



EDUCATIONAL TECHNOLOGY DEVELOPED OR USED FOR THE ELDERLY CAREGIVER: AN INTEGRATIVE REVIEW

TECNOLOGIA EDUCACIONAL DESENVOLVIDA OU UTILIZADA PARA O CUIDADOR DE IDOSOS: UMA REVISÃO INTEGRATIVA

TECNOLOGÍA EDUCATIVA DESARROLLADA O UTILIZADA PARA EL CUIDADOR DE ANCIANOS: UNA REVISIÓN INTEGRADORA

Rachel da Silva Serejo Cardoso¹, Selma Petra Chaves Sá², Faysanne Schaustz Bom³, Tauan Nunes Maia⁴,
Edmundo de Drummond Alves Júnior⁵

ABSTRACT

Objective: investigating in the literature educational technologies developed and used to elderly caregivers. **Methodology:** an integrative review aiming to answer the question << *What are the scientific evidences about the use of educational technologies developed for elderly caregivers?* >> The search was conducted in MEDLINE and LILACS databases; in SCIELO library and COCHRANE database, using the descriptors: educational technology, elderly health and caregivers. For analysis there were selected three articles with the eligibility criteria. **Results:** after analysis of the productions it was found that educational technologies (ET) are used to caregivers of patients with diseases that cause cognitive mental disorder, such as: dementia, psychiatric problems and chronic diseases. **Conclusion:** ET is recommended as a facilitating tool in providing care to the elderly, but few intervention studies were presented with development of technologies turned to elderly caregivers. **Descriptors:** Educational Technology; Elderly Health; Caregivers.

RESUMO

Objetivo: investigar na literatura tecnologias educacionais desenvolvidas e utilizadas para cuidadores de idosos. **Metodologia:** revisão integrativa para responder a questão << *Quais as evidências científicas sobre o uso de tecnologias educacionais desenvolvidas para cuidadores de idosos?* >> Foi realizada a busca nas bases de dados MEDLINE e LILACS; na biblioteca SCIELO e no banco de dados COCHRANE, empregando os descritores: Tecnologia educacional, saúde do idoso e cuidadores. Para análise foram selecionados três artigos com os critérios de elegibilidade. **Resultados:** após análise das produções verificou-se que as tecnologias educacionais (TE) são utilizadas para cuidadores de idosos com doenças que acarretam distúrbio cognitivo mental como as demências, problemas psiquiátricos e doenças crônicas. **Conclusão:** TE é recomendada enquanto ferramenta facilitadora na prestação do cuidado aos idosos, porém poucos estudos de intervenção foram apresentados com desenvolvimento de tecnologias voltadas para cuidador de idosos. **Descritores:** Tecnologia Educacional; Saúde do Idoso; Cuidadores.

RESUMEN

Objetivo: investigar en la literatura las tecnologías educativas desarrolladas y utilizadas para cuidadores de ancianos. **Metodología:** una revisión integradora para responder a la pregunta << *¿Cuáles son las evidencias científicas acerca del uso de tecnologías educativas desarrolladas para cuidadores de ancianos?* >> La búsqueda se realizó en las bases de datos MEDLINE y LILACS; en la biblioteca SciELO y en la base de datos Cochrane, utilizando los descriptors: tecnología de la educación, la salud de las personas mayores y cuidadores. Para el análisis se seleccionaron tres artículos con los criterios de elegibilidad. **Resultados:** tras el análisis de la producción se encontró que la tecnología educativa (TE) se utiliza para cuidadores de pacientes con enfermedades que causan trastornos cognitivos mentales, como la demencia, problemas psiquiátricos y las enfermedades crónicas. **Conclusión:** la TE se recomienda como una herramienta facilitadora en la atención a las personas mayores, pero pocos estudios de intervención se presentaron con el desarrollo de tecnologías para los cuidadores de personas mayores. **Descriptores:** Tecnología Educativa; Salud de los Ancianos; Cuidadores.

