienced inside and outside the school, with or without pupils' participation (Serra, 2004).
These results reveal that the participants have a clear idea of what effective curricular articulation should be. It means to transit, to enter a new stage, to change, to adapt to new realities, to rethink practices and habits (Barbosa, 2010), so it presupposes a collaborative and systematic work among the various people involved, aiming at the child's harmonious development and well-being.

Table 1 – Curricular articulation conceptions

Definitions of curricular articulation	**N.º**	**%**
1- An interconnection of knowledge from different fields in order to facilitate the acquisition of a global knowledge by the pupil.	4	9.0
2 – All the activities promoted by the school with the purpose of facilitating the transition between early childhood education and primary school, whether they are activities implemented within school hours or not, experienced inside and outside the school, with or without pupils' participation.	12	27.0
3 – Establishment of theoretical and practical mechanisms, capable of finding adequate and facilitating responses for transition processes among different levels and cycles based on the child's previous knowledge and experiences, promoting the construction of knowledge and skills.	16	35.0
4 – Sequentiality that should rule the whole educational process, since the development of capacities and skills on the part of each individual should occur in a continuous and progressive way.	13	29.0
Total	**45**	**100.0**

We tried to know if teachers of primary school consult the pupils' individual processes when teaching the 1st year. The answer was affirmative for more than two thirds of the respondents (89.0%), while a small part of them (11.0%) refers not to do so. This is contrary to the recommendations of the Curriculum Guidelines for Early Childhood Education, since, according to them, each child's developed processes and learning progresses should be communicated, while respecting due ethical principles (Ministério da Educação, 2016).
In this follow-up, teachers were asked to indicate three aspects of the pupils' profile they favour when consulting pupils' individual processes. Thus, the most mentioned aspects were: the ability to cooperate and accept coexistence rules (28.0%), general learning (20.0%), the sense of autonomy (17.0%), communication skills (13.0%) and mother tongue acquisition (11.0%) (see Table 4).
These data show that teachers are most focused on children´s skills linked to citizenship, to the ability to know how to behave (cooperate, accept coexistence rules, interact) and to communicate concerning specific learning, namely the mother tongue or mathematics.
This means that teachers are aware of the specificity of early childhood education, so they do not expect it to anticipate the kind of learning adequate to primary school, but rather to develop the necessary skills for children's educational success when entering compulsory education.

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Table 4 – Aspects of pupils' profile that were favoured when consulting individual processes

Pupils' favoured aspects	N	%
General learning	24	20.0
Mother tongue acquisition	13	11.0
Mathematics learning	5	4.0
Ability to adapt to changes	9	7.0
Communication skills	15	13.0
Sense of autonomy	20	17.0
Citizenship (the ability to cooperate and accept coexistence rules)	34	28.0
Total	**120**	**100.0**

It was also important to realise, through the answers to an open question, which are the main activities teachers develop concerning curricular articulation (see Table 5). Content analysis revealed the predominance of the following categories: i) pedagogical activities (29), highlighting the planning and implementation of joint activities/projects with early childhood education (8), the exploration of short stories of primary school pupils with children attending early childhood education (7), the implementation of artistic expression activities within the Programme of Aesthetic and Artistic Education (PEEA) (4) and of activities concerning the study of physical and social environment – experimental activities (2); ii) projects (27), highlighting the development of reading and writing projects (15), or any others involving both teaching levels (thematic fairs, pedagogical vegetable garden, school grouping newspaper); iii) celebration of thematic days and end-of-term parties (21).

Table 5 – Main activities developed concerning the implementation of curricular articulation

Categories	Main activities	N.º of answers
Celebrations/parties	Celebration of thematic days and end-of-term parties/parties included in the Activities Plan	21
Projects	Development of reading and writing projects	15
	"Fruit Heroes" project - final work divulged to early childhood education children	2
	Thematic fairs	2
	Planning and implementation of projects together with early childhood education	5
	Pedagogical vegetable garden	2
	School grouping newspaper	1
Subtotal		27
Pedagogical activities	Mathematics activities/progressive and regressive count of numbers	2
	Exploration of short stories with children attending early childhood education	7
	Activities concerning the study of physical and social environment – experimental activities	2
	Artistic expression activities within PEEA	4
	Planning and implementation of joint activities involving primary school pupils and children attending early childhood education	8
	Personal and social training activities	1
	Multidisciplinary activities	2
	Sport activities/motricity/functioning of the playground with all the children/pupils	3
Subtotal		29
Others	Final year nursery school children's visit to primary school, guided by the primary school pupils	2
	Study visits	3
Total		**82**

These results show that teachers carry out an active curricular articulation, meeting Bravo's belief (2010) when he states that true curricular articulation depends on the educator and the teacher of primary school developing common educational projects, without being restricted to meetings or episodic activities. This way, still in agreement with Bravo (2010), this collaborative work in terms of the construction and development of common educational projects requires the creation of physical spaces and sharing moments, of exchange and joint planning, always having as reference the age group of the children and of the groups involved.

CONCLUSIONS

One of the biggest challenges perceived by children is the beginning of primary school. This is an important transition, involving changes at different levels: relationships, environment, space, time and learning contexts. All this may be exciting as a new experience, but it may also cause apprehension and fear of the unknown, bringing about feelings of confusion and anxiety (Fabian & Dunlop, 2006).

Curricular articulation, as advocated by many authors, facilitates children's transition from one teaching level to the other, favouring better progression of learning/educational continuity and better knowledge of the child as an active agent of the teaching process.

Teachers should value curricular articulation and take it into account in their teaching practices, because, as Aniceto (2010) points out, when articulating these two teaching levels we are increasing the credibility of one of them, overcoming the idea that still persists today about nursery school being a space for the mere occupation of children and providing the following teaching level with an improvement concerning the internal management of schools and the curricula, so as to ensure continuity between the two of them.

According to the results of the present study, the great majority of the surveyed teachers consider curricular articulation relevant, mostly because it facilitates children's transition from early childhood education to primary school, improves the progression of learning/educational continuity and promotes better knowledge of the child as an active agent of the teaching/learning process.

Furthermore, many primary school teachers believe that curricular articulation consists of establishing theoretical and practical mechanisms, capable of finding adequate and facilitating responses for transition processes across different levels and cycles based on the child's previous knowledge and experiences, this way promoting the construction of knowledge and skills (Aniceto, 2010). These data lead us to conclude that primary school teachers are aware of the meaning and the importance of curricular articulation within the formative process.

Most of them also refer that they consult pupils' individual processes when teaching the first year, checking aspects such as children's ability to cooperate and accept coexistence roles, sense of autonomy, communication skills, or general learning level. This is a good indicator, because adjustment to school depends to a great extent on the child owning the required social, behavioural and academic skills to answer to the demands of the new environment and to work independently (Margetts, 2002).

