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Exploring the use of games in palliative care: A scoping review

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Review Article

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Abstract

Objective. There has been increasing recognition of the potential of games in health; however, knowledge of their application in palliative care is lacking. Therefore, this study aimed to identify and map the available evidence on the use of games in palliative care, analyzing how research has been conducted on this topic and identifying gaps in knowledge.

Method. A scoping review was carried out. The literature search was conducted using the respective descriptors and search syntax appropriate to each of the databases searched. The review included all study types with no time limits.

Results. Of the 685 articles initially identified, 53 were included for final analysis. Several different game types were identified, with the majority of studies using role-play ($n = 29$) and card games ($n = 17$). The games analyzed were essentially aimed at empowering patients ($n = 14$), and in some cases, extended to families or caregivers, as well as to medical and nursing students. The analysis of the articles in this review resulted in two major themes: Role-playing for training in palliative care and card games to discuss end-of-life care.

Significance of results. Games allow space for the expression of emotions and promote creativity. They can be applied both in a training context, to enable health professionals to develop essential skills in palliative care, and for patients, families, and caregivers, allowing them to talk about serious things while playing.

Introduction

The use of games has increased at various levels, although this interest is not recent, and many have advocated the use of games to improve the human condition (Nacke and Deterding, 2017). In the mid-2000s, the confluence of web technologies, digital models, and location-based online games gave rise to a growing interest in an expanding area (Nacke and Deterding, 2017), resulting in an authentic Game Evolution. The evolution of games gave it another dimension — the appearance of Serious Games — designed for the main purpose other than pure entertainment. Despite its frank evolution in recent decades and close association with the idea of electronic games (Tsekleves et al., 2016), the term "Serious Games" arose before the digital age. At this level, we can find a variety of games that range from digital games, simulation, to role-play, which can be individual or multiplayer (Wattanasoontorn et al., 2013). Games bring together participants with different perspectives and from different fields, such as communication, simulation, and training. Despite these differences, authors seem to agree on the basic components of Serious Games, namely having a "serious" dimension combined with a "game" dimension (Wilkinson, 2015).

Today, Serious Games have a strong presence in society, health, and well-being, and we can see their implementation in all these areas, especially health. This has led to recent years being characterized by a growing interest in using these resources to monitor, maintain, and improve human health (Silva et al., 2021), with increased use in healthcare aimed at a variety of end-users (Sharifzadeh et al., 2020). This is seen in many systems and applications that take advantage of the benefits of a playful and enjoyable experience to provide a technology-enabled health intervention (Silva et al., 2021). Serious Games also include simulation in general, for example, training simulations for health professionals, but explicitly emphasize the added pedagogical value of fun and competition (Sharifzadeh et al., 2020).

Although some authors might consider that not all activities and contexts lend themselves equally to being gamified, it is necessary to extend the use of gamification and systematically study its individual and situational effects in different contexts (Nacke and Deterding, 2017), namely in palliative care. Palliative care can improve the quality of life for patients and their families through timely identification of health deterioration, holistic needs assessment, management of pain and other problems, and person-centered care planning (Murray et al., 2017). In addition, palliative care games can support the promotion of quality care, making it easier to understand the value of accompanying others (Alonso et al., 2018), offering an innovative

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approach to overcome reluctance and resistance in discussing uncomfortable topics such as end-of-life care and death (Radhakrishnan et al., 2019).

According to Aldridge et al. (2016), it is necessary to overcome barriers to improved education on palliative care, both for health professionals and the public, leading to greater use and earlier improved integration of palliative care services for patients.

In embracing the principles of palliative care in their practice, health professionals must address the multidimensional needs of people with health deterioration more effectively (Murray et al., 2017). Games can also bring benefits at this level, softening the boundary between people, creating a relaxed environment for patients to disclose important information about themselves, and sharing emotional messages and instructions for professionals and family members (Pon, 2010).

Despite the growing popularity of health games, no published reports discuss the use of games in palliative care. Review studies on palliative care were identified at this level, but these were aimed only at training (Pesut et al., 2014; Brighton et al., 2017; Smith et al., 2018), and not in line with our view of mapping all types of games. This initiative is the first attempt to provide a historical overview of the use of all types of games involved in palliative care. Therefore, this review aims to identify and map the available evidence on the use of games in palliative care, analyzing how research has been conducted on this topic and identifing knowledge gaps.

Methods

Review design

This scoping review study was designed according to the steps provided by Joanna Briggs Institute (Peters et al., 2017):

- define the research objective and question;
- define inclusion and exclusion criteria;
- describe research planning;
- select, extract, and map evidence;
- search, select, extract, and map evidence; and
- finally, summarize, and analyze the evidence in relation to the research objective and question.

This review was guided by the research question: Which studies refer to the use of gamification in palliative care?

Criteria for study inclusion and exclusion

All articles that met the following inclusion criteria were selected: articles exploring the use of games, namely Serious Games, board games, card games, simulation games, and role-play games, regardless of their objective, and applied in palliative care. All types of publication, regardless of design, in English, Portuguese, French, and Spanish were included. No limits were applied regarding publication date, integrating adults aged 18 or over. Articles referring to the use of games with children were excluded.

Search strategy

The search was conducted in February 2021, using the following databases of specific subjects: CINAHL® and PUBMED®, which includes MEDLINE®, PsycINFO®, SCOPUS®, and SciELO®. Special attention was paid to keywords during navigation to ensure the consistency of searches in each of the databases, constructing the appropriate phrases for each of them. In addition, the truncation and Boolean logic used in all the databases allowed the research to be enhanced by creating new variations of the same word. The respective phrases are presented in Supplementary Appendix 1. The search for additional studies was also carried out in the reference lists of all publications included in the review ("Backward citation searching").

Study selection and data extraction

The data selection was carried out by two authors independently, and disagreements were resolved by consensus with a third author to confirm the publications' eligibility. The Rayyan QCRI® platform (Web Systematic Reviews) was used in the first stages of data selection to facilitate this process. Data extraction is presented in Tables 1–3. Data extraction was completed by two of the authors and verified by the third author. Differences of opinion between the two authors regarding the inclusion or exclusion of articles were resolved through a discussion with the third author, revisiting the inclusion and exclusion criteria for the selection of studies.

Data analysis

In the first phase, the studies were selected for relevance by reading the title and summary, followed by the full reading of the studies identified, with subsequent integration of the final sample. To translate the respective stages of the identification and inclusion process of the articles, the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) checklist was used (Figure 1). All articles that met the inclusion and exclusion criteria, or had abstracts with insufficient information available to determine if they met inclusion criteria, were moved to the full-text eligibility review phase. In this step, two of the reviewers separately evaluated 84 articles. A third reviewer resolved all discrepancies between the two reviewers in this phase. In total, 53 articles met the eligibility criteria. In order to systematize the information and facilitate the reading of the results, these were compiled in descriptive tables previously prepared by the researchers and coded as shown in Tables 1–3.

The methodological evaluation of the studies was carried out by two authors independently, using the different standardized assessment tools of the Joanna Brigg's Institute (JBI, 2020) for each type of study (Table 2). However, it was not the aim of the authors to eliminate studies based on these results. The rating level of each article is reported by study type; however, given the purpose of the review, none of the studies were eliminated based on this assessment.

Results

After duplicates were removed, the search resulted in 685 articles (Figure 1). Based on title and summary, 601 articles were excluded because they did not meet the objectives of this scoping review. The full text was read to assess eligibility for 84 articles, and 53 were included for the final analysis.