¹Nurse Family Health Specialist, Master's Student, Academic Program in Health Care Sciences, Fluminense Federal University/PACCS/UFF. Niterói (RJ), Brazil. Email: rachelserejo@bol.com.br; ²Nurse, Post-doc in Nursing, Main Professor of the Department of Nursing Fundamentals and Administration of the School of Nursing Aurora de Afonso Costa, Fluminense Federal University, Director of the Center for Health Care of the Elderly and Caregivers. Niterói (RJ), Brazil. Email: spetra@ig.com.br; ³Nurse, Specialist in Gerontological Nursing, Master's Student, Professional Master's Program in Nursing Care, Fluminense Federal University/MPEA/UFF. Niterói (RJ), Brazil. Email: fayschaustz@gmail.com; ⁴Professor of Physical Education, Doctoral Student of Leisure Studies at UFMG, Substitute Teacher of the Fluminense Federal University. Niterói (RJ), Brazil. Email: taunum@hotmail.com; ⁵Professor of Physical Education, Doctorate in Physical Education from the University Gama Filho, Associate Professor of the Fluminense Federal University. Niterói (RJ), Brazil. Email: edmundodrummond@uol.com.br

INTRODUCTION

Changes resulting from the aging process make the elderly become increasingly limited in their activities. This limitation to autonomously carries out the activities of daily living taking the elderly to social restrictions, psychological and physical according to authors¹⁻³. From the need for help to perform daily life activities comes to the nursing caregiver figure.

The caregiver of the elderly is the person able to recognize and develop support actions, what the elderly cannot do it alone, taking responsibility to provide all the support they need, promoting their quality of life. The caregiver may be formal, professional hired to provide care at home, or an informal caregiver, family member who provides such care according to specific needs demanded by the elderly.¹

It is known that the number of elderly caregivers has increased significantly in recent years, given the increase in the number of dependent elderly⁴. It is therefore of vital importance to information and guidance, these caregivers, since the understanding of the aging process, its changes and needs directly influence on the quality of care provided.¹⁻⁶

In this sense, caregivers point out the workload, physical demands and need to know to care for the elderly as the main problems faced in their practices.⁴ The workload compromises the practice of care in view of the complexity and specificity of elderly care. Lack of knowledge about how to understand and perform the elderly care can be minimized with guidance and education through technology.⁴

The educational technology (ET) is everything that the teacher does every day to face the problem of having to teach or guide a group of people, certain content to certain goals.⁷ The technology is the result of processes implemented from everyday experience, in order to provoke interventions on a given practical situation.⁴

It can be seen that the use of educational technology is not just the construction and use of equipment, but also technological processes¹. The technological process can focus the “know-how” and know how to use the knowledge and equipment in all everyday situations. This may facilitate the process of teaching and learning, providing the student a knowledge that favors the construction and reconstruction of knowledge.¹

A participatory educational technology was developed with a group of diabetics. Implementation of the technology was the fortnightly group meetings with users and professionals of the System Group of Diabetics UFF. The meetings take into account the needs of users as well as professionals involved in the care, through interaction between subjects, working the problems of everyday life.⁸

OBJECTIVE

- Investigating in the literature developed educational technologies and used to elderly caregivers.

METHOD

To answer this question there was used as a method to evidence-based practice through an integrative literature review about the educational technologies used or developed for elderly caregivers. The integrative review includes research analysis for decision making and improvement of clinical practice, while identifying gaps in knowledge that need to be filled with new studies.⁹

In carrying out this review, five steps were performed: define the inclusion and exclusion criteria; selection of databases and conducting searches by scientific productions; data analysis; and synthesis of the result of the review.

This study had the guiding question: “What are the scientific evidences about the use of educational technologies developed for elderly caregivers?”

To this end, there were employed the inclusion criteria: papers discussing educational technology for the caregiver to elderly or educational technology for the care of the elderly, written in English, Portuguese or Spanish. Scientific productions were excluded involving book chapters, dissertations, theses, reports, news, editorials and articles that did not address the question of the study.

It was used delimitation timeline of the articles; however, searches were carried out from September to October 2014, ensuring rigor in the selection process of the articles in the databases with standardized and available descriptors in the Descriptors in Health Sciences (MeSH) for the Portuguese and Spanish; and Medical Subjects Headings (MESH) into English. The descriptors used were elderly health, educational technology and caregivers in the Portuguese language; Health Services for the Aged, Educational Technology and Caregivers in the English

Cardoso RSS, Sá SPC, Bom FS et al.