Having asked teachers to enunciate three curricular articulation activities they had carried out, the answers were quite diverse, in line with the official recommendations. However, the most frequent ones are related to the accomplishment of pedagogical activities and joint projects, namely related to the exploration of short stories, to artistic expression, the study of physical and social environment, or mathematics, as well as to the organization of parties/celebrations (Christmas party, Carnival parades, party at the beginning and end of the school year, among others). Other activities were less mentioned, such as games, study visits, thematic fairs, etc.

As far as the implementation of common projects is concerned, the Curriculum Guidelines for Early Childhood Education (Ministério da Educação, 2016) state that these can be a means of collaboration and of mutual knowledge, which can facilitate children´s transition from one level to the other. It will be ideal for educators and teachers to construct and develop a systematic and articulated work that is not only restricted to parties and joint celebrations, as curricular articulation demands continued coexistence and collaboration.

Taking into account the teachers' perspective, it can be affirmed that the curricular articulation already practised is active, demonstrating a commitment of resources and wills. Furthermore, it should still be said that curricular articulation between these two levels should continue to be a primary school teachers' concern, so that it is not just a moment in time, but represents the concretization of the desired educational continuity.

It is therefore imperative that educators and teachers of primary school develop activities that foster curricular articulation, considering them as a practice of curricular management carried out among the different levels of education and based on effective collaborative work and reflection practices, which consubstantiates the hypothesis of this being an important topic to bet on when concerning educators and teachers' initial and in-service training.

As a suggestion for future studies, the deepening of this subject is proposed through the analysis of several documents (summaries, annual plan of activities, planning of joint projects, evaluation reports, etc.) and the observation of teachers' effective practices, which will allow to confront and complement the data now evidenced concerning teachers' favourable perception on this topic.

ACKNOWLEDGMENTS

This work is financed by national funds through FCT - Fundação para a Ciência e Tecnologia, I.P., under the project UID/Multi/04016/2016. Furthermore, we would like to thank the Polytechnic Institute of Viseu and CI&DETS for their support.

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Millenium, 2(6), 89-97.

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INDÚSTRIA 4.0: UM DESAFIO COMPETITIVO
INDUSTRY 4.0: A CHALLENGE OF COMPETITION
INDUSTRIA 4.0: UN DESAFÍO COMPETITIVO

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RECEIVED: 11th October, 2017
ACCEPTED: 08th January, 2018

Antunes, J. G., Pinto, A., Reis, P. & Henriques, C. (2018). Industry 4.0: A challenge of competition.
Millenium, 2(6), 89-97.
DOI: https://doi.org/10.29352/mill0206.08.00159

RESUMO

Introdução: A criação de valor na indústria dos países desenvolvidos, está a ser impulsionada pela quarta etapa de industrialização, denominada Indústria 4.0. A nova revolução industrial será impulsionada por tecnologias de informação de nova geração, como a Internet das Coisas (IoT), computação em nuvem, *Big Data* e análise de dados, robótica, computação móvel, simulação e modelação, identificação por radiofrequência ou RFID, sistemas ciber-físicos, entre outras. Abrir-se-ão novos horizontes para a indústria, sendo os desafios inúmeros, criando dificuldades para as empresas na adoção dessas tecnologias.
Objetivos: Efetuar uma revisão profunda da literatura procurando uma análise técnica dos requisitos da Indústria 4.0.
Métodos: Abordar-se-á os principais riscos e desafios associados à IoT e definiremos as medidas de atratividade regional como fatores de crescimento que devem ser implementadas para atrair empresas que perseguem o 4.0.
Resultados: A IoT (internet das coisas) une o mundo digital ao mundo físico (real), sendo considerada a rede da próxima geração ou da futura Internet. Permite dar capacidade de vida e comunicação, tanto a objetivos vivos e inanimados. A intervenção da IoT na indústria 4.0 é extrema, com uma interconexão contínua dos domínios digital e físico.
Conclusões: As perspetivas de crescimento de Portugal dependerão cada vez mais de políticas que permitam à economia competir com êxito e criar novas oportunidades de rendimento. No momento atual, existem estrangulamentos estruturais que continuam a travar o crescimento e a exacerbar as vulnerabilidades. Resolver alguns destes problemas criará as bases para um crescimento sólido nos próximos anos, mas isso apela a uma renovação do ímpeto de reformas estruturais. A indústria 4.0 pode contribuir significativamente para diminuir as referidas assimetrias regionais, contudo, será necessário melhorar as qualificações para fomentar o desenvolvimento e reduzir os elevados níveis daquelas desigualdades.

Palavras-chave: Indústria 4.0; IoT; Fatores de atractividade; Dão Lafões - Portugal

ABSTRACT

Introduction: The value creation in industry in developed countries is being driven by the fourth stage of industrialization, denominated by Industry 4.0. The new industrial revolution will be motivated by next-generation information technologies such as Internet of Things (IoT), cloud computing, Big Data and data analysis, robotics, mobile computing, simulation and modelling, cyber-physical systems, among others. This opens new horizons for industry, but the challenges are countless creating difficulties for companies in the adoption of these technologies.
Objectives: To make a powerful and deep literature revision pursuing a technical analysis of the Industry 4.0 requirements. Further.
Methods: We will address the main risks and challenges associated with IoT and define the regional attractiveness measures as growth drivers that leaders must put in place to appeal for companies chasing 4.0.
Results: IoT joins the digital world and the physical world being considered the next generation network or the future Internet. It allows to give life and communication capacity either to living beiings or to inanimate objects.
IoT's intervention in Industry 4.0 im extreme, with a continuous interconnection of the digital and physical domain.
Conclusions: Portugal's growth prospects will increasingly depend on policies that enable the economy to compete successfully and create new income opportunities. At the moment, there are structural bottlenecks that continue to curb growth and exacerbate vulnerabilities. Solving some of these problems will now lay the foundation for solid growth in the coming years, but this calls for a renewal of the impetus for structural reforms. Industry 4.0, can contribute significantly to reducing regional asymmetries. But in the longer term, skills will need to be improved to foster development and reduce the high levels of such inequalities.

Keywords: Industry 4.0; IoT; Factors of attractiveness; Dão-Lafões – Portugal

RESUMEN

Introducción: La creación de valor en la industria de los países desarrollados está siendo impulsada por la cuarta etapa de industrialización, denominada Industria 4.0. La nueva revolución industrial será impulsada por tecnologías de información de nueva generación, como Internet de las Cosas (IoT), computación en nube, Big Data y análisis de datos, robótica, computación móvil, simulación y modelado, identificación por radiofrecuencia o RFID, sistemas ciber-físicos, entre otras. Se abrirán nuevos horizontes para la industria, siendo los desafíos innumerables, creando dificultades para las empresas en la adopción de esas tecnologías.
Objetivos: Efectuar una revisión de la literatura buscando un análisis técnico de los requisitos de la industria 4.0.
Métodos: Se abordarán los principales riesgos y desafíos asociados a la IoT y definir las medidas de atracción regional como factores de crecimiento que deben implementarse para atraer a las empresas que persiguen el 4.0.

