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Patient Education Methods in Iran's Healthcare System: A Scoping Review of New Current Practices, Technological Innovations, and Future Directions

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Abstract

Background: Patient education plays a pivotal role in improving health outcomes and enhancing the quality of care. With the evolution of educational approaches and the rise of new technologies, there is a growing need to comprehensively examine the current methods used within Iran's healthcare system. This scoping review aims to identify and map the various techniques, tools, and outcomes of patient education in Iran from January 20, 2011, to April 20, 2025.

Methods: A scoping review was conducted based on Arksey and O'Malley's framework. A systematic search was carried out across national databases, including SID, Magiran, IranMedex, Google Scholar, Scopus, and PubMed, using keywords related to patient education. A total of 200 articles were retrieved in the initial search, of which 29 met the inclusion criteria and were analyzed using a structured data extraction form.

Results: The review identified multiple approaches to patient education in Iran, including patient-centered, family-centered, technology-based, interactive, empowerment-focused, and learning-style-oriented methods. Reported outcomes included reduced anxiety, enhanced awareness, improved self-care capabilities, and increased patient satisfaction.

Conclusion: Patient education in Iran is evolving from traditional models toward modern, technology-enhanced, and individualized approaches. The study underscores the need for comprehensive national strategies and policies to support and institutionalize effective patient education practices.

Keywords: Patient Education, Patient Participation, Educational Technology, Self-Care, Iran

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Introduction

Patient education is a structured process and an essential part of care programs, encompassing therapeutic, caregiving, and health-related education, and should not be considered merely a supplementary task (1). Receiving education is a fundamental right of patients and serves as an effective tool in promoting health and preventing diseases. This process involves a series of targeted and planned activities that assist individuals with illnesses or related challenges, ultimately leading to improved health status and enhanced quality of life (2). Increasing patients' un-

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↑What is "already known" in this topic:
Patient education plays a crucial role in enhancing health outcomes and improving the quality of care in Iran. While traditional education methods remain prevalent, technology-driven and innovative approaches are also emerging. Existing studies report various methods, but the effectiveness, tools used, and outcomes are not fully explored. Moreover, there is a lack of comprehensive evidence synthesis regarding modern patient education practices within Iran's healthcare system.

→What this article adds:
This scoping review maps patient education methods used in Iran from 2011 to 2025, highlighting patient-centered, technology-based, and empowerment-focused approaches. It demonstrates benefits such as reduced anxiety, improved self-care, and greater patient satisfaction. The findings underscore the need for national policies to standardize and institutionalize effective and modern patient education practices.

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derstanding of their disease and treatment processes aids in shared decision-making, encourages active participation in treatment, and ultimately improves health outcomes (3). This awareness also reduces unnecessary anxiety in patients. Furthermore, patient education can boost patients' confidence, facilitate acceptance of proposed treatments, and reduce unnecessary visits to healthcare facilities. As patients gain more knowledge about their health condition, they feel greater control, which contributes to improved quality of life and accelerates recovery (4-6). Given the critical importance of this issue, reputable medical education resources have extensively discussed various educational strategies and content delivery methods for patient education (7, 8). These educational methods should be tailored specifically to each patient's individual needs, with special attention paid to their cultural and social circumstances. Additionally, educational approaches must be flexible to align with each patient's condition and comprehension level, thereby enhancing the effectiveness and efficiency of information transfer (9).

Although patient education plays a crucial role in improving health outcomes, traditional education methods, which are often designed uniformly for all patients, usually fail to meet the needs of every individual. These generic approaches typically do not account for patients' individual, cultural, and social differences, potentially leading to misunderstandings, lack of comprehension, and even anxiety. Therefore, transforming patient education methods is of great importance. To make education more effective, there is a need to promote educational methods and adopt modern approaches tailored to each patient's condition and comprehension level (10-12). Traditional patient education programs often rely on tools such as booklets, brochures, or in-person sessions, each with its own limitations. One major challenge is the need for continuous storage and updating of information, which can be time-consuming and complex due to the volume of content and the necessity for regular updates. This process can become problematic when new content needs to be added. Moreover, access to these educational resources is not always straightforward for patients. Some patients may be unable to access or fully receive this information due to time or geographical constraints. Additionally, with constant advancements in medical and therapeutic knowledge, regular updates to these resources are essential, but traditional systems may not facilitate timely updates, reducing the efficiency and effectiveness of these programs (13-15).

