

## Efficacy of educational strategies in patient involvement for safety in care: a systematic review


*Eficácia de estratégias educativas no envolvimento do paciente para a segurança no cuidado: revisão sistemática*

*Eficacia de las estrategias educativas en la participación del paciente para la seguridad en la atención: una revisión sistemática*

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### ABSTRACT

**Objective:** To evaluate the effectiveness of educational strategies in the involvement of hospitalized adult patient for safety in care.

**Method:** Systematic review carried out by searching for experimental and quasi-experimental studies, published from January/2010 to December/2021, in PubMed®, Cochrane Library CENTRAL, Scopus, Web of Science, LILACS, CINAHL and EMBASE.

**Results:** Twelve studies were included to involve the patient in safe care practices, five (41.7%) experimental and seven (58.3%) quasi-experimental. Different educational strategies were adopted in the articles included: verbal guidance, books, leaflets and folders (n=4; 33.3%); videos, e-books and electronic applications (n=5; 41.7%); poster, leaflets and video (n=3; 25%). Four experimental studies had a high risk of bias (80%) and all quasi-experimental studies had a low risk of bias (100%).

**Conclusion:** The use of educational strategies proved to be effective in involving the patient in safe care practices. Considering the heterogeneity between studies, it is recommended carrying out future research.

**Keywords:** Learning. Patient education as topic. Patient safety.

### RESUMO

**Objetivo:** Avaliar a eficácia de estratégias educativas no envolvimento do paciente adulto hospitalizado para a segurança no cuidado.

**Método:** Revisão sistemática realizada por meio da busca de estudos experimentais e quase-experimentais, publicados de janeiro/2010 a dezembro/2021, no PubMed®, Cochrane Library CENTRAL, Scopus, Web of Science, LILACS, CINAHL e EMBASE.

**Resultados:** Foram incluídos doze estudos para envolver o paciente nas práticas seguras do cuidado, cinco (41,7%) experimentais e sete (58,3%) quase experimentais. Diferentes estratégias educativas foram adotadas nos artigos incluídos: orientações verbais, livretos, folhetos e folders (n=4;33,3%); vídeos, e-book e aplicativos eletrônicos (n=5;41,7%); pôster, folhetos e vídeo (n=3; 25%). Quatro estudos experimentais apresentaram alto risco de viés (80%) e todos quase-experimentais baixo risco de viés (100%).

**Conclusão:** O uso de estratégias educativas se demonstrou eficaz no envolvimento do paciente em práticas seguras do cuidado. Recomenda-se a condução de futuras pesquisas ao se considerar a heterogeneidade entre os estudos.

**Palavras-chave:** Aprendizagem. Educação de pacientes como assunto. Segurança do paciente.

### RESUMEN

**Objetivo:** Evaluar la efectividad de estrategias educativas en la participación de paciente adulto hospitalizado para la seguridad en el cuidado.

**Método:** Revisión sistemática realizada mediante la búsqueda de estudios experimentales y cuasiexperimentales publicados entre enero/2010 y diciembre/2021, en PubMed®, Cochrane Library CENTRAL, Scopus, Web of Science, LILACS, CINAHL y EMBASE.

**Resultados:** Se incluyeron doce estudios para involucrar al paciente en prácticas de cuidado seguras, cinco (41,7%) experimentales y siete (58,3%) cuasi experimentales. Se adoptaron diferentes estrategias educativas en los artículos incluidas: guías verbales, cuadernillos, trípticos y carpetas (n=4;33,3%); vídeos, e-books y aplicaciones electrónicas (n=5;41,7%); cartel, folletos y video (n=3; 25%). Cuatro estudios experimentales tenían un alto riesgo de sesgo (80 %) y todos los estudios cuasiexperimentales tenían un bajo riesgo de sesgo (100 %).

**Conclusión:** El uso de estrategias educativas demostró ser efectivo para involucrar al paciente en prácticas de cuidado seguras. Se recomienda investigación adicional al considerar la heterogeneidad entre los estudios.

**Palabras clave:** Aprendizaje. Educación del paciente como asunto. Seguridad del paciente.

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## INTRODUCTION

Despite the advances made in patient safety through the publication of policies and guidelines<sup>(1)</sup>, the occurrence of adverse events is still present in health services. Scope review with 25 studies from 27 countries showed an incidence of 10%, half of which were considered preventable, and 7.3% resulted in death<sup>(2)</sup>. Such events generate physical, social, psychological losses to patients and professionals, as well as financial impacts to health institutions<sup>(3-5)</sup>.

