

Educational and care technologies for residents of long-term care homes for the aged: An integrative review

Tecnologias educacionais e de cuidado para residentes de instituições de longa permanência para idosos: Revisão integrativa
Tecnologías educativas y de cuidado para residentes de instituciones de larga estancia para ancianos: Revisión integradora

RESUMO

Objective To identify the scientific evidence available on the education and care technologies used by the multi-professional team for residents of long-term homes for the aged. **Method:** Integrative literature review conducted in October 2021 by four independent reviewers. The following electronic databases were used to select articles: Medical Literature Analysis and Retrieval System Online (MEDLINE) via PubMed; Web of Science; SciVerse Scopus; Latin American and Caribbean Literature on Health Sciences (LILACS) and Database on Nursing (BDENF) via Virtual Health Library (VHL); Scientific Electronic Library Online (Scielo). The guiding question of this study was defined using the Population/Patient/Problem - Interest - Context, Time (PICoT) strategy: What is the available scientific evidence on the technologies used by the multi-professional team in education and care for residents of a long-term homes for the aged in the last 05 years? **Results:** The care technologies were identified in the two articles that make up the corpus analysis, presenting levels of evidence six and seven. No educational technologies were found focused on the education of the aged person in long-term homes for the aged. **Conclusion:** it is necessary to develop, validate, and test the applicability of educational and care technologies for the multi-professional team in the education and care of the aged resident in long-term homes for the aged.

DESCRITORES: Instituição de Longa Permanência para Idosos; Tecnologia Educacional; Educação em Saúde

ABSTRACT

Objetivo identificar as evidências científicas disponíveis sobre as tecnologias de educação e do cuidado utilizadas pela equipe multiprofissional para residentes de Instituições de longa permanência para idosos. **Método:** Revisão integrativa de literatura realizada em outubro de 2021 por quatro revisores de forma independente. Para a seleção dos artigos utilizou-se as seguintes bases de dados eletrônicas: Medical Literature Analysis and Retrieval System Online (MEDLINE) via PubMed; Web of Science; SciVerse Scopus; Literatura Latino-Americana e do Caribe em Ciências da Saúde (LILACS) e Base de Dados em Enfermagem (BDENF) via Biblioteca Virtual em Saúde (BVS); Scientific Electronic Library Online (Scielo). A definição da questão norteadora deste estudo se deu mediante a estratégia Population/Patient/Problem - Interest - Context, Time (PICoT): Quais as evidências científicas disponíveis sobre as tecnologias utilizadas pela equipe multiprofissional na educação e cuidado para residentes de Instituição de longa permanência de idosos dos últimos 05 anos? **Resultados:** As tecnologias do cuidado foram identificadas nos dois artigos que compõem o corpus da análise, apresentando níveis de evidência seis e sete. Não foram encontradas tecnologias educacionais voltadas para a educação da pessoa idosa em instituições de longa permanência para idosos. **Conclusão:** é preciso desenvolver, validar e testar a aplicabilidade de tecnologias educativas e do cuidado voltadas para a equipe multiprofissional na educação e cuidado da pessoa idosa residente em Instituição de longa permanência para idosos.

DESCRIPTORS: Instituição de Longa Permanência para Idosos; Tecnologia Educacional; Educação em Saúde

RESUMEN

Objetivo identificar las evidencias científicas disponibles sobre cómo las tecnologías de educación y cuidado son utilizadas por el equipo multiprofesional para residentes de instituciones de larga estancia para ancianos. **Método:** Revisión integrativa de la literatura realizada en octubre de 2021 por cuatro revisores de forma independiente. Para una selección de artículos utilizados como las siguientes bases de datos electrónicas: Medical Literature Analysis and Retrieval System Online (MEDLINE) a través de PubMed; Web de la ciencia; SciVerse Scopus; Literatura Latinoamericana y del Caribe en Ciencias de la Salud (LILACS) y Base de Datos de Enfermería (BDENF) a través de la Biblioteca Virtual en Salud (BVS); Biblioteca Científica Electrónica en Línea (Scielo). La definición de la pregunta orientadora de este estudio estuvo dada por la estrategia Población/Paciente/Problema - Interés - Contexto, Tiempo (PICoT): ¿Cuál es la evidencia científica disponible sobre las tecnologías utilizadas por el equipo multidisciplinario en la educación y atención a los residentes de ¿Institución de larga estancia de adultos mayores en los últimos 05 años? **Resultados:** Como tecnologías de cuidado fueron identificadas en los dos artículos que componen el corpus de análisis, presentando niveles de evidencia seis y siete. Se encontraron tecnologías educativas dirigidas a la educación de los ancianos en instituciones de larga estancia para ancianos. **Conclusión:** es