In many advanced countries, modern patient education methods such as gamification, simulation, and digital technologies are increasingly used to enhance learning and improve patient engagement in the treatment process. These methods create interactive and engaging experiences for patients, enhancing their understanding of their health condition and proposed treatments, which directly impacts treatment outcomes (10, 16-19). Despite the substantial growth of global research on patient education methods, a systematic synthesis of how these innovative approaches have been adapted or implemented in Iran, considering the country's unique cultural, structural, and resource-related contexts, remains lacking. Within the Iranian healthcare system, patient education is predominantly delivered through traditional means, typically limited to brief verbal explanations by nurses at the bedside. In contrast, internationally, diverse, structured, and technology-driven methods are widely employed for patient education. This raises the question of whether such novel approaches are utilized in Iran and to what extent they have been localized to fit the national context. Therefore, this study aims to address the following question: What novel and modern patient education methods are being employed in Iran, and to what extent are they aligned with global innovations and adapted to the local healthcare context? The present study aims to identify and categorize patient education methods employed in Iran, and to evaluate the degree to which these methods align with global advancements while taking into account the country's cultural background, available resources, and healthcare delivery structures. Given these challenges and the lack of a comprehensive synthesis on how modern educational approaches are used in Iran, a scoping review is warranted. This study seeks to map the current landscape of patient education methods in Iran, clarify their alignment with global advancements, and provide a basis for future improvements tailored to the country's specific healthcare setting. In this context, the primary objective of this study is to review the literature on the use of new patient education methods in Iran. Specifically, this study aims to examine the extent to which New educational methods have been addressed in scientific studies conducted in Iran and how these methods have been used to complement and enhance traditional patient education approaches in Iran. This review can help assess the alignment of Iran's educational systems with global standards, identify strengths and weaknesses in this field, and propose solutions for improving and advancing patient education methods in the country.

Methods

This study is a scoping review based on the methodology proposed by Arksey and O'Malley (20). This scoping review was conducted in accordance with Arksey and O'Malley's framework, although it did not have a formally registered protocol. The following steps were implemented:

Formulating the Research Question: The review, based on the study's objectives, was structured around the PCC framework to define the research scope (21) "What New educational methods are used for patient education in Iran within the healthcare system?" The PCC structure (Population: patients in Iran; Concept: New educational methods; Context: healthcare system). To precisely define the research scope, the existing literature, which employed various methodologies, was reviewed, and the scope of relevant studies was identified.

Identifying Relevant Studies: To comprehensively cover studies and address the research question, a manual search was conducted in databases including Scopus, PubMed, Magiran, Google Scholar, and SID. The search keywords are listed in Table 1. The keywords were refined to clarify the concepts related to "the use of New

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Table 1. Combination of Keywords Used in Search Strategy

Concept	Keywords used for the search
New patient education methods in Iran's healthcare system	(("Patient Education as Topic"[MeSH] OR "Health Education"[MeSH] OR "Patient education"[tiab] OR "Health education"[tiab] OR "Educational intervention*"[tiab] OR "Educational program*"[tiab] OR "Health literacy"[tiab] OR "Patient training"[tiab] OR "Patient instruction*"[tiab]) AND ("Iran"[MeSH] OR Iran[tiab] OR Iranian[tiab] OR "Islamic Republic of Iran"[tiab]) AND ("Innovative"[tiab] OR "Novel"[tiab] OR "New approach*"[tiab] OR "Digital"[tiab] OR "Technology"[tiab] OR "Mobile health"[tiab] OR "mHealth"[tiab] OR "eHealth"[tiab] OR "Telehealth"[tiab] OR "Telemedicine"[tiab] OR "Gamification"[tiab] OR "Simulation"[tiab] OR "Social media"[tiab] OR "Virtual reality"[tiab] OR "Interactive"[tiab] OR "Online education"[tiab] OR "Multimedia"[tiab] OR "App-based"[tiab] OR "Mobile app"[tiab]))

educational methods for patient education in Iran" and to ensure coverage of all studies in this field. The studies were conducted between January 1, 2011, and April 20, 2025. The full electronic search strategy for PubMed is presented as an example: ("patient education" OR "health education" OR "educational intervention" OR "patient training" OR "health literacy") AND ("modern methods" OR "technology-based" OR "interactive methods" OR "digital education" OR "gamification" OR "simulation" OR "virtual reality" OR "mobile application") AND ("Iran" OR "Islamic Republic of Iran") AND ("2011/01/01"[PDAT]: "2025/4/20"[PDAT]) AND (English[LA] OR Persian[LA]). Similar strategies were adapted for other databases, with adjustments based on their specific syntax and search capabilities.

1. ***Selecting Relevant Studies:*** Using the search strategy, 200 articles were initially retrieved. The screening of studies was conducted in 2 stages. In the first stage, duplicate studies were removed using EndNote X20 software, which automatically identifies and removes duplicates based on title, author, or DOI. This was followed by a manual review by 2 independent researchers to ensure that no duplicates remained. In the second stage, titles and abstracts of the remaining articles were independently screened by 2 reviewers according to the predefined inclusion and exclusion criteria. Any disagreements were resolved through discussion and consensus. Subsequently, the full texts of potentially relevant studies were thoroughly assessed to confirm eligibility and finalize the selection.

