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Health Behavior and Lifestyle Interventions for Patients with Chronic Diseases: A Systematic Review

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ABSTRACT

Objective(s): To review and analyze the effectiveness of an instructional programs in improving healthy lifestyles among patients with chronic diseases.

Methods: This systematic review synthesized data from experimental randomized controlled trials and quasi-experimental studies published between 2016 and 2024. The search encompassed major databases, including PubMed, Ovid, ScienceDirect, ProQuest, Google Scholar, and the Education Resources Information Center. Inclusion criteria prioritized studies evaluating instructional programs for lifestyle improvement in chronic disease patients. Data abstraction followed a standardized protocol focusing on intervention features and primary outcomes. Study quality was rigorously assessed using the Cochrane Risk of Bias tool for randomized controlled trials and the Greenhalgh checklist for quasi-experimental studies.

Results: 15 articles met the selection criteria and were included in the review after screening 210 papers. Analysis of these articles revealed that the Healthy Living for Chronic Conditions program demonstrated the most significant improvements in promoting healthy lifestyles among patients with chronic diseases. This program's success can be attributed to its personalized approach, which included individual coaching sessions and tailored exercise plans.

Conclusion: While further research is needed, existing findings suggest that the Healthy Living for Chronic Conditions program shows promise in promoting healthy lifestyles. Adapting this program to current health societies may involve integrating it within existing healthcare structures, training healthcare providers on its delivery, and ensuring accessibility for diverse populations.

Recommendations: Healthcare systems should consider implementing personalized, multi-component programs based on evidence-based models, such as Healthy Living for Chronic Conditions. Further research should explore optimal adaptation strategies for diverse populations and settings, alongside rigorous cost-effectiveness analyses.

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تدخلات السلوك الصحي ونمط الحياة للمرضى المصابين بالأمراض المزمنة: مراجعة منهجية

المستخلص

الهدف: لمراجعة وتحليل فعالية البرامج الإرشادية في تحسين أنماط الحياة الصحية لدى المرضى المصابين بأمراض مزمنة.

المنهجية: قامت هذه المراجعة المنهجية بتوليف البيانات من الدراسات الأولية التي استخدمت التصاميم التجريبية التجارب العشوائية المنضبطة وشبه التجريبية، المنشورة بين عامي ٢٠١٦ و٢٠٢٤. شمل البحث قواعد بيانات رئيسية، منها بَيمِد، وأوفيد، وساينس دايركت، وبرو كويست، وجوجل سْكولار، ومركز مصادر المعلومات التربوية (إيريك) .أعطت معايير الإدراج الأولوية للدراسات التي تقيّم البرامج التعليمية الهادفة لتحسين نمط حياة مرضى الأمراض المزمنة. وتم استخلاص البيانات وفق بروتوكول موحد ركّز على خصائص التدخلات والنتائج الأولية. كما تم تقييم جودة الدراسات بدقة باستخدام أداة كوكرين لتقييم خطر التحيز الخاصة بالتجارب العشوائية المضبوطة، وقائمة جرينهالغ المرجعية الخاصة بالدراسات شبه التجريبية.

النتائج: استوفت 15مقالة معايير الاختيار وتم إدراجها في المراجعة بعد فحص ٢١٠ ورقة بحثية. وكشف تحليل هذه المقالات أن برنامج "الحياة الصحية للحالات المزمنة "أظهر التحسن الأكثر أهمية في تعزيز أنماط الحياة الصحية بين مرضى الأمراض المزمنة. ويُعزى نجاح هذا البرنامج إلى منهجه المخصص والشخصي، والذي شمل جلسات توجيه فردية وخطط تمارين مصممة خصيصًا لكل حالة.

الاستنتاجات: على الرغم من الحاجة إلى المزيد من الأبحاث، تشير النتائج الحالية إلى أن برنامج "الحياة الصحية للحالات المزمنة "تبدي فعالية واعدة في تعزيز أنماط الحياة الصحية. وقد تتطلب مواءمة هذا البرنامج مع مجتمعاتنا الصحية إدماجه ضمن الهياكل الصحية القائمة، وتدريب مقدمي الرعاية الصحية على تقديمه، وضمان سهولة وصوله لمختلف فئات السكان.