Resultados: IoT (internet de las cosas) se une al mundo digital y el mundo físico se considera la red de la próxima generación o el futuro de internet. Permite dar vida y capacidad de comunicación ya sea a seres vivientes o a objectos inanimados. La intervención de IoT en la industria 4.0 es extrema, con uma interconexión continua del dominio digital y físico.
Conclusiónes: Las perspectivas de crecimiento de Portugal dependerán cada vez más de políticas que permitan a la economía competir con éxito y crear nuevas oportunidades de ingresos. En el momento actual, existen estrangulamientos estructurales que continúan frenando el crecimiento y exacerbando las vulnerabilidades. Resolver algunos de estos problemas creará las bases para un crecimiento sólido en los próximos años, pero eso apela a una renovación del ímpetu de reformas estructurales. La industria 4.0 puede contribuir significativamente a disminuir dichas asimetrías regionales, sin embargo, será necesario mejorar las cualificaciones para fomentar el desarrollo y reducir los elevados niveles de esas desigualdades.

Palabras clave: Industria 4.0; IoT; Factores de atracción; Dão-Lafões – Portugal

INTRODUCTION

Industry is one of the pillars of the European economy - the manufacturing sector in the European Union represents 2 million enterprises, 33 million jobs and 60% of productivity growth (European Commission, 2017). On April 19th 2016, the European Commission launches the first financial support initiative with the aim of coordinating legislative policies to encourage investment in industry and create the conditions for a digital industrial revolution. The value creation in industry, in the more developed countries, is being driven by the fourth stage of industrialization, denominated by Industry 4.0. The term "industry 4.0" comprises a variety of new technologies for the digitization and automation of the production environment, as well as the creation of digital value chains (Oesterreich & Teuteberg, 2016).

The new industrial revolution will be driven by next-generation information technologies such as Internet of Things (IoT), cloud computing, Big Data and data analysis, robotics, mobile computing, simulation and modelling, radio frequency identification or RFID, cyber-physical systems, 3D printing, among others. This opens new horizons for industry to become more efficient, modernize processes and develop innovative products and services, increases quality and shortens the time to deliver products/services. However, the challenges are many, creating difficulties for companies in adopting these technologies. Huge investments, organizational and process changes, the need to reinforce skills/knowledge, are just a few challenges that companies face.

On the other hand, high technology sectors face strong competition from other regions of the globe, and small and medium-sized enterprises (SMEs), particularly in the traditional sectors, are experiencing a significant delay. In addition, there are strong regional disparities in industrial digitization (European Commission, 2017).

To implement the Digital Single Market, the European Community (2017) defined a strategy consisting of three areas of intervention: improve access to digital goods and services; create conditions to the development of digital networks and services and ensure that the opportunities for digitalisation are fully exploited by the economy, industry and employment.

The European Community has decided to encourage research into intelligent technologies. The “Horizonte 2020” Portuguese program, offers financial incentives for the development of projects such as smart cities and information communities to help develop their strategic role in terms of energy and mobility (European Commission, 2015a).

Europe can gain significant competitive advantages at the international level if it can generate a growing wave of digital innovation involving all industrial sectors. Around 60% of large industrial companies and more than 90% of SMEs feel that they are delayed in terms of digital innovation (European Commission, 2016).The creation of favourable conditions to the development of industry 4.0 encompasses many factors such as tax incentives, access to global markets, proximity to teaching and research centers, availability of capital, entrepreneurial culture, network integration, personal motivations of investors, technological infrastructures of information, business size, reluctance to change, the age of the company, financial resources and human resources (Azzoni, 1981; Schmenner, 1982; Balasingham, 2016). Certain regions, which have favourable conditions for the implementation of the industry or industrial sectors linked to innovation, have been working to stimulate the creation and development of a network of innovative enterprises, mainly small and medium-sized enterprises (SMEs), born from the entrepreneurial spirit of individuals.

Thus, the present work is an integral part of a scientific research approved by the Center for Studies in Education, Technologies and Health (CI & DETS, in Portuguese) of the Polytechnic Institute of Viseu. This project intends to make a survey of what The center region f Portugal has in terms of equipment, organization and human resources related to R & D; study the scale and nature of the technology-based business structure in the region; evaluate how the higher education institutions in the region can contribute to the capture / setting of 4th generation companies; to study which attractiveness factors are capable of

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Millenium, 2(6), 89-97.
DOI: https://doi.org/10.29352/mill0206.08.00159

appealing companies from the industry 4.0 and contribute to the development of integrated strategies that add value to the region of Viseu.
Thus, to respond to the objectives presented, a literature review was developed on Industry 4.0 and the main drivers such as equipment, resources, organizational structure, production technologies and products.

1. REVIEW OF LITERATURE

1.1 The Emergence of Industry 4.0

We are on the threshold of a new technological age, the fourth industrial revolution or Industry 4.0 (Magruk, 2016). According to this idea, the web network will boost the creation of intelligent processes in all phases of production, from creation, design to maintenance and recycling.
The first industrial revolution began in the 18th century with the increase of mechanical systems. The second stems from the introduction of mass production and assembly lines, at the beginning of the 20th century. The third brought computers and electronics in the early seventies. The fourth industrial revolution introduces cyber-physical systems, stemming from the fusion of the real and virtual world, where equipment, products and people are increasingly connected through the Internet (Huxtable & Schaefer, 2016). These systems interact to analyze data, predict failures, reconfigure and continuously adapt to customer needs.
The Industry 4.0 concept was first mentioned in Germany in 2011, at an event held in Hannover, as a proposal to develop a new industrial policy based on the state-of-the-art technology strategy (Mosconi, 2015). This includes cyber-physical systems, the Internet of Things (IoT) and the Internet of Services (IoS) (Ning & Liu, 2015), with on-going communication through internet that allows interaction and exchange of information, not only between humans (C2C-consumer to consumer) and between humans and machines (C2M-Consumer to machine), but also between machines (M2M-Machine to machine) (Roblek *et al.*, 2016). This communication interaction conditions Knowledge Management 4.0 (KM 4.0) (Dominici *et al*., 2016).
The transformation that is occurring in the industry 4.0 has three pillars, namely (Almada-Lobo, 2016.): *i*) production digitization (information systems for the management and production planning), *ii)* automation (data systems, production lines, machinery) and *iii)* automated data exchange (binding production sites allowing the overall management of the supply chain).
The ongoing revolution will unleash positive and negative impacts. The great challenge has to do with the destruction of a significant number of jobs, due to the change of job profiles (Kane *et al.*, 2015), which makes it necessary to change and adapt the educational offer in the field of education and the development of new professional profiles (Weber, 2015).
The transformation involves an effort of the companies/institutions. Indeed numerous challenges have been an obstacle for some companies, and sectors, to be at a more advanced phase of integration of the new technologies. Among the challenges is important to mention: high implementation costs, organizational and process changes, security and data protection, the need for qualified staff at all organizational levels able to handle with the increasing complexity of future production systems (Erol *et al*., 2016). On the other hand, the benefits in the adoption of new technologies are clearly identified: improvement of product quality, improvement of communications, time and costs saving, improvement in the relations with customers/consumers and more efficiency in development of customized products/services (Oesterreich and Teuteberg, 2016).
The latest Eurostat data available (end of 2014) showed the state of the European Union regarding the use of cloud computing by enterprises. The main findings indicate that: 19% of EU companies used cloud computing in 2014, mainly to house the e-mail systems and store files in electronic format; 46% of these companies used cloud advanced services relating to financial and accounting software applications, managing the relationship with customers or just using computers to develop daily business.
The European Cloud Initiative seeks to encourage the creation of an economy data and competitive knowledge in Europe, strengthening innovation oriented to data management, improve competitiveness and cohesion helping to create a Digital Single Market in Europe.
The European Commission created in June 2016 a specialized platform for intelligent industrial modernization. The actions to support the competence centers, such as I4MS, SAE, Fi-Ware, have led not only an increase in competitiveness of existing industries, especially SMEs, but also the creation of companies in new products and digitized services. It is the ambition of the Commission to allocate 500 million euros over the next five years on the “Horizonte 2020” incentives program budget for these actions.
In terms of human resources, workers will be increasingly specialized, will have to play short-term tasks, increasingly difficult to plan, and control increasingly autonomous equipment, integrated in decision-making decentralized procedures (Ganschar *et al*., 2013).
The increasing complexity of the industrial system cannot be managed from a centralized organizational structure. Thus, decision-making will be decentralized, based on available information, with workers or equipment using artificial intelligence as the main actors (Kletti & Zukunftskonzept, 2015). Network nodes, called intelligent factories, are linked to a longer value chain, taking into account market needs (Erol et al., 2016).