The inclusion criteria were as follows: scientific studies focusing on the use of trending novel educational methods globally, which are considered new and adapted to local resources and context in Iran for patient education; published in Persian or English between January 1, 2011, and April 20, 2025; availability of full-text; accessible in electronic format. The exclusion criteria included studies unrelated to these novel patient education methods in Iran, non-scientific publications such as newspapers, magazines, or conference abstracts, and duplicate or overlapping studies employing similar educational approaches. These criteria were established to ensure the relevance and quality of the studies included in this scoping review.

2. ***Data Charting:*** A data extraction form was designed, and 2 researchers reviewed 29 studies, entering the extracted information into a table for each study. The table included the following information: author, publication year, research objective, sample and sample size, research method, variable examined, measurement method, and key findings related to the study's aim.

3. ***Data Synthesis and Reporting:*** Data from each study were transferred to a Word file for analysis and coding using MaxQDA version 10 software. An in-depth data review and summarization process led to the extraction of codes and the identification of key findings related to the research question. Coding was performed using a combination of deductive and inductive approaches:

- ***Deductive Coding:*** Data were assigned to predefined conceptual categories based on key concepts related to New educational methods and patient education in Iran.
- ***Inductive Coding:*** New codes were created for emerging or unexpected concepts not included in the initial framework.

The extracted data were organized into 3 main categories:

- New educational methods used (type of methods, technologies utilized)
- Target population of education (patients, families, specific groups)
- Educational outcomes and results (effectiveness, learning, behavior change)

If the selected studies exhibited heterogeneity in methodology, target population, measurement tools, or study type, data were analyzed using a descriptive synthesis approach, summarizing and comparing the results thematically.

Thematic Classification: The study findings were categorized into key themes, including types of educational methods, target populations, educational tools, and outcomes of educational interventions.

Comparative Analysis: A comparative analysis was conducted to identify similarities and differences in the methods used, types of patients educated, and the effectiveness of the methods.

Validation of Results: The study's results were validated through review and confirmation by experts in medical education. After data analysis and coding, the results were presented to several medical education specialists and independent researchers to ensure the accuracy and reliability of the analysis and findings. No deviations from the planned methodology occurred during the conduct of this scoping review.

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Results

A total of 29 articles related to new patient education methods and technological innovations in Iran's healthcare system were reviewed. The studies included 17 clinical trials, 7 quasi-experimental studies, 1 experimental study, 2 descriptive-analytical studies, and 1 developmental study. The data from these studies were summarized in Table 2, detailing each study. The selection process is illustrated in Figure 1, which presents a summary of the included studies, including the stages of identification, screening, eligibility assessment, and final analysis (Figure 1).

Following qualitative coding and thematic analysis based on predefined and inductively developed categories, the patient education methods identified in the reviewed studies were classified into four main categories according to target group, method type, medium used, and level of interaction:

1. Patient-Centered or Family-Centered Methods
2. Direct Education Methods
3. Indirect Education Methods
4. Interactive Methods

1. Patient-Centered or Family-Centered Methods

Family-centered education is a key concept in nursing that helps maintain family integrity and provides tailored care for each family. With the shift toward health-centered systems and recognition of the importance of family relationships in health and illness, family-centered education has gained approval. In this approach, families actively participate in identifying needs and the education process, as it is believed that a disease affecting one family member can impact the entire family. Active family involvement can foster hope and motivation for recovery in patients (22). Family participation also enhances respect and collaboration, improves family health and well-being, and reduces economic costs (23-25).

Patient-centered education increases patients' awareness and understanding of their condition, leading to improved lifestyles and quality of life (26).

Patient education is directly linked to empowerment, which, according to ego, includes self-reliance, personal responsibility, and self-care, with the most reported outcome being health behaviors (27). Individuals find themselves empowered when they have sufficient knowledge about their condition to make informed decisions, have effective control over their circumstances, implement decisions, and evaluate the value and benefits of those decisions based on experience (28). The outcomes of empowerment include increased confidence, the ability to set and achieve goals, a sense of control over life and change processes, and hope for the future (29).

2. Direct Education Methods

Direct education methods can be implemented individually or in groups. One direct education method is face-to-face education, considered the gold standard for patient education (30). This method provides opportunities for patients to ask questions, address mental challenges, and correct misconceptions, while allowing nurses to ensure patient understanding and receive feedback (31). Another direct education method is the teach-back approach. This comprehensive, multidisciplinary, evidence-based method aims to assess patient comprehension by encouraging patients to restate the information in their own words. If a patient does not fully understand, the educator repeats the explanation until comprehension is achieved. This method enhances the transfer of concepts and allows for practical assessment of patient understanding, enabling additional education if needed (32).