It is imminent a change in the culture of health services that goes beyond institutional and professional mobilization and that encourages the involvement of the patient/family as participants and co-responsible in the promotion of safe practices in care<sup>(6)</sup>.

Health teams still have difficulties in including patients in care production, mainly because they are unaware of effective tools for engaging individuals<sup>(7,8)</sup>. Furthermore, patients and family members need to overcome the passive condition of the professional-patient relationship and affirm that participation in care is essential for the prevention of adverse events<sup>(9-11)</sup>.

In an attempt to overcome these difficulties, educational strategies have been recommended by organizations committed to patient safety<sup>(12,13)</sup>. It is believed that the offer of educational material that includes the recognition of situations of risk and the behaviors to be adopted to avoid the occurrence of errors can encourage the patient to get involved in safe practices<sup>(14)</sup>.

For example, the "Speak up" program, developed by the Joint Commission Organization in 2005, stands out, which, through educational material, encouraged patients to participate in decisions about their health and to question professionals in cases of doubts about the care provided<sup>(13)</sup>. Other studies indicate that the educational process is capable of improving the knowledge, perception, behavior and attitudes of the patient in the face of errors, directly affecting the safety of care<sup>(14-16)</sup>.

Despite the potentialities of educational strategies to provide patient involvement in safe care, the literature shows limited evidence regarding the effectiveness of strategies and encourages the development of new scientific research<sup>(11)</sup>, since the effective educational process is an important tool for encouraging patient participation in safe care and contributing to the prevention of adverse events and improving the quality of care<sup>(15)</sup>. In view of the above and considering the incipience of national studies, the objective of this review was to evaluate the effectiveness of educational strategies in the involvement of hospitalized adult patient for safety in care.

## METHOD

This is a systematic review guided by the guidelines of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)<sup>(17)</sup>. The review protocol was registered in the International Prospective Register of Systematic Reviews (PROSPERO), no. CRD42021224920.

The delimited review question was: "Which educational strategies are effective in involving hospitalized adult patients in safe care practices?". The question elaborated followed the PICOS anagram (acronym for Patient-Intervention-Comparison-Outcomes-Studies) (Chart 1).

Studies such as randomized clinical trials and quasi-experimental trials that investigated educational interventions to involve hospitalized adult patients in safe care practices, without language delimitation, published between January 2010 and December 2021 were included in this review. Studies conducted with patients under 18 years old, patients/users assisted in an environment outside the hospital, studies that did not present an experimental design and studies that evaluated educational interventions in patient involvement for issues not related to safe care practices were excluded.