Educational technology developed or used...

language; and Elderly Health, Educational Technology and Caregivers, in Spanish.

The used research bases were the databases Medical Literature Analysis and Retrieval System Online (MEDLINE) and Latin American and Caribbean Health Sciences (LILACS); in the library and Scientific Electronic Online Library (SCIELO); and in the Cochrane Library database (Cochrane).

The MEDLINE and Cochrane databases to search was performed individually for each descriptor and also using the Boolean and as follows: "Educational Technology" AND "Caregivers"; "Educational Technology" AND "Health Services for the aged" AND "Caregivers". It was also made the search using all described with Boolean and among them this way: "Educational Technology" AND "Caregivers" AND "Health Services for the aged". Similarly was made in the LILACS database and library of SCIELO. The descriptors were inserted individually and subsequently associated with the Boolean AND: Educational technology AND caregivers; Educational Technology AND Health of the elderly; Health of the elderly AND caregivers.

For the selection of studies we used selective reading, in order to determine the material that actually matters to research, thus avoiding the reading of texts that do not contribute to the problem solution proposed¹⁰.

After reading the titles and abstracts, selected studies were analyzed with the aid of an already validated instrument, evaluating information concerning the identification of the original article, methodological characteristics of the study, assessment of the methodological rigor of measured interventions and the results found in articles to the journal, author, and study the level of evidence¹¹: 2 - randomized controlled clinical trial; 3 - nonrandomized clinical study; 6 - descriptive qualitative study.

RESULTS

The first study selection stage was the identification of the same and identified 5400 articles, with descriptors alone. The 5400 preliminary articles found, 14 were selected by combining the 3 descriptors. Later reading these articles has been made in full, with 11 excluded for not meeting the eligibility criteria, as shown in Figure 1.