1.2 Conditions and requirements of Industry 4.0

There´s a growing number of initiatives to create technology parks and incubators, in an attempt to replicate the combination of elements such as the presence of strongly research-oriented teaching institutions, risk capital, skilled labor, social relations between agents and space, ease of transportation and communications, etc. (Barquette, 2002).

Among the new localization factors of modern industry are tax incentives, access to global markets, proximity to centers of education and research, availability of capital, entrepreneurial culture, network integration, personal motivations of investors, etc. (Schmenner, 1982; Azzoni, 1981).

The presence of educational and research institutions, capable of supporting innovative development, promotes the creation of a scientific potential necessary for the development of high technology companies (Dorfman, 1983). Despite the network development, face-to-face contacts, and therefore the physical proximity between innovative agents, continue to play a relevant role (Guedes and Hermes, 1997

The determinants of a country's innovative capacity are conditioned by the educational system, by the greater/less integration of the population into the global environment, by the transparency of the development and selection of innovative projects and by the degree of protection of intellectual property rights (Freeman, 1995). The analysis of the innovative environment of the countries reveals clear leadership from the USA, the countries of Northern Europe and Western Europe, Israel and Japan (Ushakov, 2012).

The innovative environment of any industrial enterprise is conditioned by macro environmental and micro environmental factors (Rolik, 2013). In the macro environment, four strategic areas are distinguished: social (social conflicts, transport and communication), technological (markets for technologies and scientific and technical information), economic (taxes, incentives, national/regional investment climate) and the company's environmental policy (regional plans and programs, legislative framework). It is constituted by the strategic areas of the environments, conditioning the objectives and the innovative strategies.

The macroeconomic environment includes many factors: investment in infrastructures, interest rates practiced by commercial banks, and inflows and outflows, whose relationship allows an estimate of domestic investment in the country.

In the internal (micro) it is possible to identify a set of constraints, namely: *i)* economic management capacity, market segment: level of competition, consumer relations and the establishment of partnerships; *ii)* the ability to make investments; *iii)* area of new technologies and scientific and technical information resources; *iv)* availability of fuels, energy and material and technical resources, *v)* specialized labor market, managers and workers, *vi)* prevalence of strategic impact groups (sectoral, city region, district) (Rolik, 2013).

Finally, the lack of human resources skills. Indubitably, technological transformation requires specific skills profiles of company employees. These competences can be acquired through an internal reconversion process and/or by hiring of new employees.

At the regional level, the common denominator of the different strategies should take into account the following aspects (IDA, 2012, CE, 2013):

- An "ecosystem" in which a variety of components, materials, production systems and subsystems and production services work together; a production system that prioritizes emerging technologies and new fields of research;
- Public-private partnerships should be developed in areas ranging from pre-competitive consortia to public procurement policy where support for the competitiveness of manufacturing should be encouraged;
- Creation of tools to cope with business challenges in terms of learning to identify and master the new needs of an increasingly urbanized population.

Industry 4.0 involves deep exchanges between different actors who work in electronics, computer engineering, mechanics and information technology. These networks must be particularly well-developed and supported by a well-established educational system, based on supplier-user partnerships, with market leadership in engineering and mechanical installations and with strong SME dynamics.

In regional development, the combination and creative interaction of existing actors is critical. The region must be endowed with a productive system and with a set of players with an industrial culture capable of generating dynamic processes of collective learning, which serve to reduce the uncertainty associated with innovative processes (Ratti *et al.*, 1997).

Obviously, this complex and ambitious result cannot occur without a concerted effort. The value chain follows from working together, coordinating public and private (subsidized) investments, adequate legal and financial incentives for investment, professional training of all workers that will be exposed to changes that occur at the level of organizations and the labor market.

In conclusion, regional approaches require adaptation of governance structures to enable the formulation and implementation of regional policies. In addition, the quality of government institutions has become a key factor in improving innovative

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performance on a regional scale. As such, the prevalence of good institutions has been a precondition for the development of regional innovative potential and to ensure that regional programs function properly.

1.3 Current and future applications of IoT

IoT joins the digital world and the physical world being considered the next generation network or the future Internet (Yan et al., 2008 and Castillejo et al., 2013). The IoT allows, by means of a sensor or an RFID tag (Radio Transmitter-responder) placed in a person, animal, equipment, packaging or product, among others, to give life and communication capacity either to living beings or to inanimate objects.

Although communication is not the ultimate goal of IoT, the communications network is an essential component of this system. The network provides users with a fast and inexpensive tool for sharing information, allows the possibility to connect users / objects that are geographically dispersed and offers associated service opportunities.

IoT breaks the barrier between the human world and the physical world making it possible to feel the physical world through digital means. According to Xiaopu et al. (2016) IoT is not a specific network format, but an idea, a systemic project that allows all devices and systems to work together, obtaining real-time context information, as well as getting feedback from other working systems and finally analyze the data collected. Xiaopu et al. (2016) anticipate a real revolution and business opportunity on a global scale within IoT. The data collected by the sensors must be stored and processed intelligently for the purpose of drawing conclusions. A mobile phone or a microwave oven can incorporate a sensor that provides data on its state of conservation. An "actuator" is an equipment that allows, for example, to change the temperature of an air conditioner. According to Palattella et al. (2016), the IoT paradigm revolutionizes the way we live and work with the emergence of an immense service based on the interaction between heterogeneous devices (machines, animals, people, objects, etc.).