Group-based direct education methods, such as group problem-solving, are also effective. In this method, patients participate in discussions and share experiences related to the session's topic, helping them gain knowledge about their condition, make informed decisions, and exert better control over their situation. Group problem-solving enhances self-esteem, which, due to its bidirectional relationship with self-efficacy, improves skills and self-efficacy levels (28,33). Effective implementation of these approaches relies heavily on the proficiency of nurses and medical personnel in soft skills, especially communication competencies (34).

3. Indirect (Non-Face-to-Face) Education Methods

Developing educational programs aligned with patients' needs, experiences, and interests remains a significant challenge for healthcare professionals. Patients with chronic conditions require ongoing care, but primary care providers often face time constraints that limit their ability to provide comprehensive care. Additionally, many patients live in rural or remote areas with limited access to comprehensive healthcare services. Furthermore, patients' busy daily schedules often prevent them from attending in-person educational sessions or aligning their schedules with formal educational programs. Mobile communication technologies have created opportunities to extend healthcare beyond hospitals and clinics into patients' daily lives (35).

Indirect education methods allow patients to access information without time or geographical constraints, saving time and costs (36). Moreover, short-term education alone cannot ensure sustained adherence to treatment plans. Patients and their families require diverse follow-up methods to maintain compliance. Thus, patient education and post-discharge follow-up play critical roles in improving treatment outcomes (22). Indirect education methods can be delivered in written formats (posters, pamphlets, etc.), audiovisual formats (educational videos, podcasts, etc.), or electronic formats (apps, websites, SMS, etc.). Verbal information may be misunderstood or forgotten, but written materials, such as pamphlets, are easily accessible, allow for review if forgotten, and save time for both patients and healthcare providers (37). The integration of information technology into all aspects of medicine has justified and rationalized the use of new technologies, such as mobile phones and computers, as innovative tools for patient education (22, 35).

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Table 2. Summary of Data Extraction

Authors	Research Objective	Publication Year and City	Sample Size and Sampling Method	Research Method	Variable Examined	Measurement Method	Education Method	Key Findings
Shabanazad S et al. (43)	Determine the effect of using a short message service on anxiety and satisfaction levels of patient companions during surgery.	Chalus, 2020-2021	128, convenience sampling	Clinical trial	Overt and covert anxiety	Sending patient status via SMS and assessing anxiety with Spielberger's overt and covert anxiety questionnaire	SMS messaging	SMS messaging reduced anxiety and increased satisfaction among patient companions, recommending the allocation of resources to support families of surgical patients.
Asadi M et al. (44)	Examine the effect of empowerment-based education on anxiety in transgender clients undergoing hormone therapy.	Tehran Welfare Center, 2018	87, convenience sampling	Randomized clinical trial	Overt and covert anxiety, age, gender, marital status, employment status, education level, medication type, and history of gender reassignment surgery	Demographic and medical history questionnaire, Spielberger's anxiety questionnaire	Lectures, facilitated group discussions, and telephone follow-ups	Education reduced overt anxiety, suggesting nurses design and implement empowerment-based interventions to reduce anxiety in these patients.
Shojaeizadeh D et al. (28)	Evaluate the empowerment model's effect on diabetes distress and control in type 2 diabetic patients.	Isfahan Diabetes Center, 2011	140, random sampling	Clinical trial	Diabetes distress, HbA1C	Diabetes distress questionnaire, HbA1C level	Group problem-solving and peer support	Empowerment-based education, which incorporates group problem-solving and peer support, was more effective than conventional diabetes education in reducing diabetes distress and improving control.
Zand S et al. (22)	Determine the effect of family-centered and patient-centered education via multimedia software on cardiac dysrhythmia in patients with acute myocardial infarction.	Arak, 2014	60, convenience sampling	Clinical trial	Type of myocardial infarction, type of cardiac dysrhythmia	Researcher-designed checklist	Multimedia software using personal computers	Family-centered education was more effective than patient-centered education in reducing cardiac dysrhythmia, recommending family involvement in educational interventions for myocardial infarction patients.
Nassehi A et al. (26)	Compare the effect of compliance-based and empowerment-based education models on the quality of life of asthma patients.	Kerman, 2011	70, convenience sampling	Quasi-experimental	Quality of life dimensions, age	Quality of life questionnaire for patients	Lecture (compliance-based) and self-directed learning	Both educational models improved the quality of life in asthma patients, emphasizing the role of education by healthcare staff, particularly nurses.
Ahmadi E et al. (45)	Examine the effect of acceptance and commitment therapy (ACT)-based group education on self-empowerment.	Tabriz, 2018	30, simple random sampling	Quasi-experimental	Behavioral, cognitive, emotional, and motivational skills	Flener et al. self-empowerment questionnaire	ACT-based group education	ACT-based group education effectively increased self-empowerment in women, indicating its efficacy as an intervention.
Ghavidel A et al. (46)	Examine the effect of family-centered education on the quality of life of patients post-coronary artery bypass graft surgery.	Tehran, 2015	96, convenience sampling	Experimental	Duration of heart disease, no prior history, marital status, occupation, smoking, and underlying conditions	Two-part questionnaire: demographic characteristics and quality of life	Pamphlet-based family education	Family-centered education, provided through pamphlets, improved the quality of life in patients after coronary artery bypass graft surgery.
Gharaati F et al. (47)	Determine the effect of a mobile phone-based educational intervention on self-care behaviors in patients with thalassemia major.	Minab, 2016	91, census sampling	Interventional	Disease awareness, attitude, nutritional behaviors, iron-chelating drug use, blood transfusion, specialist visits, physical activity, smoking	Researcher-designed questionnaire	Mobile phone-based education	Mobile phone-based education has a positive impact on awareness, attitude, and self-care behaviors in thalassemia major patients, and is recommended for use when access to traditional education is limited.