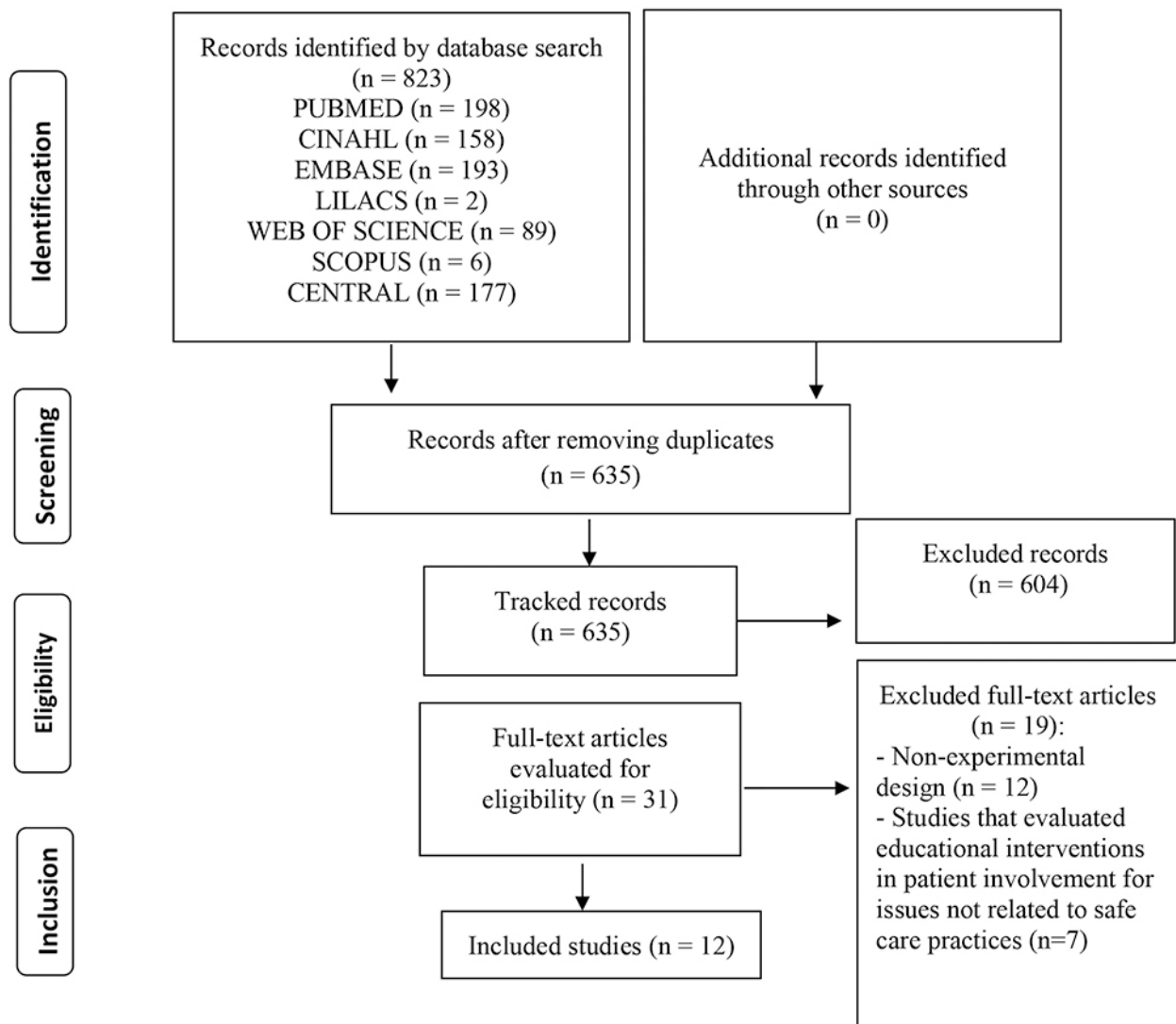
The databases used to search the studies were the US National Library of Medicine National Institutes of Health (PubMed), Cochrane Central Register of Controlled Trials (CENTRAL), SCOPUS, Web of Science, Latin American and Caribbean Health Sciences Literature (LILACS), Cumulative Index to Nursing and Allied Health Literature (CINAHL), and Excerpta Medica (EMBASE).

Several combinations were adopted in the databases using descriptors and synonyms, in addition to the use of the Boolean operators AND for the simultaneous occurrence of subjects, and OR for the occurrence of one or another subject. To conduct the searches, the combination of the letters P AND I AND O was adopted, considering the controlled descriptors of the Medical Subject Headings (MESH) for the first four bases (PubMed, CENTRAL, SCOPUS and Web of Science). The search strategies were: P – "Inpatients"[Mesh] OR (Inpatient); I – "Learning"[Mesh] OR (Phenomenography) OR (Memory Training) OR (Training, Memory) OR "Patient Education as Topic"[Mesh] OR (Education, Patient) OR (Patient Education) OR (Education of Patients) OR "Access to Information"[Mesh] OR (Information, Access to) OR (Public Access to Information) OR (Open Access to Information) OR "Educational Technology"[Mesh] OR (Technology, Educational) OR (Educational Technologies) OR (Technologies, Educational) OR (Instructional Technology) OR (Technology, Instructional) OR (Instructional Technologies) OR (Technologies, Instructional); O – "Patient Safety"[Mesh] OR (Patient

Safeties) OR (Safeties, Patient) OR (Safety, Patient) AND "Patient Participation"[Mesh] OR (Participation, Patient) OR (Patient Involvement) OR (Involvement, Patient) OR (Patient Empowerment) OR (Empowerment, Patient) OR (Patient Participation Rates) OR (Participation Rate, Patient) OR (Participation Rates, Patient) OR (Patient Participation Rate) OR (Patient Activation) OR (Activation, Patient) OR (Patient Engagement) OR (Engagement, Patient). In the other bases, the search strategies were similar, respecting the controlled descriptors of the vocabularies of each base, respectively, Health Sciences Descriptors (DeCS) for LILCAS, CINAHL Headings for CINAHL and Emtree for EMBASE.

The selection of studies was performed by two independent reviewers, one master and one doctor, that initially evaluated the studies through titles and abstracts to verify whether the articles met the established eligibility criteria. The divergences in this phase were resolved by a third reviewer, one doctor. In Figure 1, the flowchart details the process of selection, inclusion and exclusion of studies, demonstrating that the review sample consisted of 12 studies.