التوصيات: يجب على الأنظمة الصحية التفكير في تطبيق برامج متعددة المكونات وشخصية تستند إلى نماذج قائمة على الأدلة، مثل برنامج الحياة الصحية للحالات المزمنة .وينبغي أن تستكشف الأبحاث المستقبلية الاستراتيجيات المُثلى للمواءمة مع مختلف السكان والبيئات، إلى جانب إجراء تحليلات دقيقة لجدوى التكلفة والفعالية.

الكلمات المفتاحية: البرنامج الارشادي، نمط الحياة الصحي، الأمراض المزمنة، مراجعة منهجية الأدب، التجربة العشوائية المُنضبطة، الممرضات.

Introduction

In a world where the prevalence of chronic diseases is increasing, healthy lifestyles are of paramount importance. Proper nutrition, Regular physical activity is a fundamental pillar of a healthy lifestyle, while physical inactivity is closely linked to increased rates of chronic diseases and their exacerbation [(1)]. Wellness encompasses physical, mental, and social well-being, often achieved through deliberate efforts to promote health, happiness, and healthy lifestyle [(2-3)]. Illness impairs normal organ function, while behavior, influenced by neural circuits and environmental factors, can be conscious or unconscious and is shaped by motivation and social factors [(4-6)].

Positive attitudes and adherence to moral values promote physical activity and improve overall health [(7-8)]. Positive beliefs and mindset promote healthy lifestyles and positive interactions.[9] Healthy lifestyles, encompassing proper nutrition, exercise, and adequate sleep, contribute to reducing the risk of diseases, while unhealthy lifestyles, which include harmful behaviors, increase the risk of chronic diseases [(10-12)]. Healthy behaviors include preventive measures, illness diagnosis, and recovery actions [(1)].

As Ottawa Charter emphasized, primary healthcare centers play a crucial role in promoting health awareness and fostering healthy patterns, leading to improved individual and societal health [(13-15)]. Health awareness stages, from knowledge to behavior adoption, influence health patterns and lifestyle choices [(16)].

According to the World Health Organization, healthy lifestyle is the process of enabling people to increase prevention and control of diseases and their determinants, and to improve their level of health [(17)].

Behaviors supporting healthy patterns aim to achieve optimal health levels, such as the health-indicative programs for chronic diseases, and often occur after the onset of disease [18-19]. Behaviors supporting healthy patterns and prevention, such as immunization and early disease detection, improve health and reduce disease risk [20-23].

The Health Promotion Model emphasizes individual characteristics, experiences, and behaviors that contribute to positive health outcomes, while instructional health programs focus on education and health promotion strategies to improve individual and community health [24-25].

The Centers for Disease Control and Prevention indicate unhealthy behaviors, such as lack of exercise, poor diet, and substance abuse, contribute significantly to chronic diseases [26-27]. Chronic diseases, often linked to unhealthy lifestyles, highlight the need for effective educational programs to promote healthy behaviors [28].

A new report by the World Health Organization (WHO) revealed that non-communicable diseases account for 75% of global deaths and are the leading cause of death and illness in Iraq [29]. As according to the Iraqi Ministry of Health report in 2019, the high rates of chronic diseases in Iraq are linked to the prevalence of unhealthy behaviors, including smoking, poor diet, and physical inactivity [30]. Non-communicable diseases, driven by lifestyle factors, are a major global health concern affecting millions worldwide [31].

Individual health is influenced by lifestyle, genetics, environment, and healthcare access, all of which interact to impact disease risk [32]. Instructional programs promote self-care and behavior change through education and awareness, aiming to improve individual and community health (33). Therefore, this study was conducted to review and analyze the effectiveness of contemporary health lifestyle instructional programs in improving healthy lifestyles among patients with chronic diseases.

Methods

Study Design

This systematic review included experimental and quasi-experimental studies published in English between 2016 and 2024. The included studies focused on original research articles evaluating the effectiveness of educational or instructional interventions aimed at promoting healthy lifestyle behaviors among patients with chronic non-communicable diseases. This design was selected to address the predominance of quasi-experimental approaches identified in preliminary literature assessments.

Search Methods

A comprehensive search of electronic databases, including PubMed, Ovid, ScienceDirect, ProQuest, Google Scholar, the Education Resources Information Center (ERIC), and selected Iraqi research databases, was conducted for the period 2016-2024. This inclusion was crucial to capture all relevant local and international studies. Search terms included healthy lifestyle, chronic disease, intervention, diet, exercise, and stress management. The search strategy combined keywords and MeSH terms where applicable, using Boolean operators (AND, OR, NOT) to generate search strings for each database.