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Mahmoudirad G, Esteki R (48)	Examine the effect of the Six Sigma model on the quantity and effectiveness of patient education in the cardiac care unit (CCU).	Birjand, 2013	56, census sampling	Quasi-experimental	Disease cause, risk factors, medications, diet, physical activity, and exercise	Researcher-designed questionnaire	Six Sigma model	The Six Sigma model increased the quantity and quality of patient education, recommending process improvement to address deficiencies.
Shahbodaghi Z, Borhani F (49)	Determine the effect of an empowerment program on HbA1C in type 2 diabetic patients.	Sirjan, 2012	134, census sampling	Clinical trial	HbA1C level, diabetes duration, age, family history, oral medications, and smoking	Demographic and HbA1C questionnaire	Anderson's 4-step empowerment approach	The empowerment program increased patient efficacy in blood glucose control and effectively reduced HbA1C levels in type 2 diabetic patients.
Mehrdad M et al. (50)	Examine the effect of preoperative education on postoperative pain and anxiety in patients undergoing percutaneous nephrolithotomy (PCNL).	Isfahan, 2017	130, convenience sampling	Clinical trial	Postoperative pain, postoperative anxiety	Beck Anxiety Inventory, Visual Analog Scale for pain intensity	Video-based education	Preoperative education significantly reduced postoperative pain and anxiety, offering economic and psychological benefits.
Karimi Moonaghi H, Delir Z (32)	Examine the effect of the teach-back method in patient education.	Mashhad, 2017	Not explicitly stated; at least 22 sources reviewed	Descriptive analysis	Teach-back method performance and impact on patient comprehension	Qualitative analysis of prior sources	Teach-back method	The teach-back method stabilized patient education and significantly reduced adverse clinical outcomes.
Babaee T et al. (31)	Determine the effect of preoperative face-to-face education on pain in patients undergoing coronary artery bypass graft surgery.	Tehran, 2014	72, convenience sampling	Quasi-experimental	Pain intensity	Johnson pain scale, two forms for recording pharmacological and non-pharmacological methods	Face-to-face education	Face-to-face education has been shown to reduce postoperative pain and is recommended as a non-pharmacological intervention for surgical nurses.
Sanaie N et al. (51)	Determine the effect of family-based empowerment on family cooperation in adhering to treatment regimens post-coronary artery bypass surgery.	Tehran, 2013	102, convenience sampling	Clinical trial	Diet, medication regimen, and physical activity	Researcher-designed demographic questionnaire, family cooperation in treatment adherence, medication, and physical activity questionnaires	Role-playing, practical participation, and group discussion	Family-based empowerment was feasible and increased family cooperation in treatment adherence.
Aliabadi M et al. (52)	Determine the effect of empowering family caregivers of brain injury patients based on problem-solving on their knowledge, attitude, and caregiving skills.	2013	60, convenience sampling	Clinical trial	Caregiver knowledge, attitude, and skills	Researcher-designed questionnaire	Problem-solving-based (PBL)	Problem-solving-based empowerment increased caregiver knowledge, understanding, and skills, improving caregiving efficiency.
Madarshahian F et al. (42)	Examine the effect of the jigsaw teaching technique on medication adherence in patients with type 2 diabetes.	Zabol, 2017	35, simple random sampling	Quasi-experimental	Diabetes duration, medication adherence, HbA1C	Demographic and medication adherence questionnaires	Jigsaw-based education	The jigsaw teaching technique has a positive impact on medication adherence, particularly for patients with chronic diseases.