The data extraction from the studies included in the review was performed by two reviewers independently, and disagreements were resolved with the participation of a third reviewer. The reviewers extracted data from each



**Figure 1** – Flowchart for identification and selection of primary studies included in the systematic review according to the Preferred Reporting Items for Systematic Review and Meta-Analyses (PRISMA). Uberaba, Minas Gerais, Brazil, 2022

Source: Research data, 2022.

Description	Abbreviation	Question Components
Population	P	Adult patients hospitalized
Intervention	I	Educational interventions to involve the patient in safe care practices
Comparison	C	Conventional guidance or no intervention
Outcome	O	Participation of the hospitalized patient in safe care practices.
Study design	S	Experimental design studies

**Chart 1** – Components of the research question, following the PICOS anagram. Uberaba, Minas Gerais, Brazil, 2022  
Source: Research data, 2022.

study using a script that included the following data: title of study; country; authors; year of publication; sample size; type of study; objective; intervention (educational strategy used to involve patients in safe care practices) and control groups, main results and conclusion.

To assess the risk of bias in randomized clinical trials, it was used the Cochrane Risk-of-Bias tool for randomized trials (RoB 2)<sup>(18)</sup>. The methodological quality of non-randomized studies was evaluated using the JBI Critical Appraisal Checklist for Quasi-Experimental Studies<sup>(19)</sup>. The synthesis of the results was presented in a descriptive way.

## RESULTS

Twelve studies (100%) of experimental design were included, of which five (41.7%) were randomized clinical trials<sup>(20–24)</sup> and seven (58.3%) were quasi-experimental studies<sup>(25–31)</sup>. The articles included were produced in the United States of America<sup>(21,27,28)</sup>, United Kingdom<sup>(23,25,26)</sup>, Australia<sup>(20,30)</sup>, South Korea<sup>(29,31)</sup>, Switzerland<sup>(24)</sup> and China<sup>(22)</sup>. The sample variability ranged from 65 to 2115 individuals and the language adopted by all studies was English<sup>(20–31)</sup>. The educational interventions used were verbal guidance or written material<sup>(21,23,24,28)</sup> (33,3%), technological resources (videos, e-books, electronic applications)<sup>(22,25,27,29,31)</sup> (41.7%) or both<sup>(20,26,30)</sup> (25%).

Four studies used educational strategies through verbal guidance<sup>(21)</sup>, development of action plans together with the patient<sup>(23,28)</sup> and booklets<sup>(24)</sup>. Verbal guidance demonstrated better patient involvement in their care<sup>(21)</sup>. Action plans developed in partnership with patients showed the potential to reduce adverse events<sup>(23)</sup> and falls<sup>(28)</sup>. The educational strategy through booklets favored the patient's perception of safety behaviors and fewer experiences with adverse events<sup>(24)</sup>.

Five studies adopted electronic application<sup>(27,29)</sup>, e-book<sup>(22)</sup> and educational videos<sup>(25,31)</sup> as technological resources for implementing educational strategies. The use of the electronic application favored the patient's involvement in safe behaviors<sup>(29)</sup> and in the prevention of medication errors<sup>(27,29)</sup>. The e-book improved the learning and cognition of patients and family members with patient safety situations, prevention of falls and infections related to health care<sup>(22)</sup>. The educational video encouraged the patient to engage in safe care behaviors and to identify alert situations to prevention of adverse events<sup>(25)</sup>, in addition to promoting a positive impact on perception and knowledge about safe practices related to falls, pressure ulcer and prevention of infection<sup>(31)</sup>.

Three studies used a combination of strategies (poster, leaflet and DVD<sup>(20)</sup>; leaflet and video<sup>(26)</sup>; poster, leaflet and video<sup>(30)</sup>) to involve patients in safe care practices. Two studies demonstrated that the strategies favored patient participation in the prevention of pressure ulcer<sup>(20,30)</sup>, in addition to reducing such incidence<sup>(20)</sup>. The educational strategies improved the patient's perception of hand hygiene and error reporting<sup>(26)</sup>. Chart 2 presents a descriptive summary of the included studies.

A critical methodological evaluation of the studies selected for this review was performed. Regarding the risk of bias of randomized clinical trials, each study was evaluated and classified as high risk, uncertain risk, or low risk, according to the domains of the Cochrane RoB 2 tool. All studies<sup>(20–24)</sup> presented a low risk of bias for domain 3 (absence of outcome data) and were classified as uncertain regarding the selection of reported results<sup>(20–24)</sup>. Most included studies showed a high risk of bias for domain 2 (deviations from intended interventions)<sup>(21–24)</sup>, and only two studies showed a clear randomization process<sup>(20,21)</sup>. The included studies presented at least one domain classified as uncertain. These results are shown in Figure 2.