Recently, several communication technologies have emerged that will enhance IoT's total performance. These heterogeneous, fragmented and complementary technologies, which characterize the landscape of the current connectivity, make possible connections and communication of elements unimaginable until today.

Palattella et al. (2016) divide the implications of IoT in terms of the impacts that originate in private and industrial consumption. The so-called Consumer IoT seeks to improve people's quality of life, saving time and money. It involves the interconnection of consumer electronic devices as well as of any object integrated into home environments, offices and cities. On the other hand, Industrial IoT concentrates on the integration between operational technology and information technology, as well as intelligent machines, network sensors and data analysis that can improve business-to-business (B2B) services in different sectors of activity. For example, monitoring processes in the production of chemicals, tracking the movement of vehicles, among others, or as part of a self-organized system, with distributed control without human intervention (autonomous factories).

IoT's intervention in Industry 4.0 is extreme, with a continuous interconnection of the digital and physical domain. Real-time information, the Big Data, the connection between people, objects and systems, will lead to the individualization of products and services on a large scale and thus to a change of control of the value chain.

The imagination has no limit, everything that can be sensed is capable of incorporating equipment that transmits, through a communications system, the collected data, depositing them in a cloud (virtual store of information), from which it can be develop analytical systems for information processing and thus manage, act, or allow for more accurate decision making. It is possible to provide a service or sell a product with higher added value, reducing flaws, defects, thus increasing the final quality.

According to Magesh et al. (2016), IoT products can be classified into five different categories: smart wearable, smart home, Smart City, smart environment and smart business. IoT products and solutions in each of these markets have different characteristics.

In industry, intelligent IoT systems enable the rapid production of new products, the dynamic response to demand and the real-time optimization of production networks and the supply chain, through the management of networked machines, using sensors and systems control.

Lindqvist and Neumann (2017) argue that IoT has the potential to encompass and implement a set of connected devices - including home appliances and utilities, wearables (glasses, watches, shoes, bracelets, shirts and so on). There are several examples of how mobile technology can be embedded in different accessories as a source of information, communication or entertainment for its users, both in homes and industrial buildings, as well as in industrial processes, medical devices, security devices, military equipment and other applications that today can only be imagined. Examples cited by the authors of IoT implementation are hospitals and health facilities, which tend to use devices that are remotely controlled. For example, things (objects): patient monitors, body scanners, pacemakers, defibrillators, infusion pumps, main and auxiliary power, lighting, air conditioning and many others. Also, critical infrastructure sectors, such as electric power, oil, natural gas, production and transportation, can use IoT devices such as sensors and actuators for automation and monitoring and remote control. Auto-driven and automated interconnected automobiles should be clearly regarded as things, especially on the future auto-roads.

Please see (Figure 1) the variety of applications only in the context of an intelligent private home and the ramifications it can induce to the level of a vast array of businesses. Activities may include security, irrigation, energy management (gas, electricity),

consumption (water), temperature and humidity management and precaution, ranging from air quality to smoke, gas, etc., health and more. The multiplicity of activities induced by IoT will be huge for 2020, with an estimated volume of sales and service delivery of up to 2 billion euros.

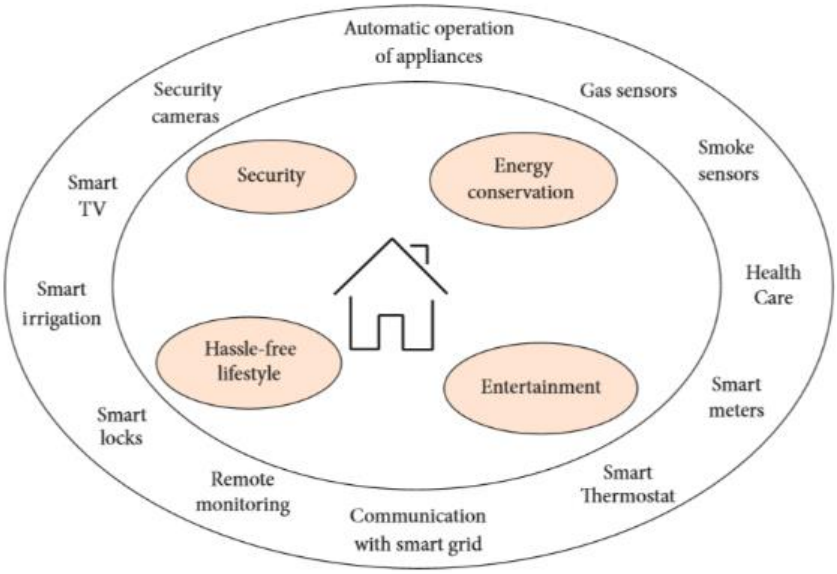

Figure 1: Example of a smart house with IoT.
Source: Sethi and Sarangi (2017), page17.

CONCLUSIONS

Portugal's growth prospects will increasingly depend on policies that enable the economy to compete successfully and create new income opportunities. At the moment, there are structural bottlenecks that continue to curb growth and exacerbate vulnerabilities. Solving some of these problems will now lay the foundation for solid growth in the coming years, but this calls for a renewal of the impetus for structural reforms. To do so, it is essential to reduce the inequalities of opportunities to make growth more inclusive in the long run. Portugal has the most unequal income distribution in Europe. Investing to boost prosperity and ensure competitiveness will be crucial (OECD, 2017).

We believe that the adoption of new technologies, such as industry 4.0, can contribute significantly to reducing such regional asymmetries. But in the longer term, skills will need to be improved to foster development and reduce the high levels of such inequalities.

The next steps of the investigation will be to conduct semi-structured interviews with entrepreneurs linked to industrial-based industry, in order to understand the factors of attractiveness and technological development, complemented by a survey of a broader sample.

ACKNOWLEDGEMENTS

We would like to thank Polytechnic Institute of Viseu, CI&DETS and Caixa Geral de Depósitos for the support of our work within the scope of the PROJ/CI&DETS/CGD/0013 project.