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Authors	Research Objective	Publication Year and City	Sample Size and Sampling Method	Research Method	Variable Examined	Measurement Method	Education Method	Key Findings
Asghari Amrei S et al. (53)	Design and develop a smartphone app for burn self-care by assessing patients' informational needs.	Tehran, 2019	Phase 1: 78 (45 burn patients, 14 doctors, 6 general practitioners, 4 general surgeons, 4 plastic surgeons, 19 nurses); Phase 2: 15 burn patients using the app; convenience sampling	Descriptive-analytical in two phases: needs assessment and app development	Informational needs in various domains	Researcher-designed questionnaire based on literature review	App with eight self-care educational sections	The app increased knowledge about burn conditions and improved self-care skills, recommending further studies.
Sajjadi SL et al. (54)	Examine the impact of individualized education on the learning needs of patients undergoing hemodialysis.	Tabriz, 2023	102, random sampling	Randomized controlled single-masked clinical trial	Individualized education, medications, activities, health-related emotions, quality of life, family support, and general health	Patient learning needs scale measured at three points: before, immediately after, and three months post-intervention	Personalized education	Individualized education is recommended as an effective method for reducing learning needs among hemodialysis nurses.
Sharififard N et al. (55)	Examine the effectiveness of oral health education using audio-tactile performance (ATP) alone, combined with mother education, or with a music- and game-based package on oral health in blind children.	Tehran, 2020	200 blind children (preschool to 10th grade), random sampling	Randomized controlled cluster trial	Oral health status, children's age, gender, academic level, and vision level	Simplified Oral Hygiene Index (OHI-S), Bleeding on Probing (BOP) index	ATP alone, ATP + mother education, ATP + music- and game-based education	All groups showed significant improvement in OHI-S and BOP; the music- and game-based group showed the greatest improvement.
Habibi S et al. (56)	Design and evaluate a multidisciplinary intervention based on the Health Belief Model (HBM) to reduce musculoskeletal pain in nursing home elderly.	Tehran, 2024	60 elderly, random sampling	Clinical trial	Musculoskeletal pain intensity, depression, anxiety, stress, HBM constructs (perceived susceptibility, severity, benefits, barriers, self-efficacy)	Demographic questionnaire, DASS, Visual Analog Scale (VAS), HBM-based questionnaire	Interdisciplinary education (physician, physiotherapist, psychologist)	The HBM-based intervention is expected to reduce musculoskeletal pain, improve anxiety and depression, and promote healthier lifestyles, guiding future interventions.
Toulabi T, Mohammadipour F (57)	Examine the effect of hospital information system (HIS)-based intervention on patient education and satisfaction with nurses' education.	Khorramabad, 2022	256 nursing shifts, 1350 computer reports, 150 patient satisfaction questionnaires; non-random quota sampling	Quasi-experimental	Patient education scores, patient satisfaction with nurses' education	Direct observation of nurses, HIS computer reports, and patient satisfaction questionnaire	HIS-based intervention	HIS-based intervention significantly increased patient education scores, satisfaction, and documentation efficiency.
Mirzaei-Alavijeh M et al. (58)	Examine the effectiveness of a medication adherence promotion program in hemodialysis patients using the COM-B model.	Kermanshah, 2022	140, simple random sampling	Quasi-experimental	Medication adherence in hemodialysis patients	COM-B-based questionnaire	Educational-behavioral (COM-B model)	The COM-B-based program increased medication adherence, effective for chronic disease behavior change.