necesario desarrollar, validar y probar la aplicabilidad de tecnologías educativas y asistenciales dirigidas a un equipo multiprofesional en educación y asistencia al anciano residente en una institución de larga estancia para ancianos.

DESCRIPTORES: Instituição de Longa Permanência para Idosos; Tecnologia Educacional; Educación en Salud Sexual; Informática Médica; Enfermería.

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INTRODUCTION

The use of care and educational technologies provides quality of life, as well as care that can meet the needs of the aged person. However, it is necessary that the professionals of the multi-professional team of a NICU understand the factors involved in the aging process, as well as in institutionalization, to develop care plans that focus on the personal, social, and cultural characteristics of the aged residents¹. However, recognizing the specificity of each aged person is fundamental to thus favor independence, autonomy, and the continuity of each person's

life story/ expectations¹.

Therefore, as a way of providing care methodologies to the aged, technologies have emerged as facilitating tools in the learning process for health professionals and caregivers, since they promote a dynamic approximation of the person with the exposed content.

A technology can be understood in different ways, that is, as tools, instruments, technological apparatus, among others². Technologies of education and educational technologies (ET) are strategies and methodologies that aim to aid the formation of levels of consciousness among subjects' edu-

cational technologies and educational technologies (ET) are strategies and methodologies that aim to aid the formation of levels of consciousness among subjects³. Technologies of care are techniques, procedures, knowledge used by nurses for care³.

The technologies that emerge from praxis have the potential to transform the care for the aged, also in the context of LSIEs through the creation of practical solutions. Praxis in the development of technologies is understood as the interlocution between theory and practice in a conscious and lucid way, being revealed through the understanding of reality and its relationships⁴.

Given this context, this study aims to identify the scientific evidence available on the education and care technologies used by the multi - professional team for residents of long-term homes for the aged.

METHOD

The integrative literature review (ILR) is a method that provides the opportunity to summarize knowledge by analyzing the available evidence, enabling the association of knowledge on the subject⁵. To do so, the review was guided by the following steps: 1) definition of the guiding question of the review; 2) search and selection of primary studies; 3) data extraction; 4) critical appraisal, 5) synthesis of the review results; 6) presentation of the review⁵.

The guiding question of this study was defined through the Population/Patient/Problem - Interest - Context, Time (PICoT) strategy. To this end, the acronym "P" (population targeted) was the multiprofessional team of caregivers of residents of LSIEs; "I" (interest) was Technologies related to education and care; "C" (comparison) long-stay institutions for the aged, "O" (Outcome or result) was the use of technologies related to care and education, and "T" was represented in this question in the last five years.

Based on the above, the following research question was formulated: What is the available scientific evidence on the technologies used by the multi-professional team in the education and care of aged residents in a long-term care institution in the last 5 years?

The search and selection of primary studies occurred in the following electronic databases Medical Literature Analysis and Retrieval System Online (MEDLINE) via PubMed; Web of Science; SciVerse Scopus; Latin American and Caribbean Literature in Health Sciences (LILACS) and Database on Nursing (BDENF) via Virtual Health Library (VHL); Scientific Eletronic Library Online (Scielo). The search and selection process of the studies was carried out independently by four reviewers. The conduct is based on the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA).

The search descriptors were selected from the Descriptors in Health Sciences (DECS) and the Mesch Terms combined in sequence based on Boolean logic: AND or OR (Figure 1).

