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Review Article

The Outcomes, Barriers, and Facilitators of Implementing Clinical Practice Guidelines in Iran: A Comprehensive Review

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Abstract

Background: Clinical practice guideline (CPGs) are highly valuable in enhancing healthcare efficiency as they lead to the selection of the best medical methods and reduction of their costs. Nevertheless, implementing CPGs in practice can be quite challenging, as they require alterations at individual, organizational, and health system levels. Therefore, we aimed to identify the outcomes, barriers, and facilitators associated with CPG implementation.

Methods: We conducted an extensive search using Web of Science, PubMed, Scopus, Embase, and various non-English databases to gather quantitative, qualitative, and review studies on the implementation of CPGs from Jan 1, 1990, to Dec 26, 2022. Our analysis focused on the outcomes, barriers, and facilitators of CPG implementation, which categorized into four groups: policy-making, health system and hospitals, professional experts, and clinical guidelines.

Results: After conducting a thorough review of 37 studies, the most significant outcomes were found to be reduced costs and enhanced quality of care. However, certain challenges, such as inadequate support, insufficient education, high work pressure, tight schedules, and a lack of unified and clear guidelines, hindered these improvements. To overcome these barriers, it is essential to prioritize effective leadership, improve work conditions, allocate necessary resources, create a structured framework for the guidelines, and simplify their content to fit the clinical circumstances.

Conclusion: It is crucial to identify the outcomes and barriers associated with implementing CPGs to enhance professional performance, elevate the quality of care, and foster patient satisfaction. Developing effective strategies hinges on this awareness.

Keywords: Clinical practice guideline; Barrier; Facilitator; Evidence-based medicine

Introduction

As the landscape of medicine rapidly evolves, it can be daunting to keep up with the latest advancements and assimilate them into a cohesive structure. Additionally, modern medical practice

has become much more intricate, emphasizing intervention-based approaches and resulting in significant modifications to clinical practice. Maintaining awareness of recent developments is essential to providing the most effective treatments possible (1).

Clinical practice guidelines (CPGs) serve as a useful tool for clinicians for bridging the apparent gap between patient care and best practice (2). Guidelines based on high-quality evidence can effectively fill the void between policies, best practices, and patients' preferences in different localities (3). Utilizing targeted behavioral modifications, these tools can reinforce suitable measures and improve healthcare standards (4).

Since the advent of evidence-based medicine in the 1990s, there has been a call for more precise methods to develop guidelines (5-7). These guidelines, should aid in making informed decisions for all stakeholders involved in care (8). CPGs offer a systematic approach for optimizing patient care by evaluating the benefits and drawbacks of different healthcare options (9). The development of CPGs is vital for maintaining a secure health system. However, implementing them can pose challenges as it involves changes in individuals, organizations, or health systems (10).

It is crucial to identify and address the barriers and facilitators for implementing CPGs to enhance the quality of healthcare. However, most systematic review studies focused solely on North America or Europe (11, 12). In 2020, a systematic review was conducted on the Middle East and North Africa region, providing valuable insights for healthcare professionals and policy makers (13). However, there is a lack of comprehensive studies investigating the outcomes, barriers, and facilitators of CPGs implementation in Iran. Unfortunately, most studies have been quantitative, solely and specifically recording the opinions of doctors and nurses.

Despite the strong linguistic, political, historical, and socio-cultural ties between Middle Eastern countries, significant differences exist between them at different levels. This heterogeneity in infrastructure, implementation, culture, and development presents major obstacles to the implementation of healthcare policies, including CPGs (14). The WHO classifies the Middle East countries according to different levels of exposure to risk factors and health inequality (15). These variations pose distinct challenges to implementing macro-policies and other measures. It is essential to tailor macro-policies to suit the unique characteristics of different regions in order to maximize their effectiveness. Furthermore, customizing clinical guidelines to fit local contexts can bolster their execution and success rate.

Iran's executive and cultural infrastructures, coupled with developmental challenges, set it apart from other EMRO region countries. Nonetheless, Iran's recent health policy advancements make it a prime case study for assessing the facilitators and challenges that accompany executing health policies among EMRO nations (16).

We aimed to identify the repercussions, hindrances, and enablers of CPGs implementation in Iran as an endeavor to enhance healthcare practices. Recognizing the necessity of localization in the implementation of international healthcare policies, particularly in EMRO countries, this study serves as a model for countries with similar implementation platforms.

