



## Use of recreational activities in health education: Integrative review of literature

*Utilização de atividades lúdicas na educação em saúde: uma revisão integrativa da literatura*

*Utilización de actividades lúdicas en la educación en salud: Una revisión integradora de la literatura*

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### ABSTRACT

**Objective:** To identify effective recreational interventions in health education in order to subsidize the reflection and improvement of education in that area. **Methods:** The subject is approached through an integrative review of literature - an instrument of practice based on evidence. A bibliographical survey was conducted in digital databases, according to predetermined methodological rigor. **Results:** The data from selected productions were discussed, setting a descriptive analysis by categories. The findings referred to health education as a subject of games (computer, board, cards) and dynamic. **Conclusions:** There are highlighted the following issues: incorporation of recreational activities, changes in health behavior, learning, prevention and health promotion.

**Keywords:** Play and playthings ; Education; Health

### RESUMO

**Objetivo:** Identificar as intervenções lúdicas eficazes na educação em saúde com vistas a subsidiar a reflexão e o aprimoramento do ensino nessa área. **Métodos:** A temática é abordada por meio da revisão integrativa da literatura, um instrumento da Prática Baseada em Evidências. Realizou-se um levantamento bibliográfico em bases de dados digitais, segundo rigor metodológico pré-estabelecido. **Resultados:** Os dados extraídos das produções selecionadas são discutidos, configurando uma análise descritiva por categorização. Os achados referem-se à educação em saúde como tema de jogos (de computador, de tabuleiro, de cartas) e de dinâmicas. **Conclusões:** São ressaltados aspectos como: incorporação do lúdico, mudanças de comportamento em saúde, aprendizagem, prevenção e promoção em saúde.

**Descritores:** Jogos e brinquedos; Educação; Saúde

### RESUMEN

**Objetivo:** Identificar las intervenciones lúdicas eficaces en la educación en salud con el objetivo de subsidiar la reflexión y el perfeccionamiento de la enseñanza en esa área. **Métodos:** La temática es abordada por medio de la revisión integradora de la literatura, un instrumento de la Práctica Basada en Evidencias. Se realizó un levantamiento bibliográfico en bases de datos digitales, según rigor metodológico preestablecido. **Resultados:** Los datos extraídos de las producciones seleccionadas son discutidos, configurando un análisis descriptivo por categorización. Los hallazgos se refieren a la educación en salud como tema de juegos (de computador, de tablero, de cartas) y de dinámicas. **Conclusiones:** Son destacados aspectos como: incorporación de lo lúdico, cambios de comportamiento en salud, aprendizaje, prevención y promoción en salud.

**Descriptores:** Juegos implementos de juego; Educación; Salud

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## INTRODUCTION

Mediated learning is appointed as a form of interaction that develops effective learning attitudes and basic competences, permitting a dynamics of knowledge and information deconstruction and reconstruction. In mediated learning, a mediator comes in between the learner and the world of stimuli, facilitating their interpretation and signification through the subject's participation, involvement and motivation<sup>(1-2)</sup>.

Three criteria are considered fundamental for mediation: intentionality/ reciprocity, meaning and transcendence. Hence, the mediated person's (or learner's) system of needs is expanded, including the need for understanding, reflexive thinking and relations among things<sup>(1)</sup>.

Play could act as a mediator in the teaching-learning process, as an alternative method to support this process. In this sense, the playful considers the criteria for effective learning, as it calls attention to a given subject (intentionality/ reciprocity), its meaning can be discussed among all participants and the knowledge produced based on the play activity can be transported to reality, characterizing transcendence.

In the context in which the learner is a passive learning agent, "teaching" is mixed up with "transmitting" and the learner's need get lost. The idea that teaching is aroused by the learner's interest generated another understanding about pedagogical material; teaching professionals effectively turned into stimulators. In that context, games become an ideal learning tool as they stimulate the learner<sup>(3)</sup>.

The health education concept also goes beyond information transmission, configuring combinations of learning experiences designed to facilitate voluntary actions that lead to health. These combinations involve the exchange of life experiences, behavioral aspects and therapeutic and interactional measures<sup>(4)</sup>.

In view of the importance of health education, this research aimed to identify effective play interventions in this practice, aimed at supporting reflection and improved teaching in that area.

## METHODS

This is an integrative literature review about the use of play activities in health education.