This systematic review evaluates evidence from randomized controlled and quasi-experimental studies (2016–2024) on the effectiveness of instructional programs in promoting healthy lifestyle behaviors among patients with chronic non-communicable diseases, based on a comprehensive search of PubMed, Scopus, Web of Science, CINAHL, and PsycINFO databases as outlined in the Search Methods section.

Search Outcome

The search yielded 210 records. After removing duplicates and screening titles and abstracts, 190 articles were assessed for eligibility. 15 studies met the inclusion

criteria and were included in the review.

Quality Appraisal

The quality of included studies was assessed using the Greenhalgh and Cochrane checklists. This assessment focused on research question clarity, intervention consistency, data point sufficiency, statistical test suitability, outcome measure reliability, and completeness of data sets.

Data Abstraction

Data were extracted independently by two reviewers using a standardized data extraction form. Extracted data included study characteristics (study design, sample size, country), intervention details (type of program, duration), participant demographics, outcome measures, and effectiveness of the interventions. Discrepancies were resolved through discussion and consensus.

Data Synthesis

A narrative synthesis approach was used to summarize and analyze the findings of the included studies. No quantitative synthesis (meta-analysis) was performed due to the heterogeneity of the studies in terms of populations, interventions, and outcome measures**.**

Study Selection and Use (PICO)

Following database searches, titles and abstracts were screened for relevance to the PICO framework (Population, Intervention, Comparison, Outcome) focusing on experimental studies of educational/instructional interventions promoting healthy behavior change. Full texts of potentially eligible studies were retrieved and assessed against pre-defined inclusion criteria. Fifteen studies met criteria and were included (Figure 1, Table 2).

Table 1. Summary of PICOS criteria used for study selection

Component	Description
Population (P)	Adults diagnosed with chronic non-communicable diseases (e.g., diabetes, cardiovascular disease, hypertension, obesity).
Intervention (I)	Instructional, educational, or counseling programs designed to promote healthy lifestyle behaviors (e.g., diet, exercise, stress management).
Comparison (C)	Usual care, routine follow-up, or no intervention.
Outcomes (O)	Improvement in health-promoting lifestyle behaviors, knowledge, self-care practices, and quality-of-life indicators.
Study Design (S)	Experimental (RCTs) and quasi-experimental studies published in English between 2016 and 2024.

This table one outlines the Population, Intervention, Comparison, Outcomes, and Study Design (PICOS) criteria applied for selecting studies.

Quality Assessment and Data Extraction

Comprehensive quality assessment using established tools. The Greenhalgh checklist was employed to evaluate study design, sampling methods, reporting clarity, and potential sources of bias, while the Cochrane Risk of Bias Tool assessed randomization, allocation concealment, blinding, completeness of outcome data, and selective reporting [34]. Each study was assigned scores or ratings according to these criteria, and any discrepancies between reviewers were resolved through discussion to reach consensus.

Following quality assessment, key characteristics and outcomes of each study were systematically extracted using a pre-designed data extraction form. Extracted information included: author(s) and year of publication, country and setting, participant demographics (age, sample size, disease type), details of the intervention (type, duration, frequency), comparison group

details, outcomes measured (health-promoting behaviors, knowledge, self-care practices, and quality-of-life indicators), and study design (randomized controlled trial or quasi-experimental). To ensure data accuracy and reliability, a second reviewer independently verified all extracted information, and discrepancies were resolved through discussion.

All quality assessment results and extracted data are summarized in Supplementary Tables 1 and 2, providing a transparent overview of the methodological quality and key characteristics of the included studies.

Data Synthesis and Analysis

The narrative synthesis analyzed 15 diverse studies on healthy lifestyle programs for chronic disease patients. Study designs varied, encompassing 9 quasi-experimental studies and 6 experimental/RCTs, reflecting the complexity of evaluating such interventions. Geographically, most studies originated in Iraq (8 studies: 6 quasi-experimental and 2 experimental), followed by Iran (2), Japan (2), Saudi Arabia (1), Philippines (1), and Korea (1), highlighting both regional focus and diversity. Sample sizes ranged widely (30–237), impacting generalizability. Diverse measurement tools, such as the HPLP-II and CADE-SV (the CADE-SV is a short version of the Coronary Artery Disease Education Questionnaire, typically used to assess
knowledge in cardiovascular disease patients, while HPLP-II assesses health-promoting lifestyle behaviors across several dimensions), were used to assess multifaceted health behaviors. Non-probability sampling, mainly purposive, was common, limiting broader applicability. Quasi-experimental studies scored slightly higher methodologically than experimental ones. The synthesis effectively captured study variations, emphasizing the need for more rigorous research across diverse populations.