Methods

Search strategy

We developed a search strategy to perform a thorough review and find pertinent data on the effects, obstacles, and enablers of clinical practice guideline (CPG) implementation in Iran. Our search started with PubMed and then extended to other databases (Supplementary file 1). The key terms were deliberately chosen after verifying MeSH, Emtree, and related research.

[("Clinical guidelines" OR "Clinical Practice Guideline" OR Guideline OR" practice guidelines" OR guidance OR 'evidence appraisal" OR advance directive OR "Evidence-based standards "OR "guidelines-based care" OR "guidelines care" OR "guidelines-based Clinical" OR "management protocol" OR Care Standard OR Clinical Protocol) AND IRAN].

Our team conducted a thorough search for relevant articles on clinical guideline implementation in Iran using multiple databases, including Web of Science, PubMed, Embase, Scopus, and various Iranian databases, covering articles published from Jan 1, 1990, to Dec 26, 2022. Due to the limitations of the Iranian databases, we used keywords such as "clinical guidelines" in our search. We also employed backward reference searching to ensure we did not miss any relevant articles. Our inclusion criteria were English and Farsi articles that discussed the outcomes, barriers, challenges, and strategies of implementing clinical practice guidelines (CPGs) in Iran.

Articles that studied non-native guidelines, evaluated the quality of the guidelines, or did not have the implementation of the guidelines as their primary focus were excluded. Furthermore, non-English articles and letters to editors were also excluded. If articles' full texts were not available, we followed up with the university librarian and sent a request through email to the author. We also sent a reminder email two weeks after the first one. Ultimately, articles for which we could not obtain the full text were excluded from the study.

Data extraction

The articles were thoroughly screened, and those with irrelevant titles and abstracts were excluded. Articles with insufficient relavence with our objectives were excluded after analyzing the full texts. Endnote (Endnote X9, Thomson Reuters, Philadelphia, PA 12062, USA) was used to identify and remove duplicates. The primary data were identified, and themes were extracted from the full texts. The themes were then formulated and named, creating a thematic map. MaxQDA (MaxQDA software version 2020, Udo Kuckartz, Berlin, Germany) was utilized to ensure precision in the content analysis. Our approach to screening and analyzing the articles followed a structured and systematic process.

A summary of the evidence

The thematic synthesis was carried out methodically. Following discussions on the findings, we created three categories – achievements, barriers, and facilitators – each of analyzed while taking into account the context of policy-making, the health system and hospitals, health experts, and the development and publication of CPGs. The extracted explanations related to each category were presented in tables to help identify duplicate themes. This approach is similar to the thematic analysis method introduced by Dixon and Woods (17).

Ethical approval

This research has been approved by the Kerman University of Medical Sciences Ethics Committee (Approval ID: IR.KMU.REC. 1400.359).

Results

After eliminating duplicates from 9253 recovered articles, 285 articles were analyzed. We included 37 articles relevant to our study objectives after a full-text analysis (Fig. 1). Of those, seven studies used qualitative methods, one used a systematic review for field assessment, and the rest were quantitative studies using interventions and questionnaires to investigate the effects of CPGs on the health sector (Supplementary file 2).