The integrative literature review is an evidence-based practice (EBP) instrument that permits the synthesis and analysis of knowledge produced about the research theme. It is a methodologically sound research technique, increasing the reliability and depth of its conclusions<sup>(5-6)</sup>.

EBP encourages health professionals to seek scientific knowledge by developing research or applying results found in literature in their practice, in a critical and conscientious way, seeking the best possible evidence<sup>(7)</sup>.

The quality or strength of evidence can be ranked in five levels: level 1, strong evidence, based on at least one systematic review of multiple, randomized, controlled and well-designed studies; level 2, based on at least one randomized, controlled study with appropriate design and adequate size; level 3, evidence based on well-designed studies without randomization, a single pre and post-cohort group, time series or paired case-control;

level 4, evidence based on well-designed, non-experimental studies, carried out at more than one center or by more than one research group; level 5, opinions by respected authorities, based on clinical evidence, descriptive studies or expert committee reports<sup>(8)</sup>. The following guiding question was adopted for this study: what effective play interventions are used for health education? To select the articles, the keywords games, education and health were used in *MEDLINE*, *LILACS* and *CINAHL*.

The studies included in this integrative review complied with the following inclusion criteria: abstract available in the above databases; language of publication Portuguese, English or Spanish; publication period between 1996 and 2006, systematic reviews of multiple randomized controlled clinical trials (Cochrane standard), research with experimental and quasi-experimental designs, besides themes related to the use of play interventions in health education.

Studies specifically related to undergraduate teaching were excluded, as they also involved professional education aspects, besides the health education scope.

Only systematic reviews (Cochrane standard) and research with experimental and quasi-experimental designs were included, due to the characteristics of the guiding question, related to the efficacy of an intervention, which necessarily involves research with evidence levels 1, 2 and 3. In this study, the term efficacy assesses the result of a process, in which the expectations of the subjects involved in the process are responded or not<sup>(9)</sup>, that is, if the results of a process/intervention comply with the proposed objectives.

Data were collected by two researchers and later confronted. Information about the studies was summarized in a table, indicating: title, authors, study design, purpose, results and conclusions, for the sake of comparative analysis.

Data were analyzed descriptively. The information extracted from the selected studies was categorized in thematic groups, based on the identification of variables of interest and key concepts, as proposed in specific sources about integrative literature reviews<sup>(10)</sup>.

## RESULTS

The digital search resulted in 135 studies, distributed as follows between databases: *MEDLINE*- 120 and *LILACS* - 15; no papers were located in *CINAHL*. In this group, 118 studies were discarded that did not comply with preset inclusion criteria and one that complied with an exclusion criterion (was specifically related to undergraduate teaching).

In this integrative review, 16 studies were analyzed (13 in *MEDLINE* and 3 in *LILACS*), all of which were journal articles. With regard to source, each paper was published in one of the following journals: *Pediatrics*; *Journal of School Health*; *Annals of Allergy, Asthma & Immunology*; *Academic Radiology*; *Journal of the American Medical Informatics Association*; *American Journal of Preventive Medicine*; *Revista de Nutrição*; *Revista FOB*; *Archives of Dermatology*; *Patient Education and Counseling*; *Tropical Doctor*; *Ethnicity and Disease*; *Texto & Contexto Enfermagem*; *Revista Latino-Americana de Enfermagem*; *Revista Panamericana de Salud Publica*; and *Journal Drug Education*.

As to the research design of the assessed studies, the sample comprised nine experimental and seven quasi-experimental studies.

The selected studies are summarized in Chart 1 to 4, about *Computer Games* (four studies), *Dynamias* (six studies), *Card Games* (two studies) and *Board Games* (four studies).

## DISCUSSION

The studies included in this review aimed to assess the efficacy of play interventions as mediators in health education, covering aspects like food habits, hygiene, oral health, growth, mother and baby care, exposure to sun, transmissible diseases, chronic diseases and substance abuse.

An intervention is effective when the expected results are achieved. In this sense, effective play interventions for health education should promote learning (as evidenced by increased knowledge level) and broader aspects, such as behavior changes

and improved quality of life<sup>(4)</sup>. As presented, in this research, the goal was to assess the efficacy of the educative interventions and, hence, we will consider aspects of learning as well as its development in people's lives.