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Authors	Research Objective	Publication Year and City	Sample Size and Sampling Method	Research Method	Variable Examined	Measurement Method	Education Method	Key Findings
Ebrahimi H et al. (59)	Examine the effect of peer education on the quality of life and self-care behaviors in patients with myocardial infarction.	Tehran, 2020	70, block random sampling	Randomized clinical trial	Quality of life, self-care behaviors	MacNew quality of life questionnaire, Miller self-care questionnaire	Peer education	Peer education improved the quality of life and self-care behaviors in patients with myocardial infarction.
Bagchegi O et al. (60)	Examine the effect of education based on Kolb's learning style on self-care behaviors in elderly individuals with type 2 diabetes.	Bojnourd, 2020	62, random sampling	Randomized clinical trial	Kolb's learning style-based education, self-care behaviors	Self-care questionnaire	Kolb's learning style-based education	Kolb's learning style-based education improved self-care behaviors in elderly diabetic patients.
Salehi M et al. (38)	Examine the effectiveness of simulation-based education combined with instrumental music on outcomes post-open heart surgery.	Mashhad, 2021	90, random sampling	Randomized controlled clinical trial	Simulation-based education, simulation with music, and conventional education	AM-PAC "6-Clicks" activity questionnaire, 18-item Nursing Outcomes Classification (NOC), STAI anxiety questionnaire	Simulation-based education with instrumental music	Simulation with music significantly improved post-surgical outcomes compared to simulation alone or conventional methods.
Ghodousi Moghadam S et al. (40)	Design and evaluate a mobile serious game (DiaPo) for diabetes self-management education.	Mashhad, 2024	Not specified (focus on development and evaluation)	Developmental and evaluation	Diabetes self-management, patient engagement, and motivation	Scoring, immediate feedback	Serious game	DiaPo's gamification techniques increased patient engagement and motivation in diabetes self-management.
Jafari J et al. (61)	Design an internet portal prototype based on care models and educational programs for diabetes self-management in Razavi Khorasan.	Mashhad, 2021	32, purposive sampling	Design-Based Research framework	Self-care improvement, educational usability, and user experience	Semi-structured interviews, portal usage observation	Internet portal	The portal, tailored to local culture, supported diabetes self-management, guiding future portal development.
Pouresmail Z et al. (62)	Examine the impact of a simulation device on self-care education in patients with ostomies.	Mashhad, 2019	40, random sampling	Randomized clinical trial	Self-care in ostomy patients, caregiving ability, and behavioral changes	Self-care questionnaires and scales	Simulation device-based education	The simulation device has been shown to improve self-care in ostomy patients significantly and is recommended as an effective tool.
Abbasnia F et al. (63)	Examine the effect of patient education and virtual reality distraction on preoperative anxiety and postoperative pain in laparoscopic cholecystectomy patients.	Mashhad, 2020	150, random sampling	Randomized clinical trial	Patient education and virtual reality distraction, preoperative anxiety, and postoperative pain	Spielberger State Anxiety questionnaire, Visual Analog Scale (VAS), McGill Pain Questionnaire	Virtual reality-based education and distraction	Both methods significantly reduced preoperative anxiety and postoperative pain compared to the control group.

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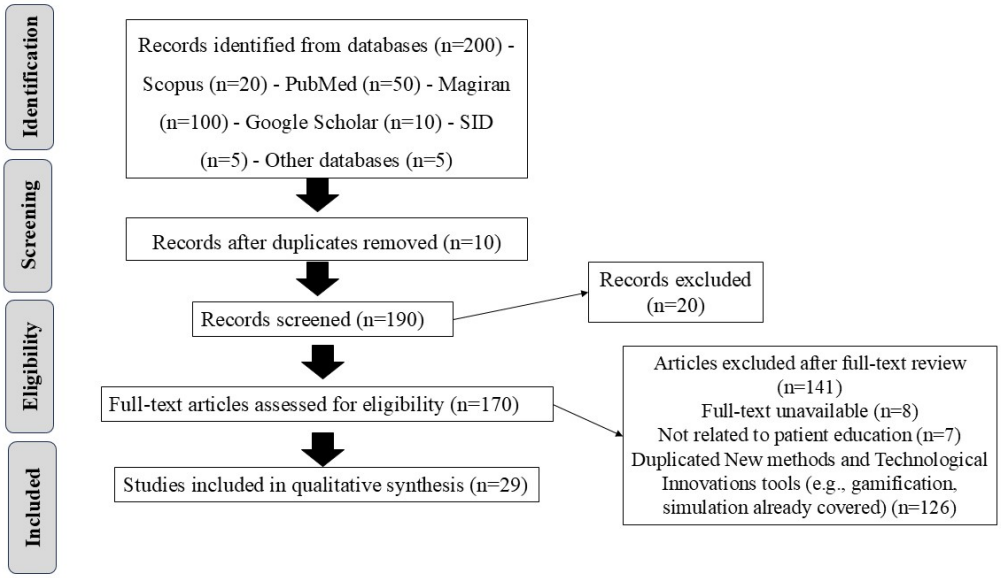

Figure 1. Summary of included studies

4. Interactive Methods

Interactive patient education methods, including educational simulations, digital educational games, and virtual reality, are among the modern approaches to patient education. Simulation techniques replicate real-life conditions without the actual event occurring, providing deeper learning through feedback. Display and re-demonstration (D-RD) techniques can simplify simulation methods, where an individual performs a task, the learner repeats it, and the educator provides feedback (38). Simulation methods improve self-management and self-efficacy, significantly impacting patient health (39). Educational games increase patient engagement, motivation, and participation in the learning process, making education more appealing and effective through rewards and challenges, encouraging active participation in self-management learning (40). Virtual reality, a newer technique, reduces pain and anxiety by diverting attention, improving patient health (41). Another interactive group education method is the jigsaw technique, which requires five key elements for optimal effectiveness: face-to-face interaction, positive group interdependence, individual accountability, social collaboration skills, and achieving desirable group outcomes. In this method, individuals are divided into small groups, and educational content is distributed among group members. One member is responsible for a specific section and joins a specialized group to discuss it. They then return to their original group to teach the content, with the responsible individual reviewing and reinforcing the material at the end (42).