Table 1 summarizes the characteristics of the 53 studies included in the review, with regard to the authors, year, country, objectives, and study design.

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Table 1. Characteristics of studies in the scoping review ($n = 53$)

Code	Authors (year)	Country	Aim of study	Study design	Outcomes
E1	Lankarani-Fard et al. (2010)	EUA	Assess the feasibility of the "Go Wish" card game in people with advanced disease.	Quantitative studies-cross-sectional designs	The results suggest that it is feasible to use Go Wish, even in the chaotic inpatient environment, to obtain an accurate representation of the patient's care goals in a time-efficient manner.
E2	Pon (2010)	China	Identify the benefits of using the Game: "My Wonderful life."	Qualitative study	The game demonstrated the following advantages reported by patients: leaving a legacy; prepare your family and yourself for the end of life; value yourself and achievements; sharing feelings, appreciation, and concerns; and distractions of pain and negative thoughts.
E3	Baile and Walters (2013)	EUA	Demonstrate the use of role-play exercises as facilitators of communication to face the challenge of discussing the transition to palliative care with the patient and family.	Mixed-method study	The results demonstrate that these strategies are facilitators because they help students understand and articulate the hidden feelings of fear and loss behind the family's emotional state.
E4	Berger et al. (2014)	France	Describe an approach to the continuous training of health professionals in palliative care through a card game "Who wants to win the 'WHY' QUESTIONS?."	Qualitative study	The game demonstrates the need to question ethics in the daily life of end-of-life care in order to restore the meaning of care(s).
E5	Charlton (1993)	New Zealand	Assess whether Role play is a useful tool to develop communication skills in Palliative Medicine.	Quasi-experimental study	The training stimulated sensitivity and empathy and demonstrated how to counsel patients and relatives. It cannot be determined that it was only the use of role-play that was responsible for the perceived improvements in skills.
E6	Charmillot and Gobron (2017)	Switzerland	Determine which is the most suitable environment for teaching relational skills in palliative care and understand the impact of the game "Serious Game—End of Life (SG-EoL)."	Quasi-experimental study	The results showed great interest and pleasure in using this game. Students report being able to mobilize knowledge already acquired, as well as awareness of their own emotional charge in view of the perspective of the other's death.
E7	Coppola and Strohmetz (2016)	EUA	Demonstrate the use of the game "The Newlywed Game" to teach decision-making at the end of life.	Randomized controlled study	The resources used are original tools that helped teachers fulfill their leadership role in training future clinicians and researchers to promote the acquisition of skills in communication and decision-making.
E8	Delgado-Guay et al. (2016)	Germany	Establish the wishes of people at the end of their lives and compare their preference between using the card game and the wish list.	Randomized controlled trial	The card game is a simple tool to start discussions about end-of-life people's wishes, it is preferable to the wish list, and did not worsen anxiety.
E9	DeVita et al. (2003)	EUA	Describe the 2-year experience in teaching palliative care to intensive care grant recipients.	Quantitative studies-cross-sectional designs	The authors concluded that Basic knowledge about palliative care is low. Moreover, training in palliative care for intensive care fellows is feasible.

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Table 1. (*Continued.*)

Code	Authors (year)	Country	Aim of study	Study design	Outcomes
E10	Betcher (2010)	EUA	Describe an educational program to help nurses communicate effectively with the patient and family in palliative care.	Quantitative studies-cross-sectional designs	Authors indicated nurses' increased level of confidence in the ability to convey a caring attitude and develop a caring relationship through communication.
E11	Donovan et al. (2003)	England	Reflect on a communication skills training program and qualified emotional support for high-quality care in oncology and palliative care settings.	Quantitative studies-cross-sectional designs	Participants' comments refer to the structure of the program as facilitators. Most participants initially felt anxious about the role play, but in the end, felt it was an effective way to learn.
E12	Erickson et al. (2014)	EUA	Evaluate the effectiveness of an interprofessional workshop with regard to teamwork and communication in end-of-life situations.	Quasi-experimental study	After the workshop, both groups reported more positive attitudes toward teamwork, but a mixed picture of confidence in communication.
E13	Menkin (2007)	EUA	Describe the development of the card game "Go wish" as an advanced care planning tool in palliative care.	Quantitative studies-cross-sectional designs	Go Wish cards have been beneficial in promoting conversations between patients, their loved ones, and their healthcare providers.
E14	Faulkner (1994)	England	Describe how simulation is useful for the development of communication skills in oncology and palliative care.	Qualitative study	The strategy for improving interactive skills is effective and cost-effective. The characters who play simulators seem to find the experience very rewarding.
E15	Finlay et al. (1995)	England	Describe new teaching and assessment of communication skills techniques in palliative medicine.	Quasi-experimental study	The simulated patient interview is a useful teaching and assessment tool.
E16	Grudzen et al. (2016)	EUA	Develop communication skills of intensive care physicians to transmit bad news and talk about the goals of care, to patients with advanced progressive disease and their families.	Quantitative studies-cross-sectional designs	Educational interventions that include attention to physicians' emotional responses to their patients can increase self-awareness and lead to effective coping strategies that do not involve withdrawal or evasion.
E17	Fischer and Arnold (2007)	EUA	Develop internal medicine interns' skills to communicate bad news and discuss end-of-life care goals.	Quasi-experimental study	Although most residents at the beginning of the workshop indicate discomfort with role-playing, they consider the strategy acceptable to improve trust and knowledge.
E18	Hamilton et al. (2014)	EUA	Develop communication skills of nurses and social workers in palliative care.	Randomized experimental study	The study results supported its effectiveness in teaching communication skills in palliative care. However, remote methods resulted in a superior improvement than role-playing. Many commented that the face-to-face reenactments increased their anxiety level.
E19	Harder and Turner (2020)	EUA	Describe an innovative simulation-based experience without a dummy. Using a ShadowBox, an approach used to promote decision-making using videos to communicate bad news in palliative care.	Quantitative studies-cross-sectional designs	The authors are currently in the process of evaluating this technique as a means of developing comfort in nursing students to communicate with palliative patients.

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Table 1. (*Continued.*)