Although that conception is adopted here, an educative intervention by itself does not guarantee behavioral change and improved quality of life, due to the sociocultural and economic issues involved. Moreover, the goal of health education should not only be considered as behavioral change, as the subjects' values may be different from the educator's, making them choose other means to develop their daily practices<sup>(27)</sup>.

Among the analyzed studies, five assessed both the improvement in knowledge levels and the occurrence of behavioral changes after the intervention<sup>(13-14,16-17,20)</sup>, three of which were experimental (evidence level 2) and two quasi-experimental (evidence level 3).

With regard to the three experimental studies, two provided level-2 evidence about the efficacy of computer games in health

**Chart 1** - Publications about Computer Games

Title	Authors	Objective/ Method	Results/ Discussion	Recommendations/ Conclusions
An evolution of an innovative multimedia educational software program for asthma management: report of randomized, controlled trial <sup>(11)</sup>	Homer C, et al.	Randomized controlled trial that assessed the efficacy of educative software for children with asthma. Data analysis through statistical tests and variance and co-variance analysis. <b>Evidence Level 2</b>	Knowledge improved in the EG* and CG* during the 12-month follow-up, without statistically significant differences between the two groups. Report about fun when using the program.	The educative software led to improvements in knowledge levels, but not greater than those achieved through traditional material, although it can be more cost-effective.
An in-school CD-ROM asthma education program <sup>(12)</sup>	Yawn BP, et al.	Randomized controlled experimental study that assessed the efficacy of a computer game as an educative instrument about asthma for students in an elementary school. Data analyzed through X <sup>2</sup> and Wilcoxon Rank Sum Test. <b>Evidence Level 2</b>	The EG showed higher scores (p=0.008) on the first post-test (1 week); score improvements between the pre and first post-test were 13% in EG and 4% in CG. The second post-test (5 weeks) in the EG showed knowledge retention (variation in correct answers <0.4).	The CD-ROM demonstrated efficacy in general asthma education programs and could be incorporated into the health curriculum of elementary schools and other education levels.
Effectiveness of a multicomponent self-management program in at-risk, school-aged children with asthma <sup>(13)</sup>	Shames RS, et al.	Randomized controlled study that assessed the efficacy of an educative videogame to reduce high-risk morbidity among children with asthma. Clinical and quality of life data were collected pre and post-intervention. <b>Evidence Level 2</b>	In comparison with the CG, the EG showed increase in physical and social activity domains of quality life and in knowledge about self-care. No significant differences between groups with regard to clinical variables.	The educative aspects of a multicomponent intervention (educative, medical and behavioral) was assessed, demonstrating improvement in knowledge about asthma and in quality of life.
Squire's Quest! Dietary outcome evaluation of a multimedia game <sup>(14)</sup>	Baranowski T, et al.	Randomized controlled study aimed at demonstrating improvements in children's eating habits through a multimedia game. Data collected through food diary before and after the game; statistical analysis. <b>Evidence Level 2</b>	Despite randomization, the CG was slightly older and the EG consumed slightly more fruit and vegetables on the pre-test. The EG showed increase in fruit, juice and vegetable consumption when compared with the CG.	Psychoeducative multimedia games can change behaviors and habits; further research is need in this sense though.