Research Question

Previous studies sought to reveal a core set of pivotal questions concerning healthy behaviors and their reciprocal relationship with sustainable lifestyle patterns and chronic diseases. These key research inquiries included: Does the adoption of healthy behaviors effectively influence the establishment of sustainable healthy lifestyle patterns? What are the most efficacious interventional strategies for inducing change in unhealthy lifestyle behaviors? Is there a clear clinical association between chronic diseases and unhealthy lifestyle patterns? Can healthy
behaviors play a preventive role in mitigating the complications of chronic diseases? And finally, does adherence to healthy behaviors contribute to achieving savings in healthcare costs?

Ethical Considerations

This systematic review involved the secondary analysis of existing published research data. The review adhered to data privacy principles by utilizing only publicly available published data. No direct contact with research participants or access to individual-level data was necessary. The review methodology was clearly and transparently described, allowing for independent evaluation and replication. All relevant information regarding study selection, data extraction, and analysis was reported. The findings of this review will be disseminated through publication in peer-reviewed journals and presented at relevant conferences. The findings will be used to inform evidence-based practice and contribute to the development of effective interventions to promote healthy behavior change.

Results

This review aims to evaluate the effectiveness of interventions designed to modify unhealthy behaviors among patients with chronic disease by assessing their methodological rigor and identifying effective strategies. The flowchart illustrates the selection process of 15 relevant research articles from an initial pool of 210, using inclusion criteria to focus on experimental and quasi-experimental studies. Through the table two that demonstrate the effectiveness of the instructional and educational programs and their impact on adopting healthy behavior through research conclusions. Table three presents a comparison of the methodological quality of nine quasi-experimental and six experimental studies. The results indicate that, on average, the quasi-experimental studies scored slightly higher than the experimental studies. However, these findings are based on a limited sample of studies and may not be generalizable to all research in this area.