Code	Authors (year)	Country	Aim of study	Study design	Outcomes
E20	Hawkins and Tredgett (2016)	England	Explore the experiences of medical students in communicating with patients and their caregivers about death and passing away, and assess whether the use of high-fidelity simulation has improved student confidence.	Qualitative study	This study suggested that the strategies can complement training communication skills about death and dying. The results revealed the participants' lack of experience to discuss death and dying, stress about learning, and realism in the dramatization and simulation of the scenarios.
E21	Hudnall and Kopecky (2020)	EUA	Present students to the concept of empathy as a skill and provide a platform for practising empathy statements in a low-risk environment before taking responsibility for caring for the sick.	Quantitative studies-cross-sectional designs	Students demonstrated immediate growth in naming emotions, reflecting understanding and respect for emotional expression and supporting and exploring emotional content. The game-based learning tool is low cost and feasible to implement.
E22	Ichikawa et al. (2016)	Japan	Reduce the difficulties experienced by patients and families in terms of care when returning home in palliative situations.	Quantitative studies-cross-sectional designs	Most participants agreed that the strategy could contribute to reducing anxiety, suggesting that it might be possible to simulate the experience of the patient and family.
E23	Jackson and Back (2011)	EUA	Describe an approach to teaching communication skills to students through the use of different types of role play, feedback, and debriefing.	Quantitative studies-cross-sectional designs	The authors state that those who use role-play should help students establish realistic goals and know when and how to provide feedback, allowing for a deepening of skills and promotion of self-awareness. The challenge is to do this in a way that does not cause too much anxiety for the student.
E24	Kaplan (2016)	EUA	Facilitate discussions between family, nursing staff, and other caregivers about end-of-life care planning.	Randomized clinical trial	Most patients preferred the Go Wish game to the wish list to discuss end-of-life issues.
E25	Kenny (2003)	EUA	Develop skills to apply thoughtful thinking in clinical practice in palliative care through the six thinking hats created by Bono (1995).	Case study	The six hats reflection game is a useful tool that helps to reduce stress and allows you to think constructively about decision-making situations and ethical situations.
E26	Kopp and Hanson (2011)	EUA	Describe the use of simulation and the use of board games as an innovative teaching strategy, to develop skills of students in the Bachelor of Nursing course, in caring for the person and family at the end of his/her life.	Quantitative studies-cross-sectional designs	The game allowed them to develop awareness of the challenges and issues related to a terminal illness. Most students thought they could successfully transfer the insights gained from this game simulation to real clinical situations.
E27	Li et al. (2020)	China	To assess end-of-life care preferences among Chinese cancer patients using the Heart to Heart Card Game (HHCG).	Quantitative studies-cross-sectional designs	The HHCG can be used as a communication tool to encourage discussions about end-of-life care between cancer patients and healthcare professionals.
E28	Alonso et al. (2018)	Spain	To evaluate the effect of a game-based training program in	Quasi-experimental study	The use of games as a teaching tool in the classroom context

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Table 1. (*Continued.*)

Code	Authors (year)	Country	Aim of study	Study design	Outcomes
			the classroom with nursing students in the palliative care subject.		helped students recognize the fear generated by the proximity of death in the patient and family and the student.
E29	Lubimir and Wen (2011)	EUA	Describe a communication workshop developed and tested to help prepare future doctors to use a culturally sensitive approach to end-of-life patient-centered care.	Quantitative studies-cross-sectional designs	Student ratings reveal an extremely favorable response, with high scores for overall quality, practical value, and appropriateness for training level.
E30	Pazart et al. (2011)	France	Facilitate clinicians' decision-making regarding the treatment of an acute, life-threatening complication that occurs in patients with Alzheimer's at the end of life.	Quantitative studies-cross-sectional designs	The card game facilitated the expression of each participant, regardless of their position within the group, even in the presence of a doctor or department head.
E31	Pekmezaris et al. (2011)	EUA	Improve the communication skills of doctors with patients and family at the end of life.	Randomized clinical trial	The intervention group showed significant changes in attitude and a greater degree of self-assessed competence in providing end-of-life care.
E32	Radhakrishnan et al. (2017)	EUA	Evaluate the effectiveness of a conversation game intervention to increase the involvement of South Asian American Indians (SAIAs) in anticipated care planning behaviors.	Mixed methods	Participants who played the conversation game had a relatively high-performance rate of advance care planning behaviors 3 months after the intervention.
E33	Roth et al. (2019)	Germany	Create a game that helps to educate on the topic of death.	Quantitative studies-cross-sectional designs	The authors state that there is great potential for the application of this game, especially in the education of medicine and psychology students, continuing education of physicians, especially in palliative care.
E34	Shannon et al. (2011)	EUA	Describe a workshop with communication tools for end-of-life care conversations.	Qualitative study	Participants affirmed the usefulness of the training for gaining additional information from patients and families in challenging conversations.
E35	Skye et al. (2014)	EUA	Investigate the use of interactive theatre, with role-playing exercises involving professional actors, in exploring bad news and end-of-life problems.	Mixed methods	The use of professional actors during role-play exercises has heightened realism and pushes students out of their own "comfort zones" in ways that can come closer to real-life clinical situations.
E36	Subramanian and Sathanandan (2016)	England	Provide experience of realistic communication-based scenarios in a structured environment to improve end-of-life communication.	Quantitative studies-cross-sectional designs	Participants felt the content was useful, their skills and confidence had increased.
E37	Tanzi et al. (2020)	Italy	Describe the stages of developing a "Teach to Talk" program to train communication skills in palliative care.	Mixed methods	Physicians interviewed highlighted that the educational values of roleplay and videos were greater than the theoretical resources. Two physicians expressed some discomfort in participating in the role-play, emphasizing a feeling of embarrassment.

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Table 1. (*Continued.*)

Code	Authors (year)	Country	Aim of study	Study design	Outcomes
E38	Thrane (2020)	EUA	Describe the development of an online course for nursing students in palliative and end-of-life care.	Qualitative study	The serious game involving individual dramatization allowed for a deeper dive playing an important role in their learning.
E39	Torke et al. (2004)	EUA	Describe a workshop to train third-year medical students in developing skills in end-of-life care.	Quantitative studies-cross-sectional designs	The ratings reflected that most respondents felt that the workshop improved their ability to deal with patients.
E40	Van Scoy et al. (2019)	EUA	Determine whether the use of this course was effective in increasing students' confidence in conversations about early care planning with patients, and whether the end-of-life conversation using the game had an impact on student learning.	Mixed methods	The end-of-life chat game proved to be a valuable curriculum innovation that provided a safe space for students to have sensitive discussions while providing a starting point for practicing how to discuss the end of life.
E41	Van Scoy et al. (2017a)	EUA	Assess whether playing a conversation game could motivate participants to get involved in early end-of-life care planning.	Mixed methods	This study found that individuals who played a conversational game had high-performance rates of early end-of-life care planning behaviors after 3 months.
E42	Van Scoy et al. (2017b)	EUA	Assess whether an end-of-life card game is acceptable and effective for performing early end-of-life care planning in patients with chronic illnesses and/or their caregivers when applied in a community setting.	Mixed methods	Both patients and caregivers reported that the game format is sensitive, comfortable, and pleasant for sensitive topics related to the end of life, and that the game made conversation less difficult.
E43	Van Scoy et al. (2020a)	EUA	Explore the values and beliefs related to early planning for end-of-life care in diverse African American communities in the USA and then the perceived value of an end-of-life conversation game.	Mixed methods	The results highlight how the gaming experience emphasized the need and value of early end-of-life care planning.
E44	Van Scoy et al. (2020b)	EUA	Investigate whether an end-of-life conversational game motivates African American participants to be involved in early end-of-life care planning and to assess whether the game is well received and approved.	Mixed-methods	The end-of-life chat game was well received and was associated with high rates of early end-of-life care planning.
E45	Van Scoy et al. (2016a)	EUA	Describe the content and clinical relevance of conversations that occur during an end-of-life game.	Qualitative study	The results show that the game is well received by players, allowing individuals to be involved in a meaningful end-of-life communication.
E46	Van Scoy et al. (2016b)	EUA	Test the feasibility of using a conversational game to engage individual discussions over end-of-life.	Mixed-methods	There were no negative effects on emotional state immediately after the game. The game experience was a positive, satisfying and enjoyable activity for the participants.
E47	Van Scoy et al. (2018)	EUA	Determine whether to play an end-of-life game increases the training chaplain's confidence to discuss end-of-life issues with patients.	Mixed methods	They report that an end-of-life chat game is a useful tool that can increase the training chaplain's confidence to initiate life discussions with patients.