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ENGENHARIAS, TECNOLOGIA, GESTÃO E TURISMO
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MULHERES SOLO TRAVELLERS: MOTIVAÇÕES E EXPERIÊNCIAS
WOMEN SOLO TRAVELLERS: MOTIVATIONS AND EXPERIENCES
MUJERES SOLO TRAVEL: MOTIVACIONES Y EXPERERIENCIA

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RECEIVED: 28th November, 2017
ACCEPTED: 26th April, 2018

Pereira, A. & Silva, C. (2018).
Women Solo Travellers: Motivations and Experiences. *Millenium, 2*(6), 99-106.
DOI: https://doi.org/10.29352/mill0206.09.00165

RESUMO

Introdução: O conceito de mulher *solo traveller*, apesar de recente, tornou-se um segmento turístico relevante. Estas turistas procuram mais do que uma viagem de um lugar para outro. Escolhem ir sozinhas na busca de aventura, independência, sentimento de realização pessoal, individualidade e fuga. Não viajam sozinhas porque não têm escolha ou porque são solitárias. São levadas por motivações específicas e conscientes.
Objetivos: Neste trabalho conceptual, são categorizadas motivações de mulheres *solo travellers* com base na revisão da literatura, a fim de identificar por que as mulheres escolhem viajar sozinhas. O foco deste artigo é explorar a relação entre essas motivações e as suas experiências de viagem fornecendo um modelo conceptual.
Métodos Através de uma ampla revisão de literatura centrada no conceito de motivações e experiências turísticas, permitiu-nos organizar determinadas motivações que levam as mulheres a viajar sozinhas e as suas correspondentes experiências como *solo travellers*. As escalas multidimensionais consideram oito dimensões de motivações: (1) escape, (2) auto-identidade e desenvolvimento, (3) desafio, (4) conexão com outros, (5) aprendizagem, (6) aventura, (7) novo perspetivas de vida, e (8) autonomia; e cinco dimensões de experiência: (1) sensação, (2) sentir, (3) pensar, (4) agir e (5) relacionar-se baseado no modelo Schmitt da experiencia turística (Schmitt,1999).
Resultados: Apesar de uma extensa revisão da literatura, há poucos estudos baseados em experiências e motivações de mulheres *solo travellers*.
Conclusões: Ainda que se trate de um mercado pouco explorado e estudado, ganhou inúmeros apoiantes em todo o mundo, traduzindo-se em um impacto expressivo não só em termos sociológicos, mas também na experiência turística.

Palavras-chaves: Turismo; Motivações; *Women Solo Travel*; Experiência.

ABSTRACT

Introduction: The concept of female *solo traveler*, despite recent, has become a relevant tourist segment. As tourists, these women are looking for journeys that bring more than a trip from one place to another. They choose to go alone in the pursuit of adventure, independence, feeling of personal fulfillment, individuality and escape. They do not travel alone because they have no choice or because they are loners. They are driven by specific and consciousness motivations.
Objective: In this conceptual work, a set of solo travel motivations are categorize based on literature review, to identify why women, choose to travel alone. The focus of this article is to explore the relationship between these motivations with women solo travel experiences providing a conceptual model.
Methods: An extensive literature review focusing on the concept of tourism motivations and experiences provide a framework that allows assesses the specific motivations that driven women into travel alone and the corresponding solo traveler experience dimensions. The multi-dimension scales considers eight motivations dimensions: (1) escape, (2) self-identity and development, (3) challenge, (4) connectedness with others, (5) learning, (6) adventure, (7) new life perspectives, and (8) autonomy; and five experience dimensions: (1) sense, (2) feel, (3) think, (4) act, and (5) relate based on Schmitt' model tourism experience (Schmitt, 1999).
Results: Despite an extensive literature review, there are few studies based on experiences and motivations of women solo travelers.
Conclusions: Even if it is a market that has not been very explored and studied has gained numerous supporters around the world, translating into an expressive impact not only in sociological terms, but also in its tourist experience.

Keywords: Tourism; Motivations; Women Solo Travel; Experience.

RESUMEN

Introducción: El concepto de mujer *solo traveller*, aunque reciente, se ha convertido en un segmento turístico relevante. Estos turistas buscan más que un viaje de un lugar a otro. Escogen ir solas en busca de aventura, independencia, sentimiento de realización personal, individualidad y fuga. No viajan solas porque no tienen opción o porque son solitarias. Son llevadas por motivaciones específicas y conscientes.
Objetivos: En este trabajo conceptual, se categorizan las motivaciones de las mujeres *solo travellers,* basadas en la revisión de la literatura, con el fin de identificar por qué las mujeres eligen viajar por sí solas. El enfoque de este artículo es explorar la relación entre esas motivaciones y sus experiencias de viaje proporcionando un modelo conceptual.
Metodología: A través de una amplia revisión de literatura centrada en el concepto de motivaciones y experiencias turísticas, nos permitió organizar ciertas motivaciones que llevan a las mujeres a viajar solas y sus correspondientes experiencias como *solo travelers*. Las escalas multidimensionales consideran ocho motivaciones dimensiones: (1) de escape, (2) la auto-identidad y desarrollo, (3) desafío (4) de conexión a otros, (5) de aprendizaje, (6) Aventura (7) Nuevas perspectivas de vida, y (8) autonomía;

y cinco dimensiones de la experiencia: (1) sensación (2) sentirse (3) pensar (4) acción (5) relacionarse, basado en el modelo Schmitt de la experiencia turística (Schmitt,1999).
Resultados: A pesar de una extensa revisión de la literatura, hay pocos estudios basados en experiencias y motivaciones de mujeres *solo travelers*.
Conclusiones: Aunque se trata de un mercado poco explorado y estudiado, ha ganado numerosos apoyos en todo el mundo, traduciéndose en un impacto expresivo no sólo en términos sociológicos, sino también en la experiencia turística.

Palabras claves: Turismo; Motivaciones; Mujeres Solo Travel; Experiencia

INTRODUCTION

The earliest known female travelers were primarily pilgrims, making the journey to Holy Land and Jerusalem. Since the end of the nineteen-century, there has been a set of social and political facts and changes that increase the female participation in contemporary travel (Wilson & Harris, 2006).
Nowadays, women are increasingly choosing to travel alone (Wilson & Little, 2008). Western women in today's society have increased options, which have opened up a range of tourism and recreation choices (Wilson & Little, 2005).
Within this context the present study aims to identify the main motivations of women solo travelers and relate these motivations with a specific tourism experiences dimensions.

1. THE CONCEPT OF SOLO TRAVEL OVERTIME

In some way solo travel was and is regarded as a journey travel invoking a kind of spiritual travel. And this relation of tourism with the need to meet spiritual needs and cultural enrichment goes back to pilgrims, and the idea of trying to find meaning in their lives closely linked to the divine and religious issue (Cohen, 1979; Silva, 2011).
However, this relationship of experience with tourism was not only related with religious reasons but instead with deep social transformations. The counterculture movements evident in the 1960s, more prominently in the US, profoundly affected generations around the world, introducing new mindsets and ways of facing the journey. The hippie movement had a deep impact on youth values, with new behaviors and sensory and sensorial experiences promoting the desire and feeling of freedom (Groppo, 2004). Related with the pioneering character and behavioral experimentation of the hippie counterculture, the drifter concept arises directly linked to this important sociological background. A drifter seeks adventure, faces risks and anticipates new tourist attractions (Enzensberger, 1985). In the 1990s backpacker terminology begins to be commonly used, as a variant of explorer or drifter. This tourist was recognized as young, budget tourists on extended holiday (Loker-Murphy & Pearce, 1995). Most backpackers travel alone or in small groups, look for cheap accommodations and are quite flexible in the type of tourism (Scheyvens, 2002). They seek experiences, and want to explore unusual places, being mainly a journey of discovery (Haigh 1995). Although the terminology of backpacking tourism is frequently used, nowadays, the concept of solo traveling become more common, defining people who want to travel alone and seek to live the feeling of discovery.