Chart 2 - Publications about Dynamics

Title	Authors	Objective/ Method	Results/ Discussion	Recommendations/ Conclusions
Conhecimentos, atitudes e práticas de professores de ciclo básico, expostos e não expostos ao Curso de Educação Nutricional <sup>(15)</sup>	Davanço GM, Taddei JAAC, Gaglione CP	Randomized controlled experimental research that assessed knowledge about nutrition among primary education teachers after an educative program with classes and dynamics. Data collection through questionnaire, analysis through Fisher's Exact Test. <b>Evidence Level 2</b>	Statistically significant difference between EG and CG related to knowledge about the food pyramid (46.7% EG and 5.6% CG; $p=0.001$ ) and balanced meals (86.7% EG and 27.8% CG; $p<0.001$ ). Non-significant difference about other themes.	The teachers exposed to the program showed to be better prepared conceptually and more sensitized as to their reality-transforming role.
Educação em saúde bucal para adolescentes: uso de métodos participativos <sup>(16)</sup>	Tomita NE, Pernambuco RA, Lauris JRP, Lopes ES	Quasi-experimental study that assessed the efficacy of oral health educative programs for adolescents, including theoretical activities and scavenger hunts. Verification of plaque ratios and application of cognitive questionnaires pre and post-intervention. Data analysis through Epi Info and statistical tests. <b>Evidence Level 3</b>	Plaque ratios decreased (48.7%, 46.9% and 17.8%) and highly satisfactory levels were obtained on cognitive assessments (average 2.44), but without significant intergroup differences. The relation between the cognitive assessment and plaque ratio was not statistically significant.	Although findings indicated influence on changes in oral hygiene habits among adolescents from different social groups, future research is needed to validate the cognitive knowledge contribution assessment instrument.
Melanoma prevention <sup>(17)</sup>	Bastuji-Garin S, Grob JJ, Grognard C, Grosjean F, Guillaume JC	Quasi-experimental multicenter research that assessed the efficacy of an educative campaign in the form of a scavenger hunt, with a view to limiting children's exposure to sun, through pre and post-intervention questionnaires. Statistical data analysis through X2 and variance analysis. <b>Evidence Level 3</b>	On the post-test: greater use of hats (33.7% x 23.8% $p=0.01$ ), T-shirts (82.7% x 74.8% $p=0.05$ ), sun screen (34.8% x 25.4%, $p=0.03$ ), reapplication (22.1% x 10.6%, $p<0.001$ ), avoid peak times (76.8% x 66.0%, $p=0.02$ ), recognizing risk of the sun (74.9% x 50.7%, $p<0.001$ ).	Changes in the children's answers after the campaign were related to their knowledge, attitude and behavior towards sun exposure. Longer campaigns are recommended.
Playing games in promoting childhood dental health <sup>(18)</sup>	Makuch A, Reschke K	Randomized controlled study that assessed the efficacy of dynamics in oral health education for children. Pre and post-test and variance analysis (ANOVA). <b>Evidence Level 2</b>	The EGs showed greater knowledge and skills regarding correct dental hygiene than the CG on the post-test. No significant differences between the 2 EGs ( $p<0.01$ ).	The use of dynamics and demonstrations can be more effective than just presenting information about oral health to children.
The "Growth Monitoring Teaching Aid" rapidly improves mothers' understanding of growth curves <sup>(19)</sup>	Sohal H, Wildinson D, Morley D	Quasi-experimental study that assessed dynamics as a learning mediator for mothers regarding growth curves, through pre and post-test. Data analysis through Epi Info version 6. <b>Evidence Level 3</b>	Knowledge about growth curves increased in the EG only; scores on the questionnaire corresponded to 1.43 before the intervention and 5.27 afterwards ( $p<0.0001$ ).	Dynamic are simple educative tools that demand little time to apply and obtain good results in the community.
Dance and reducing television: viewing to prevent weight gain in African-American girls: the Stanford GEMS pilot study <sup>(20)</sup>	Robinson TN, et al.	Randomized controlled experimental study aimed at testing the efficacy of dance classes, in combination with a family intervention, to reduce time in front of the TV, contributing to reduce weight gain among African-American girls. <b>Evidence Level 2</b>	In comparison with CG, EG showed decreased BMI (DA= -32 Kg / m <sup>2</sup> , 95% CI - 77, 12; $d=38$ )* and waist circumference (DA= - 63 cm, 95% CI - 1.92, 67; $d=25$ ), increased physical exercise (DA= 55.1 counts/min, 95% CI - 115.6, 225.8; $d=21$ ), reduced TV use (DA= - 4.96h/week, 95% CI - 11.41, 1.49; $d=40$ ) and food while watching (DA= - 1.6 meals/week, 95% CI - 2.99, - 21; $d=59$ ; $p=0.03$ ).	Dancing, combined with family intervention, showed good acceptance and potential efficacy to reduce time spent in front of the TV, contributing to reduce weight gain in the study population.