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Table 1. (*Continued.*)

Code	Authors (year)	Country	Aim of study	Study design	Outcomes
E48	Bodine and Miller (2017)	EUA	Determine which of the educational approaches was most effective in increasing emergency nurses' knowledge about end-of-life care.	Randomized clinical trial	Participants reported in the course evaluations that they enjoyed using role-play and working with the SimMan simulator. However, there was no significant difference between the groups.
E49	Coyle et al. (2015)	EUA	Adapt an end-of-life care communication skills training module, originally developed for oncologists, for oncology nurses and assess participants' confidence in the use of learned communication skills and their satisfaction with the module.	Quantitative studies-cross-sectional designs	Results indicated that the strategies significantly increased nurses' confidence in discussing death, dying, and end-of-life care goals, and video feedback was helpful.
E50	Fluharty et al. (2012)	EUA	Assess knowledge, self-confidence levels, and self-reported communication skills in the care of an end-of-life patient, as well as satisfaction with the high-fidelity simulation.	Quasi-experimental study	Students showed a significant increase of knowledge, regardless of their role in role-play and high self-reported levels of self-confidence, communication skills, and satisfaction with the pedagogical approach.
E51	Gillan et al. (2013a)	Australia	Discuss the qualitative results obtained in student assessments after an interprofessional workshop on end-of-life care.	Mixed methods	The use of experienced and talented actors as family members allowed emotions and feelings to be explored, which will ultimately help students in practice.
E52	Gillan et al. (2013b)	Australia	Describe the development and implementation of end-of-life care simulation in a group of 3rd year nursing students.	Mixed methods	Assessments revealed that the majority of students found the learning tools valuable in preparing for end-of-life care.
E53	Pernar et al. (2012)	EUA	Describe an effective intervention for training palliative care general surgery residents.	Quantitative studies-cross-sectional designs	The results reveal changes in attitudes and knowledge of the principles of palliative care, and that a single teaching session is a useful intervention.

Overview

As shown in Figure 2, most studies were conducted in the USA ($n = 35$), followed by England with five studies, Germany, France, Australia, and China with two studies each, and Spain, Switzerland, Japan, New Zealand, and Italy with one study each. The first publication was in 1993, with the largest increase in publications during the last decade. As for methodology, the studies present different methodologies, with the most frequent being quantitative studies of the descriptive type or mixed-methods studies. Table 2 presents the methodological evaluation scores of each study, according to the respective scales, with the exception of studies E10, E19, E23, and E33, which did not present results in the articles.

As previously mentioned, given the purpose of this review, none of the studies were excluded based on this assessment. However, we can observe that most studies have low scores, with none receiving scores for all items. Of the 53 studies, only 6 were randomized controlled trials (E7, E8, E18, E24, E31, E48), but with limitations due to the adequacy of baseline similarity of the groups and blinding of participants, evaluators, and results.

Table 3 summarizes studies presenting game type, recipients, game objective, intervention time, and game evaluation. The most frequent game type used was role-playing ($n = 29$), followed by card games ($n = 17$). The games were principally aimed at patients ($n = 14$), and in some cases extended to families (E24) or caregivers (E42), as well as medical students ($n = 10$) and nurses ($n = 8$). The sample sizes ranged from 5 to 451, with a total of 4,324 participants. Some studies did not reference sample size. Concerning the games' objectives, most focused on training ($N = 40$). The intervention time ranged from 15 min to 1 year, and some studies did not specify this. The methodologies used to assess the games were very diverse, and in some studies were even absent (E10, E19, E23, E33). Nonetheless, the majority used pre- and post-test mechanisms ($n = 19$). Regarding the evaluation of the results in the studies, all refer to advantages with the application of different strategies. Only study E48 reported that no significant differences were found between the groups, despite the

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Table 2. Quality appraisal result

Study	Code study															
Quantitative studies-cross-sectional designs	E1	E9	E9	E11	E13	E16	E21	E22	E26	E27	E29	E30	E36	E39	E49	E53
Appraisal item																
(1) Were the criteria for inclusion in the sample clearly defined?	√	0	0	0	X	√	X	√	x	√	x	√	x	√	√	√
(2) Were the study subjects and the setting described in detail?	√	√	√	√	0	√	√	√	√	√	√	√	√	√	√	√
(3) Was the exposure measured in a valid and reliable way?	√	√	√	√	√	0	0	√	x	x	x	x	√	0	√	√
(4) Were objective, standard criteria used for measurement of the condition?	√	0	0	√	√	0	√	0	0	√	√	√	√	√	√	√
(5) Were confounding factors identified?	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
(6) Were strategies to deal with confounding factors stated?	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
(7) Were the outcomes measured in a valid and reliable way?	√	√	√	0	0	X	√	√	√	√	√	0	√	√	√	√
(8) Was appropriate statistical analysis used?	√	√	√	0	0	X	√	√	√	√	√	0	√	√	√	√
Quasi-experimental studies	E5	E6	E12	E15	E17	E28	E50									
Appraisal item																
(1) Is it clear in the study what is the “cause” and what is the “effect”?	0	0	√	√	√	√	√									
(2) Were the participants included in any comparisons similar?	0	0	0	0	√	√	√									
(3) Were the participants included in any comparisons receiving similar treatment, other than the exposure or intervention of interest?	X	X	X	0	√	√	0									
(4) Was there a control group?	X	X	X	X	X	X	X									
(5) Were there multiple measurements of the outcome both pre and post the intervention/ exposure?	√	√	√	X	√	√	√									
(6) Was follow-up complete and if not, were differences between groups in terms of their follow-up adequately described and analyzed?	√	0	0	√	√	√	√									
(7) Were the outcomes of participants included in any comparisons measured in the same way?	X	X	√	√	√	√	√									
(8) Were outcomes measured in a reliable way?	√	√	√	√	√	√	√									
(9) Was appropriate statistical analysis used?	√	√	√	√	√	√	√									

(*Continued*)

Table 2. (*Continued.*)

Study	Code study					
Randomized controlled trials	E7	E8	E18	E24	E31	E48
Appraisal item						
(1) Was true randomization used for assignment of participants to treatment groups?	√	√	√	0	√	√
(2) Was allocation to treatment groups concealed?	0	√	√	X	0	√
(3) Were treatment groups similar at the baseline?	0	0	0	0	√	√
(4) Were participants blind to treatment assignment?	0	√	0	0	0	0
(5) Were those delivering treatment blind to treatment assignment?	0	0	0	0	X	X
(6) Were outcomes assessors blind to treatment assignment?	0	0	0	0	X	X
(7) Were treatment groups treated identically other than the intervention of interest?	√	√	X	X	√	√
(8) Was follow-up complete and if not, were differences between groups in terms of their follow-up adequately described and analyzed?	√	√	√	√	√	√
(9) Were participants analyzed in the groups to which they were randomized?	√	√	√	√	√	√
(10) Were outcomes measured in the same way for treatment groups?	√	√	√	√	√	√
(11) Were outcomes measured in a reliable way?	X	√	√	√	√	√
(12) Was appropriate statistical analysis used?	√	√	√	√	√	√
(13) Was the trial design appropriate, and any deviations from the standard RCT design (individual randomization, parallel groups) accounted for in the conduct and analysis of the trial?	√	√	X	X	X	X
Case study reports	E25					
Appraisal item						
(1) Were patient's demographic characteristics clearly described?	√					
(2) Was the patient's history clearly described and presented as a timeline?	√					
(3) Was the current clinical condition of the patient on presentation clearly described?	0					
(4) Were diagnostic tests or assessment methods and the results clearly described?	0					