Inclusion criteria were original articles in Portuguese, English or Spanish, with a time frame of the last five years. Exclusion criteria were theses, dissertations and monographs, editorials, reflections, literature reviews (narrative, integrative, systematic, scope, meta-analysis), experience reports, as well as those that did not correspond to the theme of the study.

For this purpose, the Endnote reference manager was used for the selection of duplicate studies, so that the repeated studies were counted once. Then, the titles, abstracts, and keywords of the studies were carefully read using the Rayyan.

For the extraction of the primary studies, a word table was used to construct the table. Critical appraisal was verified by the level of evidence, which establishes six categories. The synthesis of the review results by means of a synoptic table.

RESULTS

In the first search 18,290 studies were found and after applying the inclusion and

exclusion criteria, 18,288 articles were disregarded, corresponding to 16 duplicate studies, 18,272 articles in the title and abstract identification due to not being an article or primary study, not answering the research question, not being from the languages listed in the study, not being from the study theme. Therefore, the corpus of the analysis is composed of two studies (Figure 2).

The synthesis of the review results, the interpretation of the studies, and the presentation of the knowledge synthesis of the studies eligible for the corpus of this review will be presented from the data collected in the summary table as shown in figure 3.

DISCUSSION

The care technologies that answered the research question considered the specificities of aged care in long-stay institutions: nursing diagnostic statements for institutionalized aged people and Interobserver analysis of safety practices⁶ and Interobserver analysis of safety practices and behaviors adopted by the aged to prevent falls⁷. Both nursing diagnoses and analysis of safety practices and behaviors for the aged in long-term care facilities are care technologies that have an impact on the aged's daily life, in addition to the professional practice of

Figure 1: Search strategy for the selection of primary studies on education and care technologies used by the multiprofessional team for residents of LSIEs.

Data Base	Search Strategy
Web of Science	Educational technology OR, Technology of care OR technologies OR technological development AND Aged OR elderly OR geriatrics OR, Long-term Home for the Aged AND Patient Care Team OR Nursing Team OR nursing OR nursing care OR interdisciplinary communication OR patient care team
Scopus	Educational technology OR, Technology of care OR technologies OR technological development AND Aged OR aged OR geriatrics OR, Long-term Home for the Aged AND Patient Care Team OR Nursing Team OR nursing OR nursing care OR interdisciplinary communication OR patient care team
LILACS e BDENF	Educational technology OR, Care technology OR technologies OR technology development OR aged OR geriatrics OR, Long-term care home for the aged OR nursing staff OR nursing staff OR nursing care OR interdisciplinary communication OR patient care team

Source: elaborated by the authors, 2021.

the multidisciplinary team providing care.

The implementation of these technologies requires educational actions. An example is acquiring skills through an intervention program for people with orthopedic disease with self-care deficit and demonstration of health gains developed in Portugal⁸. A program encompasses materials, educational resources through technologies that tend to facilitate teaching, learning and application in the practice of care by the professional.

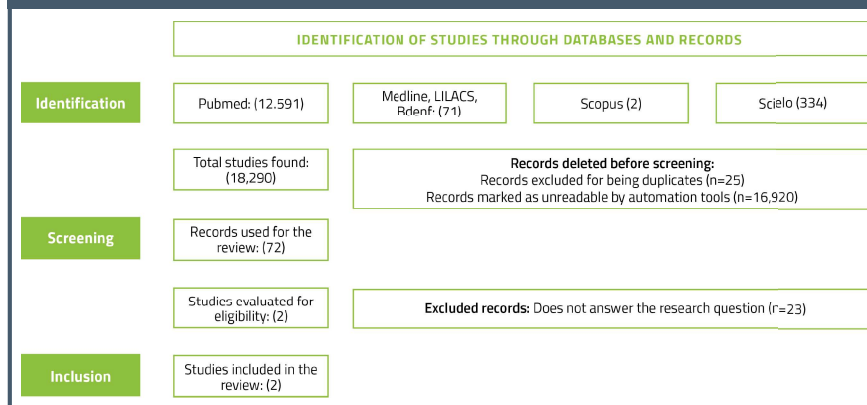
These findings corroborate the literature in the context of LSIEs that covers the development of scales and cross-cultural adaptation according to the cultural specificities of the country in which the biopsychosocial aspects of the aged resident in LSIEs will be used. Cross-cultural adaptation in several languages, being adapted and validated for German⁹ and for French the scale Quality of Life Quality of Life-Alzheimer's Disease in Nursing Homes has overall good reliability and validity to assess the quality of life of residents¹⁰.