Title/ Country Authors/Year	Sample	Study design	Objective	Intervention Group (IG)	Control Group (CG)	Main Results and Conclusion
The effect of a patient centred care bundle intervention on pressure ulcer incidence (INTACT): A cluster randomised trial. Australia Chaboyer, et al., 2016 <sup>(20)</sup>	1,600	Randomized clinical trial	To evaluate the efficacy of a set of care on pressure ulcer prevention (PUP), in reducing the incidence of PU, and increasing the active participation of patients in the process of preventing PU.	They received information on pressure ulcer prevention through posters, leaflets and DVD. The incidence of PU in the participants and the use of a scale to measure the patient's participation in the prevention of PU were evaluated.	They received standard care based on regional guidelines.	There was a reduction in the incidence of PU in the IG ( $p < 0.0001$ ). The hazard ratio indicated a 52% reduction in the risk of developing PU associated with the intervention compared to standard care, however this difference was not statistically significant. There was no difference between the groups regarding patient participation in the prevention of PU ( $p = 0.124$ ).
A randomized controlled trial to improve engagement of hospitalized patients with their patient portals. USA Greysen, et al., 2018 <sup>(21)</sup>	97	Randomized clinical trial	To evaluate the efficacy of educational guidance to increase patient involvement in the use of their apps, during hospitalization and after discharge.	They received verbal guidance at the bedside, through structured educational material, addressing the relevance of using the application, the importance of post-discharge use and its main functions. Participants were evaluated by the number of accesses to the application's functions.	Guidance for beginners only for app login registration. No other assistance on how to use the application was offered.	The IG had higher means in terms of involvement and use of the application, compared to the CG, with statistical significance only in the access to the outpatient messaging function ( $p = 0.04$ ).

**Chart 2** – Descriptive synthesis of studies included in the systematic review. Uberaba, Minas Gerais, 2022

Title/ Country Authors/Year	Sample	Study design	Objective	Intervention Group (IG)	Control Group (CG)	Main Results and Conclusion
Facilitating Inpatients' Family Members to Learn: A Learning Engagement Promoting Model to Develop Interactive E-Book Systems for Patient Education. China Huang; Hwang, 2019 <sup>(22)</sup>	74	Randomized clinical trial	To evaluate whether the use of an interactive e-book is able of improving cognition, learning, motivation and patient and family satisfaction about patient safety.	They received information on patient safety using an e-book. An adapted questionnaire was used to measure the participants' cognition, motivation and satisfaction and an interview was used to assess the perception and opinion about the e-book.	They received information about patient safety through written and verbal instructions.	The use of the intervention was significant for the cognition of the patient and their families regarding patient safety. IG ( $p < 0.01$ ). In addition, it improved learning attitudes ( $p < 0.05$ ), motivation to learn ( $p < 0.01$ ) and satisfaction with the use of technology ( $p < 0.05$ ).
Can patient involvement improve patient safety? A cluster randomised control trial of the Patient Reporting and Action for a Safe Environment (PRASE) intervention. United Kingdom Lawton, et al., 2016 <sup>(23)</sup>	2,115	Randomized clinical trial	To evaluate the efficacy of an intervention, based on patient feedback on safe care, to improve patient safety by decreasing damage to patient.	Patients provided feedback from a questionnaire about their perception of safe care and reported experiences related to adverse events they had already had. The researchers evaluated the patient's feedback and developed a plan of action together. Afterwards, they compared whether the action plan reduced the incidence of damage to the patient.	Patients provided feedback, but no action plan was designed.	The action plan developed together with the patient in the IG did not reduce damage to patients.

Chart 2 – Cont.