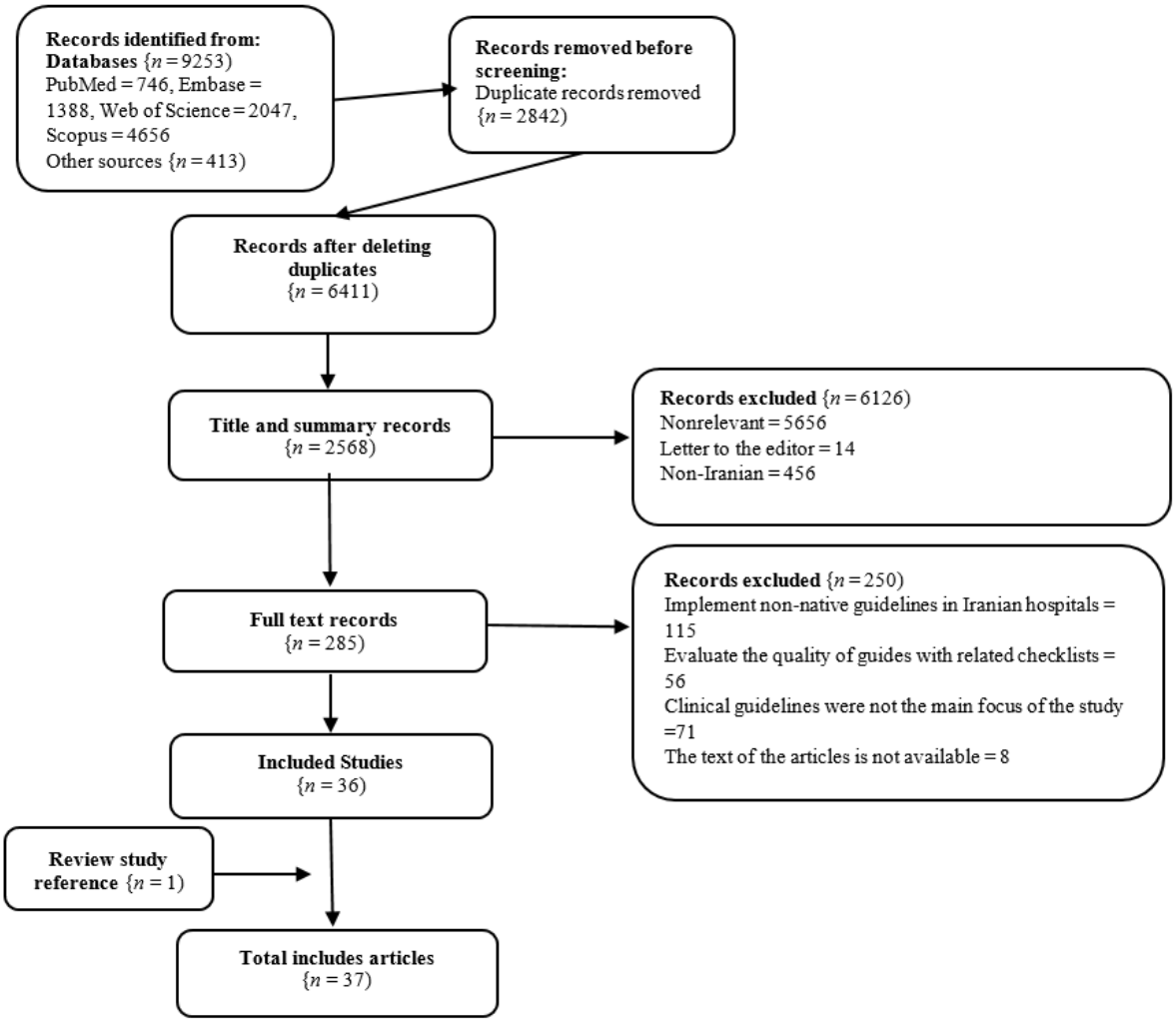

Fig. 1: Flowchart of search and exclusion process

Outcomes of and factors affecting CPG implementation

We present the outcomes obtained from the articles (Table1). The outcomes of CPGs implementation were rarely discussed in the articles. We aim to provide a comprehensive overview of findings.

Policy-making and satisfaction

The identified outcomes included prioritizing healthcare (18, 19), improving the quality of care (20), easy access to services, justifying the quantity and quality for the insurer, making strategic purchases (21), satisfaction with medical and nursing services, and increasing people's satisfaction (22).

The health system and hospitals

Improving the quality of care and diagnosis, decreasing errors and contradictory medical orders were mentioned (23-27). Increasing hospitals' efficiency and decreasing the length of hospital stay were among the points mentioned in the other studies (22, 25, 26, 28). The most frequent outcome was decreased economic burden and system costs (18, 21, 22, 29).

Table 1: Outcome for the implementation of clinical practice guidelines

Context	*Outcome*
Policy-making	• Improving the quality of care • Access to services • Prioritizing healthcare services • Justifying the quantity and quality for the insurance company • A tool for strategic purchase • Satisfaction with medical and nursing services • Improving patient satisfaction • Improving the patient rights index
The health system and hospitals	• Improving the quality of care, decreasing errors in identifying patients, improving nursing standards, improving nursing diagnosis • Improving the efficiency of hospitals and personnel, improving performance indices, improving patient performance, increasing hospitals' capacity • Decreasing the economic burden and preventing unnecessary costs, decreasing the system's expenses, decreasing improper medication prescriptions, decreasing unnecessary orders • Decreasing the length of stay, decreasing waiting time, decreasing hospitalization duration
Professional experts	• Facilitating doctor-patient relationships, helping the medical team and patient to make decisions • Increasing patients' and doctors' calmness • Proper educational tools to improve knowledge

Health experts

Facilitating the doctor-patient relationship, helping the medical team and patients in decision-making (18, 20), and increasing patient's and doctors' calmness were among the points reported (26).