(5) Was the intervention(s) or treatment procedure(s) clearly described?	√												
(6) Was the post-intervention clinical condition clearly described?	√												
(7) Were adverse events (harms) or unanticipated events identified and described?	X												
(8) Does the case report provide takeaway lessons?	√												
Qualitative studies	E2	E4	E14	E20	E34	E38	E45						
Appraisal item													
(1) Is there congruity between the stated philosophical perspective and the research methodology?	X	X	X	0	X	X	X						
(2) Is there congruity between the research methodology and the research question or objectives?	√	√	√	√	√	0	√						
(3) Is there congruity between the research methodology and the methods used to collect data?	√	√	√	√	√	0	√						
(4) Is there congruity between the research methodology and the representation and analysis of data?	X	√	X	√	√	√	√						
(5) Is there congruity between the research methodology and the interpretation of results?	√	√	0	√	0	√	√						
(6) Is there a statement locating the researcher culturally or theoretically?	X	X	X	X	X	X	X						
(7) Is the influence of the researcher on the research, and vice versa, addressed?	X	X	X	X	X	X	X						
(8) Are participants, and their voices, adequately represented?	X	X	0	√	√	0	√						
(9) Is the research ethical according to current criteria or for recent studies, and is there evidence of ethical approval by an appropriate body?	X	√	√	√	X	X	√						
(10) Do the conclusions drawn in the research report flow from the analysis or interpretation of the data?	√	√	√	√	√	0	√						
Mixed-methods studies	E3	E32	E35	E37	E40	E41	E42	E43	E44	E46	E47	E51	E52
Qualitative appraisal items													
(1) Is there congruity between the stated philosophical perspective and the research methodology?	X	√	X	X	X	0	X	X	X	0	X	X	X

(*Continued*)

Table 2. (*Continued.*)

Study	Code study												
(2) Is there congruity between the research methodology and the research question or objectives?	√	√	√	√	√	√	√	√	√	√	√	√	√
(3) Is there congruity between the research methodology and the methods used to collect data?	X	√	√	√	√	√	√	√	√	√	√	√	√
(4) Is there congruity between the research methodology and the representation and analysis of data?	X	√	√	√	√	√	√	√	√	√	√	√	√
(5) Is there congruity between the research methodology and the interpretation of results?	X	√	√	√	√	√	√	√	√	√	√	√	√
(6) Is there a statement locating the researcher culturally or theoretically?	X	X	X	X	X	X	X	X	X	X	X	X	X
(7) Is the influence of the researcher on the research, and vice versa, addressed?	X	X	X	X	X	X	X	X	X	X	X	X	X
(8) Are participants, and their voices, adequately represented?	X	√	√	√	√	√	X	X	X	X	X	X	X
(9) Is the research ethical according to current criteria or for recent studies, and is there evidence?	√	√	√	√	√	√	√	√	√	√	√	√	√
(10) Do the conclusions drawn in the research report flow from the analysis, or interpretation, of the data?	√	√	√	√	√	√	√	√	√	√	√	√	√
Quantitative appraisal items													
(1) Were the criteria for inclusion in the sample clearly defined?	X	√	√	0	0	0	0	X	X	X	0	0	√
(2) Were the study subjects and the setting described in detail?	√	√	√	√	√	√	√	√	√	√	√	√	√
(3) Was the exposure measured in a valid and reliable way?	√	√	√	√	√	√	√	√	√	√	√	√	√
(4) Were objective, standard criteria used for measurement of the condition?	√	√	√	√	√	√	√	√	√	√	√	√	√
(5) Were confounding factors identified?	X	X	X	X	X	X	X	X	X	X	X	X	X
(6) Were strategies to deal with confounding factors stated?	X	X	X	X	X	X	X	X	X	X	X	X	X
(7) Were the outcomes measured in a valid and reliable way?	√	√	√	√	√	√	√	√	√	√	√	√	√
(8) Was appropriate statistical analysis used?	√	√	√	√	√	√	√	√	√	√	√	√	√

X: no, √: yes, 0: unclear, studies without evaluation: 10, 19, 23, 33.

Table 3. Games characteristics

Code	Type of game	Recipients	*N*	Game objective	Intervention time	Game evaluation
E1	Card game	Patients	33	Discuss end-of-life and care goals	6–45 min	Most frequently sorted cards
E2	Board game	Patients	5	Communicate and discuss end-of-life concerns	60–90 min	Interview about positive aspects, difficulties, and learning with the game, after intervention
E3	Role-playing	Medical students	14	End-of-life communication training	3 h	Quantitative and qualitative program evaluation, after intervention
E4	Card game	Health professionals	-	Training professionals on communication in palliative care	3 days	Qualitative evaluation of the game, after intervention
E5	Role-playing	Doctors and medical students	11 + 23	To teach palliative medicine	3 h	Pre- and post-training questionnaire on communication skills, assessment, and comparison of teaching strategies
E6	Digital game	Nursing students	50	Training on end-of-life relational skills	1 h	Online questionnaire on developing assessment skills and usability
E7	Role-playing	Medical students	100	Training on end-of-life decision-making	-	Proactivity assessment, two questions on involvement with the topic and activity, and pre- and post-test on confidence in decision-making ability
E8	Card game	Patients	100	Discuss end-of-life and care goals	-	Pre- and post-test Anxiety Inventory Scale, Tool Preference Questionnaire, and most frequently sorted cards
E9	Role-playing	Doctors	35	Training on palliative care	1 year	Pre- and post-test of Knowledge, attitudes, perception of the ability to perform tasks associated with the end of life
E10	Role-playing	Nurses	-	Training on communication in palliative care	-	Not mentioned
E11	Role-playing	Health professionals	-	Training on communication in palliative care	4 days planned in 3 months	Written evaluation of the program after the intervention
E12	Role-playing	Nursing and medical students	97 + 118	Interprofessional training to improve communication and end-of-life care	90 min. Monthly for a year	Pre- and post-test Attitudes toward doctor–nurse collaboration, attitudes towards teamwork, and self-efficacy for communication in difficult situations
E13	Card game	Patients	-	Discuss end-of-life care	-	Description of case examples ($n = 7$)
E14	Role-playing	Health professionals	-	Training on communication skills in cancer disease and palliative care	-	Interviews and simulations were recorded, transcribed, and evaluated
E15	Role-playing	Doctors	96	Assessment of communication skills in palliative medicine	-	Evaluation grid created by the examiner and the patient (actor) during role-play
E16	Role-playing	Doctors	9 Trainers	Training on communication and care goals in critical illnesses	1 day	Direct feedback on performance by actors, the facilitating teacher, and other participants

(*Continued*)

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Table 3. (*Continued.*)