Chart 3 - Publications about Card Games

Title	Authors	Objective/ Method	Results/ Discussion	Recommendations / Conclusions
A trading-card game teaching about host defence <sup>(21)</sup>	Steinman RA, Blastos MI	Quasi-experimental (pre and post-test) study that assessed adolescents and young adults' understanding about host-disease interactions through a card game. Data analysis through Wilcoxon Signed Rank Test. <b>Evidence Level 3</b>	Increase of understanding about the subject among students in the 8th (39% to 58%; $p < 0.0001$ ), and 10th year (47% to 59%; $p = 0.0007$ ) and undergraduate medical students (80% to 88%; $p = 0.049$ )	The game was considered a useful method to introduce new knowledge and strengthen concepts already learned through formal education. Additional research is needed to determine knowledge retention and compare it with formal education.
Jogo educativo na orientação grupal de puérperas em alojamento conjunto: uma estratégia de educação para a saúde <sup>(22)</sup>	Leite AM, Gonçalves R, Stefanelli MC, Bonadio IC	Quasi-experimental study that validated a card game as an educative strategy for mother and infant health. Data collection through observation and recording of structured interview after the game. <b>Evidence Level 3</b>	The game favored the puerperal women's participation in group orientation and their learning (the category "completely expressed" the contents on the checklist was greater in the EG)	The game was validated and recommended to favor group interaction and understanding about health-related contents among puerperal women and infants.

Chart 4 - Publications about Board Games

Title	Authors	Objective/ Method	Results/ Discussion	Recommendations / Conclusions
Educação em saúde de puérperas em alojamento conjunto neonatal: aquisição de conhecimento mediado pelo uso de um jogo educativo <sup>(23)</sup>	Fonseca LMM, Scochi CGS, Mello DF	Quasi-experimental study (pre and post-test) that assessed the use of a board game about breastfeeding and care for infants in health education for puerperal women. <b>Evidence Level 3</b>	On the pre-test, 5.5% of puerperal women's knowledge was classified as regular, 77.8% as good and 16.7% as excellent. After the game, these scores changed to: 22.2% good and 77.8% excellent.	The strategy contributed to expand mothers' knowledge, but the adopted method does not guarantee changes in risk behaviors and should be inserted in a broader health education project.
El juego como alternativa para la enseñanza de conceptos básicos de salud <sup>(24)</sup>	Lizardo JM, Rodríguez-Morán M, Guerrero-Romero F	Randomized controlled study that determines the efficacy of a board game in teaching basic health concepts to children. Pre and post-test questionnaires, data analysis through t and X2 tests. <b>Evidence Level 2</b>	No difference between groups on the pre-test. On the post-test, qualification about basic health concepts corresponded to 9.3 + or - 0.8 for EG and 7.5 + or - 1.1 for CG ( $p < 0.001$ )	The use of games that include messages about health and hygiene can be an alternative in teaching basic health concepts.
Preventing alcohol abuse: an examination of the "Downward Spiral" game and educational videos <sup>(25)</sup>	Czuchry M, Sia TL, Dansereau DF	Randomized controlled study that assessed the efficacy of a board game about alcohol and drugs abuse among psychology students, comparing it to video exhibition and CG. Application of post-test questionnaires. <b>Evidence Level 2</b>	The two EGs showed greater intent to limit alcohol consumption. The game group presented more positive feelings during the sessions and greater intent to change behavior than the other groups.	Suggests that the game can be useful to prevent alcohol abuse, but recommends further research to permit its use in other populations. The videos used were also useful for the proposal.
Um juego como estratégia educativa para el control de Aedes aegypti em escolares venezolanos <sup>(26)</sup>	Vivas E, Sequeda MG	Quasi-experimental study (pre and post-test and non-randomized CG) that assesses a board game as a learning mediator in dengue fever control among children. Variance analysis and Scheffé test. <b>Evidence Level 3</b>	Knowledge and skills were lower on the pre-test (6.5 and 18.4 points) than on the post-test (8.25 and 22.9, $p < 0.05$ ). Greater learning and skills incorporation occurred in the EG than in the CG ( $p < 0.05$ ). Acceptance of the game was high or very high among 86.7% of students.	Acceptance of the game was good among basic education students, permitting the incorporation of knowledge and skills about dengue fever. Its extension to all basic education institutions is recommended as a form of strengthening the educative process.

\* AD: adjusted difference. CI: confidence interval; d: deviation

\* EG: experimental group; CG: control group



education. One of them proved the game's efficacy to improve quality of life and knowledge levels about self-care among North-American children with asthma, suffering from moderate to severe symptoms. Although there were no statistically significant differences between the groups with regard to clinical variables, this difference was statistically significant in terms of knowledge retention (up to eight weeks after the intervention) and changes in functional state and improved quality of life in the long term (32 and 52 weeks). The authors appoint the need for further research with larger samples to determine the intervention's impact on morbidity due to asthma<sup>(13)</sup>. The other study demonstrated improvements in North American children's knowledge and eating habits through increased fruit, juice and vegetable consumption after the game, within two weeks. Possible bias should be considered though as, despite randomization, the control group was slightly older and the experimental group consumed slightly more fruit and vegetables in the pretest<sup>(14)</sup>.