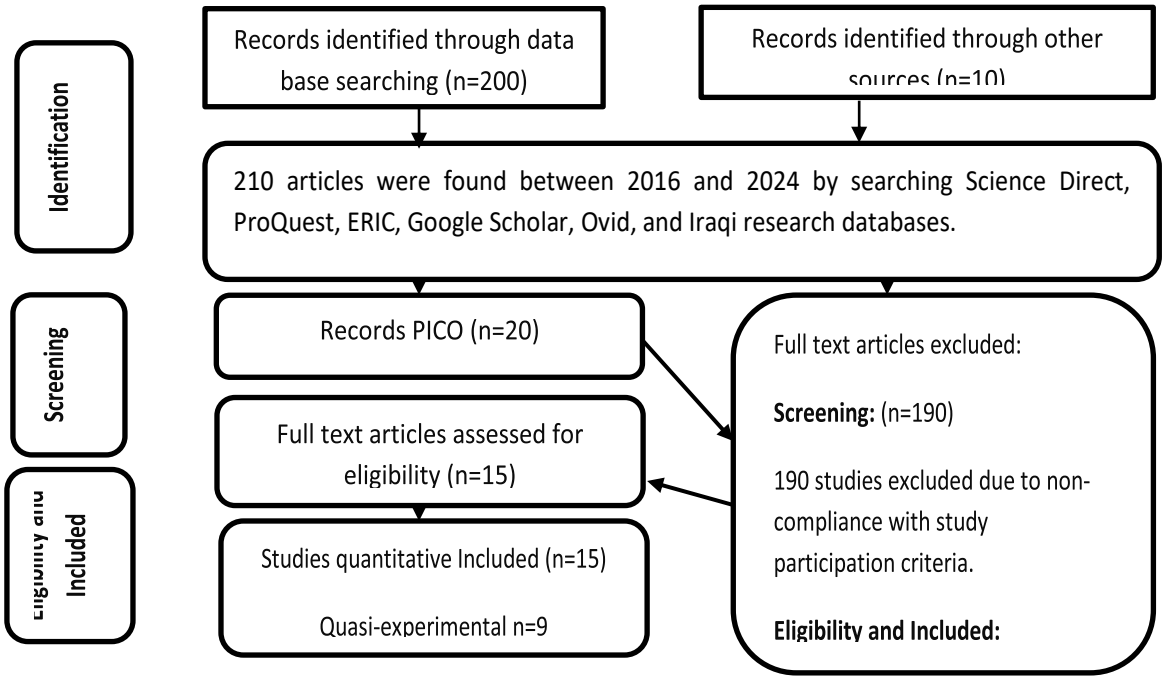

Figure 1. PRISMA flow diagram.

Table 2. Reviewed Studies Examining the Effectiveness of Instructional and Educational Programs on Adopting Healthy Lifestyles among Patients with Chronic Diseases

Study / Year	Purpose	Sample / Country / Instrument	Method	Key Findings	Population	Chronic Disease
Mousa & Mansour (2020)	Evaluate healthy-lifestyle attitudes post-intervention	Non-probability / Iraq / Healthy-habits scale	Quasi-experimental	Improved attitudes and healthy behaviors	Patients after PCI	Coronary artery disease
Alhamad & Hassan (2023)	Assess dietary intervention	Non-probability / Iraq /	Quasi-experimental	Positive change in nutritional	Peptic-ulcer patients	Peptic ulcer disease

	effectiveness	Nutrition survey		lifestyle		
Hassan & Mansur (2020)	Promote healthy lifestyle	Non-probability / Iraq / Lifestyle promotion tool	Quasi-experimental	Improved self-care and lifestyle habits	Type 2 diabetes patients	Diabetes mellitus type 2
Najee & Shakir (2019)	Ocular-health education	Non-probability / Iraq / Structured questionnaire	Quasi-experimental	Enhanced ocular self-care practices	Type 2 diabetes patients	Diabetes mellitus type 2
Abdul-Ameer & Khuder (2023)	Encourage healthy-lifestyle adoption	Non-probability / Iraq / PCI, CADE-SV tools	Quasi-experimental	Effective lifestyle-promotion program	Post-PCI cardiac patients	Coronary artery disease
Wanas et al. (2021)	Evaluate educational impact	Non-probability / Iraq / PKC questionnaire	Quasi-experimental	Improved professional health-promotion practice	Clinical nurse educators	Heart diseases
Mejia et al. (2019)	Assess educational & lifestyle program	Random / Philippines / BP assessment form	Quasi-experimental	Lower BP and improved health habits	Hypertensive patients	Hypertension
Assiri (2023)	Implement health-promotion model	Non-probability / Saudi Arabia / HPLP-II	Quasi-experimental	Effective in enhancing healthy-lifestyle choices	Students with chronic illness	Mixed chronic conditions
Leigh-An & Kim (2024)	Lifestyle redesign program	Korea / COPM, SRI, WHOQOL-BREF	Quasi-experimental	Improved wellbeing and lifestyle behaviors	University students	Improving health in general, including for those with chronic diseases
Abbas & Younis (2022)	Pender-model intervention for health promotion	Random / Iraq / Health-promotion model	Randomized controlled trial	Improved dietary habits	University employees with hypertension	Hypertension
Darkhor et al. (2018)	Health-promotion intervention	Random / Iran / HPLP II	Experimental	Enhanced nurses' health-promoting behaviors	Registered nurses	Improving health in general, including for those with chronic diseases
Uemura et	Active-	Random /	Experimental	Better	Older adults	Age-related

al. (2021)	learning lifestyle program	Japan / ADL scale		physical & cognitive activity	(≥65 yrs)	chronic conditions
Habibzadeh et al. (2021)	Quality-of-life improvement	Random / Iran / HPLP-II & MLHFQ	Experimental	Improved QoL and healthy habits	Heart-failure patients	Chronic heart failure
Baktash & Naji (2019)	Stroke-prevention education	Random / Iraq / HBM & CABS-R	Experimental	Weight-loss and risk-reduction behaviors	Overweight elderly residents	Obesity / stroke risk
Niama & Naji (2022)	Improve health beliefs & activity	Random / Iraq / HBM tool	Experimental	Increased physical-activity adherence	Older adults in geriatric homes	Cardiovascular Diseases, Diabetes, Obesity and Musculoskeletal Disorders