Discussion

This scoping review evaluated patient education methods in Iran's healthcare system from 2011 to 2025, identifying diverse approaches, including patient-centered, family-centered, technology-based, interactive, empowerment-focused, and learning-style-oriented methods. These approaches have demonstrated positive outcomes, such as reduced anxiety, enhanced awareness, improved self-care, and increased patient and family satisfaction. While these categories align with established global frameworks, the novelty of this study lies in its analysis of their application within Iran's unique cultural and structural context. For instance, family-centered education, leveraging the pivotal role of families in Iranian healthcare decision-making, exhibits notable efficacy compared to patient-centered approaches, as evidenced by Zand et al. (2015), who reported superior treatment outcomes for cardiac dysrhythmia patients using family-centered multimedia education (22, 64).

Despite advancements in new methods, such as mobile applications and virtual reality, limited research has explored the use of artificial intelligence and augmented reality for patient education in Iran. This technological gap, coupled with the absence of cohesive national strategies, impedes the scalability of these methods. Studies such as Hosseini et al (2015) and Tsai et al underscore the effectiveness of family-based and mobile-assisted interventions in promoting healthy lifestyle behaviors among youths, highlighting their potential for broader implementation within healthcare systems (65, 66). Similarly, indirect methods like pamphlets and electronic formats address time constraints, with Norian et al. (2013) finding them as effective as face-to-face education (37).

Interactive and technology-driven methods further enhance patient engagement. For example, Madarshahian et al (2017) demonstrated that the jigsaw technique improved medication adherence in diabetic patients (42),

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while Salehi et al (2024) and Ghodousi Moghadam et al (2024) reported reduced anxiety and improved self-care through simulation and gamification, respectively (38, 40). These findings suggest that tailoring education to individual needs, cultural contexts, and comprehension levels is critical for effectiveness.

To address the global challenge of low self-care behaviors in chronic disease management, Iranian policymakers should prioritize evidence-based, technology-driven educational programs and integrate patient education as a cornerstone of healthcare delivery. Future research should focus on longitudinal evaluations of the effectiveness of these methods, cost-effectiveness analyses, and the integration of emerging technologies, such as advanced gamification and digital platforms, tailored to Iran's sociocultural and resource constraints. By leveraging cultural strengths, such as family involvement, and embracing technological innovation, Iran can enhance patient outcomes and align with global healthcare advancements.

This study has several limitations that should be acknowledged. Although this review was based on an extensive and systematic search, some relevant studies on patient education may have been overlooked and not included in the final analysis. In addition, we lacked access to specific full-text articles that could have provided valuable insights. Furthermore, the heterogeneity in measurement tools and research methodologies among the reviewed studies made precise data comparison challenging.

Despite the positive outcomes reported with new patient education methods, significant research gaps remain. Future research is recommended to include qualitative and mixed-methods studies to explore patients' and families' experiences with these educational processes. Moreover, long-term evaluations of the impact of new education on quality of life, healthcare costs, and clinical outcomes are needed. Cost-effectiveness modeling of various educational interventions should also be conducted to facilitate evidence-based health policy decisions.

Conclusion

This scoping review elucidates the diverse patient education methods within Iran's healthcare system (2011-2025), encompassing patient-centered, family-centered, and technology-based approaches. These methods have effectively reduced anxiety, enhanced self-care, and increased patient satisfaction. The study's primary contribution lies in adapting globally recognized methods to Iran's cultural context, with family-centered education demonstrating notable efficacy. Despite the adoption of tools such as mobile applications, Iran's utilization of advanced technologies, including artificial intelligence, remains limited, primarily due to the absence of cohesive national strategies. Policymakers should prioritize evidence-based, technology-driven education programs that are embedded within healthcare delivery. Future research should investigate long-term effectiveness, cost-effectiveness, and innovative technologies tailored to Iran's sociocultural framework, aligning with global healthcare standards.

Authors' Contributions

FB: Conceptualization, Writing – Original Draft, Data Analysis, Validation of the final draft.

SR: Writing –Original Draft, Validation of the final draft.

HGF: Data Curation, Data Analysis, Writing – Review & Editing of the final draft.

SH: Supervision, Project Administration, Writing – Review & Editing, Final Approval of the manuscript.

Ethical Considerations

Not applicable.

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Conflict of Interests

The authors declare that they have no competing interests.

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