Title/ Country Authors/Year	Sample	Study design	Objective	Intervention Group (IG)	Control Group (CG)	Main Results and Conclusion
Effects of an educational patient safety campaign on patients' safety behaviours and adverse events. Switzerland Schwappach, et al., 2011 <sup>(24)</sup>	420	Randomized clinical trial	To investigate the effects of a patient safety warning on risk perceptions, behavioral control and performance of safety behaviors and adverse event experiences.	Guidance through a booklet with recommendations on safe practices during hospital admission. A questionnaire was built to assess the participants' perception of their involvement in safety in care.	Care/ standard guidance	IG showed better perception and behavior regarding their safety ( $p=0.010$ ) and reported less experiences with adverse events and unsafe practices compared to CG ( $p=0.009$ ).
Patients' and health care professionals' attitudes towards the PINK patient safety video. United Kingdom Davis, et al., 2012 <sup>(25)</sup>	296	Quasi-experimental	To evaluate patients' attitude and health care professionals regarding an educational video to promote patient involvement in safety-related behaviors.	Patients watched an animated video about their contribution to preventing errors during care provided. They answered a questionnaire about their attitudes towards being involved with safety issues, before and after the video.	NA	The video increased the patient's perception of the importance of involvement in safety issues, being significant for the domains of professional hand hygiene and personal hygiene ( $p<0.05$ ).
Patients' attitudes towards patient involvement in safety interventions: results of two exploratory studies. United Kingdom Davis, et al., 2013 <sup>(26)</sup>	80	Quasi-experimental	To evaluate patients' attitude towards a video and a leaflet to encourage patient involvement in behaviors related to safe practices.	Patients watched an animated video encouraging them to participate in safe care management. The leaflet addressed patient participation in safety-related behaviors. Patients responded to a scale on how comfortable they were with participating in some safety-oriented behaviors.	NA	The video and leaflet increased the patient's perception on issues related to hand hygiene and error reporting ( $p<0.05$ ). However, behaviors related to medication errors were not significant ( $p>0.05$ ) to improve patient perception.

Chart 2 – Cont.

Title/ Country Authors/Year	Sample	Study design	Objective	Intervention Group (IG)	Control Group (CG)	Main Results and Conclusion
Engaging hospital patients in the medication reconciliation process using tablet computers. USA Prey, et al., 2018 <sup>(27)</sup>	65	Quasi-experimental	To determine whether an electronic tool of medication review can improve medication safety during hospitalization.	They used an electronic application, after hospital admission, to select the medications they used at home. Afterwards, the medication list was printed, and the responsible researcher encouraged the patients to compare it with the medication list prepared by the medication reconciliation team.	NA	Patients were more engaged with medication reconciliation after using the electronic application. Only the item of recognition of the discrepant medications between the list they completed and the one prepared by the reconciliation team showed significant results (p=0.021).
Innovating fall safety. Engaging patients as experts. USA Radecki et al., 2020 <sup>(28)</sup>	203	Quasi-experimental	To evaluate patient involvement in developing a fall prevention action plan.	Verbal guidance and folders on fall prevention and development of an individualized action plan. A questionnaire was used to assess patient participation in fall prevention of and the incidence of falls.	NA	The intervention improved patient involvement in fall prevention (p=0.0007) and decreased the incidence of falls.
Effects of self-education on patient safety via smartphone application for self-efficacy and safety behaviors of inpatients in Korea. South Korea Cho; Lee, 2021 <sup>(29)</sup>	94	Quasi-experimental	To determine whether self-educational intervention on patient safety via smartphone app can improve patient self-efficacy and safety behaviors.	Patients received a smartphone with content (text, images and videos) about the importance of patient safety, main adverse events and tips to improve safety in care. A scale was used to measure patient safety behavior.	NA	There was a significant improvement in safety behavior after the intervention (p<0.001).

Chart 2 – Cont.



Title/ Country Authors/Year	Sample	Study design	Objective	Intervention Group (IG)	Control Group (CG)	Main Results and Conclusion
An education intervention care bundle to improve hospitalised patients' pressure injury prevention knowledge: a before and after study. Australia Deakin et al., 2020 <sup>(30)</sup>	80	Quasi-experimental	To evaluate patient participation in pressure ulcer prevention before and after the educational strategy.	It was used a care bundle for the prevention of pressure ulcers through a poster, leaflet and video to encourage patient involvement. A validated scale was used to assess patient's involvement.	NA	After the intervention, there was an improvement in the patient's participation in care for the prevention of pressure ulcer ( $p < 0.001$ )
Development and effectiveness of a patient safety education program for inpatients. South Korea Shin et al., 2021 <sup>(31)</sup>	69	Quasi-experimental	To evaluate a patient safety education program among hospitalized patients about knowledge, perception and participation in safe practices.	Educational videos on general patient safety issues and fall prevention measures, infection, PU and patient participation. It was used a questionnaire to assess knowledge, perception and intention to participate in safety issues.	Guidance according to institutional routine	IG had better scores in knowledge ( $p < 0.001$ ) and perception ( $p = 0.04$ ) regarding patient safety. There was no significant difference between IG and CG regarding the intention to participate in safety issues ( $p = 0.478$ ).