Economic factors (30), using proper and up-to-date information (31), making decisions based on local evidence (19), formulating efficient administrative and educational strategies (32), and promoting culture (30, 33) were also mentioned as the factors affecting CPG implementation.

The barriers and facilitators in CPG implementation

This section presents the most common barriers according to each theme. Moreover, the facilitators, which are not so common but related to each theme are discussed (Tables 2, 3).

Policy-making and satisfaction

Considering the political instability, frequent change of policy-makers, lack of meritocracy, disproportionate distribution of powers and responsibilities, and a conservative managerial approach, numerous groups within the healthcare sector are no longer implementing the guidelines and are resisting their acceptance. The inactivity of influential national associations and the lack of an educational system responsive to the local needs were some other issues mentioned in the studies. Poor regulations and bylaws in developing guidelines can be due to policy-making and planning without practical information. The lack of a monitoring and appraisal system is another barrier leading to decreased staff motivation. Direct doctor-patient relationship leads to unclear costs and profits resulting from CPG implementation, leading to a decrease in policy-makers' motivation and support. Financial problems in CPG implementation increase costs due to increased number of visits and increased complications due to longer hospitalizations were among other issues discussed in the studies (18, 24, 33-36).

Table 2: Barriers for the implementation of clinical practice guidelines

Context	*Barriers*
Policy-making	• Constant changing of policy-makers, the new government not supporting the previous one's plans, political instability, not supporting the guidelines at a macro level, the lack of participation from stakeholders, inactivity of influential national associations, Lack of meritocracy and proportionality between powers and responsibilities • Effectiveness of significant policy-makers' personal characteristics and attitudes in supporting the guidelines • Poor interaction in CPG development and implementation • The lack of a monitoring and appraisal system, the lack of regulations and bylaws in developing guidelines • Incompatibility of insurance requirements and commitments with the guidelines in terms of strategic purchase • Rejection of prescription evaluators in insurance companies by the doctors, the lack of personnel skilled in evaluating prescriptions in insurance companies • Unclear profit and costs of CPG implementation due to the direct doctor-patient relationship • Judgments based on coursebooks • Managers' conservatism
The health system and hospitals	• Inefficient staff organization, insufficient workforce, low professional commitment, high workload, bureaucracy • Dishonesty in the health system in practice, the lack of motivation in staff • Insufficient resources and equipment • Time constraints
Professional experts	• Staff's unfamiliarity with CPGs • The lack of necessary education regarding CPGs and a culture of learning • The lack of skills in doctors to use the guidelines • Undesirable conditions for implementing the guidelines • Elimination of doctors' authority • The gap between the guidelines and real situations
CPGs	• Being generic, ambiguous, and complicated • Not using the national evidence • Limited distribution and doctors' insufficient access • Lack of a homogeneous and uniform structure, providing review content in different formats • Contradictions in the guidelines

It is crucial for policy-makers and national organizations to support the development and publication of high-quality (CPGs) to overcome the obstacles in healthcare (7, 20). Legal guarantees and addressing financial limitations are essential facilitators as they can insure that pharmaceutical companies do not commercialize or interfere with CPG creation (18, 19, 37). CPGs can also unify treatment procedures among insurance companies and service providers, leading to strategic purchase policies based on the guidelines (21). Reforming payment systems, establishing information infrastructures, legalizing CPGs with the Medical Council's recommendation, providing financial incentives, and enforcing the necessary working process standards are additional facilitators to implement CPGs effectively (18, 37-39). Moreover, monitoring and evaluating performance through clinical audits, providing legal support for healthcare professionals, and creating structures to guarantee implementation can help overcome policy-making barriers. Policy-makers and national organizations should prioritize supporting high-quality CPGs for better healthcare outcomes (37, 38).