Table 3. Methodological quality assessment by Use tolls that Greenhalgh and Cochrane checklists

Criteria	**Quasi-experimental study**									**Experimental study**					
	***1**	***2**	***3**	***4**	***5**	***6**	***7**	***8**	***9**	1	2	3	4	5	6
Clearly stated and suitable research question and design	2	2	2	2	2	2	2	2	2	1	1	1	1	0	1
Over time, intervention that is not dependent on other factors	1	2	1	1	1	2	2	2	2	1	2	2	0	2	1
Enough informational points	1	1	2	1	2	1	1	2	1	0	1	0	1	1	0
suitable statistical tests	2	2	2	2	1	2	2	1	1	1	0	1	1	1	1
Valid and trustworthy outcome measurements	1	2	1	2	2	1	2	2	2	0	1	0	0	1	0
Data gathering both prior to and following	2	2	2	2	1	2	2	1	1	1	0	0	2		2
The data set's completeness refers to whether it includes all or most of the episodes of care.	2	1	2	2	2	2	2	1	1	1	1	0	0	2	1
Long enough aftercare to demonstrate results	2	2	1	2	2	2	1	2	1	1	2	1	1	1	1
Abstract	14	14	13	14	13	14	13	13	13	6	8	5	6	8	7

Quasi-experimental studies

* 1 Mousa and Mansour,2020 (34)
*2 Alhamad and Hassan ,2023 (36)
*3 Hassan and Mansur, 2020 (38)
*4 Najee and Shakir,2019 (40)
*5 Abdul-Ameer and Khuder,2023 (42)
*6 Wanas et al. ,2021 (44)
*7 Mejia et al, 2019 (46)
*8 Assiri ,2023 (47)
*9 Leigh- An and Kim,2024 (48)

Experimental studies

1 Abba and Younis,2022 (35)
2 Darkhor et al. ,2018 (37)
3 Uemura et al. ,2021 (39)
4 Habibzadeh et al.,2021 (41)
5 Baktash and Naji,2022 (43)
6 Niama and Naji,2022 (45)

Discussion

The synthesis of the included studies revealed a clear division by design, with a predominant use of quasi-experimental methods (n=9) and five of these instructional programs originating in Iraq (35, 37, 39, 41, 43). Six studies utilized an experimental design, including four Randomized Controlled Trials (RCTs) (36, 40, 44, 46, 38, 42). All studies consistently employed non-probability sampling, most commonly purposive sampling. This methodological distribution is common in behavioral intervention research, particularly in settings where randomization may be challenging, but it necessitates a structured approach to analyzing intervention efficacy and outcomes (47).

Analysis of Intervention Types, Outcomes, and Focus

To provide a precise evaluation of the evidence, the interventions are segmented by type, detailing their specific focus, demonstrated outcomes, and implications for disease management or lifestyle modification.

Educational and Instructional Programs

These programs were broadly focused on improving healthy lifestyle and health attitudes. Studies falling under this category included a program specifically for patients after Percutaneous Coronary Intervention (PCI) (35) and one promoting lifestyle for patients with Type 2 Diabetes (39). The primary outcome across these studies was the promotion of positive health behaviors, with significant improvements in knowledge, attitudes, and reported self-care practices in the intervention groups. The findings suggest that structured instructional sessions are effective tools for disease self-management and secondary prevention in chronic conditions like post-PCI care and diabetes. However, the reliance on self-reported data warrants caution, as long-term behavioral maintenance often requires more than initial instruction (48).

Dietary Interventions Program

These interventions focused on modifying nutritional habits to manage or prevent disease. Examples include a specific dietary regimen for Peptic Ulcer disease (37) and a program aimed at enhancing eating behaviors in hypertension (36). The study on peptic ulcer patients demonstrated the critical role of dietary adherence in symptom management and potentially in reducing recurrence. The hypertension study, conducted as an RCT, showed that tailored dietary education led to significant improvements in consumption patterns (e.g., reduced sodium intake) and, consequently, improvements in blood pressure control (36). This supports established evidence that personalized nutritional counseling is a cornerstone of managing cardiovascular risk factors and gastrointestinal disorders (49).