Code	Type of game	Recipients	*N*	Game objective	Intervention time	Game evaluation
E17	Role-playing	Medical students	44	Training on delivering bad news and discussing end-of-life care goals	3 h	Pre- and post-test Scale to measure self-reported knowledge, attitudes, and confidence
E18	Role-playing	Nurses and social workers	161 + 68	Training on communication in palliative care	2 years	Questionnaire on program evaluation and role-play performance evaluation
E19	Role-playing	Nursing students	120	Promote decision-making to communicate bad news in palliative care	6 months	No evaluation
E20	Role-playing	Medical students	7	Training on communication skills regarding death and dying	2 months	Interview evaluation through recorded and transcribed audio
E21	Card game	Nursing and medical students	35	Develop communication and empathy skills	30–60 min	Rating scale of change in pre- and post-game scores
E22	Role-playing	Doctors, nurses, and pharmacists	87 + 26 + 5	Training for family conferences on palliative care	3 years	Questionnaire to measure experience and self-fulfillment, after the session.
E23	Role-playing	Doctors	-	Communication skills training	Not mentioned	Not mentioned
E24	Card game	Patients and family members	100	Discuss end-of-life and care goals	-	Most frequently sorted cards
E25	Thinking game	Nursing students	-	Support critical thinking and reflection in palliative care	-	Open questions for reflection on the use of the game
E26	Board game	Nursing students	-	Prepare students to provide end-of-life care	3 h	Strategy evaluation, answering two questions with a point of 5 Likert-type scale
E27	Card game	Patients	40	Discuss end-of-life care preferences	2 months	Most frequently sorted cards e-card game rating scale
E28	Experimental games	Nursing students	101	Prepare students to integrate the theory and the experiences related to grief	2 h	Pre- and post-test *Ad hoc* questionnaire and fear of death scale
E29	Role-playing	Medical students	36	Training for end-of-life communication	-	Program evaluation questionnaire
E30	Card game	Patients	-	Discuss treatment decision-making at the end of life	-	Most frequently sorted cards
E31	Role-playing	Doctors	77 + control 73	Communication training and end-of-life training	6 12-h sessions	Pre- and post-test Self-confidence scale and attitude toward death scale
E32	Card games	Patients	47 non-sick individuals	Discuss end-of-life issues	12 for 6 days	Pre- and post-test Behavior scales and engagement in advanced care planning. Game and focus group satisfaction scale
E33	Virtual serious game	Medical and psychology students, patients, and family members	-	Training on the five stages of grief	-	No evaluation
E34	Role-playing	Nurses	78		90 min	

(*Continued*)

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Table 3. (*Continued.*)

Code	Type of game	Recipients	*N*	Game objective	Intervention time	Game evaluation
				Communication training in end-of-life care		Open questions to assess developed skills and prior competences
E35	Role-playing	Medical students	451	Develop skills to deliver bad news	-	Evaluation with a questionnaire and open questions about the program
E36	Role-playing	Medical students	36	End of life communication training	4 afternoons	Post-course evaluation with questions using a Likert-type scale
E37	Role-playing	Doctors	19	Training to improve communication skills	6–10 weeks	Semi-structured questionnaire on the perceived usefulness of the program and interview on difficulties
E38	Serious game	Nursing students	-	Training on the practice of difficult conversations in palliative care	14 weeks	Reflective essay describing your reactions to the game
E39	Role-playing	Medical students	108	Training on end-of-life communication skills	Half a day	Assessment questionnaire after training and 6 months later
E40	Card game	Medical students	149	Training on early care planning	2 h	Pre- and post-test Scale to measure confidence in end-of-life conversations Questions about the effect of the game in the preparation of the theme and focus group
E41	Card game	Patients	68 healthy volunteers	Discuss early care planning	2 h	Pre-test, post-test, and 3 months later Scales on stage of change, decision balance, and change processes Game experience questionnaire and focus group
E42	Card game	Patients and caregivers	49+44	Discuss early care planning	3 h	Pre-test, post-test, and 3 months later Quantitative questionnaires and qualitative interviews with focus groups
E43	Card game	Patients	380	Discuss early care planning	-	Pre- and post-test Scale on research of values and beliefs
E44	Card game	Patients	220	Discuss early care planning	60 min	Pre-test, post-test, and 3–11 months later In-game conversation satisfaction rating, scale on conversation realism, and game recommendation
E45	Card game	Patients	68 healthy volunteers	Discuss death and dying	2 h	Recorded and analyzed sessions
E46	Card game	Patients	70 healthy volunteers	Discuss end-of-life values, wishes, and beliefs	2–3 h	Pre- and post-test Scale on emotional affection, perceived relational closeness with other players, and focus group
E47	Card game	Chaplains	23	Build confidence to discuss end-of-life issues	2 h	Pre- and post-test Emotional affection scale and trust scale on end-of-life conversations. Individual interview after 1 week
E48	Role-playing	Nurses	52	End-of-life skill training	3 8-h lectures	

(*Continued*)

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Table 3. (*Continued.*)

Code	Type of game	Recipients	*N*	Game objective	Intervention time	Game evaluation
						Pre- and post-test End-of-life Nursing Education Test Scale
E49	Role-playing	Nurses	247	Training to discuss death and end-of-life goals	90 min	Pre- and post-test Assessment of confidence in discussing death, dying, and end-of-life goals, and overall satisfaction with the module
E50	Role-playing	Nursing students	370	End-of-life simulation training	1 h	Pre- and post-test Scale on knowledge related to care at the end of life, self-confidence in care, assessment of end-of-life communication, and satisfaction with the method
E51	Role-playing	Nursing, Social Work, Medicine, and Pharmacy Students	15	Interprofessional training in end-of-life care	15 min	Debriefing was used to understand the student's experiences. Evaluation questionnaire that included qualitative and quantitative answers
E52	Role-playing	Nursing students	120	Training in end-of-life care	-	Post-simulation evaluation survey that included qualitative and quantitative answers
E53	Role-playing	Doctors	22	Training for training in palliative care	2 h	Questionnaire to measure attitudes and knowledge about palliative care in surgery

positive appreciation of the program. On the other hand, some studies mention participants' discomfort with the use of role-play representation (E11, E17, E20, E35, E37), despite the positive impact of the intervention.

Games characteristics

The analysis of the games included in this review resulted in two major themes: the use of role-playing for training in palliative care and the use of card games to discuss end-of-life care. Although some authors used other games [e.g., board games (E2, E26), Serious Games, and digital games (E6, E25, E28, E33, E38)], these had less expression.

Of the 53 articles, 29 used role-plays, mostly to develop communication skills and for planning end-of-life care. In this context, the use of role-play mainly was addressed to health professionals ($n = 19$), namely physicians (E9, E15, E16, E23, E31, E37, E53), nurses (E10, E34, E48, E49), or several other professions (E11, E14, E22). Some were also aimed at students in their training processes ($n = 10$): in medicine (E3, E5, E7, E17, E20, E29, E35, E36, E39), in nursing (E19, E50, E52), or other (E12, E51). However, in the context of palliative care, its objective was mostly to develop communication skills at the end of life (E3, E10, E11, E12, E14, E15, E16, E18, E20, E23, E29, E31, E34, E36, E37, E39). Other objectives included training in palliative care (E5, E9, E48, E53), training in decision-making at the end of life (E7, E19, E31; E34, E49, E50, E51, E52), care goals (E16, E17), training on how to break bad news (E17, E35), and training for family conferences on palliative care (E22).

Card games were used in 17 of the 53 articles and were mostly used to discuss care. Card games were mostly addressed to patients ($n = 13$), or in some cases extended to the family (E24) or caregiver (E42). In some cases, even though the ultimate goal was the use with patients, it was used to train health professionals [health professionals (E4), nursing and medical students (E21) and medical students (E40), and chaplains (E47)] for its use. The card games used were the "Go Wish®" card game (E1, E8, E13, E24) and the "My Gift Grace®" card game (E33, E41, E45, E47).