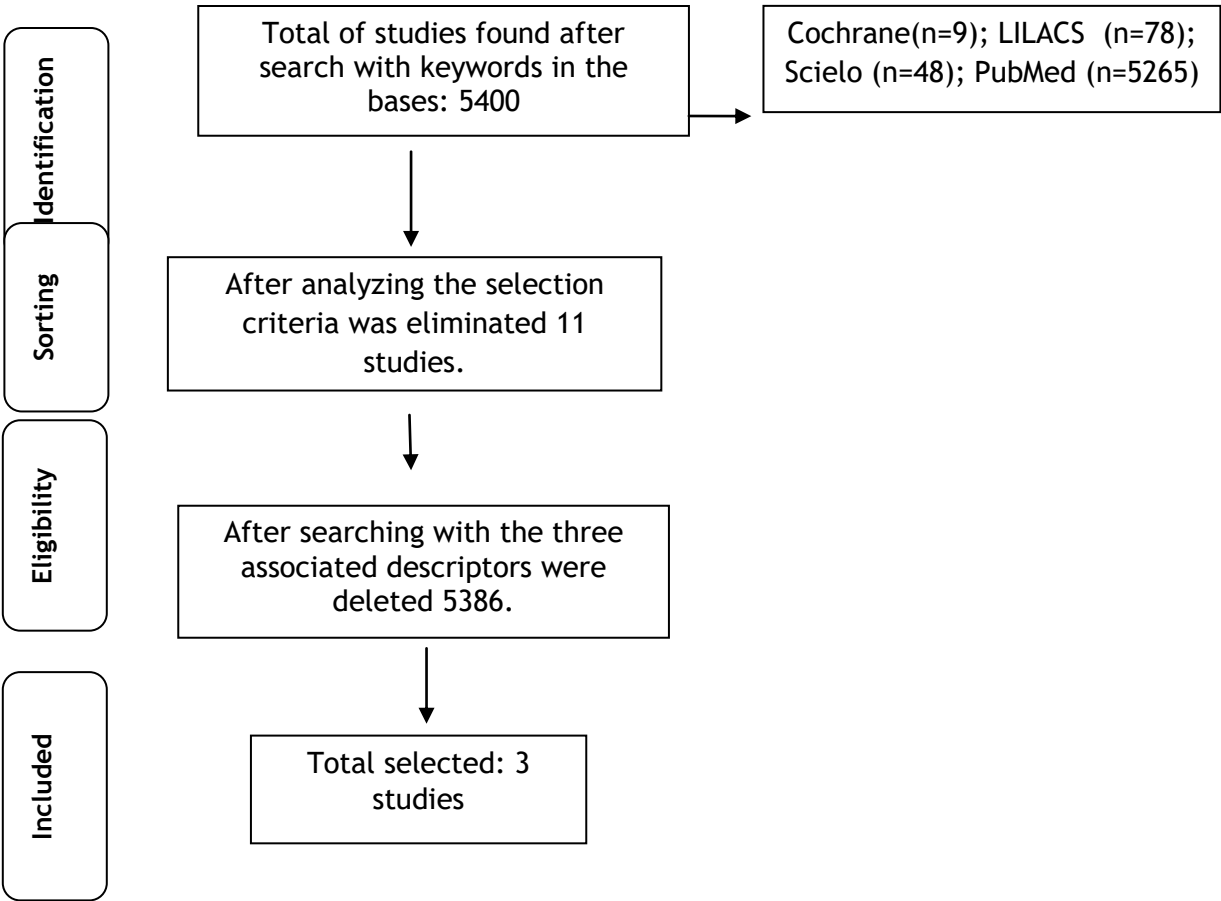


Figure 1. Organigram of the selection of articles in databases.

Cardoso RSS, Sá SPC, Bom FS et al.

Educational technology developed or used...

It should be emphasized that there were no restrictions on the publication period or level of evidence of the article. After completing the quest with the three associated descriptors, it is clear that studies were

identified only in the PubMed database, with a total of (14) fourteen publications.

The level of evidence, the magazine and the biases of the selected works are shown in Figure 1.

Authors	Magazine	Level of evidence	Biases
Johnston et al. ¹¹	Archives of Family Medicine	III	Study without randomization of the specimen and the inhomogeneity between the groups with regard to ethnicity, may have influenced the results.
Perlick et al. ¹²	Psychiatric Services	II	The methodology of the study, in particular the evaluations of intervention, could be more detailed. The duration of the intervention was another factor which limited the study finds.
Pilotto et al. ¹³	Journal of Alzheimers Dlsease	VI	In the interpretation of the results there was not considered the difference between the groups, as well as the stage of the patients who received the care.

Figure 1. Level of evidence of the articles, magazines and biases of the articles.

The objectives, methods and main results obtained are shown in Figure 2.

Authors	Objectives	Method	Results
Johnston et al. ¹¹	Evaluating the use of remote video technology in the home health care.	Two groups received routine health care at home. The GI had access to a remote system that allowed nurses and patients to interact in real time.	There was no significant difference in the GC. In the GI, the intervention proved to be effective and well received by patients, able to maintain quality of the service and has the potential to reduce costs.
Perlick et al. ¹²	Reducing the self-stigma among relatives of people with severe mental illness.	Patients with schizophrenia and caregivers allocated into two groups. The LPG used a video, followed by a debate between the participants. The GEF an education session led by a clinician.	GLP can be more effective in reducing self-stigma family than a group of clinical education, at least for people who reported experiencing moderate to low levels of anxiety in a standard questionnaire.
Pilotto et al. ¹³	Evaluating the potential role of information and system of communication technology.	GI with the use of five-minute video about the information and communication system. After the video there was applied a questionnaire with family and caregivers to assess the TIC.	The TIC could be useful to improve the management of patients with DA. The intervention proved to be more meaningful for patients aged between 75 and 84 years old, and with moderate level of DA than light or severe dementia.

Figure 2. Year and publishing magazine articles in 2014.
GC = Control Group; GI = Intervention Group; TIC = Information and Communication System; DA = Alzheimer's disease; GLP = group led by peers; GEF = family education group.

DISCUSSION

After reviewing the productions it was found that the objectives were different and resulted in different educational technologies. In a study with ET there was used to caregivers of seniors with mental illnesses that cause cognitive impairment, such as dementia, on the other, psychiatric problems and, in the latter study the ET was developed for caregivers of patients with chronic diseases.