This Quality-of-Life Quality of Life-Alzheimer's Disease was applied to 73 people with dementia living in eight nursing homes in Germany. After that, the conclusion about this is the need for the development of a user guide, including general instructions for applying instruments, as well as definitions and examples reflecting the meaning of the item¹¹. From this perspective the development of guides, manuals are nothing more than the development of educational technologies for the care and self-care of the institutionalized aged person.

In this integrative literature review study, a gap in knowledge was identified, since no primary research was found on the development, validation or applicability of educational technologies aimed at professionals who assist older people in LSIEs. From this perspective, further primary studies are needed with a focus on building, validating, and testing the applicability of new educational technologies, in addition to the possibility of adapting educational technologies from other contexts to the context of the LSIE, considering its specificities.

For this, it was possible to identify stu-

Figure 2: Flowchart of article selection on the technologies of education and care used by the multi-professional team for residents of LSIEs.



Source: elaborated by the authors, 2021.

Figure 3: Summary of primary studies on education and care technologies used by the multi-professional team for residents of LSIEs.

Title, Year, Country	Study Type / Objective	Technology developed, main results	Level of Evidence*
Nursing diagnoses for institutionalized elderly people based on Henderson's theory - 2019, Brazil	Descriptive study with the objective of. To develop nursing diagnostic statements for institutionalized elderly people	Technology of care: Nursing diagnoses for institutionalized aged people according to the Theory of Fundamental Human Needs in distinct biological/physiological, psychological, social, spiritual, and moral components.	V ¹⁶
Interobserver analysis of safety practices and behaviors adopted by elderly people to prevent falls, 2020, Portugal	Methodological study with a quantitative approach with the objective of Determine the psychometric properties of the safety practices and behaviors dimension of the Scale of Practices and Behaviors of Institutionalized Elderly People to Prevent Falls in a sample of elderly people with cognitive decline.	Care technology: Validation of Scale of Practices and Behaviors of Institutionalized Elderly People to Prevent Falls. The instrument has good reproducibility and is valid and reliable, which allows its use in clinical practice in elderly people with cognitive decline as well as in research.	VI ¹⁷

*Level I - Evidence derived from systematic reviews or meta-analyses of relevant clinical trials; Level II - Evidence derived from at least one well-designed randomized controlled trial, moderate evidence; Level III - Well-designed clinical trials without randomization; Level IV - Well designed cohort and case-control studies; Level V - Systematic review of descriptive and qualitative studies, weak evidence; Level VI - Evidence derived from a single descriptive or qualitative study; Level VII - Authoritative opinion or expert committee report.
Source: elaborated by the authors, 2021.

dies of construction, development and applicability of educational technologies aimed at the elderly, caregivers, health professionals in contexts other than the long-stay institution and, therefore, do not answer the research question such as: educational booklet, memory game¹², educational video¹³, organization of the aged person's medications, gerontotechnologies to assist in the aged person's oral and body hygiene, identification signs, organization of routines and strategies to improve accessibility and risk of falls¹⁴, between others.

The development of educational technologies in a collaborative way with the formal caregivers of the aged was carried out from needs, difficulties and interests expressed by them and pointed out the need for knowledge about aging and its developments, in addition to training to perform the professional practice. To this end, it concluded that the creation, together with the caregivers, of educational technologies, printed and digital material, contributed to the guidance and information of the care of the aged and to the decision making of the caregiver¹⁵. However, these studies were not conducted with caregivers in the context of LSIEs.