Discussion

Principal findings

The objective of this scoping-type review was to identify and map the available evidence on the use of games in palliative care, analyzing how research has been conducted on this topic, and identifying knowledge gaps. From a total of 685 articles initially identified, 53 articles were included in this review. The observation of the articles in this review shows an increase in their use, with the first study identified in 1993. However, the methodological analysis of the studies, and the types of method used, identified gaps for the validation of results obtained. Randomized studies with a control group that could prove the effectiveness and impact of the game should be favored. Similar results are reported by other authors who report that the impact assessment of games with single-arm studies has a great potential for bias, where results are usually measured before and after the intervention or only after the intervention (Wang et al., 2016; Gauthier et al., 2019). In addition, the heterogeneity of measures used

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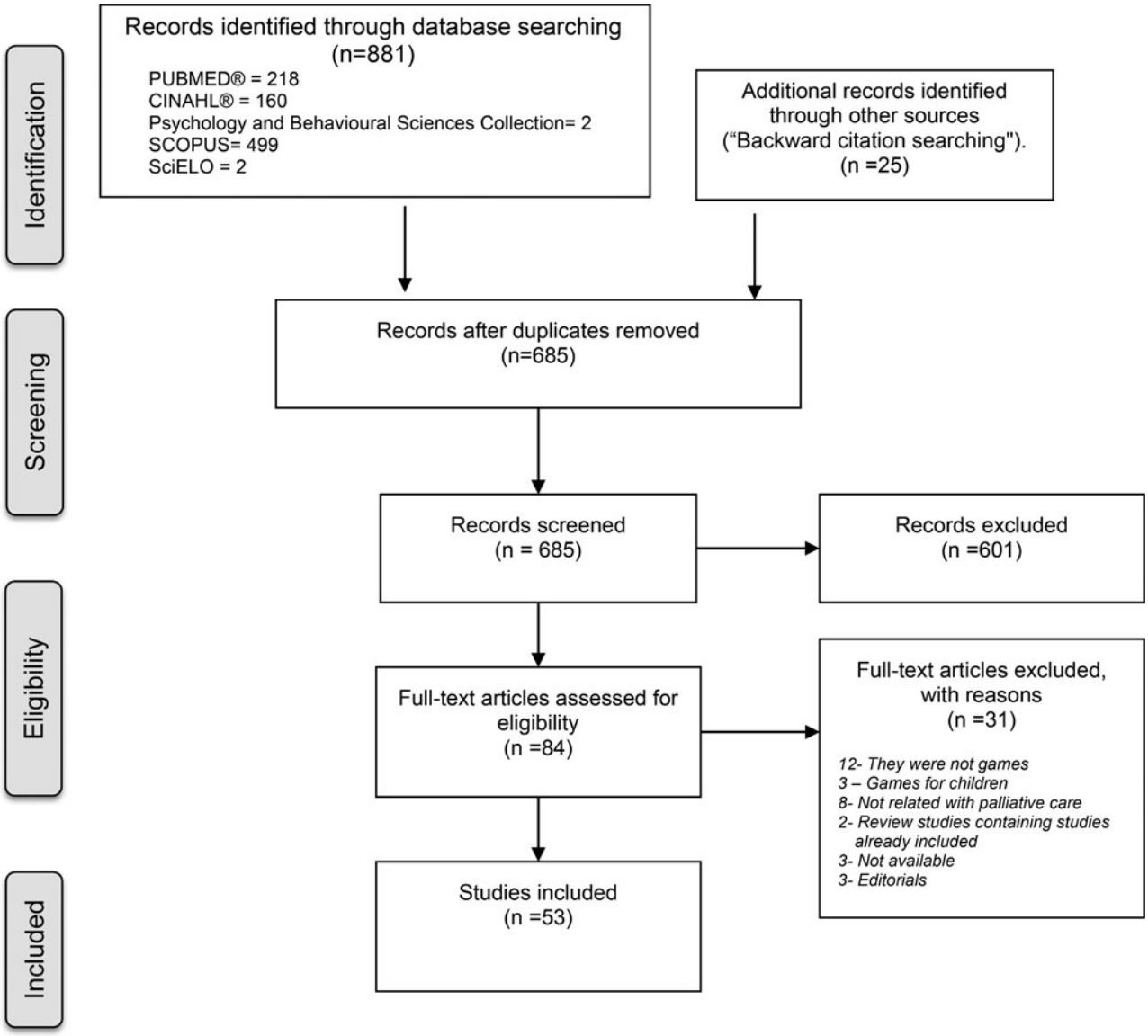

Fig. 1. Process of identification and inclusion of articles — PRISMA Flow Diagram

and the behavior measures used are particularly vulnerable to biases because they can be associated with social or behavioral stigmas (Gauthier et al., 2019) (better communication, ethical behavior, etc.). Therefore, to correctly analyze the functioning of these games, control groups should be included, and this requirement is even more necessary in educational interventions (Wang et al., 2016). Another interesting finding that emerged from our review is the imbalance in the methodological aspects of using games. In Table 3, we can observe that the authors' strategies to assess the use of games in their interventions are highly variable and sometimes non-existent. Most studies evaluated the impact and effectiveness of the game on the result of training and not the game itself. This may be related to what Berger et al. (2014) wrote, noting that end-of-training evaluations show the difficulty in differentiating the game's impact from the program content.

Finally, two major themes resulted for the type of game used: role-playing for training in palliative care and card games to discuss end-of-life care.

Role-playing for training in palliative care

The purpose of role-play is to portray situations rather than simply describe them. That is, participants assume the role of the other, allowing them to develop understanding and empathy for the other's point of view (Baile et al., 2012). In role-play, participants play the role of another, in a "role training" that focuses on preparing individuals for their professional responsibilities (Tanzi et al., 2020). Most studies reviewed used role-play to educate health professionals, mostly doctors and nurses. Similar results were found in a review study on the use of simulation to teach nursing students and physicians in palliative care, in which the majority used role-play using roles played by other people, including actors (Smith et al., 2018). As well as, in the review study developed by Brighton et al. (2017) on communication and end-of-life skills training, and in the study by Pesut et al. (2014) on training nurses in palliative care. Research suggests that game-based education, notably using role-play, encourages motivation and drives academic progress, integrating challenge, narrative, and collaboration within the overarching theme of character and player development.