Table 3: Facilitators for the implementation of clinical practice guidelines

Context	*Facilitators*
Policy-making	• Policy-makers and national organizations' support of the development and publication of high-quality CPGs • Avoiding commercialization and intervention of pharmaceutical companies • Providing the required infrastructures and overcoming financial constraints • legalizing the guidelines using doctors' advice, providing legal support for doctors • Developing standards for the work process • Reforming the payment system, unifying insurance tariffs, unifying therapeutic methods among insurances and clinical settings • Monitoring and evaluating performance
The health system and hospitals	• Implementing clinical knowledge management to organize human resources • Creating a positive attitude toward the guidelines in staff, motivating them, and changing their attitudes toward teamwork through education • Having frequent and regular educational courses • Providing resources • Recruiting skillful staff to change performance
Professional experts	• Having sufficient skills and strong leadership • Having educational courses
CPGs	• Developing the guidelines based on national evidence and studies on cost-effectiveness and adjusting the guidelines to the country's demands • Preventing the repetition of documentation • Unifying the guidelines, creating protocols for development and adjustment • Simplifying the guideline contents

The health system and hospitals

According to the studies, the main obstacle hindering progress is the inefficient organization of the workforce. This, in turn, leads to an increase in workload and resistance to change among doctors, ultimately resulting in noncompliance to CPGs. The studies also highlighted a lack of motivation and inadequate relationships among staff as additional barriers (32, 34, 38-41). Dishonesty within the system and a lack of commitment hinder teamwork and the implementation of guidelines. Additionally, inadequate resources, equipment, and time constraints present further barriers (7, 18, 33, 36, 38, 39).

In order to enhance organizational performance and effectively utilize human resources, some facilitators have suggested allocating ample resources and implementing clinical knowledge management (18, 38). Additionally, improving work conditions, reducing work hours, and fostering a positive attitude towards CPGs can also be effective facilitators (7, 18, 39). In order to enhance overall performance, designing educational programs for staff was suggested as a valuable strategy in the articles. These programs serve to inform and motivate employees, improve teamwork, and alter attitudes (18, 39). However, it is important to note that prerequisite skills and effective leadership play a crucial role in determining the approach and objectives (18).

Health experts

This issue include inadequate knowledge and awareness among healthcare professionals, as well as the lack of required training (18, 19, 34, 36, 38, 42-46). Doctors have also highlighted issues such as the complexity of lengthy guidelines, lack of consensus among peers on the guidelines, and compromised professional independence (7, 18, 20). Furthermore, there exists a gap between the guidelines and practical situations. A concerted effort is necessary to overcome these impediments and ensure adherence to CPGs (39).

To enhance the implementation of clinical medicine guidelines, it is imperative to empower employees through educational initiatives. This in-

cludes clarifying CPGs and boosting their capabilities and knowledge. Such measures promote professionalism and enable efficient healthcare delivery (37, 39, 44, 45).

Clinical practice guidelines

The contents of the guidelines were often ambiguous, complex, and generic, a matter of concern (33, 34, 36, 47). Furthermore, the absence of scientific evidence, unclear protocols for the development and regulation of guidelines and a lack of consistency in their design have also been highlighted (33, 35, 38, 48). Insufficient development and dissemination, unavailability, and limited access to guidelines during emergencies are other issues cited in the studies (18, 21, 40, 49).

In order to enhance this topic, a scientific and structured framework be created for guidelines, and that guidelines be simplified to accommodate clinical conditions (18, 20, 37, 38, 47,50). Several measures have been proposed to overcome obstacles, including avoiding redundant documentation, developing guidelines based on national evidence and cost-effectiveness studies, and tailoring guidelines to the needs of the country (7, 37-39). Involving nurses in the development of guidelines can improve their implementation, and studies recommend regular updates to guidelines (18, 39, 47).

Discussion

This review analyzes evidence from 37 studies conducted across various levels of healthcare, and identifies outcomes, barriers, and facilitating factors. The consistent findings reveal that the lack of a leader in the implementation process within organizations and hospitals, time constraints for healthcare professionals, unclear and unvalidated CPG evidence, insufficient knowledge and inadequate training on CPGs are the most significant barriers. Unfortunately, most studies in Iran have solely focused on implementation barriers, indicating a lack of supportive leadership. Therefore, a competent employee who can identify and develop strategies to motivate other employees in making necessary practice changes be delegated as a leader within health care groups. A supportive leader can also bring positive changes to organizational culture, leading to increased acceptance of CPGs (51, 52).