**Chart 2** – Cont.  
Source: Research data, 2022.

Questions for critical analysis of quasi-experimental study	Davis et al., 2012 <sup>25</sup>	Davis et al., 2013 <sup>26</sup>	Prey et al., 2018 <sup>27</sup>	Radecki et al., 2020 <sup>28</sup>	Cho; Lee, 2021 <sup>29</sup>	Deakin et al., 2020 <sup>30</sup>	Shin et al., 2021 <sup>31</sup>
Is it clear from the study which is the “cause” and which is the “effect” (i.e., there is no confusion about which variable comes first)?	Y	Y	Y	Y	Y	Y	Y
Were participants included in any similar comparisons?	NA	NA	NA	NA	NA	NA	Y
Were participants included in any comparisons who received similar treatment/care in addition to the exposure or intervention of interest?	NA	NA	NA	NA	NA	NA	Y
Was there a control group?	NA	NA	NA	NA	NA	NA	Y
Were there multiple outcome measures, before and after the intervention/exposure?	Y	Y	Y	Y	Y	Y	Y
Was follow-up complete, and if not, were differences between groups in terms of follow-up adequately described and analyzed?	Y	Y	Y	Y	Y	Y	Y
Were the results of participants included in any comparisons measured in the same way?	Y	Y	Y	Y	Y	Y	Y
Were the results measured reliably?	U	U	Y	Y	Y	Y	Y
Was appropriate statistical analysis used?	Y	Y	Y	Y	Y	Y	Y
Risk of bias (%)	83,33%	83,33%	100%	100%	100%	100%	100%
Final assessment	Low risk	Low risk	Low risk	Low risk	Low risk	Low risk	Low risk

**Chart 3** – Assessment of the methodological quality of quasi-experimental studies using the JBI Critical Appraisal Checklist for Quasi-Experimental Studies tool<sup>(19)</sup>. Uberaba, Minas Gerais, 2022

U, uncertain; N, no; NA, not applicable; Y, yes  
 Source: Research data, 2022.

	Randomization Process	Deviations from intended interventions	Absence of outcome data	Outcome measurement	Selection of reported outcome	Overall risk of bias		Legend
Chaboyer, et al., 2016 <sup>20</sup>	+	?	+	+	?	?	+	Low risk
Greysen, et al., 2018 <sup>21</sup>	+	-	+	-	?	-	?	Some concerns
Huang; Hwang, 2019 <sup>22</sup>	?	-	+	-	?	-	-	High risk
Lawton, et al., 2016 <sup>23</sup>	?	-	+	+	?	-		
Schwappach, et al., 2011 <sup>24</sup>	-	-	+	-	?	-		

**Figure 2** – Assessment of risk of bias in randomized clinical trials using Cochrane’s Rob 2 tool<sup>(18)</sup>. Uberaba, Minas Gerais, Brazil, 2022

Source: Research data, 2022.

Regarding the assessment of the methodological quality of the quasi-experimental studies, all<sup>(25-31)</sup> presented a low risk of bias and only two studies were not clear about the measurement of results<sup>(25,26)</sup>, as shown in Chart 3.

## DISCUSSION

Twelve studies published between 2011 and 2021 were identified. Other reviews had larger samples<sup>(32,33)</sup>, however, the included articles were published between 1988 and 2018<sup>(32)</sup> and 1990 and 2016<sup>(33)</sup>.

As for the country of origin of the publications, other systematic reviews corroborate the data presented here, in which there is a predominance of studies developed in the United States of America, Australia, and United Kingdom<sup>(32,33)</sup>. It is noteworthy that the year of publication and the country of origin in which the study was carried out can influence the choice of educational strategy, considering cultural and educational heterogeneity, availability and accessibility to teaching resources<sup>(34,35)</sup>, as well as the evolution of these resources over the years.

The international literature on educational strategies for patient involvement in safe care practices stands out<sup>(11,32,33,36)</sup> when compared to national literature<sup>(37)</sup>. It is noticed that patient participation initiatives in their safety are still recent in Brazil<sup>(38,39)</sup>, which may contribute to the scarcity of studies.

In the present review, the educational strategies most used to involve the patient in the safety of care were those that used technological teaching tools such as videos<sup>(25,31)</sup>, e-book<sup>(22)</sup> and electronic applications<sup>(27,29)</sup>.