As for educational technologies for the use of professionals who assist institutionalized aged people: communication skills training module¹⁶ and to improve knowledge about the aged in the academic field, it is essential to hold awareness workshops to produce knowledge from a conceptual point of view and its applicability in different care settings¹⁴. It is necessary to relate educational technologies with the processes of training and professional practice of caregivers and the multidisciplinary team that, culturally, is not routinely considered or counted as a physical therapist, pharmacist, psychologist, social worker, occupational therapist, physical educator.

Methodological research used convergent care research guidelines and developed an educational booklet and two memory games with the purpose of assisting the gerontotechnical nursing care process with aged people with Parkinson's disease, aiming at health promotion and fall pre-

vention through these three gerontotechnologies¹². This technology was developed for the aged who attend a mutual aid group and live in the community.

A study conducted with older adults with cancer or at risk of developing cognitive deficits designed, implemented, and evaluated a communication skills training

The technologies that emerge from praxis have the potential to transform the care for the aged, also in the context of LSIEs through the creation of practical solutions.

module for health care professionals. The results showed a successful implementation of the program, positively evidencing the program, significant gains in self-efficacy, as well as significant improvement in various communication skills of these professionals with the older person¹⁶. Thus, findings in the literature converge with the need to develop educational technologies that su-

pport the improvement of the multidisciplinary team.

A multicenter study conducted in the Netherlands to assess the level of knowledge of 2,902 nurses about the aged in ten hospitals using the Knowledge of the Elderly Patient Questionnaire (KOP-Q) concluded that there is an urgent need for education programs with topics related to essential care for aged patients in the Netherlands¹⁷. Educational technologies can be developed in various forms and on different themes in the context of LSIEs and promote educational actions with the multidisciplinary team.

One study developed videos with the purpose of constructing and validating educational gerontotechnologies regarding frailty in the aged¹³. This study corroborates the literature, since the creation of videos covers other themes directed to the aged, such as memory conservation¹⁸.

After all, social support has the potential to favor active aging, and it is essential to adopt appropriate strategies that consider individual and community factors, according to a study conducted with 380 community-dwelling aged people in South Korea¹⁹.

These aspects discussed are items that subsidize the need for educational technologies focused on the use and teaching of the use of care technologies when for the use of the aged considering their specificities and the context of adaptation that requires changes in lifestyle, food, sleep, hygiene, social and family relationships. It is also necessary to re-signify the meaning of their life and death, respecting the wills of the aged. The creation of technologies that help to re-signify their life, their biography, their pains, and their joys, besides being urgent and essential, was not identified in this integrative literature review.

CONCLUSION

The scientific evidence identified shows a fragility in the use of educational and care technologies in an incipient way, requiring new primary studies with field research in the LSIEs for the development of both

educational and care technologies in a collaborative way with the target audience: the aged and the multidisciplinary team.

From this perspective, the technologies that were developed were tested with the target audience by means of anamnesis, physical examination, and application of the scale, but they were not created in a collaborative way, leading to limitations in the studies regarding usability from the perspective of the target audience, although they have been validated from the perspective of expert judges with expertise in the field of gerontology.

The development of collaborative technologies tries to help create a technology with a differentiated resolving potential. The cultural applicability and adaptation

of these technologies is also key, as cultural values differ and change some of the cultural specificities.

From this point of view, the result of this research highlights the need to expand investments in primary research, methodological research of the technological development type to explore, describe, unveil the needs and specificities of the aged resident in a long-stay institution. This also has implications for teaching as it requires raising awareness in the academic field about this issue to motivate new future professionals with a sensitive eye for the elderly and a desire to develop science for education and care in the long-stay institution.

Professional practice is also impacted when there is an appreciation of care and

the adoption of new possibilities to qualify the multidisciplinary team in caring for the aged. It is worth pointing out that technologies are made for people, and there is no better way to develop something resolute than listening to them, validating their feelings and physical, emotional, moral, ethical, cultural, environmental, and physiological needs. A person is a biography that goes far beyond the physiological or pathological conditions they may be experiencing. Therefore, it must be respected and perceived beyond an international code classification or a medical record number or a disease name. Technologies are developed, used by people with unique biographies.

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