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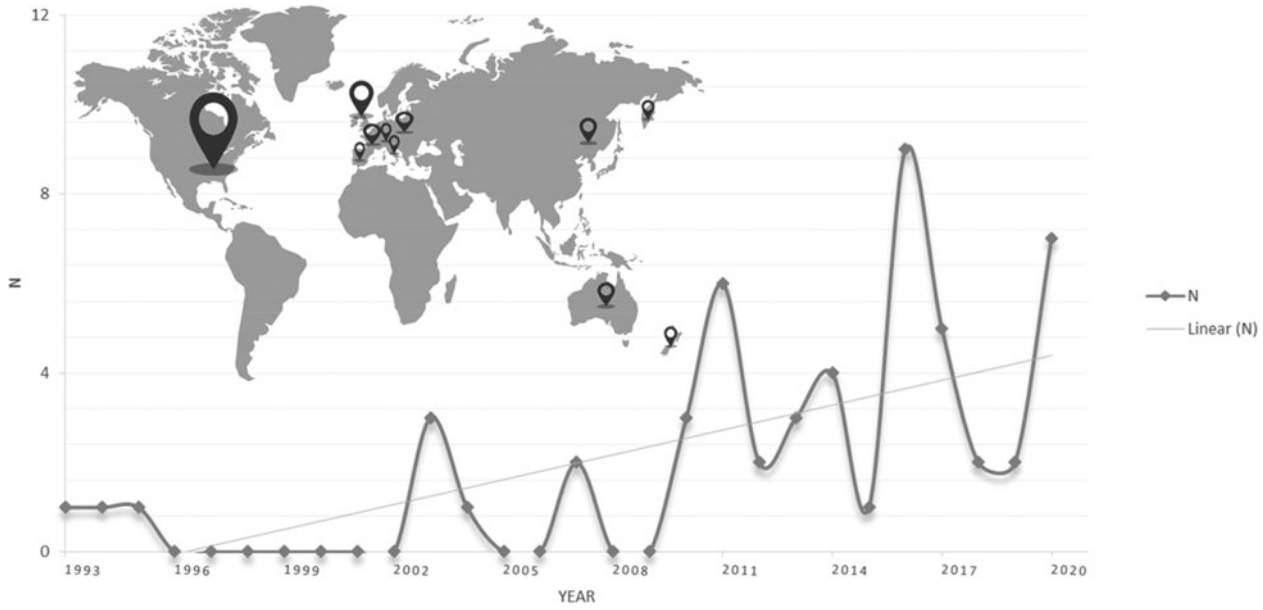

Fig. 2. Study characteristics

Role-play allows participants to explore attitudes and feelings as part of professional development. The objective is to rehearse situations to improve the participant's abilities to face similar situations in clinical practice (Rønning and Bjørkly, 2019). Despite the listed advantages, some authors noted some difficulties, considering them stressful (Hawkins and Tredgett, 2016), with participants feeling embarrassed at being observed (Baile et al., 2012), or referring to being unrealistic (Tanzi et al., 2020). The majority ($n = 16$) focused on developing communication skills, an essential skill in palliative care. Indeed, effective communication about death and dying is a crucial skill for health professionals and a significant aspect of quality care in the field of palliative care (Hamilton et al., 2014). According to Leeson and Gibbs (2019), role-play games are being used to develop collaboration and communication skills, and their educational potential increases when combined with a final debriefing period. These aspects can overcome the barriers of communication difficulties with patients and their families and find the best method to teach palliative care (Aldridge et al., 2016).

Card games to discuss end-of-life care

Card games were used in 17 of the identified studies. These card games consisted of question cards that prompt players to discuss their views on death and end-of-life planning issues (Van Scoy et al., 2016b). Card games allow patients to consider the importance of debating common end-of-life problems in a non-confrontational environment, ranking their values, and facilitating a focused conversation about end-of-life care (Lankarani-Fard et al., 2010). These games offer an innovative approach to overcoming reluctance and resistance to discussing uncomfortable topics about end-of-life care, death, and dying (Radhakrishnan et al., 2019).

The games used were mainly the "Go Wish®" card game (E1, E8, E13, E24), which consists of a set of 35 cards where patients are asked to place each card in one of the three importance categories ("very important," "something important," or "not at all important") according to their preference (Lankarani-Fard et al., 2010). The results serve as the basis for a discussion focused on end-of-life care goals (Kaplan, 2016). This game is an advanced care planning tool designed to help people have conversations about end-of-life care, giving voice to patients' needs and concerns and providing a means to share those ideas (Menkin, 2007).

Another game mentioned in several studies was the card game "My Gift Grace®" (E33, E41, E45, E47), which consists of 47 cards with questions that encourage players (groups of 4–6) to discuss topics related to quality of life, end-of-life planning, values and preferences about medical care, spirituality, among others (Van Scoy et al., 2018). The game is played by taking turns reading the cards aloud, the players writing their answers, and then sharing them with the group. Players can skip any questions if they wish (Van Scoy et al., 2016a). The game "My Gift Grace®" is a tool to facilitate meetings with discussions related to advanced care planning (Radhakrishnan et al., 2019).

The use of the card game in palliative care is referred to as a facilitator for expressing feelings and emotions (Pazart et al., 2011; Delgado-Guay et al., 2016). The authors in some studies noted that the use of card games to discuss sensitive topics does not increase anxiety (DeVita et al., 2003; Van Scoy et al., 2016a) and has no negative effects on the emotional state of participants after the game (Van Scoy et al., 2016a).

Implications for palliative care

Games can facilitate improvements in palliative care provided to people, both in its training component and integrated to meet the real needs of people and families.

Role-play works as a facilitating agent, helping students understand and articulate the hidden feelings of fear and loss behind the person's and family's emotional reactions (Baile and Walters, 2013). Grudzen et al. (2016) highlight many other advantages, including role-modeling and the practice of skills, the improvement of care provided to people in palliative care, the increase of self-efficacy of health professionals, the development of effective strategies to communicate bad news, and

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conduct care planning, as well as avoiding situations to escape from confronting the family and clarifying doubts. These strategies can enhance health professionals' communication skills. Moreover, by developing effective communication skills, they improve the experiences of patients and families (Hawkins and Tredgett, 2016).

The use of card games to discuss care allows the patient and family to find their own answers. It is seen as a simple tool to initiate discussions about people's end-of-life wishes (Delgado-Guay et al., 2016), proving to be a pleasant and positive experience (Van Scoy et al., 2016a) without increasing anxiety (Van Scoy et al., 2018). Topics likely to be discussed during the game are substantive and address important issues in early care planning (Van Scoy et al., 2016b).

Given these data, further studies are needed to assess the effectiveness of these interventions in the quality of care.

Study strengths and limitations

A strong point of this review is that it was carried out without time limits, and the first article was published in 1993. To the best of our knowledge, this is the first initiative that provides a historical overview of the use of all types of games involved in palliative care, namely, Serious Games, board games, card games, simulation games, RPG games, among others. This allowed us to list a variety of studies.

Limitations of our study include the methodological variability of the studies and the lack of prioritization of the quality assessment of the included studies. This aspect was related to the review's objective, which was to cover all studies that used games in palliative care to ensure comprehensive coverage. As mentioned above, we can observe that most studies have low scores for the assessment of methodological quality. Of the 53 studies, only six were randomized clinical trials, highlighting that more randomized clinical trials reporting results from the use of games are needed. Another relevant aspect to consider in future studies is that the methodologies used to assess the games and their impact were very diverse, even absent in some studies.

According to Calderón and Ruiz (2015), all the following items should be evaluated in game interventions: user interface, game design, user's satisfaction, usability, usefulness understandability, motivation, performance, playability, pedagogical aspects, learning outcomes, engagement, user's experience, efficacy, social impact, cognitive behavior, enjoyment, and acceptance.

Conclusion

The use of games in palliative care has been recognized, especially in the last decade, due to their potential for training and meeting the needs of patients and families. This review identified two major themes for games: role-playing for training in palliative care and card games to discuss end-of-life care. Our analysis suggests that more of these resources adapted to the needs of individuals and families can still be developed and applied. However, a more rigorous methodology for game evaluation must be considered, as some studies did not provide in-depth evaluation, and large variability of instruments was used in literature making it difficult to assess their effectiveness.

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