In a study¹² with primary caregivers of patients with schizophrenia aiming to present the main results of a targeted intervention to reduce self-stigma among relatives of people with severe mental illness. The study¹² points out that discrimination in relation to people with mental disorders are experienced by people who are part of the social life of this. These tend to internalize external views, resulting in low self-esteem, confidence and social withdrawal in response to early rejection, psychological disorders and sense of guilt.¹² Through the use of educational technology family members in the videos shared their experiences coping with stigma attached to mental illness using emotional response structure. Caregivers indicated that the intervention was acceptable and viable. Family members with low to moderate levels of pre-intervention anxiety reported significant reduction in self-stigma.¹²

A study¹³ showed that family caregivers of seniors with Alzheimer's dementia play a role in health management and care for the patients, very stressful and may negatively affect the quality of life of patients and themselves, leading to the possibility of institutionalization. So, it was presented in this study innovative technology to help people with Alzheimer's disease (AD) to experience greater autonomy of the normal activities of everyday life and monitoring of environmental and personal conditions to improve quality of life and quality of care and safety. This technology in video form was evaluated by all family members and caregivers who responded to a questionnaire of 13 items that assess the potential role of this technology.

Caregivers reported that the system could be useful for improving the care management of patients with AD, especially for daily home care, for monitoring and follow-up of patients within and outside the home, entertainment and easy way to communicate.

Being careful, something complex and demanding in its structure, one that delivers care must have the knowledge and skills

necessary for the management be facilitated and carried out correctly, avoiding that this individual is exposed to vulnerability in the future.¹⁴ Thus, the use of ET would be essential as a facilitator in the caregiver's learning process and improved care to the elderly.

Another study¹³ evaluated the use of educational technology in video of health care for the home environment to be discussed, as well as the quality, use, patient satisfaction and cost savings with this technology. Acuity level and number of referrals to health home care is increasing exponentially. In this study, points out that health organizations are encouraged to find more effective methods for providing high assistance to the patient.⁹ A comparison was made between two groups, one was applied to technology and another with the same characteristics, none technology was used. Remote video technology in the health care setting at home proved to be effective and well received by patients, able to maintain the quality of care, and its cost reduction potential. Patients seemed satisfied with the equipment. Furthermore, it was found that the technology could favor economically considering that the elderly do not require a healthcare provider at home 24 hours daily.¹¹

The use of remote technology has the potential to achieve cost savings when used to replace some person visits and may also improve access to health care personnel at home for patients and caregivers. Since the use of such technology reduces expenditures professionals.

CONCLUSION

At the end of the present study there was comprehensive knowledge about the particular educational technologies developed for the caregiver to the elderly. It was observed that the degree of caregiver education is directly related to quality of care provided. Educational technology is recommended as a facilitating tool in providing care to the elderly; however, it is clear that the raised studies focus on Educational Technology for the elderly and little development of Educational Technology for the caregiver as a major player of care.

Caregivers, mostly encounter ignorance to caring for the elderly and thus have overhead when not instructed on how to promote this care thus reflecting the care provided to the elderly. Therefore, this review concludes that the education and guidance of elderly caregivers can contribute positively in the care provided, supplying some demands and

Cardoso RSS, Sá SPC, Bom FS et al.

needs of caregivers so that they can provide a more humanized care.

Some limitations of this study were the low number of articles that met the inclusion and exclusion criteria. Another factor concerns the level of evidence found in the articles, being only one with level of evidence I. Thus, it is of essential importance that new intervention studies with greater methodological rigor and higher level of evidence be carried out.