2. SOLO TRAVELERS WOMEN MOTIVATIONS

Tourists in general are moved towards search of experiences that provide escape, freedom and pleasure (Wilson & Little, 2005). The relationship between travel and experience is the key point of why women choose to travel alone. The goal is not the journey per se, but the involvement and the acquired competences. Solo women travelers seek adventure, social interaction, education and self-understanding (Bond, 1997). Even though each woman has her own reasons to travel alone, it is possible to recognize some common motivations. And the main motivations that lead women to choose to travel alone are the need to get out of their comfort zone to develop a sense of autonomy and individuality (Wilson &Little, 2008), and the challenge and personal growth (Chiang & Jongaratnam, 2006; Wilson & Little, 2005, 2008; McNamara & Prideaux, 2010). Wilson and Harris (2006), after analyzing several testimonies of female travelers, introduce the concept of meaningful travel. The journey translates into the search for something much more valuable than relaxation and leisure. These women want to evaluate they own values, develop their identities and acquire knowledge. Another relevant reason it's the importance of socialization for these tourists. The human development factor, previously stated is reliable with the ties created, the interaction with other travelers and the autochthonous (Jordan & Gibson, 2005; Wilson & Little, 2005; Wilson & Harris, 2006). Despite the significant sociological aspects, motivations related with culture and learning are also mentioned in tourism literature. The woman solo traveler desires the escape of the daily life, looking for diverse cultural contexts other than those to which she is used to. This issue is associated to the duality about familiarity vs novelty when describing explorers and drifters (Crompton, 1979;

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DOI: https://doi.org/10.29352/mill0206.09.00165

Bond,1997; Silva, 2011) Finally, and in a broader sense, all these factors can be grouped together, agreeing that a female solo traveler seeks an adventure, a memorable experience, and leisure (Bond, 1997) as we can see in table below.

Table 1 - Main motivations dimensions of women solo travelers and research studies

Motivations associated with Solo Traveling	Authors
Challenge and Overcoming	(Bond, 1997; Jordan & Gibson, 2005; Chiang & Jongaratnam, 2006; Wilson & Little, 2005, 2008; McNamara & Prideaux, 2010)
Self-recognition	(Wilson & Harris, 2006)
Contact with other travelers	(Jordan and Gibson, 2005; Wilson & Little, 2005; Wilson & Harris, 2006)
New life prespectives	(Jordan & Gibson, 2005; Chiang & Jongaratnam, 2006; Wilson & Little, 2005, 2008; McNamara & Prideaux, 2010).
Escape to routine	Crompton, 1979; Bond 1997)
Learning, New experiences	Crompton, 1979; Bond, 1997)
Autonomy	Bond; 1997; Jordan & Gibson, 2005; Chiang e Jongaratnam, 2006; Wilson and Harris, 2006; Wilson & Little, 2005, 2008; McNamara & Prideaux, 2010; Kirkwood, 2011.
Adventure and Leisure	Bond, 1997

Source: Own production

3. TOURISM EXPERIENCE

The tourist is a consumer who is motivated towards a tourism experience desire (Quan & Wang, 2004). According Pine and Gilmore (1999), a tourist experience can be defined as a "set of activities in which individuals engage on personal terms" (p.12). For Oh, Fiore & Jeoung (2007), who analyzed this concept from the consumers' perspective, a tourist experience is something "pleasant, engaging, and memorable" (p.120), allowing each tourist to build his or her own travel experiences so that these satisfy a wide range of personal needs, from pleasure to a search for meaning.
Schmitt (1999) conceptualized experience as individual and shared experiences. The model comprises *sensing*, f*eeling* and *thinking* in individual experiences and *acting* and *relating* are considered as shared experiences (Loureiro, 2014).

3.1. Sense

Sense dimension is allied with sensory experiences. Appeal to the senses (hearing, taste, touch, sight, smell) with the aim of creating sensorial experiences, increasing value to the products.

3.2. Feel

This experience dimension is related with affective experiences, creating feelings, moods and emotions.

3.3. Think

The think dimension is associated with cognitive experiences that engage tourists creatively, generating thought, surprise and/or provocation.

3.4. Act

Act dimension is concerned with physical experiences, behaviors, lifestyles. Create physical experiences aimed at the physical development of the consumer showing him / her alternative forms to the lifestyle and interactions.

3.5. Relate

Relate dimension is linked with experiences of social identity, reference groups or cultures. This dimension contains aspects of the other dimensions mentioned above. This is of identification with the individual, related to his self, integration, as for example: with his social and cultural identity.

4. METHODOLOGY

A conceptual model is proposed, based on the previously presented literature review, which additionally provided the grounds for defining dimensions and suggesting the operationalization of the motivation and experience constructs and corresponding dimensions.

From the literature review, it is accepted that motivation is multidimensional. Tourists pursue to satisfy not one single need but a number of distinctive needs concurrently. Thus, a review of literature was conducted to develop a list of motivations items, which are generally used to measure tourism and travel motivations, adapting to women solo travel.

On the other hand, the travel experience variables considered pre-established dimensions and scales from the tourism literature review based on the experience model of Schmitt (1999), in which *thinking*, *sensing*, *feeling, acting* and *relating* are considered the experience dimensions.

5. CONCEPTUAL MODEL

The conceptual model "Women Solo Travelers: Motivations and Experiences" proposed considers eight motivations dimensions and five dimensions of tourism experiences.

The hypothesized conceptual model that is suggested is described in Fig. 1. This model recommends that each dimension of motivations will positively predict a dimension of tourism experience, rising in the following eight hypotheses.