Exercise and Physical Activity Program

Interventions in this category specifically targeted increasing or modifying physical activity levels. Studies included a program focused on preventing coronary artery disease (CAD) progression (43) and another on improving Physical Activity Behavior using the Health Belief Model (HBM) among Older Adults (46). Both programs successfully demonstrated that structured exercise and physical activity promotion lead to positive behavioral change. Specifically, the CAD program showed improvements in functional capacity and reduced modifiable risk factors (43). The HBM-guided intervention confirmed that leveraging individual perceptions of health risk and benefits can effectively motivate and sustain physical activity in older populations, thereby contributing to healthy aging and chronic disease prevention (46). This aligns with the evidence supporting exercise as medicine for

numerous chronic conditions (50).

Disease-Specific Self-Care and Behavioral Modification Programs

This group included specialized, targeted interventions not falling under the broader lifestyle categories. Examples are ocular health education for Type 2 Diabetes (41) and programs for enhancing Weight Loss Behaviors to prevent Stroke (44). These highly focused programs confirmed the efficacy of targeted education in addressing specific disease complications and risk factors. The diabetes study highlighted the importance of integrating education on microvascular complications into self-care (41). The weight loss intervention demonstrated that behavioral strategies for modifying diet and activity are crucial in reducing the risk of a secondary event like stroke (44). This emphasizes the need for holistic, disease-specific self-management education that goes beyond general lifestyle advice.

The Healthy Living for Chronic Conditions Program

The Healthy Living for Chronic Conditions program stood out as the most efficacious model among the reviewed interventions. This program is a structured, evidence-based, multi-component self-management education initiative, typically delivered in community settings. It empowers individuals with chronic diseases (such as diabetes, heart disease, arthritis, etc.) to manage their conditions effectively (51).

Its success is largely attributed to its personalized and holistic approach, which covers a broad range of skills, including: action planning, problem-solving, decision-making, effective communication with health providers, and managing symptoms like pain and fatigue (51, 52). A comprehensive review by Lorig et al. (2012) and other recent meta-analyses have demonstrated that participation in the Chronic Disease Self-Management Program (CDSMP), a widely known model of this type, leads to significant, sustainable improvements in health behaviors, self-efficacy, and a reduction in emergency room visits and hospital days over a long period (53, 54). Its strength lies in shifting the focus from simply teaching facts to imparting skills for day-to-day management, establishing it as a gold standard for future chronic care interventions (55).

Implications and limitations

The overall results affirm the necessity of immediately implementing structured, multi-component programs (such as the Healthy Living for Chronic Conditions program) in clinical healthcare practice, given their proven impact on positive health behavior change. This necessitates a call for future research to focus on high-quality experimental studies (specifically RCTs) to strengthen the evidence base and confirm causality. Conversely, the review's limitations, restricted to English-language studies and the reliance on quasi-experimental designs, limit the certainty regarding the direct causal effectiveness and generalizability of all analyzed interventions.

Conclusion

Instructional and educational programs, particularly those implemented through quasi-experimental studies using non-probabilistic, purposive sampling and the health promotion model, effectively promote healthy behaviors by utilizing a focused, multi-component strategy that drives sustained behavioral change. The synthesis clearly indicates that instructional programs proved more effective than educational ones because they often integrate practical application and skill-building relevant to specific chronic disease management. This superior effectiveness is best exemplified by the Healthy Living for Chronic Conditions" program, which achieved significant, long-term health

improvements through its personalized, multi-component approach.

Recommendations

Healthcare systems should consider implementing personalized, multi-component programs like Healthy Living for Chronic Conditions, which have demonstrated significant success in promoting healthy lifestyles among patients with chronic diseases. However, more rigorous research is needed to identify effective strategies for promoting sustainable healthy habits, particularly in diverse populations and settings. Additionally, future studies should explore optimal adaptation strategies and conduct rigorous cost-effectiveness analyses to ensure these programs are both scalable and financially viable within various healthcare systems.

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Conflicts of interest

The authors declare that there is no conflict of interests regarding the publication of this review article.

Ethical Approval

The authors state that their systematic literature review did not require ethical approval. This research is based on a doctoral dissertation, adhering to established protocols.

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Author contribution

SAD designed, conducted, and analyzed the study, and drafted the manuscript. MZJ supervised the research and provided critical review.

Data availability statement

The data that support the findings of this study are available from the authors, but restrictions apply to the availability of these data, which were used under license for the current study and are not publicly available. However, the data can be obtained from the authors upon reasonable request and with appropriate permissions.

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