Technological advances have provided greater use of these electronic tools in educational interventions, favoring the learning of patients who have difficulties with reading and understanding information<sup>(40,41)</sup>, since it is possible to use illustrations, music, video clips and animations, arousing more interest and patient involvement in the content presented<sup>(41,42)</sup>.

When analyzing the aspects of electronic resources as a strategy to train patients, the educational video is configured as a tool that eases understanding, favors motivation for learning and greater interaction with the information taught<sup>(42-45)</sup>.

The World Health Organization, through the “Patient Safety Curriculum Guide”, published in 2011, recognizes that the use of health technologies such as tutorials, online activities, skills training, videos and games are effective in the educational process in safe practices of care<sup>(46)</sup>.

It should be highlighted that nurses play a fundamental role in patient learning through health education and the use

of educational technologies becomes an ally in this process, as, in addition to providing information and guidance, it aims to sensitize the individual to behavior change<sup>(47)</sup>. In addition, the use of these technologies has proven to be increasingly effective, as they ease understanding, improve skills and promote the exchange of knowledge and experiences<sup>(48,49)</sup>.

Different technological methodologies were described in the health education process, namely: teleconferencing, electronic games, websites, power point presentations, soap operas, software, interactive CD, multimedia, mobile applications, simulation programs and videos<sup>(47,50-52)</sup>.

In the area of patient safety, researchers have identified that the use of audiovisual resources is able of improving the individual's involvement in safe health practices in different aspects such as correct patient identification, hand hygiene, safe use of medications, risk of falls, the development of pressure ulcer and even the notification of adverse events<sup>(53-56)</sup>.

In the present review, the use of educational strategies using traditional teaching tools such as booklets<sup>(24)</sup>, verbal guidance<sup>(21)</sup> and the elaboration of an action plan together with the patient<sup>(23,28)</sup> also demonstrate the individual's involvement with the issues of security. The use of manuals, drawings and audios, as well as the feedback of the received guidance, can ease active participation in the care and safety process<sup>(12)</sup>.

Due to the globalization process, the use of traditional teaching tools such as folders, booklets, manuals and explanatory leaflets has been replaced by the incorporation of technological resources and means of communication capable of making learning more attractive, providing the individual more interaction and dynamism and stimulate critical-reflexive thinking<sup>(57)</sup>.

In fact, it is noticed that the use of educational booklets and leaflets were used by older studies published in 2011 and 2013<sup>(24,26)</sup>. Over the years, most investigations began to use educational technologies and multimedia resources as an educational strategy<sup>(22,25,27,29,31)</sup>.

Some studies combined different educational strategies and used technological and traditional teaching tools, for example, poster, leaflet and DVD<sup>(20)</sup>, leaflet and video<sup>(26)</sup> and poster, leaflet and video<sup>(30)</sup>. It is believed that the combination of educational tools can be more effective in producing knowledge and patient understanding, as they are complementary<sup>(42,58)</sup>.

The choice of educational strategy for use in teaching of patients depends on the evidence about its effectiveness. In this review, the randomized clinical trials included were classified as having a high risk of bias<sup>(20-24)</sup> and the quasi-experimental studies had a low risk of bias<sup>(25-31)</sup>. Such findings are similar to other studies<sup>(11,32,33)</sup>.

The high risk of bias can be justified by the existence of some weaknesses in the methodological path, such as the randomization process<sup>(22-24)</sup> and the deviation from the intended intervention<sup>(21-24)</sup>, which includes the evaluation of the blinding of the participants and the team.

In conducting randomized clinical trials, the randomization process is essential to ensure that each participant has an equal and independent chance of participating in the allocation groups<sup>(59)</sup>. Likewise, hiding the allocation prevents the manipulation of the intervention for each participant group, and it is important to describe the methods used for this process<sup>(60)</sup>.

When considering the heterogeneity between the studies, the possibility of risk of bias, the evaluation of different interventions in different segments of safety in care and the disparity of the instruments used to measure the outcomes of each included study, it was difficult to qualify for effective educational strategies in patient involvement in safe care practices.

Determining the efficacy of educational strategies focused on the active of the patient in safe care contributes to the reflection of health professionals and researchers to use teaching interventions that consider the specificities of the Unified Health System for the purpose of reduce the possibility of adverse events, improve the quality of care and promote a culture of safety in health institutions.

## CONCLUSION

The educational strategies, whether those using technological or traditional teaching tools or a combination of them, were effective in involving patients to adoption of safe practices in care. It is suggested to conduct well-designed experimental studies in order to strengthen the quality of the evidence presented here, and future research that addresses specific segments of patient safety.

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