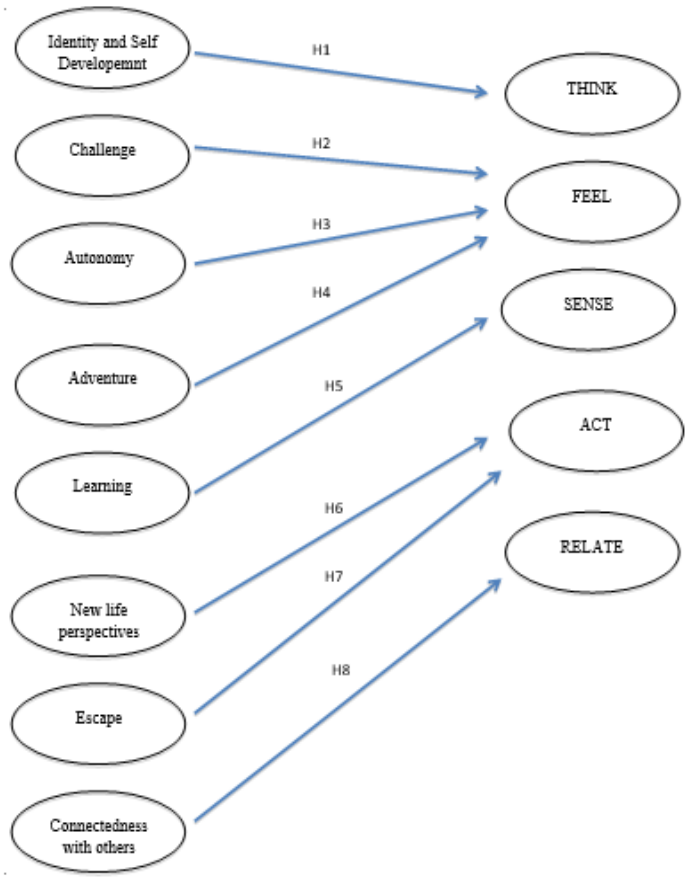

Figure 1 - Hypothesized Conceptual Model: Relationship between Tourism Motivations and Experiences of Women Solo Travel

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H1 – *The identity and self-development motivations positively influences the think dimension of solo women travel experiences*

The concept of identity arises from the multiple and differentiated roles an individual play in society (Lynch, 2007).
Independent travel is perceived as a way to women search for self-identity and self-development due the meaningful travel it is travelling alone (Wilson & Harris, 2006).
In this sense, it is hypothesized that identity and self-development motivations positively influences the think experience dimension, generating and improving thoughts and cognitive experiences.

H2 – *The challenge motivations positively influences the feel dimension of solo women travel experiences*

Dealing with the challenge of travel alone, many women reported a strong feel of empowerment (Wilson & Harris, 2006). In this way it is suggest that challenge motivations positively influence the feel dimension of solo women travel experiences.

H3 – *The autonomy motivations positively influences the feel dimension of solo women travel experiences*

It is assumed that the autonomy motivations positively influences the feel dimension of solo women travel experiences because for women the possibility of making their own choices and control their own actions create feelings of control and independence (Wilson & Harris, 2006), a kind of a freedom sense that improve the affective experience of travel alone.

H4 – *The adventure motivations positively influences the feel dimension of solo women travel experiences*

Solo travel is also about an adventure experience. In fact, travelling alone per se is an adventure (Elsurd, 2005).
Adventure/excitement motivations in tourism are associated with deliberate risk, danger, and sensation seeking (Gyimóthy and Mykletun, 2004). Thus, it is suggest that adventure motivations positively influences the feel dimension of solo women travel experiences.

H5 – *The learning motivations positively influences the sense dimension of solo women travel experiences*

People desire to learn new things and develop new insights and skills because of the tourism experiences (Poria, Reichel & Brian, 2006; Richards, 2002; Sharpley & Sundaram, 2005). People learn about the world and expand their knowledge because of eye-opening travel experiences (Tuang & Ritchie, 2011) and the multisensory-encounter experiences (Kastenholz et al, 2012).
Within this, it is proposed that the learning motivations positively influences the sense dimension of solo women travel experiences because predispose women to a sensorial and memorable tourism experience.

H6 – *The new life perspectives motivations positively influences the act dimension of solo women travel experiences*

Independent travel is a meaningful part of people's lives and women in, through these experiences, reconsider their perspectives on life and ambition new ones (McNamara & Prideaux, 2010).
Considering that the act dimension of the experience is concerning with behaviors and lifestyles (Schmitt, 1999), being the lifestyle the main dimension of act experience (Roberts & Sparks, 2006), it is suggested that the new life perspectives motivations positively influences the act dimension of solo women travel experiences.

H7 – *The escape motivations positively influences the act dimension of solo women travel experiences*

One of the most attractive tourism characteristics is the ability to provide different and intensive experiences in which the tourist's standard social structures and conventions are eliminated (Silva, Abrantes & Lages, 2009).
The desire to travel is usually associated with the desire to escape from the daily life routine. In case of the women solo travellers, women do not travel alone only to see new places but to get new experiences and to feel independent in a way to escape the pressure from society. Also, travelling alone for women is an escape from the domestic and family responsibilities and from the femininity that challenges the dominant masculine image of adventure (Elsrud, 2005).
Considering act dimension of the experience as a physical experience, behavior and lifestyles, which provides her alternative forms to the lifestyle and interactions, it is hypothesized that the escape motivations positively influences the act dimension of solo women travel experiences.

H8 – *The connectedness with others motivations positively influences the relate dimension of solo women travel experiences*

Tourism is a social phenomenon that allows people to develop social interaction, to satisfy social acceptance, approval and integration needs (Silva, Abrantes & Lages, 2009).
Independent travel allows women meet new persons, building personal connections, make new social friends networks and learning how to better relate with others (Wilson & Harris, 2006). So, it is suggest that the motivation of contact with others positively influences the relate dimension of solo women travel experience by promoting experiences of social and cultural identity and social and cultural integration.

CONCLUSIONS

The presented study provides a conceptual framework that relates women traveler preferences with tourism experiences, based on previous experience dimension model by Schmitt (1999).

Tourism is an experimental phenomenon (Frochot & Morrison, 2000) where experiences are sought in relation to feelings of motivation (den Breejen, 2007).

The women's motivations for independent travel and tourism experiences are related to the desire to learn, self-development, challenge themselves, find a sense of identity and autonomy, meet new people and experience new life and adventure moments. These motivations influences the solo women travel experiences turning it into a memorable tourism experiences.

The study aims to increase social and scientific knowledge of motivations and experiences concerning with solo travelers in order to fulfill the existence research gap in tourism literature. It pretends also to deepen the discussion on gender and tourism and particularly the role of women in travel and tourism.

On the other hand, the study could have also practical and managerial implications for tourism destination managers providing a conceptual framework of solo women motivations travel. Managers should highlight the most significance aspects of their uniqueness like the destination culture, local way of life and activities that stimulate visitors' senses and feelings, imagination, lifestyles and social encounters.

Nevertheless, the model has some limitations to be considered. Despite the review of literature that was been undertaking, it possible that the study could omit and not consider other important dimensions of motivations or tourism experiences. Thus, it is suggests the application of qualitative methodology in the future such as content analysis of travel blogs, ad forums in order to identifying another possible motivational dimensions.

Also, and due the fact that motivations change overtime depending on travel patterns behaviors, it could be interesting investigate the differences between first-time and repeat as a solo independent women travel.

Finally, the relationship between motivations and constraints could also be relevance to analyse in future research, particularly how the constraints women feel impact on their motivations to travel alone.

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junho • june 2018
série | serie 2 • ano | year 3 • quadrimestral | quarterly

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