REFERENCES

1. Rocha JPR, Corrente JE, Hattor CH, Oliveira IM de, Zancheta D, Gallo CG. Efeito da capacitação dos cuidadores informais sobre a qualidade de vida de idosos com déficit de autocuidado. Ciênc saúde coletiva [Internet]. 2011 [cited 2014 Sept 15];16(7):3131-37. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1413-81232011000800013&lng=en.
2. Sampaio AMO, Rodrigues FN, Pereira VG, Rodrigues SM, Dias CA. Cuidadores de idosos: percepção sobre envelhecimento e sua influência sobre o ato de cuidar. Estud Psicol [Internet]. 2011 [cited 2014 Sept 15];11(2):590-613. Available from: <http://www.revispsi.uerj.br/v11n2/artigos/pdf/v11n2a15.pdf>
3. Nietzsche EA, Backes VMS, Colomé CLM, Ceratti RN, Ferraz F. Tecnologias educacionais, assistenciais e gerenciais: uma reflexão a partir da concepção dos docentes de enfermagem. Rev Latino-Am Enfermagem [Internet]. 2005 [cited 2015 Sept 20];13(3):344-52. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0104-1692005000300009&lng=en.
4. Souza LM, Wegner W, Gorini MIPC. Educação em saúde: uma estratégia de cuidado ao cuidador leigo. Rev Latino-Am Enfermagem [Internet]. 2007 [cited 2015 Sept 10];15(2):337-43. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0104-11692007000200022&lng=en.
5. Garbin CAS, Sumida DH, Moimaz SAS, Prado RL, Silva MM. O envelhecimento na perspectiva do cuidador de idosos. Ciênc Saúde Coletiva [Internet]. 2010 [cited 2015 Sept 10];15(6):2941-8. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1413-81232010000600032&lng=pt&tlng=pt
6. Rezende F. As novas tecnologias na prática pedagógica sob a perspectiva construtivista. Ensaio -Pesquisa em Educação em Ciências Coletiva [Internet]. 2000 [cited 2015 Sept 10]; 2(1): 1-8. Available from:

Educational technology developed or used...

<http://www.portal.fae.ufmg.br/seer/index.php/ensaio/article/viewFile/13/45B>.

7. Nietzsche EA, Teixeira E, Medeiros HP. Tecnologias cuidativo-educacionais: uma possibilidade para o empoderamento do(a) enfermeiro(a)? Porto Alegre: Moriá; 2014: 213p.
8. Mendes KDS, Silveira RCCP, Galvão CM. Revisão integrativa: método de pesquisa para a incorporação de evidências na saúde e na enfermagem. Texto contexto - enferm [Internet]. 2008 [cited 2015 Sept 10];17(4):758-64. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0104-7072008000400018&lng=en.
9. Gil AC. Como elaborar projetos de pesquisa. 5.ed. São Paulo: Atlas; 2010: 184p.
10. Stillwell SB, Fineout-overholt E, Melnyk BM, Williamson KM. Evidence-based practice, step by step: Searching for the evidence. Am J Nurs [Internet]. 2010 [cited 2015 Oct 16];110:41-7. Available from: http://journals.lww.com/ajnonline/Fulltext/2010/05000/Evidence_Based_Practice_Step_by_Step_Searching.24.aspx
11. Johnston B, Wheeler L, Deuser J, Sousa KH. Outcomes of the Kaiser Permanente Tele-Home Health Research Project. Arch Fam Med [Internet]. 2000 [cited 2015 Oct 16];9(1):40-5. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/10664641>.
12. Perlick DA, Nelson AH, Mattias K, Selzer J, Kalvin C, Wilber CH, et al. Huntington. In our own voice-family companion: reducing self-stigma of family members of persons with serious mental illness. Psychiatr Serv [Internet]. 2011 [cited 2015 Oct 12];62(12):1456-62. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/22193793>.
13. Pilotto A, D'onofrio G, Benelli E, Zanesco A, Cabello A, Margeli C, et al.. Information and communication technology systems to improve quality of life and safety of Alzheimer's disease patients: a multicenter international survey. J Alzheimers Dis [Internet]. 2011 [cited 2015 Oct 10];23(1):131-41. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/20930292>.
14. Camacho ACLF, Silva MDF, Espírito-Santo FH. Estratégias de suporte para prevenção de doença do cuidador familiar. J Nurs UFPE on line [Internet]. 2012 [cited 2015 Sept 10];6(9):2258-65. Available from: <http://www.revista.ufpe.br/revistaenfermagem/index.php/revista/article/view/2878>

Cardoso RSS, Sá SPC, Bom FS et al.

Educational technology developed or used...

Submission: 2015/03/31

Accepted: 2015/11/26

Publishing: 2015/12/15

Corresponding Address

Rachel da Silva Serejo Cardoso
Rua Ns Senhora dos Anjos, 109
Bairro Itaipú
CEP 24342-820 – Niterói (RJ), Brazil