This review reveals that several published studies have reported similar results. Frank et al. highlighted various barriers, including lack of awareness, ignorance of guidelines, non-compliance with recommendations, limited working hours, inadequate human resources, negative attitude, and insufficient support (12). On the other hand, another research was focused on doctors' views and adherence barriers, found that the complexity of CPGs, the excessive number of weak or conditional recommendations, and time constraints of clinical responsibilities were the three primary hindrances (51). Therefore, it is imperative to develop easy-to-understand instructions that do not require special resources and are practical enough to be implemented (45). According to a study on nurses from 134 medical centers, the most commonly cited obstacles and facilitators were related to communication, training, time constraints, staffing shortages, and work pressure(2). On the other hand, doctors view CPGs as a bureaucratic tool that jeopardizes their autonomy and offers little practical value (46).

For following guidelines successfully, it is essential to find solutions for collaboration with those responsible for implementing the CPGs (47). Notably, physicians with long-standing clinical experience and those working in ambulatory settings face more implementation challenges. Therefore, their participation in the planning process can yield fruitful outcomes (4). It is important to examine the barriers and facilitators in low- and middle-income countries, as highlighted other studies. These investigations shed light on key factors such as limited access to medication, inadequate transportation and communication, apprehension among implementers and policymakers, and inequitable resource allocation (53, 54).

After conducting a thorough review and analyzing other studies, we have identified an important point, which indicate that despite the similarity of

our results to previous researches, patients' characteristics were not adequately considered in any of the quantitative and qualitative studies conducted in Iran. As patients are the primary beneficiaries of CPGs, it is essential to discuss that. In a Correa article, language and literacy problems, socio-cultural beliefs, and personal values are significant barriers that can lead to the misunderstanding of the disease and difficulties in following CPGs (11).

In the Middle East region and North Africa, the obstacles and facilitators of adherence to the guidelines were investigated in a ten-year period (2010–2019); the barriers were classified as physician-related factors, such as lack of familiarity with CPGs, and external factors, such as patients, guidelines, and environmental factors which the reported results were different from ours (13). According to a meta-review study, patient characteristics can affect adherence to guidelines. Comorbidity, underlying diseases, has been found to decrease the likelihood of following guidelines. This underscores the importance of tailoring healthcare interventions to individual patients (12).

We also assessed the outcomes of implementing CPGs in the healthcare system. This is a unique contribution to the literature as no other review article has done this. By examining the consequences of implementing CPGs, stakeholders can gain a comprehensive understanding of their value. The implementation of guidelines serves to reduce economic costs, increase the quality of treatment, and lower induced demand. Additionally, it aids in prioritizing health care and ensuring easy access to services. These claims are supported by studies conducted in various countries. For instance, a study associated with adherence to CPGs concerning the use of MRI imaging for acute occupational low back pain revealed that those who followed the guidelines had significantly lower outpatient costs, hospitalization costs, and non-medical costs as compared to those who did not follow the guidelines (54). In a study on the link between adherence to CPGs and survival rates in colorectal cancer patients, following the guidelines led to a 65% decrease in the risk of additional death and improved survival in 75% of the indicators (55). However, it is essential to note that optimal adherence to established CPGs during implementation may not always be desirable due to changing experiences and clinical evidence (56).

Limitation

Our study solely focused on research that delved into the challenges, outcomes, and strategies of implementing CPGs and unpublished studies were inaccessible and not included. However, this had a minimal impact on our results.

Conclusion

While barriers may remain constant throughout the process of removing obstacles identified in this study, their impact can differ based on the type of health care professional or instruction. Each key recommendation presents a unique set of obstacles. To ensure optimal implementation of this tool, it is important to establish appropriate infrastructures, make full use of local human resources in each region when developing guidelines, and maintain a balance between guidelines and regions. The formation of multidisciplinary groups can be a powerful tool for effective and efficient implementation strategies and updates in this field. Policies should aim to improve the quality of health care, encourage implementation, and ensure fair access to healthcare. To ensure success and sustainability of implementation activities, policies should also adapt to the social context, culture, and society.

Journalism Ethics considerations

Ethical issues (Including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been completely observed by the authors.

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Conflicts of Interest

The authors declare that they have no conflict of interest or competition.

Availability of data and materials

Supplementary information files were not included. Readers may contact the corresponding author, if needed.

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