Hence, computer games figure among effective educative alternatives in health education. Computer technology is flexible, can be associated with precise information about individuals and offers continuing educational support and active learning. Disadvantages include access problems, in terms of the variable quality of the places offering computer use, and in terms of "technological alphabetization", or computer knowledge and skills, demanding rigorous investigation to assess the educative interventions and their applicability to the target public<sup>(11-13)</sup>.

The third of the evidence level-2 studies (experimental studies) about behavioral and learning aspects proved the efficacy of an intervention involving Afro-American girls, which associated dynamics and dance classes to reduce the time spent in front of television and food consumption while watching, including the consequent decrease in BMI, waist circumference and increased physical exercise at the end of the intervention, during three months<sup>(20)</sup>.

The two evidence level-3 studies (quasi-experimental) studies that proved efficacy related to improvements in knowledge levels and behavioral changes, mediated by play, used dynamics. One of them proved the efficacy of an educative program in oral health for Brazilian adolescents, including theoretical activities and scavenger hunts, through the reduction in dental plaque ratios and highly satisfactory scores on cognitive assessments two months after the intervention. The need for further research is appointed though, to validate the cognitive knowledge contribution assessment instrument<sup>(16)</sup>. The other study proved the efficacy of an educative campaign in the form of dynamics, with a view to limiting French children's exposure to the sun, achieving improvements in knowledge, attitudes and behaviors related to solar exposure (greater hat, T-shirt and sun screen use, reapplication of the sun screen, recognizing the sun as a risk factor and avoiding peak sun times) three months after the intervention. The efficacy of the campaign is highlighted, but authors recommend its extension for a longer period and long-

term assessment of changes<sup>(17)</sup>.

Both learning and behavioral change should be assessed in the long term as well, with a view to determining whether knowledge was retained and whether it provides long-term behavioral changes that will influence the study population's quality of life. This long-term assessment is particularly important to permit that, over time, the new knowledge interacts with daily sociocultural and economic conditions, determining whether behavior will change and how.

Among the five studies mentioned here about learning and behavioral aspects, four assessed results immediately after the intervention and within three months afterwards<sup>(14,16,17,20)</sup> and only one assessed long-term results (8 to 13 months)<sup>(13)</sup>.

The other 11 studies focused their assessment of content learning only, verifying whether health knowledge levels improved after the play intervention, without covering the assessment of behavioral changes. Among these studies, six provided evidence level 2 (experimental studies)<sup>(11-12,15,18,24-25)</sup> and five evidence level 3 (quasi-experimental studies)<sup>(19,21-23,26)</sup>. These studies used computer<sup>(11-12)</sup>, card<sup>(21-22)</sup>, board games<sup>(23-26)</sup> and dynamics<sup>(15,18-19)</sup> for health education related to basic concepts about child health<sup>(24)</sup>, growth<sup>(19)</sup>, nutrition<sup>(15)</sup>, oral health<sup>(18)</sup>, health of mothers and infants<sup>(22-23)</sup>, child asthma<sup>(11-12)</sup>, transmissible diseases<sup>(21,26)</sup> and alcohol abuse<sup>(25)</sup>.

## FINAL CONSIDERATIONS

In view of the above, strong evidence (levels 2 and 3) exists to determine the efficacy of computer games and dynamics in health education for children and adolescents, related to health promotion (oral health education and eating habits), disease and problem prevention (prevention of overweight, obesity and skin cancer) and chronic disease management (asthma). This evidence comes from research that assessed learning and behavioral aspects after the intervention. The efficacy of some of these play interventions needs to be assessed in the long term.

Despite strong evidence about other play interventions (card and board games), this evidence comes from research that only assessed content learning, without including the assessment of behavioral aspects and quality of life; therefore, it cannot be affirmed that strong evidence exists about the efficacy of these interventions for health education. The importance of card and board games should be taken into account though, as they favor mediated learning, stimulating understanding about the subject in a pleasant way, reflections about the obtained knowledge and the development of relations between the knowledge provided by play and reality, covering individual and collective behavioral aspects.

The results of this review offer scientific evidence to use play in health education. Its use in higher education was not addressed though, and should be discussed in future studies.

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